UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-Q

☒ **QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the quarterly period ended November 30, 2019

OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from ______ to ______

Commission File Number: 1-7102

NATIONAL RURAL UTILITIES COOPERATIVE FINANCE CORPORATION

(Exact name of registrant as specified in its charter)

District of Columbia	**52-0891669**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

20701 Cooperative Way, Dulles, Virginia, 20166

(Address of principal executive offices) (Zip Code)

Registrant's telephone number, including area code: **(703) 467-1800**

Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class	Trading Symbol(s)	Name of Each Exchange on Which Registered
7.35% Collateral Trust Bonds, due 2026	NRUC 26	New York Stock Exchange
5.50% Subordinated Notes, due 2064	NRUC	New York Stock Exchange

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer ☐ Accelerated filer ☐ Non-accelerated filer ☒ Smaller reporting company☐ Emerging growth company☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transaction period for complying with any new or revised financial accounting standards provided pursuant to Section13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

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PART I—FINANCIAL INFORMATION

Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations ("MD&A")

FORWARD-LOOKING STATEMENTS

This Quarterly Report on Form 10-Q (this "Report") contains certain statements that are considered "forward-looking statements" within the Securities Act of 1933, as amended, and the Securities Exchange Act of 1934, as amended. Forward-looking statements, which are based on certain assumptions and describe our future plans, strategies and expectations, are generally identified by our use of words such as "intend," "plan," "may," "should," "will," "project," "estimate," "anticipate," "believe," "expect," "continue," "potential," "opportunity" and similar expressions, whether in the negative or affirmative. All statements about future expectations or projections, including statements about loan volume, the appropriateness of the allowance for loan losses, operating income and expenses, leverage and debt-to-equity ratios, borrower financial performance, impaired loans, and sources and uses of liquidity, are forward-looking statements. Although we believe that the expectations reflected in our forward-looking statements are based on reasonable assumptions, actual results and performance may differ materially from our forward-looking statements due to several factors. Factors that could cause future results to vary from our forward-looking statements include, but are not limited to, general economic conditions, legislative changes including those that could affect our tax status, governmental monetary and fiscal policies, demand for our loan products, lending competition, changes in the quality or composition of our loan portfolio, changes in our ability to access external financing, changes in the credit ratings on our debt, valuation of collateral supporting impaired loans, charges associated with our operation or disposition of foreclosed assets, technological changes within the rural electric utility industry, regulatory and economic conditions in the rural electric industry, nonperformance of counterparties to our derivative agreements, the costs and effects of legal or governmental proceedings involving us or our members and the factors listed and described under "Item 1A. Risk Factors" in our Annual Report on Form 10-K for the fiscal year ended May 31, 2019 ("2019 Form 10-K"). Except as required by law, we undertake no obligation to update or publicly release any revisions to forward-looking statements to reflect events, circumstances or changes in expectations after the date on which the statement is made.

INTRODUCTION

National Rural Utilities Cooperative Finance Corporation ("CFC") is a member-owned cooperative association incorporated under the laws of the District of Columbia in April 1969. CFC's principal purpose is to provide its members with financing to supplement the loan programs of the Rural Utilities Service ("RUS") of the United States Department of Agriculture ("USDA"). CFC makes loans to its rural electric members so they can acquire, construct and operate electric distribution systems, generation and transmission ("power supply") systems and related facilities. CFC also provides its members with credit enhancements in the form of letters of credit and guarantees of debt obligations. As a cooperative, CFC is owned by and exclusively serves its membership, which consists of not-for-profit entities or subsidiaries or affiliates of not-for-profit entities. CFC is exempt from federal income taxes under Section 501(c)(4) of the Internal Revenue Code. As a member-owned cooperative, CFC's objective is not to maximize profit, but rather to offer members cost-based financial products and services. CFC funds its activities primarily through a combination of public and private issuances of debt securities, member investments and retained equity. As a Section 501(c)(4) tax-exempt, member-owned cooperative, we cannot issue equity securities.

Our financial statements include the consolidated accounts of CFC, National Cooperative Services Corporation ("NCSC"), Rural Telephone Finance Cooperative ("RTFC") and subsidiaries created and controlled by CFC to hold foreclosed assets resulting from defaulted loans or bankruptcy. NCSC is a taxable member-owned cooperative that may provide financing to members of CFC, government or quasi-government entities which own electric utility systems that meet the Rural Electrification Act definition of "rural" and for-profit and nonprofit entities that are owned, operated or controlled by, or provide significant benefits to certain members of CFC. RTFC is a taxable Subchapter T cooperative association that provides financing for its rural telecommunications members and their affiliates. CFC and its consolidated entities have not held any foreclosed assets since the quarter ended August 31, 2017. See "Item 1. Business—Overview" in our 2019 Form 10-K for additional information on the business activities of each of these entities. Unless stated otherwise, references to "we," "our" or "us" relate to CFC and its consolidated entities. All references to members within this document include members, associates and affiliates of CFC and its consolidated entities.

Our principal operations are organized for management reporting purposes into three business segments: CFC, NCSC and RTFC. Loans to members totaled $26,438 million as of November 30, 2019, of which 96% was attributable to CFC. We generated total revenue, which consists of net interest income and fee and other income, of $171 million for the six months ended November 30, 2019, compared with $153 million for the same prior-year period. The substantial majority of our total revenue is attributable to CFC. We provide information on the financial performance of each of our business segments in "Note 13—Business Segments."

Management monitors a variety of key indicators to evaluate our business performance. The following MD&A is intended to provide the reader with an understanding of our consolidated results of operations, financial condition and liquidity by discussing the factors influencing changes from period to period and the key measures used by management to evaluate performance, such as net interest income, net interest yield, loan growth, debt-to-equity ratio, credit quality metrics and also non-GAAP measures. The MD&A section is provided as a supplement to, and should be read in conjunction with our unaudited condensed consolidated financial statements and related notes in this Report, our audited consolidated financial statements and related notes in our 2019 Form 10-K and additional information contained in our 2019 Form 10-K, including the risk factors discussed under "Part I—Item 1A. Risk Factors," as well as any risk factors identified under "Part II—Item 1A. Risk Factors" in this Report.

SUMMARY OF SELECTED FINANCIAL DATA

Table 1 provides a summary of consolidated selected financial data for the three and six months ended November 30, 2019 and 2018, and as of November 30, 2019 and May 31, 2019. In addition to financial measures determined in accordance with generally accepted accounting principles in the United States ("GAAP"), management also evaluates performance based on certain non-GAAP measures and metrics, which we refer to as "adjusted" measures. Certain financial covenant provisions in our credit agreements are also based on non-GAAP financial measures. Our key non-GAAP financial measures are adjusted net income, adjusted net interest income, adjusted interest expense, adjusted net interest yield, adjusted times interest earned ratio ("adjusted TIER") and adjusted debt-to-equity ratio. The most comparable GAAP measures are net income, net interest income, interest expense, net interest yield, TIER and debt-to-equity ratio, respectively. The primary adjustments we make to calculate these non-GAAP measures consist of (i) adjusting interest expense and net interest income to include the impact of net periodic derivative cash settlements expense; (ii) adjusting net income, total liabilities and total equity to exclude the non-cash impact of the accounting for derivative financial instruments; (iii) adjusting total liabilities to exclude the amount that funds CFC member loans guaranteed by RUS, subordinated deferrable debt and members' subordinated certificates; and (iv) adjusting total equity to include subordinated deferrable debt and members' subordinated certificates and exclude cumulative derivative forward value gains and losses and accumulated other comprehensive income ("AOCI"). We believe our non-GAAP adjusted measures, which are not a substitute for GAAP and may not be consistent with similarly titled non-GAAP measures used by other companies, provide meaningful information and are useful to investors because management evaluates performance based on these metrics, and certain financial covenants in our committed bank revolving line of credit agreements and debt indentures are based on adjusted measures. See "Non-GAAP Financial Measures" for a detailed reconciliation of these adjusted measures to the most comparable GAAP measures.

Table 1: Summary of Selected Financial Data[1]

(Dollars in thousands)	Three Months Ended November 30, 2019	Three Months Ended November 30, 2018	Change	Six Months Ended November 30, 2019	Six Months Ended November 30, 2018	Change
Statement of operations:						
Interest income	**$ 287,037**	$ 281,253	2%	**$ 577,052**	$ 559,744	3%
Interest expense	**(207,871)**	(204,166)	2	**(421,142)**	(414,397)	2
Net interest income	**79,166**	77,087	3	**155,910**	145,347	7
Fee and other income[1]	**3,842**	3,595	7	**14,783**	7,506	97
Total revenue	**83,008**	80,682	3	**170,693**	152,853	12
Benefit for loan losses	**1,045**	1,788	(42)	**1,015**	1,897	(46)
Derivative gains (losses)[2]	**183,450**	63,343	190	**(212,275)**	70,526	**
Unrealized gains (losses) on equity securities[1]	**(114)**	(1,619)	(93)	**1,506**	(2,345)	**
Operating expenses[3]	**(24,769)**	(23,870)	4	**(50,098)**	(47,075)	6
Other non-interest (expense) income	**(929)**	(355)	162	**6,250**	(7,849)	**
Income (loss) before income taxes	**241,691**	119,969	101	**(82,909)**	168,007	**
Income tax benefit (expense)	**(91)**	(243)	(63)	**430**	(303)	**
Net income (loss)	**$ 241,600**	$ 119,726	102	**$ (82,479)**	$ 167,704	**
Adjusted operational financial measures						
Adjusted interest expense[4]	**$ (222,021)**	$ (215,971)	3	**$ (446,335)**	$ (439,031)	2
Adjusted net interest income[4]	**65,016**	65,282	—	**130,717**	120,713	8
Adjusted net income[4]	**44,000**	44,578	(1)	**104,603**	72,544	44
Selected ratios						
Fixed-charge coverage ratio/ TIER[5]	**2.16**	1.59	57 bps	**0.80**	1.40	(60) bps
Adjusted TIER[4]	**1.20**	1.21	(1)	**1.23**	1.17	6
Net interest yield[6]	**1.17%**	1.19%	(2)	**1.16%**	1.12%	4
Adjusted net interest yield[4][7]	**0.96**	1.01	(5)	**0.97**	0.93	4
Net charge-off rate[8]	**0.00**	0.00	—	**0.00**	0.00	—

	November 30, 2019	May 31, 2019	Change
Balance sheet			
Cash, cash equivalents and restricted cash	**$ 124,671**	$ 186,204	(33)%
Investment securities	**637,356**	652,977	(2)
Loans to members[9]	**26,438,181**	25,916,904	2
Allowance for loan losses	**(16,520)**	(17,535)	(6)
Loans to members, net	**26,421,661**	25,899,369	2
Total assets	**27,566,601**	27,124,372	2
Short-term borrowings	**4,789,024**	3,607,726	33
Long-term debt	**18,434,451**	19,210,793	(4)
Subordinated deferrable debt	**986,026**	986,020	—
Members' subordinated certificates	**1,355,052**	1,357,129	—
Total debt outstanding	**25,564,553**	25,161,668	2
Total liabilities	**26,408,707**	25,820,490	2
Total equity	**1,157,894**	1,303,882	(11)
Guarantees[10]	**794,723**	837,435	(5)
Selected ratios period end			
Allowance coverage ratio[11]	**0.06%**	0.07%	(1) bps
Debt-to-equity ratio[12]	**22.81**	19.80	301
Adjusted debt-to-equity ratio[4]	**5.78**	5.73	5

** Calculation of percentage change is not meaningful.

(1) Certain reclassifications have been made to prior periods to conform to the current period presentation.

(2) Consists of interest rate swap cash settlements income (expense) and forward value gains (losses). Derivative cash settlement amounts represent net periodic contractual interest accruals related to derivatives not designated for hedge accounting. Derivative forward value gains (losses) represent changes in fair value during the period, excluding net periodic contractual interest accruals, related to derivatives not designated for hedge accounting and amounts reclassified into income related to the cumulative transition adjustment recorded in accumulated other comprehensive income as of June 1, 2001, as a result of the adoption of the derivative accounting guidance that required derivatives to be reported at fair value on the balance sheet.

(3) Consists of salaries and employee benefits and the other general and administrative expenses components of non-interest expense, each of which are presented separately on our condensed consolidated statements of operations.

(4) See "Non-GAAP Financial Measures" for details on the calculation of these non-GAAP adjusted measures and the reconciliation to the most comparable GAAP measures.

(5) Calculated based on net income (loss) plus interest expense for the period divided by interest expense for the period. The fixed-charge coverage ratios and TIER were the same during each period presented because we did not have any capitalized interest during these periods.

(6) Calculated based on annualized net interest income for the period divided by average interest-earning assets for the period.

(7) Calculated based on annualized adjusted net interest income for the period divided by average interest-earning assets for the period.

(8) Calculated based on annualized net charge-offs (recoveries) for the period divided by average total outstanding loans for the period.

(9) Consists of the outstanding principal balance of member loans plus unamortized deferred loan origination costs, which totaled $11 million as of both November 30, 2019 and May 31, 2019.

(10) Reflects the total amount of member obligations for which CFC has guaranteed payment to a third party as of the end of each period. This amount represents our maximum exposure to loss, which significantly exceeds the guarantee liability recorded on our consolidated balance sheets. See "Note 11 —Guarantees" for additional information.

(11) Calculated based on the allowance for loan losses at period end divided by total outstanding loans at period end.

(12) Calculated based on total liabilities at period end divided by total equity at period end.

EXECUTIVE SUMMARY

Our primary objective as a member-owned cooperative lender is to provide cost-based financial products to our rural electric members while maintaining a sound financial position required for investment-grade credit ratings on our debt instruments. Our objective is not to maximize profit; therefore, the rates we charge our member-borrowers reflect our funding costs plus a spread to cover our operating expenses, a provision for loan losses and earnings sufficient to achieve interest coverage to meet our financial objectives. Our goal is to earn an annual minimum adjusted TIER of 1.10 and to maintain an adjusted debt-to-equity ratio at approximately or below 6.00-to-1.

We are subject to period-to-period volatility in our reported GAAP results due to changes in market conditions and differences in the way our financial assets and liabilities are accounted for under GAAP. Our financial assets and liabilities expose us to interest-rate risk. We use derivatives, primarily interest rate swaps, as part of our strategy in managing this risk. Our derivatives are intended to economically hedge and manage the interest-rate sensitivity mismatch between our financial assets and liabilities. We are required under GAAP to carry derivatives at fair value on our consolidated balance sheet; however, the financial assets and liabilities for which we use derivatives to economically hedge are carried at amortized cost. Changes in interest rates and the shape of the swap curve result in periodic fluctuations in the fair value of our derivatives, which may cause volatility in our earnings because we do not apply hedge accounting for our interest rate swaps. As a result, the mark-to-market changes in our interest rate swaps are recorded in earnings. Because our derivative portfolio consists of a higher proportion of pay-fixed swaps than receive-fixed swaps, we generally record derivative losses when interest rates decline and derivative gains when interest rates rise. This earnings volatility generally is not indicative of the underlying economics of our business, as the derivative forward fair value gains or losses recorded each period may or may not be realized over time, depending on the terms of our derivative instruments and future changes in market conditions that impact the periodic cash settlement amounts of our interest rate swaps. As such, management uses our adjusted non-GAAP results to evaluate our operating performance. Our adjusted results include realized net periodic interest rate swap settlement amounts but exclude the impact of unrealized forward fair value gains and losses. Our financial debt covenants are also based on our non-GAAP adjusted results, as the forward fair value gains and losses related to our interest rate swaps do not affect our cash flows, liquidity or ability to service our debt.

Financial Performance

Reported Results

We reported net income of $242 million and a TIER of 2.16 for the quarter ended November 30, 2019 ("current quarter"), compared with net income of $120 million and a TIER of 1.59 for the same prior-year quarter. We reported a net loss of $82 million for the six months ended November 30, 2019, which resulted in a TIER of 0.80. In comparison, we reported net income of $168 million and a TIER of 1.40 for the same prior-year period. The significant variance between our reported results for the current year periods and the same prior-year periods was primarily attributable to mark-to-market changes in the fair value of our derivative instruments resulting from interest rate changes. Our debt-to-equity ratio increased to 22.81 as of November 30, 2019, from 19.80 as of May 31, 2019, due to the combined impact of an increase in debt to fund growth in our loan portfolio, an increase in the fair value of derivative liabilities and a decrease in equity resulting from our reported net loss of $82 million for the six months ended November 30, 2019 and patronage capital retirement of $63 million in September 2019.

The variance of $122 million between our reported net income of $242 million for the current quarter and our reported net income of $120 million for the same prior-year quarter was driven by an increase in derivative gains of $120 million. We recorded derivative gains of $183 million for the current quarter, compared with derivative gains of $63 million for the same prior-year quarter. The derivative gains in both periods were primarily attributable to an increase in the fair value of our pay-fixed swaps due to increases in medium- and long-term swap rates during each period. The rise in medium- and long-term interest rates, however, was more pronounced during the current quarter relative to the same prior-year quarter, resulting in significantly higher derivative gains. Net interest income, which accounted for 95% and 96% of total revenue for both the current quarter and same prior-year quarter, increased by $2 million, or 3%, to $79 million. The increase was attributable to an increase in our average interest-earning assets of $1,121 million, or 4%, which was partially offset by a decrease in the net interest yield of 2 basis points, or 2%, to 1.17%.

The variance of $250 million between our reported net loss of $82 million for the six months ended November 30, 2019, and our reported net income of $168 million for the same prior-year period was driven by an unfavorable shift in derivative fair value changes of $283 million. We recorded derivative losses of $212 million for the six months ended November 30, 2019, largely due to a decrease in the fair value of our pay-fixed swaps resulting from a decline in interest rates across the swap curve. In comparison, we recorded derivative gains of $71 million during the comparable prior-year period due to an increase in the fair value of our pay-fixed swaps resulting from a rise in interest rates across the swap yield curve. Net interest income, which accounted for 91% and 95% of total revenue for the six months ended November 30, 2019 and 2018, respectively, increased $11 million, or 7%, to $156 million. The increase was attributable to the combined impact of an increase in average interest-earning assets of $976 million, or 4%, and an increase in the net interest yield of 4 basis points, or 4%, to 1.16%. The increase in the net interest yield was due to a reduction in our average cost of funds of 5 basis points to 3.32%, which was partially offset by a slight decrease in the average yield on interest-earning assets of 1 basis point to 4.28%. The decrease in our average cost of funds reflects the impact of the interest savings from the repayment of the 10.375% collateral trust bonds in the first half of fiscal year 2019 and the replacement of this debt with lower-cost funding, which more than offset an increase in the average cost of our short-term and variable-rate funding due to a rise in short-term interest rates during fiscal year 2019.

Other factors affecting the variance between our results for the six months ended November 30, 2019 and the comparable prior-year period include an increase in fee income of $7 million due to higher prepayment fees, a gain of $8 million recorded in connection with the July 22, 2019 sale of land and the absence of the loss of $7 million on the early redemption of $300 million of 10.375% collateral trust bonds recorded in the same prior-year period.

Adjusted Non-GAAP Results

Our adjusted net income totaled $44 million and adjusted TIER was 1.20 for the current quarter, compared with adjusted net income of $45 million and adjusted TIER of 1.21 for the same prior-year quarter. Adjusted net income totaled $105 million and adjusted TIER was 1.23 for the six months ended November 30, 2019, compared with adjusted net income of $73 million and adjusted TIER of 1.17 for the same prior-year period. Our adjusted debt-to-equity ratio increased to 5.78 as of November 30, 2019, from 5.73 as of May 31, 2019, primarily attributable to an increase in debt to fund loan growth.

Adjusted net income for the current quarter was relatively unchanged from the same prior-year quarter, as a modest increase in operating expenses and losses on early extinguishment of debt and a reduction in the benefit for loan losses were largely offset by lower unrealized losses on equity securities. Adjusted net interest income of $44 million also remained relatively flat compared with the same prior-year quarter, as a decrease in our adjusted net interest yield of 5 basis points, or 5%, to 0.96% was offset by the increase in average interest-earning assets of $1,121 million, or 4%. The decrease in our adjusted net interest yield of 5 basis points was driven by a decline in the average yield on interest-earning assets of 8 basis points to 4.26%, which was partially offset by a reduction in our adjusted average cost of funds of 3 basis points to 3.50%.

The increase in adjusted net income of $32 million for the six months ended November 30, 2019 from the same prior-year period was attributable to an increase in adjusted net interest income of $10 million, or 8%, to $105 million, the increase in fee income of $7 million due to higher prepayment fees, the gain of $8 million recorded in connection with the sale of land in July 2019 and the absence of the loss of $7 million on the early redemption of collateral trust bonds recorded in the same prior-year period. The increase in our adjusted net interest income of 8% was driven by the increase in our average interest-earning assets of 4% and an increase in our adjusted net interest yield of 4 basis points, or 4%, to 0.97%. Our adjusted net interest yield reflected the favorable impact of a reduction in our adjusted average cost of funds of 5 basis points to 3.52%, which was partially offset by a slight decrease in the average yield on interest-earning assets of 1 basis point to 4.28%. The reduction in our adjusted average cost of funds was also largely attributable to the interest savings from the repayment of the 10.375% collateral trust bonds in the first half of fiscal year 2019 and the replacement of this debt with lower-cost funding, which more than offset an increase in the average cost of our short-term and variable-rate funding.

See "Non-GAAP Financial Measures" for additional information on our adjusted measures, including a reconciliation of these measures to the most comparable GAAP measures.

Lending Activity

Loans to members totaled $26,438 million as of November 30, 2019, an increase of $521 million, or 2%, from May 31, 2019. The increase in loans was driven by a net increase in long-term loans of $631 million, which was partially offset by a net decrease in revolving line-of-credit loans of $110 million. CFC distribution loans, CFC power supply loans and RTFC loans increased by $527 million, $23 million and $11 million, respectively, while NCSC loans decreased by $41 million.

Long-term loan advances totaled $1,387 million during the six months ended November 30, 2019, with approximately 69% of those advances for capital expenditures by members and 25% for the refinancing of loans made by other lenders. In comparison, long-term loan advances totaled $814 million during the same prior-year period, with approximately 83% of those advances for capital expenditures and 14% for the refinancing of loans made by other lenders. CFC had long-term fixed-rate loans totaling $234 million that were scheduled to reprice during the six months ended November 30, 2019. Of this total, $224 million repriced to a new long-term fixed rate, $7 million repriced to a long-term variable rate and $3 million was repaid in full. In comparison, CFC had long-term fixed-rate loans totaling $439 million that were scheduled to reprice during the same prior-year period, of which $296 million repriced to a new long-term fixed rate, $88 million repriced to a long-term variable rate and $55 million was repaid in full.

Credit Quality

The overall credit quality of our loan portfolio remained high as of November 30, 2019, as evidenced by our continued strong credit performance metrics. We had no delinquent or nonperforming loans as of November 30, 2019, and we have not experienced any loan defaults or charge-offs since fiscal year 2017. Outstanding loans to electric utility organizations represented approximately 99% of total outstanding loan portfolio as of November 30, 2019, unchanged from May 31, 2019. We historically have had limited defaults and losses on loans in our electric utility loan portfolio. We generally lend to members on a senior secured basis, which reduces the risk of loss in the event of a borrower default. Of our total loans outstanding, 93% were secured and 7% were unsecured as of November 30, 2019, compared to 92% secured and 8% unsecured as of May 31, 2019. The allowance for loan losses was $17 million as of November 30, 2019, compared with $18 million as of May 31, 2019, and the allowance coverage ratio was 0.06% as of November 30, 2019, and 0.07% as of May 31, 2019

Financing Activity

We issue debt primarily to fund growth in our loan portfolio. As such, our outstanding debt volume generally increases and decreases in response to member loan demand. Total debt outstanding increased by $403 million, or 2%, to $25,565 million as of November 30, 2019, from May 31, 2019, due to an increase in borrowings to fund the increase in loans to members. The increase was primarily attributable to a net increase in member commercial paper, select notes and daily liquidity fund notes totaling $916 million, a net increase in dealer commercial paper outstanding of $94 million and a net increase in Federal Agricultural Mortgage Corporation ("Farmer Mac") notes payable of $40 million. These increases were partially offset by a net decrease in medium-term notes of $296 million, a net decrease in collateral trust bonds of $297 million and a net decrease in borrowings under USDA's Guaranteed Underwriter Program ("Guaranteed Underwriter Program") of $47 million. Outstanding dealer commercial paper totaled $1,039 million as of November 30, 2019, below our targeted maximum threshold of $1,250 million.

On September 25, 2019, we received a commitment letter for the guarantee by RUS of a $500 million loan facility from the Federal Financing Bank under the Guaranteed Underwriter Program.

On November 14, 2019, we provided notice to Farmer Mac of termination of the $300 million revolving note purchase agreement, effective December 20, 2019. On November 27, 2019, we received an advance of $150 million under this revolving note purchase agreement with Farmer Mac, which was repaid on December 4, 2019.

On November 26, 2019, we amended the three-year and five-year committed bank revolving line of credit agreements to extend the maturity date of the three-year agreement to November 28, 2022, and to terminate certain bank commitments totaling $125 million under the three-year agreement and $125 million under the five-year agreement. The total commitment amount under the amended three-year and five-year bank revolving line of credit agreements is $1,315 million and $1,410 million, respectively, resulting in a combined total commitment amount under the two facilities of $2,725 million.

Outlook for the Next 12 Months

We currently expect that our net interest income, adjusted net interest income, net interest yield and adjusted net interest yield will increase slightly over the next 12 months, largely due to a projected decrease in our average cost of funds and an increase in average interest-earning assets.

The face value of long-term debt scheduled to mature over the next 12 months totaled $1,772 million as of November 30, 2019, consisting of $1,624 million of fixed-rate debt with a weighted average cost of 2.45% and $148 million of variable-rate debt. We believe we have sufficient liquidity from the combination of existing cash and cash equivalents, member loan repayments, committed bank revolving lines of credit, committed loan facilities under the Guaranteed Underwriter Program, revolving note purchase agreements with Farmer Mac and our ability to issue debt in the capital markets, to our members and in private placements, to meet the demand for member loan advances and satisfy our obligations to repay long-term debt maturing over the next 12 months. As of November 30, 2019, sources of liquidity readily available for access totaled $6,591 million, consisting of (i) $114 million in cash and cash equivalents; (ii) up to $1,350 million available under committed loan facilities under the Guaranteed Underwriter Program; (iii) up to $2,722 million available for access under committed bank revolving line of credit agreements; (iv) up to $2,255 million available under a revolving note purchase agreement with Farmer Mac, subject to market conditions; and (v) up to $150 million available under a committed revolving note purchase agreement with Farmer Mac.

We believe we can continue to roll over outstanding member short-term debt of $3,600 million as of November 30, 2019, based on our expectation that our members will continue to reinvest their excess cash in our commercial paper, daily liquidity fund notes, select notes and medium-term notes. We expect to continue accessing the dealer commercial paper market as a cost-effective means of satisfying our short-term liquidity needs. Although the intra-period amount of outstanding dealer commercial paper may fluctuate based on our liquidity requirements, we intend to manage our short-term wholesale funding risk by maintaining outstanding dealer commercial paper at an amount near or below $1,250 million for the foreseeable future. We expect to continue to be in compliance with the covenants under our committed bank revolving line of credit agreements, which will allow us to mitigate roll-over risk, as we can draw on these facilities to repay dealer or member commercial paper that cannot be refinanced with similar debt.

While we are not subject to bank regulatory capital rules, we generally aim to maintain an adjusted debt-to-equity ratio at approximately or below 6.00-to-1. Our adjusted debt-to-equity ratio was 5.78 as of November 30, 2019, below our targeted threshold. Based on our projection of loan advances and adjusted equity over the next 12 months, we anticipate that our adjusted debt-to-equity ratio will remain below our target threshold of 6.00-to-1.

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

The preparation of financial statements in accordance with GAAP requires management to make a number of judgments, estimates and assumptions that affect the amount of assets, liabilities, income and expenses in the consolidated financial statements. Understanding our accounting policies and the extent to which we use management's judgment and estimates in applying these policies is integral to understanding our financial statements. We provide a discussion of our significant accounting policies under "Note 1—Summary of Significant Accounting Policies" in our 2019 Form 10-K.

We have identified certain accounting policies as critical because they involve significant judgments and assumptions about highly complex and inherently uncertain matters, and the use of reasonably different estimates and assumptions could have a material impact on our results of operations or financial condition. Our most critical accounting policies and estimates involve the determination of the allowance for loan losses and fair value. We evaluate our critical accounting estimates and judgments required by our policies on an ongoing basis and update them as necessary based on changing conditions. Management has discussed significant judgments and assumptions in applying our critical accounting policies with the Audit Committee of our board of directors. We provide additional information on our critical accounting policies and estimates under "MD&A—Critical Accounting Policies and Estimates" in our 2019 Form 10-K. See "Item 1A. Risk

Factors” in our 2019 Form 10-K for a discussion of the risks associated with management’s judgments and estimates in applying our accounting policies and methods.

RECENT ACCOUNTING CHANGES AND OTHER DEVELOPMENTS

Recent Accounting Changes

See “Note 1—Summary of Significant Accounting Policies” for information on accounting standards adopted during the current year, as well as recently issued accounting standards not yet required to be adopted and the expected impact of the adoption of these accounting standards. To the extent we believe the adoption of new accounting standards has had or will have a material impact on our consolidated results of operations, financial condition or liquidity, we also discuss the impact in the applicable section(s) of this MD&A.

CONSOLIDATED RESULTS OF OPERATIONS

The section below provides a comparative discussion of our condensed consolidated results of operations between the three months ended November 30, 2019 and 2018 and the six months ended November 30, 2019 and 2018. Following this section, we provide a comparative analysis of our condensed consolidated balance sheets as of November 30, 2019 and May 31, 2019. You should read these sections together with our “Executive Summary—Outlook for the Next 12 Months” where we discuss trends and other factors that we expect will affect our future results of operations.

Net Interest Income

Net interest income represents the difference between the interest income earned on our interest-earning assets, which includes loans and investment securities, and the interest expense on our interest-bearing liabilities. Our net interest yield represents the difference between the yield on our interest-earning assets and the cost of our interest-bearing liabilities plus the impact from non-interest bearing funding. We expect net interest income and our net interest yield to fluctuate based on changes in interest rates and changes in the amount and composition of our interest-earning assets and interest-bearing liabilities. We do not fund each individual loan with specific debt. Rather, we attempt to minimize costs and maximize efficiency by proportionately funding large aggregated amounts of loans.

Table 2 presents average balances for the three and six months ended November 30, 2019 and 2018, and for each major category of our interest-earning assets and interest-bearing liabilities, the interest income earned or interest expense incurred, and the average yield or cost. Table 2 also presents non-GAAP adjusted interest expense, adjusted net interest income and adjusted net interest yield, which reflect the inclusion of net accrued periodic derivative cash settlements expense in interest expense. We provide reconciliations of our non-GAAP adjusted measures to the most comparable GAAP measures under “Non-GAAP Financial Measures.”

Table 2: Average Balances, Interest Income/Interest Expense and Average Yield/Cost

	Three Months Ended November 30,					
(Dollars in thousands)	**2019**			**2018**		
Assets:	**Average Balance**	**Interest Income/ Expense**	**Average Yield/ Cost**	**Average Balance**	**Interest Income/ Expense**	**Average Yield/ Cost**
Long-term fixed-rate loans(1)	**$ 23,837,295**	**$ 260,714**	**4.40%**	$ 22,688,250	$ 253,340	4.48%
Long-term variable-rate loans	**929,958**	**8,131**	**3.52**	1,096,965	10,066	3.68
Line of credit loans	**1,528,905**	**12,678**	**3.34**	1,351,917	11,752	3.49
TDR loans(2)	**11,179**	**212**	**7.63**	12,184	211	6.95
Other income, net(3)	**—**	**(287)**	**—**	—	(251)	—
Total loans	**26,307,337**	**281,448**	**4.30**	25,149,316	275,118	4.39
Cash, time deposits and investment securities	**795,676**	**5,589**	**2.83**	833,165	6,135	2.95
Total interest-earning assets	**$ 27,103,013**	**$ 287,037**	**4.26%**	$ 25,982,481	$ 281,253	4.34%
Other assets, less allowance for loan losses	**552,945**			1,090,619		
Total assets	**$ 27,655,958**			$ 27,073,100		
Liabilities:						
Short-term borrowings	**$ 4,108,239**	**$ 22,112**	**2.16%**	$ 3,816,429	$ 22,619	2.38%
Medium-term notes	**3,485,891**	**31,440**	**3.63**	3,910,610	33,816	3.47
Collateral trust bonds	**7,232,411**	**64,523**	**3.59**	7,265,598	68,934	3.81
Guaranteed Underwriter Program notes payable	**5,375,091**	**39,786**	**2.98**	4,835,203	35,014	2.90
Farmer Mac notes payable	**2,962,126**	**22,654**	**3.08**	2,556,991	19,697	3.09
Other notes payable	**21,519**	**230**	**4.30**	29,923	322	4.32
Subordinated deferrable debt	**985,996**	**12,884**	**5.26**	742,456	9,417	5.09
Subordinated certificates	**1,355,773**	**14,242**	**4.22**	1,377,089	14,347	4.18
Total interest-bearing liabilities	**$ 25,527,046**	**$ 207,871**	**3.28%**	$ 24,534,299	$ 204,166	3.34%
Other liabilities	**1,116,838**			976,113		
Total liabilities	**26,643,884**			25,510,412		
Total equity	**1,012,074**			1,562,688		
Total liabilities and equity	**$ 27,655,958**			$ 27,073,100		
Net interest spread(4)			**0.98%**			1.00%
Impact of non-interest bearing funding(5)			**0.19**			0.19
Net interest income/net interest yield(6)		**$ 79,166**	**1.17%**		$ 77,087	1.19%
Adjusted net interest income/adjusted net interest yield:						
Interest income		**$ 287,037**	**4.26%**		$ 281,253	4.34%
Interest expense		**207,871**	**3.28**		204,166	3.34
Add: Net accrued periodic derivative cash settlement(7)		**14,150**	**0.54**		11,805	0.43
Adjusted interest expense/adjusted average cost(8)		**$ 222,021**	**3.50%**		$ 215,971	3.53%
Adjusted net interest spread(4)			**0.76%**			0.81%
Impact of non-interest bearing funding(5)			**0.20**			0.20
Adjusted net interest income/adjusted net interest yield(9)		**$ 65,016**	**0.96%**		$ 65,282	1.01%

(Dollars in thousands)	Six Months Ended November 30, 2019			2018		
Assets:	**Average Balance**	**Interest Income/ Expense**	**Average Yield/ Cost**	**Average Balance**	**Interest Income/ Expense**	**Average Yield/ Cost**
Long-term fixed-rate loans[1]	**$ 23,596,704**	**$ 519,192**	**4.40%**	$ 22,691,903	$ 505,141	4.44%
Long-term variable-rate loans	**961,704**	**17,887**	**3.72**	1,084,188	19,447	3.58
Line of credit loans	**1,620,994**	**28,711**	**3.54**	1,387,579	23,385	3.36
TDR loans[2]	**11,484**	**418**	**7.28**	12,369	429	6.92
Other income, net[3]	**—**	**(571)**	**—**	—	(576)	—
Total loans	**26,190,886**	**565,637**	**4.32**	25,176,039	547,826	4.34
Cash, time deposits and investment securities	**782,146**	**11,415**	**2.92**	821,222	11,918	2.89
Total interest-earning assets	**$ 26,973,032**	**$ 577,052**	**4.28%**	$ 25,997,261	$ 559,744	4.29%
Other assets, less allowance for loan losses	**579,465**			907,444		
Total assets	**$ 27,552,497**			$ 26,904,705		
Liabilities:						
Short-term borrowings	**$ 3,809,089**	**$ 44,934**	**2.36%**	$ 3,667,402	$ 42,038	2.29%
Medium-term notes	**3,529,164**	**63,516**	**3.60**	3,833,484	66,226	3.45
Collateral trust bonds	**7,309,165**	**129,904**	**3.55**	7,370,550	146,639	3.97
Guaranteed Underwriter Program notes payable	**5,386,771**	**80,219**	**2.98**	4,841,855	70,348	2.90
Farmer Mac notes payable	**2,997,053**	**47,728**	**3.18**	2,674,397	40,808	3.04
Other notes payable	**22,027**	**484**	**4.39**	29,900	644	4.30
Subordinated deferrable debt	**986,005**	**25,766**	**5.23**	742,439	18,834	5.06
Subordinated certificates	**1,355,960**	**28,591**	**4.22**	1,377,524	28,860	4.18
Total interest-bearing liabilities	**$ 25,395,234**	**$ 421,142**	**3.32%**	$ 24,537,551	$ 414,397	3.37%
Other liabilities	**1,064,284**			836,273		
Total liabilities	**26,459,518**			25,373,824		
Total equity	**1,092,979**			1,530,881		
Total liabilities and equity	**$ 27,552,497**			$ 26,904,705		
Net interest spread[4]			**0.96%**			0.92%
Impact of non-interest bearing funding[5]			**0.20**			0.20
Net interest income/net interest yield[6]		**$ 155,910**	**1.16%**		$ 145,347	1.12%
Adjusted net interest income/adjusted net interest yield:						
Interest income		**$ 577,052**	**4.28%**		$ 559,744	4.29%
Interest expense		**421,142**	**3.32**		414,397	3.37
Add: Net accrued periodic derivative cash settlement[7]		**25,193**	**0.47**		24,634	0.45
Adjusted interest expense/adjusted average cost[8]		**$ 446,335**	**3.52%**		$ 439,031	3.57%
Adjusted net interest spread[4]			**0.76%**			0.72%
Impact of non-interest bearing funding[5]			**0.21**			0.21
Adjusted net interest income/adjusted net interest yield[9]		**$ 130,717**	**0.97%**		$ 120,713	0.93%

[1] Interest income on long-term, fixed-rate loans includes loan conversion fees, which are generally deferred and recognized as interest income using the effective interest method.

[2] Troubled debt restructuring ("TDR") loans.

[3] Consists of late payment fees and net amortization of deferred loan fees and loan origination costs.

[4] Net interest spread represents the difference between the average yield on total average interest-earning assets and the average cost of total average interest-bearing liabilities. Adjusted net interest spread represents the difference between the average yield on total average interest-earning assets and the adjusted average cost of total average interest-bearing liabilities.

[5] Includes other liabilities and equity.

[6] Net interest yield is calculated based on annualized net interest income for the period divided by total average interest-earning assets for the period.

[7] Represents the impact of net accrued periodic interest rate swap settlements during the period. This amount is added to interest expense to derive non-GAAP adjusted interest expense. The average (benefit)/cost associated with derivatives is calculated based on annualized net accrued periodic interest rate swap settlements during the period divided by the average outstanding notional amount of derivatives during the period. The average outstanding notional amount of interest rate swaps was \$10,599 million and \$11,123 million for the three months ended November 30, 2019 and 2018, respectively. The average outstanding notional amount of interest rate swaps was \$10,676 million and \$11,039 million for the six months ended November 30, 2019 and 2018, respectively.

[8] Adjusted interest expense consists of interest expense plus net accrued periodic interest rate swap cash settlements expense during the period. Net accrued periodic derivative cash settlements are reported on our condensed consolidated statements of operations as a component of derivative gains (losses). Adjusted average cost is calculated based on annualized adjusted interest expense for the period divided by total average interest-bearing liabilities during the period.

[9] Adjusted net interest yield is calculated based on annualized adjusted net interest income for the period divided by total average interest-earning assets for the period.

Table 3 displays the change in net interest income between periods and the extent to which the variance is attributable to: (i) changes in the volume of our interest-earning assets and interest-bearing liabilities or (ii) changes in the interest rates of these assets and liabilities. The table also presents the change in adjusted net interest income between periods. Changes that are not solely due to either volume or rate are allocated to these categories on a pro-rata basis based on the absolute value of the change due to average volume and average rate.

Table 3: Rate/Volume Analysis of Changes in Interest Income/Interest Expense

(Dollars in thousands)	Three Months Ended November 30, 2019 versus 2018 Total Variance	Variance due to:[1] Volume	Rate	Six Months Ended November 30, 2019 versus 2018 Total Variance	Variance due to:[1] Volume	Rate
Interest income:						
Long-term fixed-rate loans	$ 7,374	$ 12,103	$ (4,729)	$ 14,051	$ 18,706	$ (4,655)
Long-term variable-rate loans	(1,935)	(1,556)	(379)	(1,560)	(2,244)	684
Line of credit loans	926	1,502	(576)	5,326	3,859	1,467
Restructured loans	1	(18)	19	(11)	(32)	21
Other income, net	(36)	—	(36)	5	—	5
Total loans	6,330	12,031	(5,701)	17,811	20,289	(2,478)
Cash, time deposits and investment securities	(546)	(292)	(254)	(503)	(598)	95
Interest income	5,784	11,739	(5,955)	17,308	19,691	(2,383)
Interest expense:						
Short-term borrowings	(507)	1,663	(2,170)	2,896	1,505	1,391
Medium-term notes	(2,376)	(3,755)	1,379	(2,710)	(5,424)	2,714
Collateral trust bonds	(4,411)	(502)	(3,909)	(16,735)	(1,619)	(15,116)
Guaranteed Underwriter Program notes payable	4,772	3,803	969	9,871	7,703	2,168
Farmer Mac notes payable	2,957	3,058	(101)	6,920	4,798	2,122
Other notes payable	(92)	(91)	(1)	(160)	(171)	11
Subordinated deferrable debt	3,467	3,055	412	6,932	6,110	822
Subordinated certificates	(105)	(261)	156	(269)	(529)	260
Interest expense	3,705	6,970	(3,265)	6,745	12,373	(5,628)
Net interest income	$ 2,079	$ 4,769	$ (2,690)	$ 10,563	$ 7,318	$ 3,245
Adjusted net interest income:						
Interest income	$ 5,784	$ 11,739	$ (5,955)	$ 17,308	$ 19,691	$ (2,383)
Interest expense	3,705	6,970	(3,265)	6,745	12,373	(5,628)
Net accrued periodic derivative cash settlements expense[2]	2,345	(587)	2,932	559	(874)	1,433
Adjusted interest expense[3]	6,050	6,383	(333)	7,304	11,499	(4,195)
Adjusted net interest income	$ (266)	$ 5,356	$ (5,622)	$ 10,004	$ 8,192	$ 1,812

[1] The changes for each category of interest income and interest expense are divided between the portion of change attributable to the variance in volume and the portion of change attributable to the variance in rate for that category. The amount attributable to the combined impact of volume and rate has been allocated to each category based on the proportionate absolute dollar amount of change for that category.

[2] For net accrued periodic derivative cash settlements, the variance due to average volume represents the change in derivative cash settlements resulting from the change in the average notional amount of derivative contracts outstanding. The variance due to average rate represents the change in derivative cash settlements resulting from the net difference between the average rate paid and the average rate received for interest rate swaps during the period.

[3] See "Non-GAAP Financial Measures" for additional information on our adjusted non-GAAP measures.

Reported Net Interest Income

Reported net interest income of $79 million for the current quarter was up $2 million, or 3%, from the comparable prior-year quarter, as the decrease in the net interest yield of 2% (2 basis points) to 1.17% was partially offset by an increase in average interest-earning assets of 4%.

- *Net Interest Yield:* The decrease of 2 basis points in the net interest yield for the current quarter was due to a decrease in the average yield on interest-earning assets of 8 basis points to 4.26%, partially offset by a decrease in the average cost of funds of 6 basis points to 3.28%. The decrease in the average yield on interest-earning assets was attributable to an 8 basis point decrease in the average yield on our long-term fixed rate loan portfolio, as new loan advances were made at lower rates due to a decline in medium- and long-term interest rates since November 30, 2018. The decrease in our average cost of funds was largely due to higher interest cost savings during the current quarter from the full repayment of the $1 billion aggregate principal amount of the 10.375% collateral trust bonds during the first half of fiscal year 2019 and the replacement of this debt with lower-cost funding. The replacement of this debt with lower-cost funding more than offset an increase in the average cost of our short-term and variable-rate funding.

- *Average Interest-Earning Assets:* The increase in average interest-earning assets of 4% during the current quarter was driven by growth in average total loans of $1,158 million, or 5%, as members obtained advances to fund capital investments and refinanced with us loans made by other lenders.

Reported net interest income of $156 million for the six months ended November 30, 2019 was up $11 million, or 7%, from the comparable prior-year period, driven by an increase in the net interest yield of 4% (4 basis points) to 1.16%, coupled with an increase in average interest-earning assets of 4%.

- *Net Interest Yield:* The increase of 4 basis points in the net interest yield was due to a decrease in the average cost of funds of 5 basis points to 3.32%, partially offset by a decrease in the average yield on interest-earning assets of 1 basis point to 4.28%. The decrease in our average cost of funds was largely due to the interest cost savings from the repayment of the $1 billion aggregate principal amount of the 10.375% collateral trust bonds in the first half of fiscal year 2019 and the replacement of this debt with lower-cost funding. These amounts more than offset the increase in the average cost of our short-term, variable-rate borrowings resulting from the rise in short-term interest rates during fiscal year 2019 and an increase in the average cost of subordinated deferrable debt resulting from the issuance of $250 million of 5.50% subordinated deferrable debt in May 2019. The decrease in the average yield on interest-earning assets was attributable to a 4 basis point decrease in the average yield on our long-term fixed rate loan portfolio, as new loan advances were made at lower rates due to a decline in medium- and long-term interest rates since November 30, 2018. The decrease in the average yield on our long-term fixed rate loan portfolio was partially offset by higher average rates on line of credit and variable-rate loans due to the overall rise in short-term interest rates during fiscal year 2019.

- *Average Interest-Earning Assets:* The increase in average interest-earning assets of 4% during the six months ended November 30, 2019 was driven by growth in average total loans of $1,015 million, or 4%, as members obtained advances to fund capital investments and refinanced with us loans made by other lenders.

Adjusted Net Interest Income

Adjusted net interest income of $65 million for the current quarter remained relatively unchanged from the comparable prior-year quarter, as the decrease in the adjusted net interest yield of 5 basis points, or 5%, to 0.96% offset the increase in average interest-earning assets of 4%.

- *Adjusted Net Interest Yield*: The decrease in the adjusted net interest yield was primarily due to a decrease in the average yield on interest-earning assets of 8 basis points to 4.26%, partially offset by a reduction in our adjusted average cost of funds of 3 basis points to 3.50%. As noted above, the decrease in the average yield on interest-earning assets was attributable to an 8 basis point decrease in the average yield on our long-term fixed rate loan portfolio, as new loan advances were made at lower rates due to a decline in medium- and long-term interest rates since November 30, 2018. The reduction in our adjusted average cost of funds was also largely attributable to higher interest cost savings from the full repayment of the $1 billion aggregate principal amount of the 10.375% collateral trust bonds during the first half of fiscal year 2019 and the replacement of this debt with lower-cost funding. The replacement of this debt with lower-cost funding more than offset an increase in the average cost of our short-term and variable-rate funding.

- *Average Interest-Earning Assets:* The increase in average interest-earning assets of 4% was driven by the growth in average total loans of $1,158 million.

Adjusted net interest income of $131 million for the six months ended November 30, 2019 was up $10 million, or 8%, from the comparable prior-year period, driven by an increase in the adjusted net interest yield of 4 basis points, or 4%, to 0.97% and the increase in average interest-earning assets of 4%.

- *Adjusted Net Interest Yield*: The increase in the adjusted net interest yield was due to a reduction in our adjusted average cost of funds of 5 basis points to 3.52%, partially offset by the decrease in the average yield on interest-earning assets of 1 basis point to 4.28%. As noted above, the reduction in our adjusted average cost of funds was largely attributable to the interest cost savings from the repayment of the $1 billion aggregate principal amount of the 10.375% collateral trust bonds and the replacement of this debt with lower-cost funding. Together these amounts more than offset the increase in the average cost of our short-term, variable-rate borrowings resulting from the rise in short-term interest rates during fiscal year 2019 and the increase in the average cost of subordinated deferrable debt resulting from the issuance of $250 million of 5.50% subordinated deferrable debt in May 2019. The decrease in the average yield on interest-earning assets was attributable to a 4 basis point decrease in the average yield on our long-term fixed rate loan portfolio, as new loan advances were made at lower rates due to a decline in medium- and long-term interest rates since November 30, 2018. The decrease in the average yield on our long-term fixed rate loan portfolio was partially offset by higher average rates on line of credit and variable-rate loans due to the overall rise in short-term interest rates during fiscal year 2019.

- *Average Interest-Earning Assets:* The increase in average interest-earning assets of 4% was driven by the growth in average total loans of $1,015 million.

We include net accrued periodic derivative cash settlements during the period in the calculation of our adjusted average cost of funds, which, as a result, also impacts the calculation of adjusted net interest income and adjusted net interest yield. Net periodic derivative cash settlement expense totaled $14 million for the current quarter, compared with $12 million for the same prior-year quarter. Net periodic derivative cash settlement expense totaled $25 million for the six months ended November 30, 2019, relatively unchanged from the same prior-year period. See "Non-GAAP Financial Measures" for additional information on our adjusted measures, including a reconciliation of these measures to the most comparable GAAP measures.

Provision for Loan Losses

Our provision for loan losses in each period is primarily driven by the level of allowance that we determine is necessary for probable incurred loan losses inherent in our loan portfolio as of each balance sheet date. The allowance for loan losses was $17 million and $18 million as of November 30, 2019 and May 31, 2019, respectively.

We recorded a benefit for loan losses of $1 million for both the three and six months ended November 30, 2019. In comparison, we recorded a benefit for loan losses of $2 million for both the three and six months ended November 30, 2018. The credit quality and performance statistics of our loan portfolio remain strong. We had no payment defaults or charge-offs during the quarter, and no delinquent loans or nonperforming loans in our loan portfolio as of November 30, 2019 or May 31, 2019.

We provide additional information on our allowance for loan losses under "Credit Risk—Allowance for Loan Losses" and "Note 5—Allowance for Loan Losses" of this Report. For a description of our methodology for determining the allowance for loan losses, see "MD&A—Critical Accounting Policies and Estimates—Allowance for Loan Losses" and "Note 1—Summary of Significant Accounting Policies—Allowance for Loan Losses" in our 2019 Form 10-K.

Non-Interest Income

Non-interest income consists of fee and other income, gains and losses on derivatives not accounted for in hedge accounting relationships and unrealized gains and losses on equity securities.

Table 4 presents the components of non-interest income for the three and six months ended November 30, 2019 and 2018.

Table 4: Non-Interest Income

(Dollars in thousands)	Three Months Ended November 30, 2019	Three Months Ended November 30, 2018	Six Months Ended November 30, 2019	Six Months Ended November 30, 2018
Non-interest income:				
Fee and other income	**$ 3,842**	$ 3,595	**$ 14,783**	$ 7,506
Derivative gains (losses)	**183,450**	63,343	**(212,275)**	70,526
Unrealized gains (losses) on equity securities	**(114)**	(1,619)	**1,506**	(2,345)
Total non-interest income	**$ 187,178**	$ 65,319	**$ (195,986)**	$ 75,687

The significant variance in non-interest income between periods was primarily attributable to changes in the net derivative gains (losses) recognized in our condensed consolidated statements of operations. In addition, fee and other income increased by $7 million due to higher prepayment fees during the six months ended November 30, 2019.

Derivative Gains (Losses)

Our derivative instruments are an integral part of our interest rate risk management strategy. Our principal purpose in using derivatives is to manage our aggregate interest rate risk profile within prescribed risk parameters. The derivative instruments we use primarily include interest rate swaps, which we typically hold to maturity. In addition, we may on occasion use treasury locks to manage the interest rate risk associated with debt that is scheduled to reprice in the future. The primary factors affecting the fair value of our derivatives and derivative gains (losses) recorded in our results of operations include changes in interest rates, the shape of the swap curve and the composition of our derivative portfolio. We generally do not designate our interest rate swaps, which currently account for all our derivatives, for hedge accounting. Accordingly, changes in the fair value of interest rate swaps are reported in our condensed consolidated statements of operations under derivative gains (losses). However, we typically designate treasury locks as cash flow hedges. We did not have any derivatives designated as accounting hedges as of November 30, 2019 or May 31, 2019.

We currently use two types of interest rate swap agreements: (i) we pay a fixed rate of interest and receive a variable rate of interest ("pay-fixed swaps"); and (ii) we pay a variable rate of interest and receive a fixed rate of interest ("receive-fixed swaps"). The interest amounts are based on a specified notional balance, which is used for calculation purposes only. The benchmark variable rate for the substantial majority of the floating rate payments under our swap agreements is 3-month London Interbank Offered Rate ("LIBOR"). As interest rates decline, pay-fixed swaps generally decrease in value and result in the recognition of derivative losses, as the amount of interest we pay remains fixed, while the amount of interest we receive declines. In contrast, as interest rates rise, pay-fixed swaps generally increase in value and result in the recognition of derivative gains, as the amount of interest we pay remains fixed, but the amount we receive increases. With a receive-fixed swap, the opposite results occur as interest rates decline or rise. Because our pay-fixed and receive-fixed swaps are referenced to different maturity terms along the swap curve, different changes in the swap curve—parallel, flattening, inversion or steepening—will also impact the fair value of our derivatives.

Table 5 presents the components of net derivative gains (losses) recorded in our results of operations. Derivative cash settlements expense represents the net periodic contractual interest amount for our interest-rate swaps for the reporting period. Derivative forward value gains (losses) represent the change in fair value of our interest rate swaps during the reporting period due to changes in expected future interest rates over the remaining life of our derivative contracts.

Table 5: Derivative Gains (Losses)

(Dollars in thousands)	Three Months Ended November 30, 2019	Three Months Ended November 30, 2018	Six Months Ended November 30, 2019	Six Months Ended November 30, 2018
Derivative gains (losses) attributable to:				
Derivative cash settlements expense	**$ (14,150)**	$ (11,805)	**$ (25,193)**	$ (24,634)
Derivative forward value gains (losses)	**197,600**	75,148	**(187,082)**	95,160
Derivative gains (losses)	**$ 183,450**	$ 63,343	**$ (212,275)**	$ 70,526

The net derivative gains of $183 million for the three months ended November 30, 2019 were attributable to a net increase in the fair value of our pay-fixed swaps resulting from an increase in medium- and long-term interest rates during the current quarter. The net derivative losses of $212 million for the six months ended November 30, 2019, were attributable to a net decrease in the fair value of our pay-fixed swaps resulting from a decline in interest rates across the swap curve, with short-term interest rates experiencing a greater decline than medium- and long-term rates. The swap curve remained inverted, as short-term interest rates continued to exceed medium- and long-term interest rates as of the end of the current quarter, as depicted by the November 30, 2019, August 31, 2019 and May 31, 2019 swap curves presented in the comparative swap curves chart below.

The net derivative gains of $63 million and $71 million in the three and six months ended November 30, 2018, respectively, were attributable to an increase in the fair value of our pay-fixed swaps resulting from an increase in interest rates across the swap yield curve, as depicted by the November 30, 2018 and May 31, 2018 swap curves presented in the comparative swap curves chart below.

Our derivative portfolio consists of a higher proportion of pay-fixed swaps than receive-fixed swaps, with pay-fixed swaps representing approximately 70% and 68% of the outstanding notional amount of our derivative portfolio as of November 30, 2019 and May 31, 2019, respectively. The profile of our interest rate swap portfolio, however, may change as a result of changes in market conditions and actions taken to manage exposure to interest rate risk. The average remaining maturity of our pay-fixed and receive-fixed swaps was 18 years and four years, respectively, as of November 30, 2019. In comparison, the average remaining maturity of our pay-fixed and receive-fixed swaps was 19 years and four years, respectively, as of November 30, 2018.

Derivative Cash Settlements

As indicated in Table 5 above, net periodic derivative cash settlement expense totaled $14 million and $25 million for the three and six months ended November 30, 2019, respectively. In comparison, net periodic derivative cash settlement expense totaled $12 million and $25 million for the three and six months ended November 30, 2018, respectively. Table 6 displays, by swap agreement type, the average notional amount outstanding and the weighted-average interest rate paid and received for derivative cash settlements during each respective period.

Table 6: Derivative Cash Settlements Expense—Average Notional Amounts and Interest Rates

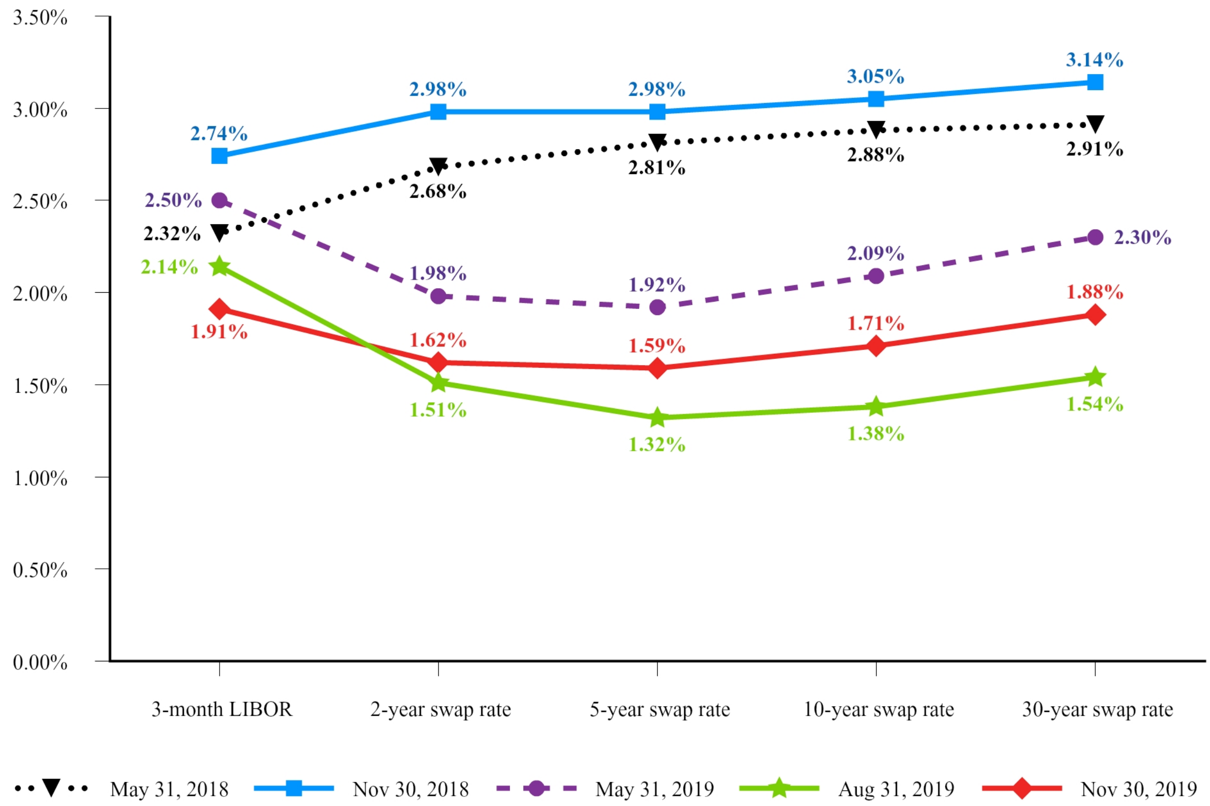
	Three Months Ended November 30,					
	2019			2018		
(Dollars in thousands)	Average Notional Balance	Weighted-Average Rate Paid	Weighted-Average Rate Received	Average Notional Balance	Weighted-Average Rate Paid	Weighted-Average Rate Received
Pay-fixed swaps	**$ 7,299,322**	**2.84%**	**2.08%**	$ 7,424,114	2.82%	2.43%
Receive-fixed swaps	**3,300,099**	**2.77**	**2.59**	3,699,000	3.05	2.52
Total	**$10,599,421**	**2.82%**	**2.24%**	$11,123,114	2.90%	2.46%

	Six Months Ended November 30,					
	2019			2018		
(Dollars in thousands)	Average Notional Balance	Weighted-Average Rate Paid	Weighted-Average Rate Received	Average Notional Balance	Weighted-Average Rate Paid	Weighted-Average Rate Received
Pay-fixed swaps	**$ 7,326,509**	**2.84%**	**2.24%**	$ 7,308,859	2.82%	2.38%
Receive-fixed swaps	**3,349,820**	**2.93**	**2.57**	3,729,738	3.01	2.52
Total	**$10,676,329**	**2.87%**	**2.34%**	$11,038,597	2.88%	2.43%

Comparative Swap Curves

The chart below provides comparative swap curves as of the end of November 30, 2019, August 31, 2019, May 31, 2019, November 30, 2018 and May 31, 2018.

Comparative Swap Curves



Benchmark rates obtained from Bloomberg.

See "Note 9—Derivative Instruments and Hedging Activities" for additional information on our derivative instruments.

Non-Interest Expense

Non-interest expense consists of salaries and employee benefit expense, general and administrative expenses, gains and losses on the early extinguishment of debt and other miscellaneous expenses.

Table 7 presents the components of non-interest expense recorded in results of operations for the three and six months ended November 30, 2019 and 2018.

Table 7: Non-Interest Expense

	Three Months Ended November 30,		Six Months Ended November 30,	
(Dollars in thousands)	2019	2018	2019	2018
Non-interest expense:				
Salaries and employee benefits	**$ (12,728)**	$ (12,392)	**$ (25,670)**	$ (25,074)
Other general and administrative expenses	**(12,041)**	(11,478)	**(24,428)**	(22,001)
Losses on early extinguishment of debt	**(614)**	—	**(614)**	(7,100)
Other non-interest (expense) income	**(315)**	(355)	**6,864**	(749)
Total non-interest expense	**$ (25,698)**	$ (24,225)	**$ (43,848)**	$ (54,924)

Non-interest expense of $26 million for the current quarter increased by $1 million, or 6%, from the comparable prior-year quarter, primarily due to increases in general and administrative expenses and other non-interest expense.

Non-interest expense of $44 million for the six months ended November 30, 2019 decreased by $11 million, or 20%, from the same prior-year period. The decrease was largely due to the gain of $8 million recorded in connection with the July 22, 2019 sale of land and lower losses on early extinguishment of debt.

Net Income (Loss) Attributable to Noncontrolling Interests

Net income (loss) attributable to noncontrolling interests represents 100% of the results of operations of NCSC and RTFC, as the members of NCSC and RTFC own or control 100% of the interest in their respective companies. The fluctuations in net income (loss) attributable to noncontrolling interests are primarily due to changes in the fair value of NCSC's derivative instruments recognized in NCSC's earnings.

We recorded net income attributable to noncontrolling interests of less than $1 million for the three months ended November 30, 2019 and a net loss of $2 million for the six months ended November 30, 2019. In comparison, we recorded net income attributable to noncontrolling interests of less than $1 million for both the three and six months ended November 30, 2018.

CONSOLIDATED BALANCE SHEET ANALYSIS

Total assets of $27,567 million as of November 30, 2019 increased by $442 million, or 2%, from May 31, 2019, primarily due to growth in our loan portfolio. Total liabilities of $26,409 million as of November 30, 2019 increased by $588 million, or 2%, from May 31, 2019, primarily due to debt issuances to fund loan growth and an increase in our derivative liabilities, attributable to a decrease in the fair value of our pay-fixed swaps. Total equity decreased by $146 million to $1,158 million as of November 30, 2019, attributable to our reported net loss of $82 million during the six months ended November 30, 2019 and the patronage capital retirement of $63 million in September 2019.

Following is a discussion of changes in the major components of our assets and liabilities during the six months ended November 30, 2019. Period-end balance sheet amounts may vary from average balance sheet amounts due to liquidity and balance sheet management activities that are intended to manage liquidity requirements for the company and our market risk exposure in accordance with our risk appetite.

Loan Portfolio

We offer long-term loans that provide borrowers the option to select fixed- and variable-rate loan advances and line of credit loans. The substantial majority of loans in our portfolio represent fixed-rate advances under secured long-term facilities with terms up to 35 years. Line of credit loans are typically variable-rate revolving facilities and are generally unsecured.

Loans Outstanding

Table 8 summarizes loans to members, by loan type and by member class, as of November 30, 2019 and May 31, 2019. As indicated in Table 8, long-term fixed-rate loans accounted for 90% and 89% of loans to members as of November 30, 2019 and May 31, 2019, respectively.

Table 8: Loans Outstanding by Type and Member Class

	November 30, 2019		May 31, 2019		
(Dollars in thousands)	**Amount**	**% of Total**	**Amount**	**% of Total**	**Change**
Loans by type:					
Long-term loans:					
Fixed-rate	**$ 23,861,584**	**90%**	$ 23,094,253	89%	$ 767,331
Variable-rate	**930,949**	**4**	1,066,880	4	(135,931)
Total long-term loans	**24,792,533**	**94**	24,161,133	93	631,400
Lines of credit	**1,634,346**	**6**	1,744,531	7	(110,185)
Total loans outstanding	**26,426,879**	**100**	25,905,664	100	521,215
Deferred loan origination costs	**11,302**	**—**	11,240	—	62
Loans to members	**$ 26,438,181**	**100%**	$ 25,916,904	100%	$ 521,277
Loans by member class:					
CFC:					
Distribution	**$ 20,682,596**	**78%**	$ 20,155,266	78%	$ 527,330
Power supply	**4,601,783**	**18**	4,578,841	18	22,942
Statewide and associate	**83,897**	**—**	83,569	—	328
CFC total	**25,368,276**	**96**	24,817,676	96	550,600
NCSC	**702,279**	**3**	742,888	3	(40,609)
RTFC	**356,324**	**1**	345,100	1	11,224
Total loans outstanding	**26,426,879**	**100**	25,905,664	100	521,215
Deferred loan origination costs	**11,302**	**—**	11,240	—	62
Loans to members	**$ 26,438,181**	**100%**	$ 25,916,904	100%	$ 521,277

Loans to members totaled $26,438 million as of November 30, 2019, an increase of $521 million, or 2%, from May 31, 2019. The increase in loans was driven by a net increase in long-term loans of $631 million, which was partially offset by a net decrease in revolving line-of-credit loans of $110 million. CFC distribution loans, CFC power supply loans and RTFC loans increased by $527 million, $23 million and $11 million, respectively, while NCSC loans decreased by $41 million.

Long-term loan advances totaled $1,387 million during the six months ended November 30, 2019, with approximately 69% of those advances for capital expenditures by members and 25% for the refinancing of loans made by other lenders. In comparison, long-term loan advances totaled $814 million during the same prior-year period, with approximately 83% of those advances for capital expenditures by members and 14% for refinancing of loans made by other lenders.

We provide additional information on our loan product types in "Item 1. Business—Loan Programs" and "Note 4—Loans" in our 2019 Form 10-K. See "Debt—Collateral Pledged" below for information on encumbered and unencumbered loans and "Credit Risk Management" for information on the credit risk profile of our loan portfolio.

Loan Retention Rate

Table 9 presents a summary of the options selected by borrowers for CFC's long-term fixed-rate loans that repriced, in accordance with our standard loan repricing provisions, during the six months ended November 30, 2019 and during fiscal year 2019. At the repricing date, the borrower has the option of (i) selecting CFC's current long-term fixed rate for a term of between one year and up to the final maturity of the loan; (ii) selecting CFC's current long-term variable rate; or (iii) repaying the loan in full.

Table 9: Historical Retention Rate and Repricing Selection[1]

	Six Months Ended November 30, 2019		Fiscal Year Ended May 31, 2019	
(Dollars in thousands)	**Amount**	**% of Total**	**Amount**	**% of Total**
Loans retained:				
Long-term fixed rate selected	**$ 224,423**	**96%**	$ 568,252	75%
Long-term variable rate selected	**6,772**	**3**	123,636	16
Total loans retained by CFC	**231,195**	**99**	691,888	91
Loans repaid	**2,634**	**1**	69,250	9
Total	**$ 233,829**	**100%**	$ 761,138	100%

[1]Does not include NCSC and RTFC loans.

As shown in Table 9, of the loans that repriced during the six months ended November 30, 2019 and fiscal year 2019, the substantial majority of borrowers selected a new long-term fixed or variable rate. The average retention rate, which is calculated based on the election made by the borrower at the repricing date, was 96% for CFC loans that repriced during the three fiscal year period ended May 31, 2019.

Debt

We utilize both short-term borrowings and long-term debt as part of our funding strategy and asset/liability interest rate risk management. We seek to maintain diversified funding sources across products, programs and markets to manage funding concentrations and reduce our liquidity or debt rollover risk. Our funding sources include a variety of secured and unsecured debt securities in a wide range of maturities to our members and affiliates and in the capital markets.

Debt Outstanding

Table 10 displays the composition, by product type, of our outstanding debt as of November 30, 2019 and May 31, 2019. Table 10 also displays the composition of our debt based on several additional selected attributes.

Table 10: Total Debt Outstanding

(Dollars in thousands)	November 30, 2019	May 31, 2019	Change
Debt product type:			
Commercial paper:			
Members, at par	**$ 1,371,902**	$ 1,111,795	$ 260,107
Dealer, net of discounts	**1,038,862**	944,616	94,246
Total commercial paper	**2,410,764**	2,056,411	354,353
Select notes to members	**1,470,579**	1,023,952	446,627
Daily liquidity fund notes to members	**508,169**	298,817	209,352
Medium-term notes:			
Members, at par	**673,051**	625,626	47,425
Dealer, net of discounts	**2,598,972**	2,942,045	(343,073)
Total medium-term notes	**3,272,023**	3,567,671	(295,648)
Collateral trust bonds	**7,086,585**	7,383,732	(297,147)
Guaranteed Underwriter Program notes payable	**5,363,798**	5,410,507	(46,709)
Farmer Mac notes payable	**3,094,954**	3,054,914	40,040
Other notes payable	**16,603**	22,515	(5,912)
Subordinated deferrable debt	**986,026**	986,020	6
Members' subordinated certificates:			
Membership subordinated certificates	**630,479**	630,474	5
Loan and guarantee subordinated certificates	**503,403**	505,485	(2,082)
Member capital securities	**221,170**	221,170	—
Total members' subordinated certificates	**1,355,052**	1,357,129	(2,077)
Total debt outstanding	**$ 25,564,553**	$ 25,161,668	$ 402,885
Security type:			
Secured debt	**61%**	63%	
Unsecured debt	**39**	37	
Total	**100%**	100%	
Funding source:			
Members	**21%**	18%	
Private placement:			
Guaranteed Underwriter Program notes payable	**21**	21	
Farmer Mac notes payable	**12**	12	
Total private placement	**33**	33	
Capital markets	**46**	49	
Total	**100%**	100%	
Interest rate type:			
Fixed-rate debt	**72%**	77%	
Variable-rate debt	**28**	23	
Total	**100%**	100%	
Interest rate type, including the impact of swaps:			
Fixed-rate debt(1)	**89%**	93%	
Variable-rate debt(2)	**11**	7	
Total	**100%**	100%	
Maturity classification:(3)			
Short-term borrowings	**19%**	14%	
Long-term and subordinated debt(4)	**81**	86	
Total	**100%**	100%	

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(1) Includes variable-rate debt that has been swapped to a fixed rate, net of any fixed-rate debt that has been swapped to a variable rate.

(2) Includes fixed-rate debt that has been swapped to a variable rate, net of any variable-rate debt that has been swapped to a fixed rate. Also includes commercial paper notes, which generally have maturities of less than 90 days. The interest rate on commercial paper notes does not change once the note has been issued; however, the interest rate for new commercial paper issuances changes daily.

(3) Borrowings with an original contractual maturity of one year or less are classified as short-term borrowings. Borrowings with an original contractual maturity of greater than one year are classified as long-term debt.

(4) Consists of long-term debt, subordinated deferrable debt and total members' subordinated debt reported on the condensed consolidated balance sheets. Maturity classification is based on the original contractual maturity as of the date of issuance of the debt.

Our outstanding debt volume generally increases and decreases in response to member loan demand. As outstanding loan balances increased during the six months ended November 30, 2019, our debt volume also increased. Total debt outstanding of $25,565 million as of November 30, 2019, increased by $403 million or 2%, from May 31, 2019, due to an increase in borrowings to fund the increase in loans to members. The increase was primarily attributable to net increases in member commercial paper, select notes and daily liquidity fund notes of $916 million, a net increase in dealer commercial paper outstanding of $94 million and a net increase in Farmer Mac notes payable of $40 million. These increases were partially offset by a net decrease in medium-term notes of $296 million, a net decrease in collateral trust bonds of $297 million and a net decrease in borrowings under the Guaranteed Underwriter Program of $47 million.

Below is a summary of significant financing activities during the six months ended November 30, 2019.

- On September 25, 2019, we received a commitment letter for the guarantee by RUS of a $500 million loan facility from the Federal Financing Bank under the Guaranteed Underwriter Program.
- On October 15, 2019, we redeemed the $300 million outstanding principal amount of our 2.30% collateral trust bonds due November 15, 2019 at par.
- On November 14, 2019, we provided notice to Farmer Mac of termination of the $300 million revolving note purchase agreement, effective December 20, 2019. On November 27, 2019, we received an advance of $150 million under this revolving note purchase agreement with Farmer Mac, which was repaid on December 4, 2019, prior to the termination of the agreement.
- On November 15, 2019, we redeemed the $6 million outstanding principal amount of our 9.07% notes payable due May 15, 2022, at a premium of approximatively $1 million.
- On November 26, 2019 we amended the three-year and five-year committed bank revolving line of credit agreements to extend the maturity date of the three-year agreement to November 28, 2022, and to terminate certain third-party bank commitments under each agreement, which resulted in a reduction of $250 million in the total commitment amount under our committed bank revolving line of credit agreements.
- On November 27, 2019, we provided notice to investors of our intent to redeem all $400 million outstanding principal amount of our 2.00% collateral trust bonds due January 27, 2020, on December 27, 2019. We redeemed these outstanding collateral trust bonds at par on December 27, 2019.

Member Investments

Debt securities issued to our members represent an important, stable source of funding. Table 11 displays outstanding member debt, by debt product type, as of November 30, 2019 and May 31, 2019.

Table 11: Member Investments

(Dollars in thousands)	November 30, 2019 Amount	November 30, 2019 % of Total [(1)]	May 31, 2019 Amount	May 31, 2019 % of Total [(1)]	Change
Commercial paper	**$ 1,371,902**	**57%**	$ 1,111,795	54%	$ 260,107
Select notes	**1,470,579**	**100**	1,023,952	100	446,627
Daily liquidity fund notes	**508,169**	**100**	298,817	100	209,352
Medium-term notes	**673,051**	**21**	625,626	18	47,425
Members' subordinated certificates	**1,355,052**	**100**	1,357,129	100	(2,077)
Total outstanding member debt	**$ 5,378,753**		$ 4,417,319		$ 961,434
Percentage of total debt outstanding	**21%**		18%		

[(1)] Represents outstanding debt attributable to members for each debt product type as a percentage of the total outstanding debt for each debt product type.

Member investments totaled $5,379 million and accounted for 21% of total debt outstanding as of November 30, 2019, compared with $4,417 million, or 18%, of total debt outstanding as of May 31, 2019. Over the last three fiscal years, total outstanding member investments as of the end of each quarterly reporting period has averaged $4,551 million.

Short-Term Borrowings

Short-term borrowings consist of borrowings with an original contractual maturity of one year or less and do not include the current portion of long-term debt. Short-term borrowings totaled $4,789 million and accounted for 19% of total debt outstanding as of November 30, 2019, compared with $3,608 million, or 14%, of total debt outstanding as of May 31, 2019. See "Liquidity Risk" below and for "Note 6—Short-Term Borrowings" for information on the composition of our short-term borrowings.

Long-Term and Subordinated Debt

Long-term debt, defined as debt with an original contractual maturity term of greater than one year, primarily consists of medium-term notes, collateral trust bonds, notes payable under the Guaranteed Underwriter Program and notes payable under our note purchase agreement with Farmer Mac. Subordinated debt consists of subordinated deferrable debt and members' subordinated certificates. Our subordinated deferrable debt and members' subordinated certificates have original contractual maturity terms of greater than one year.

Long-term and subordinated debt totaled $20,776 million and accounted for 81% of total debt outstanding as of November 30, 2019, compared with $21,554 million, or 86%, of total debt outstanding as of May 31, 2019. We provide additional information on our long-term debt below under "Liquidity Risk" and in "Note 7—Long-Term Debt" and "Note 8—Subordinated Deferrable Debt."

Collateral Pledged

We are required to pledge loans or other collateral in transactions under our collateral trust bond indentures, note purchase agreements with Farmer Mac and bond agreements under the Guaranteed Underwriter Program. We are required to maintain pledged collateral equal to at least 100% of the face amount of outstanding borrowings. However, as discussed below, we typically maintain pledged collateral in excess of the required percentage. Under the provisions of our committed bank revolving line of credit agreements, the excess collateral that we are allowed to pledge cannot exceed 150% of the outstanding borrowings under our collateral trust bond indentures, Farmer Mac note purchase agreements or the Guaranteed Underwriter Program. In certain cases, provided that all conditions of eligibility under the different programs are satisfied, we may withdraw excess pledged collateral or transfer collateral from one borrowing program to another to facilitate a new debt issuance.

Table 12 displays the collateral coverage ratios as of November 30, 2019 and May 31, 2019 for the debt agreements noted above that require us to pledge collateral.

Table 12: Collateral Pledged

Debt Agreement	Requirement/Limit: Debt Indenture Minimum	Requirement/Limit: Committed Bank Revolving Line of Credit Agreements Maximum	Actual[(1)]: November 30, 2019	Actual[(1)]: May 31, 2019
Collateral trust bonds 1994 indenture	**100%**	**150%**	**131%**	118%
Collateral trust bonds 2007 indenture	**100**	**150**	**117**	117
Guaranteed Underwriter Program notes payable	**100**	**150**	**114**	114
Farmer Mac notes payable	**100**	**150**	**121**	123
Clean Renewable Energy Bonds Series 2009A	**100**	**150**	**106**	112

(1) Calculated based on the amount of collateral pledged divided by the face amount of outstanding secured debt.

Of our total debt outstanding of $25,565 million as of November 30, 2019, $15,554 million, or 61%, was secured by pledged loans totaling $18,450 million. In comparison, of our total debt outstanding of $25,162 million as of May 31, 2019, $15,858 million, or 63%, was secured by pledged loans totaling $18,877 million. Total debt outstanding on our condensed consolidated balance sheet is presented net of unamortized discounts and issuance costs. However, our collateral pledging requirements are based on the face amount of secured outstanding debt, which does not take into consideration the impact of net unamortized discounts and issuance costs.

Table 13 displays the unpaid principal balance of loans pledged for secured debt, the excess collateral pledged and unencumbered loans as of November 30, 2019 and May 31, 2019.

Table 13: Unencumbered Loans

(Dollars in thousands)	November 30, 2019	May 31, 2019
Total loans outstanding[(1)]	**$ 26,426,879**	$ 25,905,664
Less: Loans required to be pledged for secured debt [(2)]	**(15,825,688)**	(16,137,357)
Loans pledged in excess of requirement [(2)(3)]	**(2,623,949)**	(2,739,248)
Total pledged loans	**(18,449,637)**	(18,876,605)
Unencumbered loans	**$ 7,977,242**	$ 7,029,059
Unencumbered loans as a percentage of total loans	**30%**	27%

(1) Represents the unpaid principal amount of loans as of the end of each period presented and excludes unamortized deferred loan origination costs of $11 million as of both November 30, 2019 and May 31, 2019.

(2) Reflects unpaid principal balance of pledged loans.

(3) Excludes cash collateral pledged to secure debt. If there is an event of default under most of our indentures, we can only withdraw the excess collateral if we substitute cash or permitted investments of equal value.

As displayed above in Table 13, we had excess loans pledged as collateral totaling $2,624 million and $2,739 million as of November 30, 2019 and May 31, 2019, respectively. We typically pledge loans in excess of the required amount for the following reasons: (i) our distribution and power supply loans are typically amortizing loans that require scheduled principal payments over the life of the loan, whereas the debt securities issued under secured indentures and agreements typically have bullet maturities; (ii) distribution and power supply borrowers have the option to prepay their loans; and (iii) individual loans may become ineligible for various reasons, some of which may be temporary.

We provide additional information on our borrowings, including the maturity profile, below in “Liquidity Risk.” Refer to “Note 4—Loans—Pledging of Loans” for additional information related to pledged collateral. Also refer to “Note 5—Short-Term Borrowings,” “Note 7—Long-Term Debt,” “Note 8—Subordinated Deferrable Debt” and “Note 9—Members’ Subordinated Certificates” in our 2019 Form 10-K for a more detailed description of each of our debt product types.

Equity

Table 14 presents the components of total CFC equity and total equity as of November 30, 2019 and May 31, 2019.

Table 14: Equity

(Dollars in thousands)	November 30, 2019	May 31, 2019	Change
Membership fees and educational fund:			
Membership fees	**$ 970**	$ 969	$ 1
Educational fund	**1,473**	2,013	(540)
Total membership fees and educational fund	**2,443**	2,982	(539)
Patronage capital allocated	**797,756**	860,578	(62,822)
Members' capital reserve	**759,097**	759,097	—
Total allocated equity	**1,559,296**	1,622,657	(63,361)
Unallocated net income (loss):			
Prior year-end cumulative derivative forward value losses[1]	**(348,965)**	(30,831)	(318,134)
Current year derivative forward value losses[1]	**(186,375)**	(318,134)	131,759
Current period-end cumulative derivative forward value losses[1]	**(535,340)**	(348,965)	(186,375)
Other unallocated net income	**108,735**	3,190	105,545
Unallocated net loss	**(426,605)**	(345,775)	(80,830)
CFC retained equity	**1,132,691**	1,276,882	(144,191)
Accumulated other comprehensive loss	**(82)**	(147)	65
Total CFC equity	**1,132,609**	1,276,735	(144,126)
Noncontrolling interests	**25,285**	27,147	(1,862)
Total equity	**$ 1,157,894**	$ 1,303,882	$ (145,988)

[1] Represents derivative forward value gains (losses) for CFC only, as total CFC equity does not include the noncontrolling interests of the variable interest entities NCSC and RTFC, which we are required to consolidate. See "Note 13—Business Segments" for the statements of operations for CFC.

Total equity decreased by $146 million to $1,158 million as of November 30, 2019, attributable to our reported net loss of $82 million during the six months ended November 30, 2019 and the patronage capital retirement of $63 million in September 2019.

In July 2019, the CFC Board of Directors authorized the allocation of fiscal year 2019 adjusted net income as follows: $97 million to members in the form of patronage capital; $71 million to the members' capital reserve; and $1 million to the cooperative educational fund. The amount of patronage capital allocated each year by CFC's Board of Directors is based on non-GAAP adjusted net income, which excludes the impact of derivative forward value gains (losses). We provide a reconciliation of our adjusted net income to our reported net income and an explanation of the adjustments below in "Non-GAAP Financial Measures."

In July 2019, the CFC Board of Directors also authorized the retirement of patronage capital totaling $63 million, consisting of $48 million, which represented 50% of the patronage capital allocation for fiscal year 2019, and $15 million, which represented the portion of the allocation from fiscal year 1994 net earnings that has been held for 25 years pursuant to the CFC Board of Directors policy. This amount was returned to members in cash in September 2019. The remaining portion of the amount allocated for fiscal year 2019 will be retained by CFC for 25 years under current guidelines adopted by the CFC Board of Directors in June 2009.

The CFC Board of Directors is required to make annual allocations of adjusted net income, if any. CFC has made annual retirements of allocated net earnings in 39 of the last 40 fiscal years; however, future retirements of allocated amounts are determined based on CFC's financial condition. The CFC Board of Directors has the authority to change the current practice for allocating and retiring net earnings at any time, subject to applicable laws. See “Item 1. Business—Allocation and Retirement of Patronage Capital” of our 2019 Form 10-K for additional information.

OFF-BALANCE SHEET ARRANGEMENTS

In the ordinary course of business, we engage in financial transactions that are not presented on our condensed consolidated balance sheets, or may be recorded on our condensed consolidated balance sheets in amounts that are different from the full contract or notional amount of the transaction. Our off-balance sheet arrangements consist primarily of guarantees of member obligations and unadvanced loan commitments intended to meet the financial needs of our members.

Guarantees

We provide guarantees for certain contractual obligations of our members to assist them in obtaining various forms of financing. We use the same credit policies and monitoring procedures in providing guarantees as we do for loans and commitments. If a member defaults on its obligation, we are obligated to pay required amounts pursuant to our guarantees. Meeting our guarantee obligations satisfies the underlying obligation of our member systems and prevents the exercise of remedies by the guarantee beneficiary based upon a payment default by a member. In general, the member is required to repay any amount advanced by us with accrued interest, pursuant to the documents evidencing the member’s reimbursement obligation. Table 15 displays the notional amount of our outstanding guarantee obligations, by guarantee type and by company, as of November 30, 2019 and May 31, 2019.

Table 15: Guarantees Outstanding

(Dollars in thousands)	November 30, 2019	May 31, 2019	Change
Guarantee type:			
Long-term tax-exempt bonds	**$ 308,750**	$ 312,190	$ (3,440)
Letters of credit	**339,241**	379,001	(39,760)
Other guarantees	**146,732**	146,244	488
Total	**$ 794,723**	$ 837,435	$ (42,712)
Company:			
CFC	**$ 782,132**	$ 827,344	$ (45,212)
NCSC	**12,591**	8,517	4,074
RTFC	**—**	1,574	(1,574)
Total	**$ 794,723**	$ 837,435	$ (42,712)

Of the total notional amount of our outstanding guarantee obligations of $795 million and $837 million as of November 30, 2019 and May 31, 2019, respectively, 56% and 55%, respectively, were secured by a mortgage lien on substantially all of the assets and future revenue of our member cooperatives for which we provide guarantees.

In addition to providing a guarantee on long-term tax-exempt bonds issued by member cooperatives totaling $309 million as of November 30, 2019, we also were the liquidity provider on $245 million of those tax-exempt bonds. As liquidity provider, we may be required to purchase bonds that are tendered or put by investors. Investors provide notice to the remarketing agent that they will tender or put a certain amount of bonds at the next interest rate reset date. If the remarketing agent is unable to sell such bonds to other investors by the next interest rate reset date, we have unconditionally agreed to purchase such bonds. We were not required to perform as liquidity provider pursuant to these obligations during the six months ended November 30, 2019 or the prior fiscal year.

We had outstanding letters of credit for the benefit of our members totaling $339 million as of November 30, 2019. These letters of credit relate to obligations for which we may be required to advance funds based on various trigger events specified in the letter of credit agreements. If we are required to advance funds, the member is obligated to repay the advance amount and accrued interest to us. In addition to these letters of credit, we had master letter of credit facilities in place as of November 30, 2019, under which we may be required to issue letters of credit to third parties for the benefit of our members up to an additional $54 million as of November 30, 2019. All of our master letter of credit facilities as of November 30, 2019 were subject to material adverse change clauses at the time of issuance. Prior to issuing a letter of credit under these facilities, we confirm that there has been no material adverse change in the business or condition, financial or otherwise, of the borrower since the time the loan was approved and that the borrower is currently in compliance with the letter of credit terms and conditions.

Table 16 presents the maturities for each of the next five fiscal years and thereafter of the notional amount of our outstanding guarantee obligations of $795 million as of November 30, 2019.

Table 16: Maturities of Guarantee Obligations

		Maturities of Guarantee Obligations					
(Dollars in thousands)	**Outstanding Amount**	**2020**	**2021**	**2022**	**2023**	**2024**	**Thereafter**
Guarantees	**$ 794,723**	**$ 95,041**	**$ 223,621**	**$ 27,693**	**$ 158,793**	**$ 32,545**	**$ 257,030**

We recorded a guarantee liability of $13 million and $14 million as of November 30, 2019 and May 31, 2019, respectively, for our guarantee and liquidity obligations associated with our members' debt. We provide additional information about our guarantee obligations in "Note 11—Guarantees."

Unadvanced Loan Commitments

Unadvanced loan commitments represent approved and executed loan contracts for which funds have not been advanced to borrowers. Our line of credit commitments include both contracts that are subject to material adverse change clauses and contracts that are not subject to material adverse change clauses, while our long-term loan commitments are typically subject to material adverse change clauses.

Table 17 displays the amount of unadvanced loan commitments, which consist of line of credit and long-term loan commitments, as of November 30, 2019 and May 31, 2019.

Table 17: Unadvanced Loan Commitments

	November 30, 2019		May 31, 2019		
(Dollars in thousands)	**Amount**	**% of Total**	**Amount**	**% of Total**	**Change**
Line of credit commitments:					
Conditional[1]	**$ 4,845,520**	**36%**	$ 4,845,306	37%	$ 214
Unconditional[2]	**3,070,365**	**23**	2,943,616	22	126,749
Total line of credit unadvanced commitments	**7,915,885**	**59**	7,788,922	59	126,963
Total long-term loan unadvanced commitments[1]	**5,410,294**	**41**	5,448,636	41	(38,342)
Total unadvanced loan commitments	**$13,326,179**	**100%**	$13,237,558	100%	$ 88,621

[1] Represents amount related to facilities that are subject to material adverse change clauses.
[2] Represents amount related to facilities that are not subject to material adverse change clauses.

Table 18 presents the amount of unadvanced loan commitments, by loan type, as of November 30, 2019 and the maturities of the commitment amounts for each of the next five fiscal years and thereafter.

Table 18: Notional Maturities of Unadvanced Loan Commitments

(Dollars in thousands)	Available Balance	Notional Maturities of Unadvanced Loan Commitments 2020	2021	2022	2023	2024	Thereafter
Line of credit loans......	**$ 7,915,885**	**$ 437,701**	**$4,059,897**	**$ 492,117**	**$1,362,948**	**$1,168,481**	**$ 394,741**
Long-term loans...........	**5,410,294**	**230,642**	**622,895**	**1,349,256**	**1,022,784**	**1,737,285**	**447,432**
Total............................	**$13,326,179**	**$ 668,343**	**$4,682,792**	**$1,841,373**	**$2,385,732**	**$2,905,766**	**$ 842,173**

Unadvanced line of credit commitments accounted for 59% of total unadvanced loan commitments as of November 30, 2019, while unadvanced long-term loan commitments accounted for 41% of total unadvanced loan commitments. Unadvanced line of credit commitments are typically revolving facilities for periods not to exceed five years and generally serve as supplemental back-up liquidity to our borrowers. Historically, borrowers have not drawn the full commitment amount for line of credit facilities, and we have experienced a very low utilization rate on line of credit loan facilities regardless of whether or not we are obligated to fund the facility where a material adverse change exists. Our unadvanced long-term loan commitments generally have a five-year draw period under which a borrower may advance funds prior to the expiration of the commitment. We expect that the majority of the long-term unadvanced loan commitments of $5,410 million will be advanced prior to the expiration of the commitment.

Because we historically have experienced a very low utilization rate on line of credit loan facilities, which account for the majority of our total unadvanced loan commitments, we believe the unadvanced loan commitment total of $13,326 million as of November 30, 2019 is not necessarily representative of our future funding requirements.

Unadvanced Loan Commitments—Conditional

The majority of our line of credit commitments and all our unadvanced long-term loan commitments include material adverse change clauses. Unadvanced loan commitments subject to material adverse change clauses totaled $10,256 million and $10,294 million as of November 30, 2019 and May 31, 2019, respectively, and accounted for 77% and 78%, respectively, of the combined total of unadvanced line of credit and long-term loan commitments as of both November 30, 2019 and May 31, 2019. Prior to making advances on these facilities, we confirm that there has been no material adverse change in the borrower's business or condition, financial or otherwise, since the time the loan was approved and confirm that the borrower is currently in compliance with loan terms and conditions. In some cases, the borrower's access to the full amount of the facility is further constrained by use of proceeds restrictions, imposition of borrower-specific restrictions, or by additional conditions that must be met prior to advancing funds. Since we generally do not charge a fee for the borrower to have an unadvanced amount on a loan facility that is subject to a material adverse change clause, our borrowers tend to request amounts in excess of their immediate estimated loan requirements.

Unadvanced Loan Commitments—Unconditional

Unadvanced loan commitments not subject to material adverse change clauses at the time of each advance consisted of unadvanced committed lines of credit totaling $3,070 million and $2,944 million as of November 30, 2019 and May 31, 2019, respectively. For contracts not subject to a material adverse change clause, we are generally required to advance amounts on the committed facilities as long as the borrower is in compliance with the terms and conditions of the facility.

Syndicated loan facilities, where the pricing is set at a spread over a market index rate as agreed upon by all of the participating financial institutions based on market conditions at the time of syndication, accounted for 90% of unconditional line of credit commitments as of November 30, 2019. The remaining 10% represented unconditional committed line of credit loans, for which any new advance would be made at rates determined by us.

Table 19 presents the maturities for each of the next five fiscal years and thereafter of the notional amount of unconditional committed lines of credit not subject to a material adverse change clause as of November 30, 2019.

Table 19: Maturities of Notional Amount of Unconditional Committed Lines of Credit

(Dollars in thousands)	Available Balance	Notional Maturities of Unconditional Committed Lines of Credit					
		2020	2021	2022	2023	2024	Thereafter
Committed lines of credit ..	**$ 3,070,365**	**$ 18,073**	**$ 417,498**	**$ 173,335**	**$ 1,082,986**	**$ 897,894**	**$ 480,579**

See "MD&A—Off-Balance Sheet Arrangements" in our 2019 Form 10-K for additional information on our off-balance sheet arrangements.

RISK MANAGEMENT

Overview

We face a variety of risks that can significantly affect our financial performance, liquidity, reputation and ability to meet the expectations of our members, investors and other stakeholders. As a financial services company, the major categories of risk exposures inherent in our business activities include credit risk, liquidity risk, market risk and operational risk. These risk categories are summarized below.

- *Credit risk* is the risk that a borrower or other counterparty will be unable to meet its obligations in accordance with agreed-upon terms.
- *Liquidity risk* is the risk that we will be unable to fund our operations and meet our contractual obligations or that we will be unable to fund new loans to borrowers at a reasonable cost and tenor in a timely manner.
- *Market risk* is the risk that changes in market variables, such as movements in interest rates, may adversely affect the match between the timing of the contractual maturities, re-pricing and prepayments of our financial assets and the related financial liabilities funding those assets.
- *Operational risk* is the risk of loss resulting from inadequate or failed internal controls, processes, systems, human error or external events. Operational risk also includes compliance risk, fiduciary risk, reputational risk and litigation risk.

Effective risk management is critical to our overall operations and to achieving our primary objective of providing cost-based financial products to our rural electric members while maintaining the sound financial results required for investment-grade credit ratings on our rated debt instruments. Accordingly, we have a risk-management framework that is intended to govern the principal risks we face in conducting our business and the aggregate amount of risk we are willing to accept, referred to as risk appetite, in the context of CFC's mission and strategic objectives and initiatives. We provide information on our risk management framework in our 2019 Form 10-K under "Item 7. MD&A—Risk Management—Risk Management Framework."

CREDIT RISK

Our loan portfolio, which represents the largest component of assets on our balance sheet, and guarantees account for the substantial majority of our credit risk exposure. We also engage in certain non-lending activities that may give rise to credit and counterparty settlement risk, including the purchase of investment securities and entering into derivative transactions to manage interest rate risk. Our primary credit exposure is to rural electric cooperatives that provide essential electric services to end-users, the majority of which are residential customers. We also have a limited portfolio of loans to not-for-profit and for-profit telecommunication companies. We provide a discussion of our credit risk management processes and activities in our 2019 Form 10-K under "Item 7. MD&A—Credit Risk—Credit Risk Management."

Loan Portfolio Credit Risk

Below we provide information on the credit risk profile of our loan portfolio, including security provisions, loan concentration, credit performance and our allowance for loan losses.

Security Provisions

Except when providing line of credit loans, we generally lend to our members on a senior secured basis. Long-term loans are generally secured on parity with other secured lenders (primarily RUS), if any, by all assets and revenue of the borrower with exceptions typical in utility mortgages. Line of credit loans are generally unsecured. In addition to the collateral pledged to secure our loans, distribution and power supply borrowers also are required to set rates charged to customers to achieve certain specified financial ratios.

Table 20 presents, by loan type and by company, the amount and percentage of secured and unsecured loans in our loan portfolio as of November 30, 2019 and May 31, 2019. Of our total loans outstanding, 93% were secured and 7% were unsecured as of November 30, 2019. In comparison, of our total loans outstanding, 92% were secured and 8% were unsecured as of May 31, 2019.

Table 20: Loan Portfolio Security Profile

	November 30, 2019				
(Dollars in thousands)	Secured	% of Total	Unsecured	% of Total	Total
Loan type:					
Long-term loans:					
Long-term fixed-rate loans	$ 23,496,376	98%	$ 365,208	2%	$ 23,861,584
Long-term variable-rate loans	924,814	99	6,135	1	930,949
Total long-term loans	24,421,190	99	371,343	1	24,792,533
Line of credit loans	138,026	8	1,496,320	92	1,634,346
Total loans outstanding[1]	$ 24,559,216	93	$ 1,867,663	7	$ 26,426,879
Company:					
CFC	$ 23,595,827	93%	$ 1,772,449	7%	$ 25,368,276
NCSC	625,188	89	77,091	11	702,279
RTFC	338,201	95	18,123	5	356,324
Total loans outstanding[1]	$ 24,559,216	93	$ 1,867,663	7	$ 26,426,879

	May 31, 2019				
(Dollars in thousands)	Secured	% of Total	Unsecured	% of Total	Total
Loan type:					
Long-term loans:					
Long-term fixed-rate loans	$ 22,674,330	98%	$ 419,923	2%	$ 23,094,253
Long-term variable-rate loans	1,058,434	99	8,446	1	1,066,880
Total long-term loans	23,732,764	98	428,369	2	24,161,133
Line of credit loans	121,741	7	1,622,790	93	1,744,531
Total loans outstanding[1]	$ 23,854,505	92	$ 2,051,159	8	$ 25,905,664
Company:					
CFC	$ 22,861,414	92%	$ 1,956,262	8%	$ 24,817,676
NCSC	664,618	89	78,270	11	742,888
RTFC	328,473	95	16,627	5	345,100
Total loans outstanding[1]	$ 23,854,505	92	$ 2,051,159	8	$ 25,905,664

[1] Represents the unpaid principal amount of loans as of the end of each period presented and excludes deferred loan origination costs of $11 million as of both November 30, 2019 and May 31, 2019.

As part of our strategy in managing our credit risk exposure, we entered into a long-term standby purchase commitment agreement with Farmer Mac in fiscal year 2016. Under this agreement, we may designate certain loans to be covered under the commitment, as approved by Farmer Mac, and in the event any such loan later goes into payment default for at least 90 days, upon request by us, Farmer Mac must purchase such loan at par value. The outstanding principal balance of loans covered under this agreement totaled $593 million as of November 30, 2019, compared with $619 million as of May 31, 2019. No loans have been put to Farmer Mac for purchase pursuant to this agreement. Our credit exposure is also mitigated by long-term loans guaranteed by RUS. Guaranteed RUS loans totaled $150 million and $154 million as of November 30, 2019 and May 31, 2019, respectively.

Credit Concentration

Concentrations may exist when there are amounts loaned to borrowers engaged in similar activities or in geographic areas that would cause them to be similarly impacted by economic or other conditions or when there are large exposures to single borrowers. As a tax-exempt, member-owned finance cooperative, CFC’s principal focus is to provide funding to its rural electric utility cooperative members to assist them in acquiring, constructing and operating electric distribution systems, power supply systems and related facilities. Because we lend primarily to our rural electric utility cooperative members, we have a loan portfolio subject to single-industry and single-obligor concentration risks. Outstanding loans to electric utility organizations represented approximately 99% of our total outstanding loan portfolio as of November 30, 2019, unchanged from May 31, 2019. Although our organizational structure and mission results in single-industry concentration, we serve a geographically diverse group of electric and telecommunications borrowers throughout the United States, with a total of 898 borrowers located in 49 states as of November 30, 2019. Loans to borrowers in Texas accounted for 15% of total loans outstanding as of both November 30, 2019 and May 31, 2019, representing the largest concentration of outstanding loans to borrowers and the largest number of borrowers in any one state.

Single-Obligor Concentration

Table 21 displays the outstanding loan exposure for the 20 largest borrowers, by company, as of November 30, 2019 and May 31, 2019. The 20 largest borrowers consisted of 11 distribution systems, eight power supply systems and one NCSC associate as of November 30, 2019. The 20 largest borrowers consisted of 10 distribution systems, nine power supply systems and one NCSC associate as of May 31, 2019. The largest total exposure to a single borrower or controlled group represented approximately 2% of total loans outstanding as of both November 30, 2019 and May 31, 2019.

Table 21: Loan Exposure to 20 Largest Borrowers

(Dollars in thousands)	November 30, 2019 Amount	November 30, 2019 % of Total	May 31, 2019 Amount	May 31, 2019 % of Total	Change
By company:					
CFC	**$ 5,441,259**	**21%**	$ 5,369,879	21%	$ 71,380
NCSC	**248,476**	**1**	245,559	1	2,917
Total loan exposure to 20 largest borrowers	**5,689,735**	**22**	5,615,438	22	74,297
Less: Loans covered under Farmer Mac standby purchase commitment	**(350,983)**	**(1)**	(360,012)	(1)	9,029
Net loan exposure to 20 largest borrowers	**$ 5,338,752**	**21%**	$ 5,255,426	21%	$ 83,326

Although CFC has been exposed to single-industry and single-obligor concentrations since inception in 1969, we historically have experienced limited defaults and very low credit losses in our electric loan portfolio. The likelihood of default and loss for our electric cooperative borrowers, which account for 99% of our outstanding loans as of November 30, 2019, has been low due to several factors. First, as discussed above, we generally lend to our members on a senior secured basis. Second, electric cooperatives typically are consumer-owned, not-for-profit entities that provide an essential service to end-users, the majority of which are residential customers. Third, electric cooperatives face limited competition, as they tend to operate in exclusive territories not serviced by public investor-owned utilities. Fourth, the majority operate in states where electric cooperatives are not subject to rate regulation. Thus, they are able to make rate adjustments to pass along increased costs to the end customer without first obtaining state regulatory approval, allowing them to cover operating costs and generate sufficient earnings and cash flows to service their debt obligations. Finally, they tend to adhere to a conservative business strategy model that has historically resulted in a relatively stable, resilient operating environment and overall strong financial performance and credit strength for the electric cooperative network.

Credit Quality

Assessing the overall credit quality of our loan portfolio and measuring our credit risk is an ongoing process that involves tracking payment status, the internal risk ratings of our borrowers, troubled debt restructurings, nonperforming and impaired loans, charge-offs and other indicators of credit risk. We monitor and subject each borrower and loan facility in our loan portfolio to an individual risk assessment based on quantitative and qualitative factors. Internal risk ratings and payment status trends are indicators, among others, of the probability of borrower default and level of credit risk in our loan portfolio.

The overall credit quality of our loan portfolio remained high, as evidenced by our strong credit performance metrics, including low levels of criticized exposure. As displayed in Table 20 above, 93% and 92% of our total outstanding loans were secured as of November 30, 2019 and May 31, 2019, respectively. We had no delinquent or nonperforming loans as of November 30, 2019 and May 31, 2019. In addition, we had no loan defaults or charge-offs during the six months ended November 30, 2019.

Borrower Risk Ratings

Our borrower risk ratings are intended to align with banking regulatory agency credit risk rating definitions of pass and criticized classifications, with loans classified as criticized further classified as special mention, substandard or doubtful. Pass ratings reflect relatively low probability of default, while criticized ratings have a higher probability of default. Loans with borrowers classified as criticized totaled $199 million, or 0.75%, of total loans outstanding as of November 30, 2019. Of this amount, $173 million, was classified as substandard. In comparison, loans with borrowers classified as criticized totaled $202 million, or 0.78%, of total loans outstanding as of May 31, 2019. Of this amount, $176 million was classified as substandard. We did not have any loans classified as doubtful as of November 30, 2019 or May 31, 2019. See "Note 4—Loans" for a description of each of the risk rating classifications.

Troubled Debt Restructurings

We actively monitor problem loans and, from time to time, attempt to work with borrowers to manage such exposures through loan workouts or modifications that better align with the borrower's current ability to pay. A loan restructuring or modification of terms is accounted for as a troubled debt restructuring ("TDR") if, for economic or legal reasons related to the borrower's financial difficulties, a concession is granted to the borrower that we would not otherwise consider. TDR loans generally are initially placed on nonaccrual status, although in many cases such loans were already on nonaccrual status prior to modification. Interest accrued but not collected at the date a loan is placed on nonaccrual status is reversed against earnings. These loans may be returned to performing status and the accrual of interest resumed if the borrower performs under the modified terms for an extended period of time, and we expect the borrower to continue to perform in accordance with the modified terms. In certain limited circumstances in which a TDR loan is current at the modification date, the loan may remain on accrual status at the time of modification.

Table 22 presents the carrying value of loans modified as TDRs and the performance status as of November 30, 2019 and May 31, 2019. Our last modification of a loan that met the definition of a TDR occurred in fiscal year 2017. Although TDR loans may be returned to performing status if the borrower performs under the modified terms of the loan for an extended period of time, TDR loans are considered individually impaired.

Table 22: Troubled Debt Restructured Loans

	November 30, 2019		May 31, 2019	
(Dollars in thousands)	**Carrying Amount**	**% of Total Loans Outstanding**	**Carrying Amount**	**% of Total Loans Outstanding**
TDR loans:				
CFC	**$ 5,755**	**0.02%**	$ 6,261	0.03%
RTFC	**5,342**	**0.02**	5,592	0.02
Total TDR loans	**$ 11,097**	**0.04%**	$ 11,853	0.05%
Performance status of TDR loans:				
Performing TDR loans	**$ 11,097**	**0.04%**	$ 11,853	0.05%

As indicated in Table 22 above, we did not have any TDR loans classified as nonperforming as of November 30, 2019 or May 31, 2019.

Nonperforming Loans

In addition to TDR loans that may be classified as nonperforming, we also may have nonperforming loans that have not been modified as a TDR loan. We classify such loans as nonperforming at the earlier of the date when we determine: (i) interest or principal payments on the loan is past due 90 days or more; (ii) as a result of court proceedings, the collection of interest or principal payments based on the original contractual terms is not expected; or (iii) the full and timely collection of interest or principal is otherwise uncertain. Once a loan is classified as nonperforming, we generally place the loan on nonaccrual status. Interest accrued but not collected at the date a loan is placed on nonaccrual status is reversed against earnings. We have not had any loans classified as nonperforming other than TDR loans, since the fiscal year ended May 31, 2014.

Net Charge-Offs

Charge-offs represent the amount of a loan that has been removed from our consolidated balance sheet when the loan is deemed uncollectible. Generally the amount of a charge-off is the recorded investment in excess of the fair value of the expected cash flows from the loan, or, if the loan is collateral dependent, the fair value of the underlying collateral securing the loan. We report charge-offs net of amounts recovered on previously charged off loans. We had no loan defaults or charge-offs during the six months ended November 30, 2019 and 2018.

Historical Loan Losses

In its 50-year history, CFC has experienced only 16 defaults, of which 10 resulted in no loss and six resulted in cumulative historical net charge-offs of $86 million for our electric utility loan portfolio. Of this amount, $67 million was attributable to electric utility power supply cooperatives and $19 million was attributable to electric distribution cooperatives. We discuss the reasons loans to electric utility cooperatives, our principal lending market, typically have a relatively low risk of default above under "Credit Concentration."

In comparison, since RTFC's inception in 1987, we have had 15 defaults and cumulative net charge-offs attributable to telecommunication borrowers totaling $427 million, the most significant of which was a charge-off of $354 million in fiscal year 2011. This charge-off related to outstanding loans to Innovative Communications Corporation ("ICC"), a former RTFC member, and the transfer of ICC's assets in foreclosure to Caribbean Asset Holdings, LLC.

Outstanding loans to electric utility organizations totaled $26,071 million and accounted for 99% of our total outstanding loan portfolio as of November 30, 2019, while outstanding RTFC telecommunications loans totaled $356 million and accounted for 1% of our total outstanding loan portfolio as of November 30, 2019.

We provide additional information on the credit quality of our loan portfolio in "Note 4—Loans."

Allowance for Loan Losses

The allowance for loan losses represents management's estimate of probable losses inherent in our loan portfolio as of each balance sheet date. We determine the allowance based on borrower risk ratings, historical loss experience, specific problem loans, economic conditions and other pertinent factors that, in management's judgment, may affect the risk of loss in our loan portfolio.

Table 23 summarizes changes in the allowance for loan losses for the three and six months ended November 30, 2019 and 2018, and provides a comparison of the allowance by company as of November 30, 2019 and May 31, 2019.

Table 23: Allowance for Loan Losses

	Three Months Ended November 30,		Six Months Ended November 30,	
(Dollars in thousands)	**2019**	**2018**	**2019**	**2018**
Beginning balance	**$ 17,565**	$ 18,692	**$ 17,535**	$ 18,801
Benefit for loan losses	**(1,045)**	(1,788)	**(1,015)**	(1,897)
Ending balance	**$ 16,520**	$ 16,904	**$ 16,520**	$ 16,904
			November 30, 2019	**May 31, 2019**
Allowance for loan losses by company:				
CFC			**$ 13,076**	$ 13,120
NCSC			**810**	2,007
RTFC			**2,634**	2,408
Total			**$ 16,520**	$ 17,535
Allowance coverage ratios:				
Total loans outstanding[(1)]			**$ 26,426,879**	$ 25,905,664
Percentage of total loans outstanding			**0.06%**	0.07 %

(1) Represents the unpaid principal amount of loans as of the end of each period presented and excludes unamortized deferred loan origination costs of $11 million as of both November 30, 2019 and May 31, 2019.

Our allowance for loan losses was $17 million as of November 30, 2019, compared with $18 million as of May 31, 2019. The allowance coverage ratio was 0.06% and 0.07% as of November 30, 2019 and May 31, 2019, respectively. We had no loans classified as nonperforming as of November 30, 2019 or May 31, 2019. We experienced no charge-offs during the three and six months ended November 30, 2019 and 2018. Loans designated as individually impaired totaled $11 million and $12 million as of November 30, 2019 and May 31, 2019, respectively, and the specific allowance related to those loans totaled $1 million as of both November 30, 2019 and May 31, 2019.

See “MD&A—Critical Accounting Policies and Estimates—Allowance for Loan Losses” and “Note 1—Summary of Significant Accounting Policies” in our 2019 Form 10-K for additional information on the methodology for determining our allowance for loan losses and the key assumptions. See “Note 4—Loans” of this Report for additional information on the credit quality of our loan portfolio.

Counterparty Credit Risk

We are exposed to counterparty credit risk related to the performance of the parties with which we enter into financial transactions, primarily for derivative instruments, cash and time deposit accounts and our investment security holdings. To mitigate this risk, we only enter into these transactions with financial institutions with investment-grade ratings. Our cash and time deposits with financial institutions generally have an original maturity of less than one year.

We manage our derivative counterparty credit risk by monitoring the overall credit worthiness of each counterparty based on our internal counterparty credit risk scoring model; using counterparty-specific credit risk limits; executing master netting arrangements; and diversifying our derivative transactions among multiple counterparties. We also require that our derivative counterparties be a participant in one of our committed bank revolving line of credit agreements. Our active derivative counterparties had credit ratings ranging from Aa2 to Baa2 by Moody’s Investors Service (“Moody’s”) and from AA- to BBB+ by S&P Global Inc. (“S&P”) as of November 30, 2019. Our largest counterparty exposure, based on the outstanding notional amount, represented approximately 23% of the total outstanding notional amount of derivatives as of both November 30, 2019 and May 31, 2019.

Credit Risk-Related Contingent Features

Our derivative contracts typically contain mutual early-termination provisions, generally in the form of a credit rating trigger. Under the mutual credit rating trigger provisions, either counterparty may, but is not obligated to, terminate and settle the agreement if the credit rating of the other counterparty falls below a level specified in the agreement. If a derivative contract is terminated, the amount to be received or paid by us would be equal to the prevailing fair value, as defined in the agreement, as of the termination date.

Our senior unsecured credit ratings from Moody’s and S&P were A2 and A, respectively, as of November 30, 2019. Both Moody’s and S&P had our ratings on stable outlook as of November 30, 2019. Table 24 displays the notional amounts of our derivative contracts with rating triggers as of November 30, 2019, and the payments that would be required if the contracts were terminated as of that date because of a downgrade of our unsecured credit ratings or the counterparty’s unsecured credit ratings below A3/A-, below Baa1/BBB+, to or below Baa2/BBB, below Baa3/BBB-, or to or below Ba2/BB+ by Moody’s or S&P, respectively. In calculating the payment amounts that would be required upon termination of the derivative contracts, we assumed that the amounts for each counterparty would be netted in accordance with the provisions of the counterparty's master netting agreements. The net payment amounts are based on the fair value of the underlying derivative instrument, excluding the credit risk valuation adjustment, plus any unpaid accrued interest amounts.

Table 24: Rating Triggers for Derivatives

(Dollars in thousands)	Notional Amount	Payable Due From CFC	Receivable Due to CFC	Net (Payable)/ Receivable
Impact of rating downgrade trigger:				
Falls below A3/A-[(1)]	**$ 47,955**	**$ (9,457)**	**$ —**	**$ (9,457)**
Falls below Baa1/BBB+	**6,861,619**	**(346,099)**	**—**	**(346,099)**
Falls to or below Baa2/BBB [(2)]	**479,629**	**(13,704)**	**—**	**(13,704)**
Falls below Baa3/BBB-	**221,078**	**(12,385)**	**—**	**(12,385)**
Total	**$ 7,610,281**	**$ (381,645)**	**$ —**	**$ (381,645)**

[(1)] Rating trigger for CFC falls below A3/A-, while rating trigger for counterparty falls below Baa1/BBB+ by Moody’s or S&P, respectively.
[(2)] Rating trigger for CFC falls to or below Baa2/BBB, while rating trigger for counterparty falls to or below Ba2/BB+ by Moody’s or S&P, respectively.

We have outstanding notional amount of derivatives with one counterparty subject to a ratings trigger and early termination provision in the event of a downgrade of CFC's senior unsecured credit ratings below Baa3, BBB- or BBB- by Moody's, S&P or Fitch Ratings Inc. ("Fitch"), respectively, which is not included in the above table, totaling $165 million as of November 30, 2019. These contracts were in an unrealized loss position of $31 million as of November 30, 2019.

The aggregate fair value amount, including the credit valuation adjustment, of all interest rate swaps with rating triggers that were in a net liability position was $402 million as of November 30, 2019. There were no counterparties that fell below the rating trigger levels in our interest swap contracts as of November 30, 2019. If a counterparty has a credit rating that falls below the rating trigger level specified in the interest swap contract, we have the option to terminate all derivatives with the counterparty. However, we generally do not terminate such agreements prematurely because our interest rate swaps are critical to our matched funding strategy to mitigate interest rate risk.

See "Item 1A. Risk Factors" in our 2019 Form 10-K for additional information about credit risk related to our business.

LIQUIDITY RISK

We define liquidity as the ability to convert assets into cash quickly and efficiently, maintain access to readily available funding and rollover or issue new debt, under both normal operating conditions and periods of CFC-specific and/or market stress, to ensure that we can meet borrower loan requests, pay current and future obligations and fund our operations on a cost-effective basis. Our primary sources of liquidity include cash flows from operations, member loan repayments, committed bank revolving lines of credit, committed loan facilities under the Guaranteed Underwriter Program, revolving note purchase agreements with Farmer Mac and our ability to issue debt in the capital markets, to our members and in private placements. We provide a discussion of our liquidity risk-management framework and activities undertaken to manage liquidity risk in our 2019 Form 10-K under "Item 7. MD&A—Liquidity Risk—Liquidity Risk Management."

Available Liquidity

As part of our strategy in managing liquidity risk and meeting our liquidity objectives, we seek to maintain a substantial level of on-balance sheet and off-balance sheet sources of liquidity that are readily available for access to meet our near-term liquidity needs. Table 25 presents the sources of our available liquidity as of November 30, 2019 and May 31, 2019.

Table 25: Available Liquidity

	November 30, 2019			May 31, 2019		
(Dollars in millions)	**Total**	**Accessed**	**Available**	**Total**	**Accessed**	**Available**
Cash and cash equivalents	**$ 114**	**$ —**	**$ 114**	$ 178	$ —	$ 178
Committed bank revolving line of credit agreements—unsecured[1]	**2,725**	**3**	**2,722**	2,975	3	2,972
Guaranteed Underwriter Program committed facilities—secured[2]	**7,298**	**5,948**	**1,350**	7,298	5,948	1,350
Farmer Mac revolving note purchase agreement, dated March 24, 2011, as amended—secured[3]	**5,200**	**2,945**	**2,255**	5,200	3,055	2,145
Farmer Mac revolving note purchase agreement, dated July 31, 2015, as amended—secured[4]	**300**	**150**	**150**	300	—	300
Total	**$ 15,637**	**$ 9,046**	**$ 6,591**	$ 15,951	$ 9,006	$ 6,945

(1)The committed bank revolving line of credit agreements consist of a three-year and a five-year line of credit agreement. The accessed amount of $3 million as of both November 30, 2019 and May 31, 2019, relates to letters of credit issued pursuant to the five-year line of credit agreement.

(2)The committed facilities under the Guaranteed Underwriter Program are not revolving.

(3)Availability subject to market conditions.

(4) This Farmer Mac revolving note purchase agreement was terminated effective December 20, 2019.

We believe we have sufficient liquidity from the available on- and off-balance sheet liquidity sources presented above in Table 25 and our ability to issue debt to meet demand for member loan advances and satisfy our obligations to repay long-term debt maturing over the next 12 months.

Borrowing Capacity Under Current Facilities

Following is a discussion of our borrowing capacity and key terms and conditions under our revolving line of credit agreements with banks and committed loan facilities under the Guaranteed Underwriter Program and revolving note purchase agreements with Farmer Mac.

Committed Bank Revolving Line of Credit Agreements—Unsecured

Our committed bank revolving lines of credit may be used for general corporate purposes; however, we generally rely on them as a backup source of liquidity for our member and dealer commercial paper. We had $2,725 million of commitments under committed bank revolving line of credit agreements as of November 30, 2019. Under our current committed bank revolving line of credit agreements, we have the ability to request up to $300 million of letters of credit, which would result in a reduction in the remaining available amount under the facilities.

On November 26, 2019, we amended the three-year and five-year committed bank revolving line of credit agreements to extend the maturity date of the three-year agreement to November 28, 2022, and to terminate certain bank commitments totaling $125 million under the three-year agreement and $125 million under the five-year agreement. The total commitment amount under the amended three-year and five-year bank revolving line of credit agreements is $1,315 million and $1,410 million, respectively, resulting in a combined total commitment amount under the two facilities of $2,725 million.

Table 26 presents the total commitment, the net amount available for use and the outstanding letters of credit under our committed bank revolving line of credit agreements as of November 30, 2019. We did not have any outstanding borrowings under our bank revolving line of credit agreements as of November 30, 2019.

Table 26: Committed Bank Revolving Line of Credit Agreements

	November 30, 2019				
(Dollars in millions)	**Total Commitment**	**Letters of Credit Outstanding**	**Net Available for Advance**	**Maturity**	**Annual Facility Fee [1]**
3-year agreement	**$ 1,315**	**$ —**	**$ 1,315**	November 28, 2022	7.5 bps
5-year agreement	**1,410**	**3**	**1,407**	November 28, 2023	10 bps
Total	**$ 2,725**	**$ 3**	**$ 2,722**		

[1]Facility fee based on CFC's senior unsecured credit ratings in accordance with the established pricing schedules at the inception of the related agreement.

Our committed bank revolving line of credit agreements do not contain a material adverse change clause or rating triggers that would limit the banks' obligations to provide funding under the terms of the agreements; however, we must be in compliance with the covenants to draw on the facilities. We have been and expect to continue to be in compliance with the covenants under our committed bank revolving line of credit agreements. As such, we could draw on these facilities to repay dealer or member commercial paper that cannot be rolled over. See "Financial Ratios and Debt Covenants" below for additional information, including the specific financial ratio requirements under our committed bank revolving line of credit agreements.

Guaranteed Underwriter Program Committed Facilities—Secured

Under the Guaranteed Underwriter Program, we can borrow from the Federal Financing Bank and use the proceeds to make new loans and refinance existing indebtedness. As part of the program, we pay fees, based on outstanding borrowings supporting the USDA Rural Economic Development Loan and Grant program. The borrowings under this program are guaranteed by RUS.

We had up to $1,350 million available for access under the Guaranteed Underwriter Program as of November 30, 2019. Of this amount, $600 million is available for advance through July 15, 2022 and $750 million is available for advance through July 15, 2023. On September 25, 2019, we received a commitment letter for the guarantee by RUS of a $500 million loan facility from the Federal Financing Bank under the Guaranteed Underwriter Program.

We are required to pledge eligible distribution system loans or power supply system loans as collateral in an amount at least equal to the total outstanding borrowings under the Guaranteed Underwriter Program. See "Consolidated Balance Sheet Analysis—Debt—Collateral Pledged" and "Note 4—Loans" for additional information on pledged collateral.

Farmer Mac Revolving Note Purchase Agreements—Secured

As indicated in Table 25, we had two revolving note purchase agreements with Farmer Mac as of November 30, 2019, which together allowed us to borrow up to $5,500 million from Farmer Mac. Under the first revolving note purchase agreement, dated March 24, 2011, as amended, we can borrow up to $5,200 million as of November 30, 2019, at any time, subject to market conditions, through January 11, 2022. This date automatically extends on each anniversary date of the closing for an additional year, unless prior to any such anniversary date, Farmer Mac provides us with a notice that the draw period will not be extended beyond the remaining term. Pursuant to this revolving note purchase agreement, we can borrow, repay and re-borrow funds at any time through maturity, as market conditions permit, provided that the outstanding principal amount at any time does not exceed the total available under the agreement. We had outstanding secured notes payable totaling $2,945 million and $3,055 million as of November 30, 2019 and May 31, 2019, respectively, under this Farmer Mac revolving note purchase agreement. The available borrowing amount totaled $2,255 million as of November 30, 2019.

Under our second revolving note purchase agreement with Farmer Mac, dated July 31, 2015, as amended, we could borrow up to $300 million at any time through December 20, 2023 at a fixed spread over LIBOR. This agreement also allowed us to borrow, repay and re-borrow funds at any time through maturity, provided that the outstanding principal amount at any time does not exceed the total available under the agreement. Under this revolving note purchase agreement, we had outstanding secured notes payable totaling $150 million and an available borrowing amount of $150 million as of November 30, 2019. We had no notes payable outstanding under this agreement as of May 31, 2019. On November 14, 2019, we provided notice to Farmer Mac of termination of the $300 million revolving note purchase agreement, effective December 20, 2019. We repaid the outstanding secured notes payable of $150 million on December 4, 2019, prior to termination of the agreement.

Under the terms of the first Farmer Mac revolving note purchase agreement of $5,200 million discussed above, the commitment amount increases by $300 million in the event of termination of the second revolving note purchase agreement of $300 million. As a result of the termination of the second revolving note purchase agreement, the commitment amount under the $5,200 million revolving note purchase agreement increased to $5,500 million, effective December 20, 2019.

Pursuant to both Farmer Mac revolving note purchase agreements, we are required to pledge eligible distribution system or power supply system loans as collateral in an amount at least equal to the total principal amount of notes outstanding. See "Consolidated Balance Sheet Analysis—Debt—Collateral Pledged" and "Note 4—Loans" for additional information on pledged collateral.

Short-Term Borrowings and Long-Term and Subordinated Debt

Additional funding is provided by short-term borrowings and issuances of long-term and subordinated debt. We rely on short-term borrowings as a source to meet our daily, near-term funding needs. Long-term and subordinated debt represents the most significant component of our funding. The issuance of long-term debt allows us to reduce our reliance on short-term borrowings and effectively manage our refinancing and interest rate risk.

Short-Term Borrowings

Our short-term borrowings consist of commercial paper, which we offer to members and dealers, select notes and daily liquidity fund notes offered to members, and bank-bid notes and medium-term notes offered to members and dealers.

Table 27 displays the composition, by funding source, of our short-term borrowings as of November 30, 2019 and May 31, 2019. Member borrowings accounted for 75% of total short-term borrowings as of November 30, 2019, compared with 74% of total short-term borrowings as of May 31, 2019.

Table 27: Short-Term Borrowings—Funding Sources

	November 30, 2019		May 31, 2019	
(Dollars in thousands)	**Amount Outstanding**	**% of Total Short-Term Borrowings**	**Amount Outstanding**	**% of Total Short-Term Borrowings**
Funding source:				
Members	**$ 3,600,162**	**75%**	$ 2,663,110	74%
Private placement—Farmer Mac notes payable	**150,000**	**3**	—	—
Capital markets	**1,038,862**	**22**	944,616	26
Total	**$ 4,789,024**	**100%**	$ 3,607,726	100%

Table 28 displays the composition, by product type, of our short-term borrowings as of November 30, 2019 and May 31, 2019.

Table 28: Short-Term Borrowings

	November 30, 2019		May 31, 2019	
(Dollars in thousands)	**Amount Outstanding**	**% of Total Debt Outstanding**	**Amount Outstanding**	**% of Total Debt Outstanding**
Short-term borrowings:				
Commercial paper:				
Commercial paper to dealers, net of discounts	**$ 1,038,862**	**4%**	$ 944,616	4%
Commercial paper to members, at par	**1,371,902**	**5**	1,111,795	4
Total commercial paper	**2,410,764**	**9**	2,056,411	8
Select notes to members	**1,470,579**	**6**	1,023,952	4
Daily liquidity fund notes to members	**508,169**	**2**	298,817	1
Medium-term notes sold to members	**249,512**	**1**	228,546	1
Farmer Mac revolving facility	**150,000**	**1**	—	—
Total short-term borrowings	**$ 4,789,024**	**19%**	$ 3,607,726	14%

Our short-term borrowings totaled $4,789 million and accounted for 19% of total debt outstanding as of November 30, 2019, compared with $3,608 million, or 14% of total debt outstanding as of May 31, 2019. Of the total commercial paper, $1,039 million, or 4% of total debt outstanding, was issued to dealers as of November 30, 2019, compared with $945 million, or 4% of total debt outstanding, that was issued to dealers as of May 31, 2019. Our intent is to manage our short-term wholesale funding risk by maintaining outstanding dealer commercial paper at an amount below $1,250 million for the foreseeable future.

Long-Term and Subordinated Debt

In addition to access to private debt facilities, we also issue debt in the public capital markets. Pursuant to Rule 405 of the Securities Act, we are classified as a "well-known seasoned issuer." In September 2019, we filed a new shelf registration statement for our collateral trust bonds under which we can issue an unlimited amount of collateral trust bonds until September 2022. See "Item 7. MD&A—Liquidity Risk" in our 2019 Form 10-K for additional information on our shelf registration statements with the SEC.

As discussed in "Consolidated Balance Sheet Analysis—Debt," long-term and subordinated debt totaled $20,776 million and accounted for 81% of total debt outstanding as of November 30, 2019, from $21,554 million, or 86%, of total debt outstanding as of May 31, 2019. Table 29 summarizes long-term and subordinated debt issuances and repayments during the six months ended November 30, 2019.

Table 29: Issuances and Repayments of Long-Term and Subordinated Debt[1]

	Six Months Ended November 30, 2019		
(Dollars in thousands)	**Issuances**	**Repayments[2]**	**Change**
Long-term and subordinated debt activity:			
Collateral trust bonds	**$ —**	**$ 305,000**	**$ (305,000)**
Guaranteed Underwriter Program notes payable	**—**	**46,709**	**(46,709)**
Farmer Mac notes payable	**—**	**109,960**	**(109,960)**
Medium-term notes sold to members	**160,595**	**134,136**	**26,459**
Medium-term notes sold to dealers	**—**	**345,022**	**(345,022)**
Other notes payable	**—**	**6,000**	**(6,000)**
Members' subordinated certificates	**1,427**	**3,504**	**(2,077)**
Total	**$ 162,022**	**$ 950,331**	**$ (788,309)**

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[1] Amounts exclude unamortized debt issuance costs and discounts.
[2] Repayments include principal maturities, scheduled amortization payments, repurchases and redemptions.

Table 30 summarizes the scheduled amortization of the principal amount of long-term debt, subordinated deferrable debt and members' subordinated certificates as of November 30, 2019.

Table 30: Principal Maturity of Long-Term and Subordinated Debt

(Dollars in thousands)	**Amount Maturing [1]**	**% of Total**
Fiscal year ending:		
May 31, 2020	**$ 717,037**	**3%**
May 31, 2021	**1,980,053**	**10**
May 31, 2022	**1,976,692**	**10**
May 31, 2023	**1,198,691**	**6**
May 31, 2024	**1,092,521**	**5**
Thereafter	**13,810,478**	**66**
Total	**$ 20,775,472**	**100%**

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[1] Excludes $0.06 million in subscribed and unissued member subordinated certificates for which a payment has been received. Member loan subordinated certificates totaling $252 million amortize annually based on the unpaid principal balance of the related loan.

We provide additional information on our financing activities above under "Consolidated Balance Sheet Analysis—Debt."

Investment Portfolio

In addition to our primary sources of liquidity discussed above, we have an investment portfolio, which totaled $637 million and $653 million as of November 30, 2019 and May 31, 2019, respectively, composed of equity securities and held-to-maturity investment securities. The decrease in our investment portfolio of $16 million during the six months ended November 30, 2019 was primarily attributable to the redemption by Farmer Mac of its Series B non-cumulative preferred stock on June 12, 2019, at a redemption price of $25.00 per share, plus any declared and unpaid dividends through and including the redemption date. The amortized cost of our investment in the Farmer Mac Series B non-cumulative preferred stock was $25 million as of the redemption date, which equaled the per share redemption price.

Our investment portfolio is unencumbered and structured so that the securities generally have active secondary or resale markets under normal market conditions. The objective of the portfolio is to achieve returns commensurate with the level of risk assumed subject to CFC's investment policy and guidelines and liquidity requirements. While we have structured our investment portfolio to remain adequately liquid to serve as a contingent supplemental source of liquidity for unanticipated liquidity needs, we have the positive intent and ability to hold to maturity investment securities classified as held to maturity. As such, we have classified them as held to maturity on our condensed consolidated balance sheets. Our held-to-maturity investment securities totaled $574 million and $565 million as of November 30, 2019 and May 31, 2019, respectively. The average contractual maturity and weighted average coupon of our held-to-maturity investment securities was three years and 2.90%, respectively, as of November 30, 2019.

Pursuant to our investment policy and guidelines, all fixed-income debt securities, at the time of purchase, must be rated at least investment grade and on stable outlook based on external credit ratings from at least two of the leading global credit rating agencies, when available, or the corresponding equivalent, when not available. Securities rated investment grade, that is those rated Baa3 or higher by Moody's or BBB- or higher by S&P or BBB- or higher by Fitch, are generally considered by the rating agencies to be of lower credit risk than non-investment grade securities. We have the positive intent and ability to hold these securities to maturity.

We provide additional information on our investment securities in "Note 3—Investment Securities."

Projected Near-Term Sources and Uses of Liquidity

As discussed above, our primary sources of liquidity include cash flows from operations, member loan repayments, committed bank revolving lines of credit, committed loan facilities, short-term borrowings and funds from the issuance of long-term and subordinated debt. Our primary uses of liquidity include loan advances to members, principal and interest payments on borrowings, periodic settlement payments related to derivative contracts, and operating expenses.

Table 31 below displays our projected sources and uses of cash from debt and investment activity, by quarter, over the next six quarters through the quarter ending May 31, 2021. Our assumptions also include the following: (i) the estimated issuance of long-term debt, including collateral trust bonds and private placement of term debt, is based on maintaining a matched funding position within our loan portfolio with our bank revolving lines of credit serving as a backup liquidity facility for commercial paper and on maintaining outstanding dealer commercial paper at an amount below $1,250 million; (ii) long-term loan scheduled amortization payments represent the scheduled long-term loan payments for loans outstanding as of November 30, 2019, and our current estimate of long-term loan prepayments, which the amount and timing of are subject to change; (iii) other loan repayments and other loan advances primarily relate to line of credit repayments and advances; (iv) long-term debt maturities reflect scheduled maturities of outstanding term debt for the periods presented; and (v) long-term loan advances reflect our current estimate of member demand for loans, the amount and timing of which are subject to change.

Table 31: Projected Sources and Uses of Liquidity from Debt and Investment Activity[(1)]

	Projected Sources of Liquidity				Projected Uses of Liquidity				
(Dollars in millions)	Long-Term Debt Issuance	Anticipated Long-Term Loan Repayments[(2)]	Other Loan Repayments[(3)]	Total Projected Sources of Liquidity	Long-Term Debt Maturities[(4)]	Long-Term Loan Advances	Other Loan Advances[(5)]	Total Projected Uses of Liquidity	Other Sources/ (Uses) of Liquidity[(6)]
3Q FY 2020	$ 890	$ 326	$ 171	$ 1,387	$ 650	$ 391	$ 225	$ 1,266	$ 230
4Q FY 2020	190	320	8	518	233	347	—	580	(15)
1Q FY 2021	920	331	—	1,251	592	325	—	917	(297)
2Q FY 2021	570	335	—	905	547	350	—	897	(23)
3Q FY 2021	320	317	—	637	335	310	—	645	—
4Q FY 2021	570	302	—	872	576	300	—	876	(49)
Total	$ 3,460	$ 1,931	$ 179	$ 5,570	$ 2,933	$ 2,023	$ 225	$ 5,181	$ (154)

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(1) The dates presented represent the end of each quarterly period through the quarter ending May 31, 2021.

(2) Anticipated long-term loan repayments include scheduled long-term loan amortizations, anticipated cash repayments at repricing date and sales.

(3) Other loan repayments include anticipated short-term loan repayments.

(4) Long-term debt maturities also include medium-term notes with an original maturity of one year or less and expected early redemptions of debt.

[5]Other loan advances include anticipated short-term loan advances.
[6] Includes net increase or decrease to dealer commercial paper, member commercial paper and select notes, and purchases and maturity of investments.

As displayed in Table 31, we currently project long-term advances of $1,413 million over the next 12 months, which we anticipate will exceed anticipated loan repayments over the same period of $1,312 million by approximately $101 million. The estimates presented above are developed at a particular point in time based on our expected future business growth and funding. Our actual results and future estimates may vary, perhaps significantly, from the current projections, as a result of changes in market conditions, management actions or other factors.

Credit Ratings

Our funding and liquidity, borrowing capacity, ability to access capital markets and other sources of funds and the cost of these funds are partially dependent on our credit ratings. Rating agencies base their ratings on numerous factors, including liquidity, capital adequacy, industry position, member support, management, asset quality, quality of earnings and the probability of systemic support. Significant changes in these factors could result in different ratings. Table 32 displays our credit ratings as of November 30, 2019. During the current quarter, Moody's, S&P and Fitch affirmed our ratings and outlook. Our credit ratings as of November 30, 2019 are unchanged from May 31, 2019, and as of the date of the filing of this Report.

Table 32: Credit Ratings

	November 30, 2019		
	Moody's	**S&P**	**Fitch**
Long-term issuer credit rating[1]	**A2**	**A**	**A**
Senior secured debt[2]	**A1**	**A**	**A+**
Senior unsecured debt[3]	**A2**	**A**	**A**
Subordinated debt	**A3**	**BBB+**	**BBB+**
Commercial paper	**P-1**	**A-1**	**F1**
Outlook	**Stable**	**Stable**	**Stable**

[1] Based on our senior unsecured debt rating.
[2]Applies to our collateral trust bonds.
[3]Applies to our medium-term notes.

In order to access the commercial paper markets at attractive rates, we believe we need to maintain our current commercial paper credit ratings of P-1 by Moody's, A-1 by S&P and F1 by Fitch. In addition, the notes payable to the Federal Financing Bank and guaranteed by RUS under the Guaranteed Underwriter Program contain a provision that if during any portion of the fiscal year, our senior secured credit ratings do not have at least two of the following ratings: (i) A3 or higher from Moody's, (ii) A- or higher from S&P, (iii) A- or higher from Fitch or (iv) an equivalent rating from a successor rating agency to any of the above rating agencies, we may not make cash patronage capital distributions in excess of 5% of total patronage capital. See "Credit Risk—Counterparty Credit Risk—Credit Risk-Related Contingent Features" above for information on credit rating provisions related to our derivative contracts.

Financial Ratios

Our debt-to-equity ratio increased to 22.81 as of November 30, 2019, from 19.80 as of May 31, 2019, due to the combined impact of an increase in debt to fund loan growth, an increase in derivative liabilities and a decrease in equity resulting from our reported net loss of $82 million and the patronage capital retirement of $63 million in September 2019.

Our adjusted debt-to-equity ratio increased to 5.78 as of November 30, 2019, from 5.73 as of May 31, 2019, primarily attributable to an increase in debt outstanding to fund loan growth. We provide a reconciliation of our adjusted debt-to-equity ratio to the most comparable GAAP measure and an explanation of the adjustments below in "Non-GAAP Financial Measures."

Debt Covenants

As part of our short-term and long-term borrowing arrangements, we are subject to various financial and operational covenants. If we fail to maintain specified financial ratios, such failure could constitute a default by CFC of certain debt covenants under our committed bank revolving line of credit agreements and senior debt indentures. We were in compliance with all covenants and conditions under our committed bank revolving line of credit agreements and senior debt indentures as of November 30, 2019.

As discussed above in "Summary of Selected Financial Data," the financial covenants set forth in our committed bank revolving line of credit agreements and senior debt indentures are based on adjusted financial measures, including adjusted TIER. We provide a reconciliation of adjusted TIER and other non-GAAP measures disclosed in this Report to the most comparable GAAP measures and an explanation of the adjustments below in "Non-GAAP Financial Measures."

MARKET RISK

Interest rate risk represents our primary source of market risk. Interest rate risk is the risk to current or anticipated earnings or equity arising primarily from movements in interest rates. This risk results from differences between the timing of cash flows on our assets and the liabilities funding those assets. The timing of cash flows of our assets is impacted by re-pricing characteristics, prepayments and contractual maturities. Our interest rate risk exposure is primarily related to the funding of the fixed-rate loan portfolio. We provide a discussion of how we manage interest rate risk in our 2019 Form 10-K under "Item 7. MD&A—Market Risk—Market Risk Management."

Future of LIBOR

In 2017, the United Kingdom's Financial Conduct Authority ("FCA"), which regulates the LIBOR index, announced that the FCA intends to stop requesting banks to submit the rates required to calculate LIBOR after 2021. Management has formed a cross-functional LIBOR working group to identify CFC's exposure, assess the potential risks related to the transition from LIBOR to a new index and develop a strategic transition plan. The LIBOR working group has performed an initial assessment of all of the CFC's LIBOR dependent contracts and financial instruments and the systems, models and processes that may be impacted. The LIBOR working group will closely monitor and assess developments with respect to the phasing out of LIBOR and provide regular reports to the Chief Financial Officer and the CFC Board of Directors. We discuss the risks related to the uncertainty as to the nature of potential changes or other reforms associated with the transition away from and expected replacement of LIBOR as a benchmark interest rate in in our 2019 Form 10-K under "Item 1A. Risk Factors."

Matched Funding Objective

Our funding objective is to manage the matched funding of asset and liability repricing terms within a range of adjusted total assets (calculated by excluding derivative assets from total assets) deemed appropriate by the Asset Liability Committee based on the current environment and extended outlook for interest rates. We refer to the difference between fixed-rate loans scheduled for amortization or repricing and the fixed-rate liabilities and equity funding those loans as our interest rate gap. Our primary strategies for managing our interest rate risk include the use of derivatives and limiting the amount of fixed-rate assets that can be funded by variable-rate debt to a specified percentage of adjusted total assets based on market conditions. We provide our members with many options on loans with regard to interest rates, the term for which the selected interest rate is in effect and the ability to convert or prepay the loan. Long-term loans generally have maturities of up to 35 years. Borrowers may select fixed interest rates for periods of one year through the life of the loan. We do not match fund the majority of our fixed-rate loans with a specific debt issuance at the time the loans are advanced. We fund the amount of fixed-rate assets that exceed fixed-rate debt and members' equity with short-term debt, primarily commercial paper.

Interest Rate Gap Analysis

As part of our asset-liability management, we perform a monthly interest rate gap analysis that provides a comparison between the timing of cash flows, by year, for fixed-rate assets scheduled for amortization and repricing and for fixed-rate liabilities and members' equity maturing. This gap analysis is a useful tool in measuring, monitoring and mitigating the interest rate risk inherent in the funding of fixed-rate assets with variable-rate debt and also helpful in assessing liquidity risk.

Table 33 displays the scheduled amortization and repricing of fixed-rate assets and outstanding fixed-rate liabilities and equity as of November 30, 2019. We exclude variable-rate loans from our interest rate gap analysis, as we do not consider the interest rate risk on these loans to be significant because they are subject to repricing at least monthly. Loans with variable interest rates accounted for 10% and 11% of our total loan portfolio as of November 30, 2019 and May 31, 2019, respectively. Fixed-rate liabilities include debt issued at a fixed rate, as well as variable-rate debt swapped to a fixed rate using interest rate swaps. Fixed-rate debt swapped to a variable rate using interest rate swaps is excluded from the analysis because it is used to match fund our variable-rate loans. With the exception of members' subordinated certificates, which are generally issued with extended maturities, and commercial paper, our liabilities have average maturities that closely match the repricing terms (but not the maturities) of our fixed-rate loans.

Table 33: Interest Rate Gap Analysis

(Dollars in millions)	Prior to 5/31/20	Two Years 6/1/20 to 5/31/22	Two Years 6/1/22 to 5/31/24	Five Years 6/1/24 to 5/31/29	10 Years 6/1/29 to 5/31/39	6/1/39 and Thereafter	Total
Asset amortization and repricing	$ 874	$ 3,399	$ 2,910	$ 6,078	$ 7,657	$ 3,375	$ 24,293
Liabilities and members' equity:							
Long-term debt [1][2]	$1,122	$ 3,820	$ 2,453	$ 6,182	$ 4,911	$ 1,994	$ 20,482
Subordinated deferrable debt and subordinated certificates[2][3]	7	40	416	616	158	815	2,052
Members' equity [4]	—	21	27	110	306	979	1,443
Total liabilities and members' equity	$1,129	$ 3,881	$ 2,896	$ 6,908	$ 5,375	$ 3,788	$ 23,977
Gap [5]	$ (255)	$ (482)	$ 14	$ (830)	$ 2,282	$ (413)	$ 316
Cumulative gap	(255)	(737)	(723)	(1,553)	729	316	
Cumulative gap as a % of total assets	(0.93)%	(2.67)%	(2.62)%	(5.63)%	2.64%	1.15%	
Cumulative gap as a % of adjusted total assets[6]	(0.93)	(2.68)	(2.63)	(5.64)	2.65	1.15	

[1] Includes long-term fixed-rate debt and the net impact of our interest rate swaps.

[2] The maturity presented for debt is based on the call date.

[3] Represents the amount of subordinated deferrable debt and subordinated certificates allocated to fund fixed-rate assets.

[4] Represents the portion of members' equity and loan loss allowance allocated to fund fixed-rate assets. See Table 38: Members' Equity below under "Non-GAAP Financial Measures" for a reconciliation of total CFC equity to members' equity.

[5] Calculated based on the amount of assets scheduled for amortization and repricing less total liabilities and members' equity funding those assets.

[6] Adjusted total assets represents total assets reported in our condensed consolidated balance sheets less derivative assets.

When the amount of the cash flows related to fixed-rate assets scheduled for amortization and repricing exceeds the amount of cash flows related to the fixed-rate debt and equity funding those assets, we refer to the difference, or gap, as "warehousing." When the amount of the cash flows related to fixed-rate assets scheduled for amortization and repricing is less than the amount of the cash flows related to the fixed-rate debt and equity funding those assets, we refer to the gap as "prefunding." The amount of the gap is an indication of our interest rate and liquidity risk exposure. Our goal is to maintain an unmatched position related to the cash flows for fixed-rate financial assets within a targeted range of adjusted total assets.

Because the substantial majority of our financial assets are fixed-rate, amortizing loans and these loans are primarily funded with bullet debt and equity, our interest rate gap analysis typically reflects a warehouse position. When we are in a warehouse position, we utilize some short-term borrowings to fund the scheduled amortization and repricing of our financial assets. However, we limit the extent to which we fund our long-term, fixed-rate loans with short-term, variable-rate debt because it exposes us to higher interest rate and liquidity risk.

As indicated above in Table 33, we were in a warehousing position of $316 million as of November 30, 2019, down from a prefunded position of $798 million as of May 31, 2019. The gap of $316 million represented 1.15% of both total assets and adjusted total assets (total assets excluding derivative assets) as of November 30, 2019. As discussed above, we manage this gap within a prescribed range because funding long-term fixed-rate loans with short-term and variable-rate debt may expose us to higher interest rate and liquidity risk.

NON-GAAP FINANCIAL MEASURES

In addition to financial measures determined in accordance with GAAP, management evaluates performance based on certain non-GAAP measures, which we refer to as "adjusted" measures. We provide a discussion of each of these non-GAAP measures in our 2019 Form 10-K under "Item 7. MD&A—Non-GAAP Measures." Below we provide a reconciliation of our adjusted measures to the most comparable GAAP measures in this section. We believe our non-GAAP adjusted metrics, which are not a substitute for GAAP and may not be consistent with similarly titled non-GAAP measures used by other companies, provide meaningful information and are useful to investors because management uses these metrics to compare operating results across financial reporting periods, for internal budgeting and forecasting purposes, for compensation decisions and for short- and long-term strategic planning decisions. In addition, certain of the financial covenants in our committed bank revolving line of credit agreements and debt indentures are based on our adjusted measures.

Statements of Operations Non-GAAP Adjustments

Table 34 provides a reconciliation of adjusted interest expense, adjusted net interest income and adjusted net income to the comparable GAAP measures for the three and six months ended November 30, 2019 and 2018. The adjusted amounts are used in the calculation of our adjusted net interest yield and adjusted TIER.

Table 34: Adjusted Financial Measures—Income Statement

	Three Months Ended November 30,		Six Months Ended November 30,	
(Dollars in thousands)	2019	2018	2019	2018
Interest expense	**$ (207,871)**	$ (204,166)	**$ (421,142)**	$ (414,397)
Include: Derivative cash settlements expense	**(14,150)**	(11,805)	**(25,193)**	(24,634)
Adjusted interest expense	**$ (222,021)**	$ (215,971)	**$ (446,335)**	$ (439,031)
Net interest income	**$ 79,166**	$ 77,087	**$ 155,910**	$ 145,347
Include: Derivative cash settlements expense	**(14,150)**	(11,805)	**(25,193)**	(24,634)
Adjusted net interest income	**$ 65,016**	$ 65,282	**$ 130,717**	$ 120,713
Net income (loss)	**$ 241,600**	$ 119,726	**$ (82,479)**	$ 167,704
Exclude: Derivative forward value gains (losses)	**197,600**	75,148	**(187,082)**	95,160
Adjusted net income	**$ 44,000**	$ 44,578	**$ 104,603**	$ 72,544

We consider the cost of derivatives to be an inherent cost of funding and hedging our loan portfolio and, therefore, economically similar to the interest expense that we recognize on debt issued for funding. We therefore include derivative cash settlements expense in our adjusted interest expense and exclude the unrealized forward value of derivatives from our adjusted net income.

TIER and Adjusted TIER

Table 35 displays the calculation of our TIER and adjusted TIER for the three and six months ended November 30, 2019 and 2018.

Table 35: TIER and Adjusted TIER

	Three Months Ended November 30,		Six Months Ended November 30,	
	2019	2018	2019	2018
TIER [(1)]	**2.16**	1.59	**0.80**	1.40
Adjusted TIER [(2)]	**1.20**	1.21	**1.23**	1.17

[(1)] TIER is calculated based on our net income (loss) plus interest expense for the period divided by interest expense for the period.

[(2)] Adjusted TIER is calculated based on adjusted net income (loss) plus adjusted interest expense for the period divided by adjusted interest expense for the period.

Debt-to-Equity and Adjusted Debt-to-Equity

Table 36 provides a reconciliation between our total liabilities and total equity and the amounts used to calculate our adjusted debt-to-equity ratio as of November 30, 2019 and May 31, 2019. As indicated in Table 36, subordinated debt is treated in the same manner as equity in calculating our adjusted-debt-to-equity ratio.

Table 36: Adjusted Financial Measures—Balance Sheet

(Dollars in thousands)	November 30, 2019	May 31, 2019
Total liabilities	**$ 26,408,707**	$ 25,820,490
Exclude:		
Derivative liabilities	**591,027**	391,724
Debt used to fund loans guaranteed by RUS	**150,422**	153,991
Subordinated deferrable debt	**986,026**	986,020
Subordinated certificates	**1,355,052**	1,357,129
Adjusted total liabilities	**$ 23,326,180**	$ 22,931,626
Total equity	**$ 1,157,894**	$ 1,303,882
Exclude:		
Prior fiscal year-end cumulative derivative forward value losses	**(354,704)**	(34,974)
Current year derivative forward value losses	**(187,082)**	(319,730)
Accumulated other comprehensive income attributable to derivatives[(1)]	**2,345**	2,571
Include:		
Subordinated deferrable debt	**986,026**	986,020
Subordinated certificates	**1,355,052**	1,357,129
Adjusted total equity	**$ 4,038,413**	$ 3,999,164

[(1)] Represents AOCI related to derivatives. See "Note 10—Equity" for the components of AOCI.

Table 37 displays the calculations of our debt-to-equity and adjusted debt-to-equity ratios as of November 30, 2019 and May 31, 2019.

Table 37: Debt-to-Equity Ratio

	November 30, 2019	May 31, 2019
Debt-to-equity ratio [(1)]	**22.81**	19.80
Adjusted debt-to-equity ratio [(2)]	**5.78**	5.73

[(1)] Calculated based on total liabilities as of the end of the period divided by total equity as of the end of the period.

(2) Calculated based on adjusted total liabilities as of the end of the period divided by adjusted total equity as of the end of the period.

Members' Equity

Members' equity represents equity attributable to CFC members. Table 38 provides a reconciliation of members' equity to total CFC equity as of November 30, 2019 and May 31, 2019.

Table 38: Members' Equity

(Dollars in thousands)	November 30, 2019	May 31, 2019
Members' equity:		
Total CFC equity	**$ 1,132,609**	$ 1,276,735
Excludes:		
Accumulated other comprehensive loss	**(82)**	(147)
Current period-end cumulative derivative forward value losses	**(535,340)**	(348,965)
Subtotal	**(535,422)**	(349,112)
Members' equity	**$ 1,668,031**	$ 1,625,847

Item 1. Financial Statements

NATIONAL RURAL UTILITIES COOPERATIVE FINANCE CORPORATION
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(UNAUDITED)

	Three Months Ended November 30,		Six Months Ended November 30,	
(Dollars in thousands)	**2019**	**2018**	**2019**	**2018**
Interest income	**$ 287,037**	$ 281,253	**$ 577,052**	$ 559,744
Interest expense	**(207,871)**	(204,166)	**(421,142)**	(414,397)
Net interest income	**79,166**	77,087	**155,910**	145,347
Benefit for loan losses	**1,045**	1,788	**1,015**	1,897
Net interest income after benefit for loan losses	**80,211**	78,875	**156,925**	147,244
Non-interest income:				
Fee and other income	**3,842**	3,595	**14,783**	7,506
Derivative gains (losses)	**183,450**	63,343	**(212,275)**	70,526
Unrealized gains (losses) on equity securities	**(114)**	(1,619)	**1,506**	(2,345)
Total non-interest income	**187,178**	65,319	**(195,986)**	75,687
Non-interest expense:				
Salaries and employee benefits	**(12,728)**	(12,392)	**(25,670)**	(25,074)
Other general and administrative expenses	**(12,041)**	(11,478)	**(24,428)**	(22,001)
Losses on early extinguishment of debt	**(614)**	—	**(614)**	(7,100)
Other non-interest (expense) income	**(315)**	(355)	**6,864**	(749)
Total non-interest expense	**(25,698)**	(24,225)	**(43,848)**	(54,924)
Income (loss) before income taxes	**241,691**	119,969	**(82,909)**	168,007
Income tax benefit (expense)	**(91)**	(243)	**430**	(303)
Net income (loss)	**241,600**	119,726	**(82,479)**	167,704
Less: Net (income) loss attributable to noncontrolling interests	**(8)**	(466)	**1,649**	(479)
Net income (loss) attributable to CFC	**$ 241,592**	$ 119,260	**$ (80,830)**	$ 167,225

See accompanying notes to condensed consolidated financial statements.

NATIONAL RURAL UTILITIES COOPERATIVE FINANCE CORPORATION
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)
(UNAUDITED)

(Dollars in thousands)	Three Months Ended November 30, 2019	Three Months Ended November 30, 2018	Six Months Ended November 30, 2019	Six Months Ended November 30, 2018
Net income (loss)	**$ 241,600**	$ 119,726	**$ (82,479)**	$ 167,704
Other comprehensive income (loss):				
Unrealized gains on cash flow hedge	**—**	1,035	**—**	1,059
Reclassification of derivative gains to net income	**(114)**	(120)	**(226)**	(239)
Defined benefit plan adjustments	**146**	131	**291**	262
Other comprehensive income	**32**	1,046	**65**	1,082
Total comprehensive income (loss)	**241,632**	120,772	**(82,414)**	168,786
Less: Total comprehensive (income) loss attributable to noncontrolling interests	**(8)**	(466)	**1,649**	(479)
Total comprehensive income (loss) attributable to CFC	**$ 241,624**	$ 120,306	**$ (80,765)**	$ 168,307

See accompanying notes to condensed consolidated financial statements.

NATIONAL RURAL UTILITIES COOPERATIVE FINANCE CORPORATION
CONDENSED CONSOLIDATED BALANCE SHEETS
(UNAUDITED)

(Dollars in thousands)	November 30, 2019	May 31, 2019
Assets:		
Cash and cash equivalents	**$ 114,033**	$ 177,922
Restricted cash	**10,638**	8,282
Total cash, cash equivalents and restricted cash	**124,671**	186,204
Investment securities:		
Equity securities	**63,809**	87,533
Debt securities held-to-maturity, at amortized cost	**573,547**	565,444
Total investment securities	**637,356**	652,977
Loans to members	**26,438,181**	25,916,904
Less: Allowance for loan losses	**(16,520)**	(17,535)
Loans to members, net	**26,421,661**	25,899,369
Accrued interest receivable	**130,950**	133,605
Other receivables	**36,265**	36,712
Fixed assets, net	**121,931**	120,627
Derivative assets	**53,174**	41,179
Other assets	**40,593**	53,699
Total assets	**$ 27,566,601**	$ 27,124,372
Liabilities:		
Accrued interest payable	**$ 148,875**	$ 158,997
Debt outstanding:		
Short-term borrowings	**4,789,024**	3,607,726
Long-term debt	**18,434,451**	19,210,793
Subordinated deferrable debt	**986,026**	986,020
Members' subordinated certificates:		
Membership subordinated certificates	**630,479**	630,474
Loan and guarantee subordinated certificates	**503,403**	505,485
Member capital securities	**221,170**	221,170
Total members' subordinated certificates	**1,355,052**	1,357,129
Total debt outstanding	**25,564,553**	25,161,668
Patronage capital retirement payable	**1,933**	—
Deferred income	**53,947**	57,989
Derivative liabilities	**591,027**	391,724
Other liabilities	**48,372**	50,112
Total liabilities	**26,408,707**	25,820,490
Equity:		
CFC equity:		
Retained equity	**1,132,691**	1,276,882
Accumulated other comprehensive loss	**(82)**	(147)
Total CFC equity	**1,132,609**	1,276,735
Noncontrolling interests	**25,285**	27,147
Total equity	**1,157,894**	1,303,882
Total liabilities and equity	**$ 27,566,601**	$ 27,124,372

See accompanying notes to condensed consolidated financial statements.

NATIONAL RURAL UTILITIES COOPERATIVE FINANCE CORPORATION
CONDENSED CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY
(UNAUDITED)

	Three Months Ended November 30, 2019								
(Dollars in thousands)	Membership Fees and Educational Fund	Patronage Capital Allocated	Members' Capital Reserve	Unallocated Net Income (Loss)	CFC Retained Equity	Accumulated Other Comprehensive Income (Loss)	Total CFC Equity	Non-controlling Interests	Total Equity
Balance as of August 31, 2019	**$ 2,676**	**$ 797,756**	**$ 759,097**	**$ (668,197)**	**$ 891,332**	**$ (114)**	**$ 891,218**	**$ 27,210**	**$ 918,428**
Net income	**—**	**—**	**—**	**241,592**	**241,592**	**—**	**241,592**	**8**	**241,600**
Other comprehensive income	**—**	**—**	**—**	**—**	**—**	**32**	**32**	**—**	**32**
Patronage capital retirement	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**(1,933)**	**(1,933)**
Other	**(233)**	**—**	**—**	**—**	**(233)**	**—**	**(233)**	**—**	**(233)**
Balance as of November 30, 2019	**$ 2,443**	**$ 797,756**	**$ 759,097**	**$ (426,605)**	**$1,132,691**	**$ (82)**	**$1,132,609**	**$ 25,285**	**$ 1,157,894**
	Six Months Ended November 30, 2019								
Balance as of May 31, 2019	**$ 2,982**	**$ 860,578**	**$ 759,097**	**$ (345,775)**	**$1,276,882**	**$ (147)**	**$1,276,735**	**$ 27,147**	**$ 1,303,882**
Net loss	**—**	**—**	**—**	**(80,830)**	**(80,830)**	**—**	**(80,830)**	**(1,649)**	**(82,479)**
Other comprehensive income	**—**	**—**	**—**	**—**	**—**	**65**	**65**	**—**	**65**
Patronage capital retirement	**—**	**(62,822)**	**—**	**—**	**(62,822)**	**—**	**(62,822)**	**(1,933)**	**(64,755)**
Other	**(539)**	**—**	**—**	**—**	**(539)**	**—**	**(539)**	**1,720**	**1,181**
Balance as of November 30, 2019	**$ 2,443**	**$ 797,756**	**$ 759,097**	**$ (426,605)**	**$1,132,691**	**$ (82)**	**$1,132,609**	**$ 25,285**	**$ 1,157,894**

	Three Months Ended November 30, 2018								
(Dollars in thousands)	Membership Fees and Educational Fund	Patronage Capital Allocated	Members' Capital Reserve	Unallocated Net Income (Loss)	CFC Retained Equity	Accumulated Other Comprehensive Income (Loss)	Total CFC Equity	Non-controlling Interests	Total Equity
Balance as of August 31, 2018	$ 2,609	$ 763,986	$ 687,785	$ 20,325	$1,474,705	$ (214)	$1,474,491	$ 32,085	$ 1,506,576
Net income	—	—	—	119,260	119,260	—	119,260	466	119,726
Other comprehensive income	—	—	—	—	—	1,046	1,046	—	1,046
Other	(209)	—	—	—	(209)	—	(209)	(1)	(210)
Balance as of November 30, 2018	$ 2,400	$ 763,986	$ 687,785	$ 139,585	$1,593,756	$ 832	$1,594,588	$ 32,550	$ 1,627,138
	Six Months Ended November 30, 2018								
Balance as of May 31, 2018	$ 2,945	$ 811,493	$ 687,785	$ (36,434)	$1,465,789	$ 8,544	$1,474,333	$ 31,520	$ 1,505,853
Cumulative effect from adoption of new accounting standard	—	—	—	8,794	8,794	(8,794)	—	—	—
Balance as of June 1, 2018	2,945	811,493	687,785	(27,640)	1,474,583	(250)	1,474,333	31,520	1,505,853
Net income	—	—	—	167,225	167,225	—	167,225	479	167,704
Other comprehensive income	—	—	—	—	—	1,082	1,082	—	1,082
Patronage capital retirement	—	(47,507)	—	—	(47,507)	—	(47,507)	—	(47,507)
Other	(545)	—	—	—	(545)	—	(545)	551	6
Balance as of November 30, 2018	$ 2,400	$ 763,986	$ 687,785	$ 139,585	$1,593,756	$ 832	$1,594,588	$ 32,550	$ 1,627,138

See accompanying notes to condensed consolidated financial statements.

NATIONAL RURAL UTILITIES COOPERATIVE FINANCE CORPORATION
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(UNAUDITED)

(Dollars in thousands)	Six Months Ended November 30, 2019	2018
Cash flows from operating activities:		
Net income (loss)	**$ (82,479)**	$ 167,704
Adjustments to reconcile net income to net cash provided by operating activities:		
Amortization of deferred loan fees	**(4,704)**	(5,201)
Amortization of debt issuance costs and deferred charges	**4,677**	5,596
Amortization of discount on long-term debt	**5,304**	5,416
Amortization of issuance costs for bank revolving lines of credit	**3,034**	2,813
Depreciation and amortization	**4,755**	4,346
Benefit for loan losses	**(1,015)**	(1,897)
Loss on early extinguishment of debt	**614**	7,100
Gain on sale of land	**(7,713)**	—
Unrealized (gains) losses on equity securities	**(1,506)**	2,345
Derivative forward value (gains) losses	**187,082**	(95,160)
Changes in operating assets and liabilities:		
Accrued interest receivable	**2,655**	(6,547)
Accrued interest payable	**(10,122)**	(2,645)
Deferred income	**1,013**	796
Other	**(4,041)**	(16,466)
Net cash provided by operating activities	**97,554**	68,200
Cash flows from investing activities:		
Advances on loans, net	**(521,215)**	(115,459)
Investment in fixed assets	**(6,217)**	(7,403)
Proceeds from sale of land	**21,268**	—
Net proceeds from time deposits	**—**	100,000
Proceeds from redemption of equity securities	**25,000**	—
Purchases of held-to-maturity debt securities	**(51,386)**	(52,845)
Proceeds from maturities of held-to-maturity debt securities	**43,250**	15,354
Net cash used in investing activities	**(489,300)**	(60,353)
Cash flows from financing activities:		
Proceeds from short-term borrowings, net	**1,129,496**	341,562
Proceeds from short-term borrowings with original maturity greater than 90 days	**1,266,609**	629,350
Repayments of short term-debt with original maturity greater than 90 days	**(1,214,807)**	(666,216)
Payments for issuance costs for revolving bank lines of credit	**(976)**	(2,342)
Proceeds from issuance of long-term debt, net of discount and issuance costs	**160,595**	1,362,714
Payments for retirement of long-term debt	**(946,828)**	(1,611,437)
Payments made for early extinguishment of debt	**(614)**	(7,100)
Payments for issuance costs for subordinated deferrable debt	**(84)**	—
Proceeds from issuance of members' subordinated certificates	**1,427**	964
Payments for retirement of members' subordinated certificates	**(3,504)**	(4,279)
Payments for retirement of patronage capital	**(61,102)**	(46,953)
Additions (repayments) for membership fees, net	**1**	(2)
Net cash provided by (used in) financing activities	**330,213**	(3,739)
Net increase (decrease) in cash, cash equivalents and restricted cash	**(61,533)**	4,108
Beginning cash, cash equivalents and restricted cash	**186,204**	238,824
Ending cash, cash equivalents and restricted cash	**$ 124,671**	$ 242,932
Supplemental disclosure of cash flow information:		
Cash paid for interest	**$ 415,069**	$ 405,249
Cash paid for income taxes	**18**	30

See accompanying notes to condensed consolidated financial statements.

NOTE 1—SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The Company

National Rural Utilities Cooperative Finance Corporation ("CFC") is a member-owned cooperative association incorporated under the laws of the District of Columbia in April 1969. CFC's principal purpose is to provide its members with financing to supplement the loan programs of the Rural Utilities Service ("RUS") of the United States Department of Agriculture ("USDA"). CFC makes loans to its rural electric members so they can acquire, construct and operate electric distribution systems, generation and transmission ("power supply") systems and related facilities. CFC also provides its members with credit enhancements in the form of letters of credit and guarantees of debt obligations. As a cooperative, CFC is owned by and exclusively serves its membership, which consists of not-for-profit entities or subsidiaries or affiliates of not-for-profit entities. CFC is exempt from federal income taxes.

Basis of Presentation and Use of Estimates

The accompanying unaudited interim condensed consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States ("GAAP"). The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts and related disclosures during the period. Management's most significant estimates and assumptions involve determining the allowance for loan losses and the fair value of financial assets and liabilities. Actual results could differ from these estimates. We believe these financial statements reflect all adjustments of a normal, recurring nature that are, in the opinion of management, necessary for the fair presentation of the results for the interim period. The results of operations for interim periods are not necessarily indicative of results for the entire fiscal year. Certain reclassifications have been made to prior periods to conform to the current presentation.

The accompanying financial statements should be read in conjunction with the audited consolidated financial statements, and related notes thereto, included in CFC's Annual Report on Form 10-K for the fiscal year ended May 31, 2019 ("2019 Form 10-K"). Refer to "Note 1—Summary of Significant Accounting Policies" in our 2019 Form 10-K for a discussion of our significant accounting policies.

Principles of Consolidation

The accompanying condensed consolidated financial statements include the accounts of CFC, variable interest entities ("VIEs") where CFC is the primary beneficiary and subsidiary entities created and controlled by CFC to hold foreclosed assets. CFC did not have any entities that held foreclosed assets as of November 30, 2019 or May 31, 2019. All intercompany balances and transactions have been eliminated. National Cooperative Services Corporation ("NCSC") and Rural Telephone Finance Cooperative ("RTFC") are VIEs that are required to be consolidated by CFC. NCSC is a taxable member-owned cooperative that may provide financing to members of CFC, government or quasi-government entities which own electric utility systems that meet the Rural Electrification Act definition of "rural," and for-profit and nonprofit entities that are owned, operated or controlled by, or provide significant benefits to certain members of CFC. RTFC is a taxable Subchapter T cooperative association that provides financing for its rural telecommunications members and their affiliates. Unless stated otherwise, references to "we," "our" or "us" relate to CFC and its consolidated entities.

Restricted Cash

Restricted cash, which consists primarily of member funds held in escrow for certain specifically designed cooperative programs, totaled $11 million and $8 million as of November 30, 2019 and May 31, 2019, respectively.

Assets Held for Sale

On March 14, 2018, CFC entered into a purchase and sale agreement ("the agreement"), which was subsequently amended, for the sale of a parcel of land, consisting of approximately 28 acres, located in Loudoun County, Virginia. We designated the property, which had a carrying value of $14 million, as held for sale and reclassified it from fixed assets, net to other assets on our consolidated balance sheet. On July 22, 2019, we closed on the sale of the land and received net proceeds of $22 million, resulting in a gain of $8 million on the sale of this property, which is reported in other non-interest income (expense) on our condensed consolidated statements of operations.

Interest Income

The following table presents interest income, by interest-earning asset category, for the three and six months ended November 30, 2019 and 2018.

	Three Months Ended November 30,		Six Months Ended November 30,	
(Dollars in thousands)	**2019**	**2018**	**2019**	**2018**
Interest income by interest-earning asset type:				
Long-term fixed-rate loans[(1)]	**$ 260,714**	$ 253,340	**$ 519,192**	$ 505,141
Long-term variable-rate loans	**8,131**	10,066	**17,887**	19,447
Line of credit loans	**12,678**	11,752	**28,711**	23,385
TDR loans[(2)]	**212**	211	**418**	429
Other income, net[(3)]	**(287)**	(251)	**(571)**	(576)
Total loans	**281,448**	275,118	**565,637**	547,826
Cash, time deposits and investment securities	**5,589**	6,135	**11,415**	11,918
Total interest income	**$ 287,037**	$ 281,253	**$ 577,052**	$ 559,744

[(1)] Includes loan conversion fees, which are generally deferred and recognized as interest income using the effective interest method.
[(2)] Troubled debt restructured ("TDR") loans.
[(3)] Consists of late payment fees, commitment fees and net amortization of deferred loan fees and loan origination costs.

Deferred income of $54 million and $58 million as of November 30, 2019 and May 31, 2019, respectively, consists primarily of deferred loan conversion fees totaling $48 million and $52 million, respectively. Deferred loan conversion fees are recognized in interest income using the effective interest method.

Interest Expense

The following table presents interest expense, by debt product type, for the three and six months ended November 30, 2019 and 2018.

	Three Months Ended November 30,		Six Months Ended November 30,	
(Dollars in thousands)	**2019**	**2018**	**2019**	**2018**
Interest expense by debt product type:[1][2]				
Short-term borrowings	**$ 22,112**	$ 22,619	**$ 44,934**	$ 42,038
Medium-term notes	**31,440**	33,816	**63,516**	66,226
Collateral trust bonds	**64,523**	68,934	**129,904**	146,639
Guaranteed Underwriter Program notes payable	**39,786**	35,014	**80,219**	70,348
Farmer Mac notes payable	**22,654**	19,697	**47,728**	40,808
Other notes payable	**230**	322	**484**	644
Subordinated deferrable debt	**12,884**	9,417	**25,766**	18,834
Subordinated certificates	**14,242**	14,347	**28,591**	28,860
Total interest expense	**$ 207,871**	$ 204,166	**$ 421,142**	$ 414,397

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(1) Includes amortization of debt discounts and debt issuance costs, which are generally deferred and recognized as interest expense using the effective interest method. Issuance costs related to dealer commercial paper, however, are recognized as interest expense immediately as incurred.

(2) Includes fees related to funding arrangements, such as up-front fees paid to banks participating in our committed bank revolving line of credit agreements. Depending on the nature of the fee, amounts may be deferred and recognized as interest expense ratably over the term of the arrangement or recognized immediately as incurred.

Recent Accounting Changes and Other Developments

Accounting Standards Adopted in Fiscal Year 2020

Derivatives and Hedging—Targeted Improvements to Accounting for Hedging Activities

In August 2017, the FASB issued ASU 2017-12, *Derivatives and Hedging—Targeted Improvements to Accounting for Hedging Act*ivities, which expands the types of risk management strategies that qualify for hedge accounting treatment to more closely align the results of hedge accounting with the economics of certain risk management activities and simplifies certain hedge documentation and assessment requirement. It also eliminates the concept of separately recording hedge ineffectiveness and expands disclosure requirements. The guidance is effective for public entities for fiscal years beginning after December 15, 2018, including interim periods within those years. Early adoption is permitted in any interim period or fiscal year before the effective date. We adopted this guidance on June 1, 2019. Hedge accounting is elective, and we currently apply hedge accounting on a limited basis, specifically when we enter into treasury rate lock agreements. The adoption of this guidance did not have an impact on our consolidated financial statements or cash flows. If we continue to elect not to apply hedge accounting to our interest rate swaps, the guidance will not have an impact on our consolidated financial statements or cash flows.

Receivables—Nonrefundable Fees and Other Cost

In March 2017, the FASB issued ASU 2017-08, *Receivables—Nonrefundable Fees and Other* Costs, which shortens the amortization period for the premium on certain callable debt securities to the earliest call date rather the maturity date. The guidance is applicable to any individual debt security, purchased at a premium, with an explicit and noncontingent call feature with a fixed price on a preset date. The guidance does not impact the accounting for purchased callable debt securities held at a discount. The guidance is effective for public entities in fiscal years beginning after December 15, 2018, including interim periods within those fiscal years. We adopted this guidance on June 1, 2019. The adoption of this guidance did not have a material impact on our consolidated financial statements or cash flows.

Leases

In February 2016, the FASB issued ASU 2016-02, Leases, which provides new guidance that is intended to improve financial reporting about leasing transactions. The new guidance requires the recognition of a right-of use asset and lease liability on the consolidated balance sheet by lessees for those leases classified as operating leases under previous guidance. It also requires new disclosures to help investors and other financial statement users better understand the amount, timing, and uncertainty of cash flows arising from leases. The guidance is effective for fiscal years and interim periods within those fiscal years beginning after December 15, 2018. We adopted this guidance on June 1, 2019. The adoption of this guidance did not have a material impact on our consolidated financial statements or cash flows.

Accounting Standards Issued But Not Yet Adopted

Fair Value Measurement—Changes to the Disclosure Requirements for Fair Value Measurement

In August 2018, the FASB issued ASU 2018-13, *Fair Value Measurement—Changes to the Disclosure Requirements for Fair Value Measurement,* which eliminates, adds and modifies certain disclosure requirements for fair value measurements as part of its disclosure framework project. The guidance is effective for public entities for fiscal years beginning after December 15, 2019, including interim periods within those years. Early adoption is permitted in any interim period or fiscal year before the effective date. The guidance is effective for us beginning June 1, 2020. We do not expect that the adoption of this guidance will have a material impact on our consolidated financial statements or cash flows.

Financial Instruments—Credit Losses: Measurement of Credit Losses on Financial Instruments

In June 2016, the FASB issued ASU 2016-13, Financial Instruments—Credit Losses: Measurement of Credit Losses on Financial Instruments, which replaces the existing incurred credit loss model and establishes a single credit loss framework based on a current expected credit loss model for financial assets carried at amortized cost, including loans and held-to-maturity debt securities. The current expected loss model requires an entity to estimate credit losses expected over the life of the credit exposure upon initial recognition of that exposure when the financial asset is originated or acquired, which will generally result in earlier recognition of credit losses. The guidance also amends the other-than-temporary model for available-for-sale debt securities by requiring the use of an allowance, rather than directly reducing the carrying value of the security. The new guidance also requires expanded credit quality disclosures. The new guidance is effective for fiscal years and interim periods within those fiscal years, beginning after December 15, 2019. This guidance is effective for us on June 1, 2020. While early adoption is permitted, we have decided not to elect that option. We are continuing to evaluate the impact of the guidance on our consolidated financial statements, including assessing and evaluating assumptions and models to estimate losses. Upon adoption of the guidance on June 1, 2020, we will be required to record a cumulative effect adjustment to retained earnings for the impact as of the date of adoption. The impact will depend on our portfolio composition and credit quality at the date of adoption, as well as forecasts at that time.

NOTE 2—VARIABLE INTEREST ENTITIES

NCSC and RTFC meet the definition of a VIE because they do not have sufficient equity investment at risk to finance their activities without financial support. CFC is the primary source of funding for NCSC and the sole source of funding for RTFC. Under the terms of management agreements with each company, CFC manages the business operations of NCSC and RTFC. CFC also unconditionally guarantees full indemnification for any loan losses of NCSC and RTFC pursuant to guarantee agreements with each company. CFC earns management and guarantee fees from its agreements with NCSC and RTFC.

NCSC and RTFC creditors have no recourse against CFC in the event of a default by NCSC and RTFC, unless there is a guarantee agreement under which CFC has guaranteed NCSC or RTFC debt obligations to a third party. The following table provides information on incremental consolidated assets and liabilities of VIEs included in CFC's condensed consolidated financial statements, after intercompany eliminations, as of November 30, 2019 and May 31, 2019.

(Dollars in thousands)	November 30, 2019	May 31, 2019
Total loans outstanding	**$ 1,058,603**	$ 1,087,988
Other assets	**12,805**	10,963
Total assets	**$ 1,071,408**	$ 1,098,951
Long-term debt	**$ —**	$ 6,000
Other liabilities	**36,729**	33,385
Total liabilities	**$ 36,729**	$ 39,385

The following table provides information on CFC's credit commitments to NCSC and RTFC, and its potential exposure to loss as of November 30, 2019 and May 31, 2019.

(Dollars in thousands)	November 30, 2019	May 31, 2019
CFC credit commitments	**$ 5,500,000**	$ 5,500,000
Outstanding commitments:		
Borrowings payable to CFC[1]	**1,037,863**	1,059,629
Credit enhancements:		
CFC third-party guarantees	**12,591**	10,091
Other credit enhancements	**8,958**	14,251
Total credit enhancements[2]	**21,549**	24,342
Total outstanding commitments	**1,059,412**	1,083,971
CFC available credit commitments	**$ 4,440,588**	$ 4,416,029

[1] Borrowings payable to CFC are eliminated in consolidation.
[2] Excludes interest due on these instruments.

CFC loans to NCSC and RTFC are secured by all assets and revenue of NCSC and RTFC. CFC's maximum potential exposure, including interest due, for the credit enhancements totaled $22 million as of November 30, 2019. The maturities for obligations guaranteed by CFC extend through 2031.

NOTE 3—INVESTMENT SECURITIES

We currently hold investments in equity and debt securities. We record purchases and sales of our investment securities on a trade-date basis. The accounting and measurement framework for investment securities differs depending on the security type and the classification.

Equity Securities

The following table presents the fair value of our equity securities, all of which had readily determinable fair values, as of November 30, 2019 and May 31, 2019.

(Dollars in thousands)	November 30, 2019	May 31, 2019
Equity securities at fair value:		
Farmer Mac—Series A, B and C non-cumulative preferred stock	**$ 57,873**	$ 82,445
Farmer Mac—class A common stock	**5,936**	5,088
Total equity securities at fair value	**$ 63,809**	$ 87,533

We recognized net unrealized losses on our investments in equity securities of less than $1 million during the three months ended November 30, 2019 and net unrealized gains of $2 million during the six months ended November 30, 2019. We recognized net unrealized losses on our investments in equity securities of $2 million during both the three and six months ended November 30, 2018, respectively. These unrealized amounts are reported as a component of non-interest income on our condensed consolidated statements of operations.

On June 12, 2019, Farmer Mac redeemed its Series B non-cumulative preferred stock at a redemption price of $25.00 per share, plus any declared and unpaid dividends through and including the redemption date. The amortized cost of our investment in the Farmer Mac Series B non-cumulative preferred stock was $25 million as of the redemption date, which equaled the per share redemption price.

Debt Securities

We currently classify and account for our investments in debt securities as held to maturity because we have the positive intent and ability to hold these securities to maturity. If we acquire debt securities that we may sell prior to maturity in response to changes in our investment strategy, liquidity needs, credit risk mitigating considerations, market risk profile or for other reasons, we would classify such securities as available for sale. We report debt securities classified as held to maturity on our condensed consolidated balance sheets at amortized cost. Interest income, including amortization of premiums and accretion of discounts, is generally recognized over the contractual life of the securities based on the effective yield method.

Pursuant to our investment policy guidelines, all fixed-income debt securities, at the time of purchase, must be rated at least investment grade and on stable outlook based on external credit ratings from at least two of the leading global credit rating agencies, when available, or the corresponding equivalent, when not available. Securities rated investment grade, that is those rated Baa3 or higher by Moody's Investors Service ("Moody's") or BBB- or higher by S&P or BBB- or higher by Fitch Ratings Inc. ("Fitch"), are generally considered by the rating agencies to be of lower credit risk than non-investment grade securities.

Amortized Cost and Fair Value of Debt Securities

The following tables present the amortized cost and fair value of our debt securities and the corresponding gross unrealized gains and losses, by classification category and major security type, as of November 30, 2019 and May 31, 2019.

	November 30, 2019			
(Dollars in thousands)	**Amortized Cost**	**Gross Unrealized Gains**	**Gross Unrealized Losses**	**Fair Value**
Debt securities held-to-maturity:				
Certificates of deposit	**$ 8,687**	**$ 1**	**$ —**	**$ 8,688**
Commercial paper	**4,972**	**—**	**—**	**4,972**
U.S. treasury and agency debt securities	**4,566**	**145**	**—**	**4,711**
Corporate debt securities	**483,791**	**8,620**	**(106)**	**492,305**
Commercial MBS:				
Agency	**7,235**	**384**	**—**	**7,619**
Non-agency	**3,327**	**1**	**(2)**	**3,326**
Total commercial MBS	**10,562**	**385**	**(2)**	**10,945**
U.S. state and municipality debt securities	**9,604**	**458**	**—**	**10,062**
Foreign government debt securities	**1,260**	**50**	**—**	**1,310**
Other ABS[1]	**50,105**	**344**	**(3)**	**50,446**
Total debt securities held-to-maturity	**$ 573,547**	**$ 10,003**	**$ (111)**	**$ 583,439**

	May 31, 2019			
(Dollars in thousands)	**Amortized Cost**	**Gross Unrealized Gains**	**Gross Unrealized Losses**	**Fair Value**
Debt securities held-to-maturity:				
Certificates of deposit	$ 1,000	$ —	$ —	$ 1,000
Commercial paper	12,395	—	—	12,395
U.S. agency debt securities	3,207	108	—	3,315
Corporate debt securities	478,578	4,989	(912)	482,655
Commercial MBS:				
Agency	7,255	291	—	7,546
Non-agency	3,453	—	(7)	3,446
Total commercial MBS	10,708	291	(7)	10,992
U.S. state and municipality debt securities	9,608	352	—	9,960
Foreign government debt securities	1,254	42	—	1,296
Other ABS[1]	48,694	290	(48)	48,936
Total debt securities held-to-maturity	$ 565,444	$ 6,072	$ (967)	$ 570,549

[1] Consists primarily of securities backed by auto lease loans, equipment-backed loans, auto loans and credit card loans.

Debt Securities in Gross Unrealized Loss Position

An unrealized loss exists when the fair value of an individual security is less than its amortized cost basis. The following table presents the fair value and gross unrealized losses for debt securities in a gross loss position, aggregated by security type, and the length of time the securities have been in a continuous unrealized loss position as of November 30, 2019 and May 31, 2019. The securities are segregated between investments that have been in a continuous unrealized loss position for less than 12 months and 12 months or more based on the point in time that the fair value declined below the amortized cost basis.

	November 30, 2019					
	Unrealized Loss Position Less than 12 Months		Unrealized Loss Position 12 Months or Longer		Total	
(Dollars in thousands)	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses
Debt securities held-to-maturity:						
Corporate debt securities	**$ 29,640**	**$ (36)**	**$ 15,621**	**$ (70)**	**$ 45,261**	**$ (106)**
Commercial MBS, non-agency	**1,998**	**(2)**	**—**	**—**	**1,998**	**(2)**
Other ABS[(1)]	**5,085**	**(3)**	**467**	**—**	**5,552**	**(3)**
Total debt securities held-to-maturity	**$ 36,723**	**$ (41)**	**$ 16,088**	**$ (70)**	**$ 52,811**	**$ (111)**

	May 31, 2019					
	Unrealized Loss Position Less than 12 Months		Unrealized Loss Position 12 Months or Longer		Total	
(Dollars in thousands)	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses
Debt securities held-to-maturity:						
Commercial paper[(2)]	$ 2,688	$ —	$ —	$ —	$ 2,688	$ —
Corporate debt securities	45,999	(198)	164,086	(714)	210,085	(912)
Commercial MBS, non-agency	1,996	(4)	1,448	(3)	3,444	(7)
Other ABS[(1)]	1,982	(4)	13,840	(44)	15,822	(48)
Total debt securities held-to-maturity	$ 52,665	$ (206)	$ 179,374	$ (761)	$ 232,039	$ (967)

[(1)]Consists primarily of securities backed by auto lease loans, equipment-backed loans, auto loans and credit card loans.
[(2)]Unrealized losses on the commercial paper investments are less than $1,000.

Other-Than-Temporary Impairment

We conduct periodic reviews of all securities with unrealized losses to evaluate whether the impairment is other than temporary. The number of individual securities in an unrealized loss position was 65 as of November 30, 2019. We have assessed each security with gross unrealized losses included in the above table for credit impairment. As part of that assessment, we concluded that the unrealized losses are driven by changes in market interest rates rather than by adverse changes in the credit quality of these securities. Based on our assessment, we expect to recover the entire amortized cost basis of these securities, as we do not intend to sell any of the securities and have concluded that it is more likely than not that we will not be required to sell prior to recovery of the amortized cost basis. Accordingly, we currently consider the impairment of these securities to be temporary.

Contractual Maturity and Yield

The following table presents, by major security type, the remaining contractual maturity based on amortized cost and fair value of our held-to-maturity investment securities as of November 30, 2019 and May 31, 2019. Because borrowers may have the right to call or prepay certain obligations, the expected maturities of our investments may differ from the scheduled contractual maturities presented below.

	November 30, 2019				
(Dollars in thousands)	Due in 1 Year or Less	Due > 1 Year through 5 Years	Due > 5 Years through 10 Years	Due >10 Years	Total
Amortized cost:					
Certificates of deposit	$ 7,687	$ 1,000	$ —	$ —	$ 8,687
Commercial paper	4,972	—	—	—	4,972
U.S. treasury and agency debt securities	—	3,214	1,352	—	4,566
Corporate debt securities	72,443	400,770	10,578	—	483,791
Commercial MBS:					
Agency	—	3,864	3,371	—	7,235
Non-agency	—	—	—	3,327	3,327
Total commercial MBS	—	3,864	3,371	3,327	10,562
U.S. state and municipality debt securities	—	9,604	—	—	9,604
Foreign government debt securities	—	1,260	—	—	1,260
Other ABS(1)	865	48,738	502	—	50,105
Total	$ 85,967	$ 468,450	$ 15,803	$ 3,327	$ 573,547
Fair value:					
Certificates of deposit	$ 7,688	$ 1,000	$ —	$ —	$ 8,688
Commercial paper	4,972	—	—	—	4,972
U.S. treasury and agency debt securities	—	3,343	1,368	—	4,711
Corporate debt securities	72,539	408,850	10,916	—	492,305
Commercial MBS:					
Agency	—	4,060	3,559	—	7,619
Non-Agency	—	—	—	3,326	3,326
Total commercial MBS	—	4,060	3,559	3,326	10,945
U.S. state and municipality debt securities	—	10,062	—	—	10,062
Foreign government debt securities	—	1,310	—	—	1,310
Other ABS(1)	865	49,079	502	—	50,446
Total	$ 86,064	$ 477,704	$ 16,345	$ 3,326	$ 583,439
Weighted average coupon(2)	2.41%	2.99%	2.91%	2.59%	2.90%

	May 31, 2019				
(Dollars in thousands)	Due in 1 Year or Less	Due > 1 Year through 5 Years	Due > 5 Years through 10 Years	Due >10 Years	Total
Amortized cost:					
Certificates of deposit	$ —	$ 1,000	$ —	$ —	$ 1,000
Commercial paper	12,395	—	—	—	12,395
U.S. agency debt securities	—	2,678	529	—	3,207
Corporate debt securities	51,923	414,788	11,867	—	478,578
Commercial MBS:					
Agency	—	310	6,945	—	7,255
Non-agency	—	—	—	3,453	3,453
Total Commercial MBS	—	310	6,945	3,453	10,708
U.S. state and municipality debt securities	—	9,608	—	—	9,608
Foreign government debt securities	—	1,254	—	—	1,254
Other ABS[1]	510	45,730	2,454	—	48,694
Total	$ 64,828	$ 475,368	$ 21,795	$ 3,453	$ 565,444
Fair value:					
Certificates of deposit	$ —	$ 1,000	$ —	$ —	$ 1,000
Commercial paper	12,395	—	—	—	12,395
U.S. agency debt securities	—	2,769	546	—	3,315
Corporate debt securities	51,818	418,606	12,231	—	482,655
Commercial MBS:					
Agency	—	317	7,229	—	7,546
Non-agency	—	—	—	3,446	3,446
Total commercial MBS	—	317	7,229	3,446	10,992
U.S. state and municipality debt securities	—	9,960	—	—	9,960
Foreign government debt securities	—	1,296	—	—	1,296
Other ABS[1]	509	45,916	2,511	—	48,936
Total	$ 64,722	$ 479,864	$ 22,517	$ 3,446	$ 570,549
Weighted average coupon[2]	2.08%	3.10%	3.07%	3.26%	2.98%

[1] Consists primarily of securities backed by auto lease loans, equipment-backed loans, auto loans and credit card loans.
[2] Calculated based on the weighted average coupon rate, which excludes the impact of amortization of premium and accretion of discount.

The average contractual maturity and weighted average coupon of our held-to-maturity investment securities was three years and 2.90%, respectively, as of November 30, 2019. The average credit rating of these securities, based on the equivalent lowest credit rating by Moody’s, S&P and Fitch was A2, A and A, respectively, as of November 30, 2019.

Realized Gains and Losses

We did not sell any of our debt securities during the three and six months ended November 30, 2019, and therefore have not recorded any realized gains or losses. In connection with Farmer Mac's early redemption of its Series B non-cumulative preferred stock, we recorded a realized loss on equity securities of $0.2 million for the six months ended November 30, 2019.

NOTE 4—LOANS

Loans, which are classified as held for investment, are carried at the outstanding unpaid principal balance net of unamortized loan origination costs. The following table presents the outstanding principal balance of loans to members, including deferred loan origination costs, and unadvanced loan commitments by loan type and member class, as of November 30, 2019 and May 31, 2019.

	November 30, 2019		May 31, 2019	
(Dollars in thousands)	Loans Outstanding	Unadvanced Commitments[1]	Loans Outstanding	Unadvanced Commitments[1]
Loan type:				
Long-term loans:				
Fixed rate	**$ 23,861,584**	**$ —**	$ 23,094,253	$ —
Variable rate	**930,949**	**5,410,294**	1,066,880	5,448,636
Total long-term loans	**24,792,533**	**5,410,294**	24,161,133	5,448,636
Lines of credit	**1,634,346**	**7,915,885**	1,744,531	7,788,922
Total loans outstanding	**26,426,879**	**13,326,179**	25,905,664	13,237,558
Deferred loan origination costs	**11,302**	**—**	11,240	—
Loans to members	**$ 26,438,181**	**$ 13,326,179**	$ 25,916,904	$ 13,237,558
Member class:				
CFC:				
Distribution	**$ 20,682,596**	**$ 8,764,486**	$ 20,155,266	$ 8,773,018
Power supply	**4,601,783**	**3,531,558**	4,578,841	3,466,680
Statewide and associate	**83,897**	**177,722**	83,569	165,687
Total CFC	**25,368,276**	**12,473,766**	24,817,676	12,405,385
NCSC	**702,279**	**563,865**	742,888	552,840
RTFC	**356,324**	**288,548**	345,100	279,333
Total loans outstanding	**26,426,879**	**13,326,179**	25,905,664	13,237,558
Deferred loan origination costs	**11,302**	**—**	11,240	—
Loans to members	**$ 26,438,181**	**$ 13,326,179**	$ 25,916,904	$ 13,237,558

[1] The interest rate on unadvanced loan commitments is not set until an advance is made; therefore, all long-term unadvanced loan commitments are reported as variable-rate. However, the borrower may select either a fixed or a variable rate when an advance on a commitment is made.

Unadvanced Loan Commitments

Unadvanced loan commitments represent approved and executed loan contracts for which funds have not been advanced to borrowers. The following table summarizes the available balance under unadvanced loan commitments as of November 30, 2019 and the related maturities by fiscal year and thereafter by loan type:

		Notional Maturities of Unadvanced Loan Commitments					
(Dollars in thousands)	Available Balance	2020	2021	2022	2023	2024	Thereafter
Line of credit loans...	$ 7,915,885	$ 437,701	$ 4,059,897	$ 492,117	$1,362,948	$ 1,168,481	$ 394,741
Long-term loans	5,410,294	230,642	622,895	1,349,256	1,022,784	1,737,285	447,432
Total.....................	$ 13,326,179	$ 668,343	$ 4,682,792	$ 1,841,373	$2,385,732	$ 2,905,766	$ 842,173

Unadvanced line of credit commitments accounted for 59% of total unadvanced loan commitments as of November 30, 2019, while unadvanced long-term loan commitments accounted for 41% of total unadvanced loan commitments. Unadvanced line of credit commitments are typically revolving facilities for periods not to exceed five years. Unadvanced line of credit commitments generally serve as supplemental back-up liquidity to our borrowers. Historically, borrowers have not drawn the full commitment amount for line of credit facilities, and we have experienced a very low utilization rate on line of credit loan facilities regardless of whether or not we are obligated to fund the facility where a material adverse change exists.

Our unadvanced long-term loan commitments have a five-year draw period under which a borrower may advance funds prior to the expiration of the commitment. We expect that the majority of the long-term unadvanced loan commitments of $5,410 million will be advanced prior to the expiration of the commitment.

Because we historically have experienced a very low utilization rate on line of credit loan facilities, which account for the majority of our total unadvanced loan commitments, we believe the unadvanced loan commitment total of $13,326 million as of November 30, 2019 is not necessarily representative of our future funding cash requirements.

Unadvanced Loan Commitments—Conditional

The substantial majority of our line of credit commitments and all of our unadvanced long-term loan commitments include material adverse change clauses. Unadvanced loan commitments subject to material adverse change clauses totaled $10,256 million and $10,294 million as of November 30, 2019 and May 31, 2019, respectively. Prior to making an advance on these facilities, we confirm that there has been no material adverse change in the business or condition, financial or otherwise, of the borrower since the time the loan was approved and confirm that the borrower is currently in compliance with loan terms and conditions. In some cases, the borrower’s access to the full amount of the facility is further constrained by the designated purpose, imposition of borrower-specific restrictions or by additional conditions that must be met prior to advancing funds.

Unadvanced Loan Commitments—Unconditional

Unadvanced loan commitments not subject to material adverse change clauses at the time of each advance consisted of unadvanced committed lines of credit totaling $3,070 million and $2,944 million as of November 30, 2019 and May 31, 2019, respectively. As such, we are required to advance amounts on these committed facilities as long as the borrower is in compliance with the terms and conditions of the facility.

The following table summarizes the available balance under unconditional committed lines of credit, and the related maturities by fiscal year and thereafter, as of November 30, 2019.

		Notional Maturities of Unconditional Committed Lines of Credit					
(Dollars in thousands)	Available Balance	2020	2021	2022	2023	2024	Thereafter
Committed lines of credit	**$3,070,365**	**$18,073**	**$417,498**	**$173,335**	**$1,082,986**	**$897,894**	**$480,579**

Loan Sales

We transfer, from time to time, loans to third parties. We sold CFC loans with outstanding balances totaling $60 million, at par for cash, during the six months ended November 30, 2019. We did not have any loan sales during the six months ended November 30, 2018. We recorded immaterial losses upon the sale of these loans, attributable to the unamortized deferred loan origination costs associated with the transferred loans.

Pledging of Loans

We are required to pledge eligible mortgage notes in an amount at least equal to the outstanding balance of our secured debt. The following table summarizes our loans outstanding as collateral pledged to secure our collateral trust bonds, Clean Renewable Energy Bonds, notes payable to Farmer Mac and notes payable under USDA's Guaranteed Underwriter Program ("Guaranteed Underwriter Program") and the amount of the corresponding debt outstanding as of November 30, 2019 and May 31, 2019. See "Note 6—Short-Term Borrowings" and "Note 7—Long-Term Debt" for information on our borrowings.

(Dollars in thousands)	November 30, 2019	May 31, 2019
Collateral trust bonds:		
2007 indenture:		
Distribution system mortgage notes	**$ 8,442,063**	$ 8,775,231
RUS-guaranteed loans qualifying as permitted investments	**131,560**	134,678
Total pledged collateral	**$ 8,573,623**	$ 8,909,909
Collateral trust bonds outstanding	**7,322,711**	7,622,711
1994 indenture:		
Distribution system mortgage notes	**$ 45,702**	$ 47,331
Collateral trust bonds outstanding	**35,000**	40,000
Farmer Mac:		
Distribution and power supply system mortgage notes	**$ 3,729,692**	$ 3,751,798
Notes payable outstanding	**3,094,954**	3,054,914
Clean Renewable Energy Bonds Series 2009A:		
Distribution and power supply system mortgage notes	**$ 9,756**	$ 10,349
Cash	**1,188**	415
Total pledged collateral	**$ 10,944**	$ 10,764
Notes payable outstanding	**9,225**	9,225
Federal Financing Bank:		
Distribution and power supply system mortgage notes	**$ 6,090,864**	$ 6,157,218
Notes payable outstanding	**5,363,798**	5,410,507

Credit Concentration

Concentrations may exist when there are amounts loaned to borrowers engaged in similar activities or in geographic areas that would cause them to be similarly impacted by economic or other conditions or when there are large exposures to single borrowers. As a tax-exempt, member-owned finance cooperative, CFC's principal focus is to provide funding to its rural electric utility cooperative members to assist them in acquiring, constructing and operating electric distribution systems, power supply systems and related facilities. We serve electric and telecommunications members throughout the United States, with a total of 898 borrowers located in 49 states as of November 30, 2019. Loans to borrowers in Texas accounted for approximately 15% of total loans outstanding as of both November 30, 2019 and May 31, 2019, representing the largest concentration of outstanding loans to borrowers and the largest number of borrowers in any one state.

Because we lend primarily to our rural electric utility cooperative members, we have a loan portfolio subject to single-industry and single-obligor concentration risks. Loans outstanding to electric utility organizations represented approximately 99% of total loans outstanding as of November 30, 2019, unchanged from May 31, 2019. The remaining loans outstanding in our portfolio were to RTFC members, affiliates and associates in the telecommunications industry. The outstanding loan exposure for our 20 largest borrowers was 22% as of both November 30, 2019 and May 31, 2019. The 20 largest borrowers consisted of 11 distribution systems, eight power supply systems and one NCSC associate as of November 30, 2019. The 20 largest borrowers consisted of 10 distribution systems, nine power supply systems and one NCSC associate as of May 31, 2019. The largest total outstanding exposure to a single borrower or controlled group represented approximately 2% of total loans outstanding as of both November 30, 2019 and May 31, 2019.

As part of our strategy in managing our credit exposure, we entered into a long-term standby purchase commitment agreement with Farmer Mac during fiscal year 2016. Under this agreement, we may designate certain long-term loans to be covered under the commitment, subject to approval by Farmer Mac, and in the event any such loan later goes into payment default for at least 90 days, upon request by us, Farmer Mac must purchase such loan at par value. The aggregate unpaid principal balance of designated and Farmer Mac approved loans was $593 million and $619 million as of November 30, 2019 and May 31, 2019, respectively. Under the agreement, we are required to pay Farmer Mac a monthly fee based on the unpaid principal balance of loans covered under the purchase commitment. No loans had been put to Farmer Mac for purchase, pursuant to this agreement, as of November 30, 2019. Also, we had long-term loans totaling $150 million and $154 million as of November 30, 2019 and May 31, 2019, respectively, guaranteed by RUS.

Credit Quality

Assessing the overall credit quality of our loan portfolio and measuring our credit risk is an ongoing process that involves tracking payment status, charge-offs, troubled debt restructurings, nonperforming and impaired loans, the internal risk ratings of our borrowers and other indicators of credit risk. We monitor and subject each borrower and loan facility in our loan portfolio to an individual risk assessment based on quantitative and qualitative factors. Internal risk ratings and payment status trends are indicators, among others, of the probability of borrower default and level of credit risk in our loan portfolio.

Borrower Risk Ratings

As part of our credit risk management process, we monitor and evaluate each borrower and loan in our loan portfolio and assign internal borrower and loan facility risk ratings based on quantitative and qualitative assessments. Our borrower risk ratings are intended to assess probability of default. Each risk rating is reassessed annually following the receipt of the borrower's audited financial statements; however, interim risk-rating downgrades or upgrades may occur as a result of significant developments or trends. Our borrower risk ratings are intended to align with banking regulatory agency credit risk rating definitions of pass and criticized classifications, with criticized divided between special mention, substandard and doubtful. Pass ratings reflect relatively low probability of default, while criticized ratings have a higher probability of default. Following is a description of each rating category.

- *Pass*: Borrowers that are not experiencing difficulty and/or not showing a potential or well-defined credit weakness.
- *Special Mention*: Borrowers that may be characterized by a potential credit weakness or deteriorating financial condition that is not sufficiently serious to warrant a classification of substandard or doubtful.
- *Substandard*: Borrowers that display a well-defined credit weakness that may jeopardize the full collection of principal and interest.
- *Doubtful*: Borrowers that have a well-defined credit weakness or weaknesses that make full collection of principal and interest, on the basis of currently known facts, conditions and collateral values, highly questionable and improbable.

Loans to borrowers in the pass, special mention and substandard categories are generally considered not to be individually impaired and are included in the loan pools for determining the collective reserve component of the allowance for loan losses. Loans to borrowers in the doubtful category are considered to be impaired and are therefore individually assessed for impairment in determining the specific reserve component of the allowance for loan losses.

The following tables present total loans outstanding, by member class and borrower risk rating category, based on the risk ratings as of November 30, 2019 and May 31, 2019. If a parent company provides a guarantee of full repayment of loans of a subsidiary borrower, we group the outstanding loans in the borrower risk rating category of the guarantor parent company instead of the risk rating category of the subsidiary borrower for purposes of estimating the allowance for loan losses. The borrower risk ratings for loans outstanding presented in the tables below are based on this risk rating grouping.

	November 30, 2019				
(Dollars in thousands)	**Pass**	**Special Mention**	**Substandard**	**Doubtful**	**Total**
CFC:					
Distribution	**$ 20,552,574**	**$ 9,563**	**$ 120,459**	**$ —**	**$ 20,682,596**
Power supply	**4,554,111**	**—**	**47,672**	**—**	**4,601,783**
Statewide and associate	**67,640**	**16,257**	**—**	**—**	**83,897**
CFC total	**25,174,325**	**25,820**	**168,131**	**—**	**25,368,276**
NCSC	**702,279**	**—**	**—**	**—**	**702,279**
RTFC	**350,982**	**—**	**5,342**	**—**	**356,324**
Total loans outstanding	**$ 26,227,586**	**$ 25,820**	**$ 173,473**	**$ —**	**$ 26,426,879**

	May 31, 2019				
(Dollars in thousands)	**Pass**	**Special Mention**	**Substandard**	**Doubtful**	**Total**
CFC:					
Distribution	$ 20,022,193	$ 10,375	$ 122,698	$ —	$ 20,155,266
Power supply	4,530,708	—	48,133	—	4,578,841
Statewide and associate	68,569	15,000	—	—	83,569
CFC total	24,621,470	25,375	170,831	—	24,817,676
NCSC	742,888	—	—	—	742,888
RTFC	339,508	—	5,592	—	345,100
Total loans outstanding	$ 25,703,866	$ 25,375	$ 176,423	$ —	$ 25,905,664

The substantial majority of the loans in the substandard category are attributable to loans to one electric distribution cooperative borrower and its subsidiary totaling $168 million and $171 million as of November 30, 2019 and May 31, 2019, respectively. The electric distribution cooperative owns and operates a distribution and transmission system. Several years ago, it established a subsidiary to deploy retail broadband service in underserved rural communities. Although the borrower has experienced financial difficulties due to recent net losses and liquidity constraints, the borrower and its subsidiary are current with regard to all principal and interest payments and have never been delinquent. The borrower, which operates in a territory that is not rate-regulated, recently increased its electric and broadband rates and has begun taking other actions to improve its financial performance and liquidity. All of the loans outstanding to this borrower were secured under our typical collateral requirements for long-term loan advances as of November 30, 2019. We currently expect to collect all principal and interest amounts due from the borrower and its subsidiary. Accordingly, the loans outstanding to this borrower and its subsidiary were not deemed to be impaired as of November 30, 2019.

Payment Status of Loans

The following tables present the payment status of loans outstanding by member class as of November 30, 2019 and May 31, 2019. As indicated in the table, we did not have any past due loans as of either November 30, 2019 or May 31, 2019.

	November 30, 2019					
(Dollars in thousands)	**Current**	**30-89 Days Past Due**	**90 Days or More Past Due (1)**	**Total Past Due**	**Total Loans Outstanding**	**Nonaccrual Loans**
CFC:						
Distribution	**$ 20,682,596**	**$ —**	**$ —**	**$ —**	**$ 20,682,596**	**$ —**
Power supply	**4,601,783**	**—**	**—**	**—**	**4,601,783**	**—**
Statewide and associate	**83,897**	**—**	**—**	**—**	**83,897**	**—**
CFC total	**25,368,276**	**—**	**—**	**—**	**25,368,276**	**—**
NCSC	**702,279**	**—**	**—**	**—**	**702,279**	**—**
RTFC	**356,324**	**—**	**—**	**—**	**356,324**	**—**
Total loans outstanding	**$ 26,426,879**	**$ —**	**$ —**	**$ —**	**$ 26,426,879**	**$ —**
Percentage of total loans	**100.00%**	**—%**	**—%**	**—%**	**100.00%**	**—%**

	May 31, 2019					
(Dollars in thousands)	**Current**	**30-89 Days Past Due**	**90 Days or More Past Due (1)**	**Total Past Due**	**Total Loans Outstanding**	**Nonaccrual Loans**
CFC:						
Distribution	$ 20,155,266	$ —	$ —	$ —	$ 20,155,266	$ —
Power supply	4,578,841	—	—	—	4,578,841	—
Statewide and associate	83,569	—	—	—	83,569	—
CFC total	24,817,676	—	—	—	24,817,676	—
NCSC	742,888	—	—	—	742,888	—
RTFC	345,100	—	—	—	345,100	—
Total loans outstanding	$ 25,905,664	$ —	$ —	$ —	$ 25,905,664	$ —
Percentage of total loans	100.00%	—%	—%	—%	100.00%	—%

(1) All loans 90 days or more past due are on nonaccrual status.

Troubled Debt Restructurings

We did not have any loans modified as TDRs during the six months ended November 30, 2019. The following table provides a summary of loans modified as TDRs in prior periods, the performance status of these loans and the unadvanced loan commitments related to the TDR loans, by member class, as of November 30, 2019 and May 31, 2019.

	November 30, 2019			May 31, 2019		
(Dollars in thousands)	**Loans Outstanding**	**% of Total Loans**	**Unadvanced Commitments**	**Loans Outstanding**	**% of Total Loans**	**Unadvanced Commitments**
TDR loans:						
Performing TDR loans:						
CFC/Distribution	**$ 5,755**	**0.02%**	**$ —**	$ 6,261	0.03%	$ —
RTFC	**5,342**	**0.02**	**—**	5,592	0.02	—
Total performing TDR loans	**11,097**	**0.04**	**—**	11,853	0.05	—
Total TDR loans	**$ 11,097**	**0.04%**	**$ —**	$ 11,853	0.05%	$ —

We did not have any TDR loans classified as nonperforming as of November 30, 2019 or May 31, 2019. TDR loans classified as performing as of November 30, 2019 and May 31, 2019 were performing in accordance with the terms of their respective restructured loan agreement and on accrual status as of the respective reported dates. One borrower with a TDR loan also had two line of credit facilities as of both November 30, 2019 and May 31, 2019. One line of credit facility for $6 million as of both November 30, 2019 and May 31, 2019, is restricted for fuel purchases only. Outstanding loans under this facility totaled $2 million and $3 million as of November 30, 2019 and May 31, 2019, respectively, and were classified as performing as of each respective date. The other line of credit facility for $2 million as of both November 30, 2019 and May 31, 2019, provides bridge funding for electric work plan expenditures in anticipation of receiving RUS funding. Outstanding loans under this facility totaled $2 million and $1 million as of November 30, 2019 and May 31, 2019, respectively, and were classified as performing.

Nonperforming Loans

In addition to TDR loans that may be classified as nonperforming, we also may have nonperforming loans that have not been modified as a TDR. We did not have any loans classified as nonperforming as of either November 30, 2019 or May 31, 2019.

We had no foregone interest income for loans on nonaccrual status during the three and six months ended November 30, 2019 and 2018.

Impaired Loans

The following table provides information on loans classified as individually impaired as of November 30, 2019 and May 31, 2019.

(Dollars in thousands)	November 30, 2019		May 31, 2019	
	Recorded Investment	Related Allowance	Recorded Investment	Related Allowance
With no specific allowance recorded:				
CFC	**$ 5,755**	**$ —**	$ 6,261	$ —
With a specific allowance recorded:				
RTFC	**5,342**	**956**	5,592	1,021
Total impaired loans	**$ 11,097**	**$ 956**	$ 11,853	$ 1,021

The following table presents, by company, the average recorded investment for individually impaired loans and the interest income recognized on these loans for the three and six months ended November 30, 2019 and 2018.

	Three Months Ended November 30,			
	2019	2018	2019	2018
(Dollars in thousands)	Average Recorded Investment		Interest Income Recognized	
CFC	**$ 5,755**	$ 6,261	**$ 144**	$ 137
RTFC	**5,424**	5,923	**68**	74
Total impaired loans	**$ 11,179**	$ 12,184	**$ 212**	$ 211

	Six Months Ended November 30,			
	2019	2018	2019	2018
(Dollars in thousands)	Average Recorded Investment		Interest Income Recognized	
CFC	**$ 5,999**	$ 6,383	**$ 281**	$ 279
RTFC	**5,485**	5,986	**137**	150
Total impaired loans	**$ 11,484**	$ 12,369	**$ 418**	$ 429

Net Charge-Offs

Charge-offs represent the amount of a loan that has been removed from our consolidated balance sheet when the loan is deemed uncollectible. Generally the amount of a charge-off is the recorded investment in excess of the fair value of the expected cash flows from the loan, or, if the loan is collateral dependent, the fair value of the underlying collateral securing the loan. We report charge-offs net of amounts recovered on previously charged off loans. We had no loan defaults or charge-offs during the three and six months ended November 30, 2019 and 2018.

NOTE 5—ALLOWANCE FOR LOAN LOSSES

We maintain an allowance for loan losses that represents management's estimate of probable losses inherent in our loan portfolio as of each balance sheet date. Our allowance for loan losses consists of a collective allowance for loans in our portfolio that are not individually impaired and a specific allowance for loans identified as individually impaired. The allowance for loan losses is reported separately on the consolidated balance sheet, and the provision for loan losses is separately reported on our condensed consolidated statements of operations.

The following tables summarize changes, by company, in the allowance for loan losses as of and for the three and six months ended November 30, 2019 and 2018.

	Three Months Ended November 30, 2019			
(Dollars in thousands)	**CFC**	**NCSC**	**RTFC**	**Total**
Balance as of August 31, 2019	**$ 12,962**	**$ 2,077**	**$ 2,526**	**$ 17,565**
Provision (benefit) for loan losses	**114**	**(1,267)**	**108**	**(1,045)**
Balance as of November 30, 2019	**$ 13,076**	**$ 810**	**$ 2,634**	**$ 16,520**

	Three Months Ended November 30, 2018			
(Dollars in thousands)	**CFC**	**NCSC**	**RTFC**	**Total**
Balance as of August 31, 2018	$ 12,508	$ 2,012	$ 4,172	$ 18,692
Benefit for loan losses	(334)	(43)	(1,411)	(1,788)
Balance as of November 30, 2018	$ 12,174	$ 1,969	$ 2,761	$ 16,904

	Six Months Ended November 30, 2019			
(Dollars in thousands)	**CFC**	**NCSC**	**RTFC**	**Total**
Balance as of May 31, 2019	**$ 13,120**	**$ 2,007**	**$ 2,408**	**$ 17,535**
Provision (benefit) for loan losses	**(44)**	**(1,197)**	**226**	**(1,015)**
Balance as of November 30, 2019	**$ 13,076**	**$ 810**	**$ 2,634**	**$ 16,520**

	Six Months Ended November 30, 2018			
(Dollars in thousands)	**CFC**	**NCSC**	**RTFC**	**Total**
Balance as of May 31, 2018	$ 12,300	$ 2,082	$ 4,419	$ 18,801
Benefit for loan losses	(126)	(113)	(1,658)	(1,897)
Balance as of November 30, 2018	$ 12,174	$ 1,969	$ 2,761	$ 16,904

The following tables present, by company, the components of our allowance for loan losses and the recorded investment of the related loans as of November 30, 2019 and May 31, 2019.

	November 30, 2019			
(Dollars in thousands)	**CFC**	**NCSC**	**RTFC**	**Total**
Ending balance of the allowance:				
Collective allowance	**$ 13,076**	**$ 810**	**$ 1,678**	**$ 15,564**
Specific allowance	**—**	**—**	**956**	**956**
Total ending balance of the allowance	**$ 13,076**	**$ 810**	**$ 2,634**	**$ 16,520**
Recorded investment in loans:				
Collectively evaluated loans	**$ 25,362,521**	**$ 702,279**	**$ 350,982**	**$ 26,415,782**
Individually evaluated loans	**5,755**	**—**	**5,342**	**11,097**
Total recorded investment in loans	**$ 25,368,276**	**$ 702,279**	**$ 356,324**	**$ 26,426,879**
Total recorded investment in loans, net[(1)]	**$ 25,355,200**	**$ 701,469**	**$ 353,690**	**$ 26,410,359**
Allowance coverage ratio:				
Allowance as a percentage of total recorded investment in loans	**0.05%**	**0.12%**	**0.74%**	**0.06%**

	May 31, 2019			
(Dollars in thousands)	**CFC**	**NCSC**	**RTFC**	**Total**
Ending balance of the allowance:				
Collective allowance	$ 13,120	$ 2,007	$ 1,387	$ 16,514
Specific allowance	—	—	1,021	1,021
Total ending balance of the allowance	$ 13,120	$ 2,007	$ 2,408	$ 17,535
Recorded investment in loans:				
Collectively evaluated loans	$ 24,811,415	$ 742,888	$ 339,508	$ 25,893,811
Individually evaluated loans	6,261	—	5,592	11,853
Total recorded investment in loans	$ 24,817,676	$ 742,888	$ 345,100	$ 25,905,664
Total recorded investment in loans, net[(1)]	$ 24,804,556	$ 740,881	$ 342,692	$ 25,888,129
Allowance coverage ratio:				
Allowance as a percentage of total recorded investment in loans	0.05%	0.27%	0.70%	0.07%

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[(1)] Excludes unamortized deferred loan origination costs of $11 million as of both November 30, 2019 and May 31, 2019.

As noted above in "Note 4—Loans," we did not have any loans classified as nonperforming as of either November 30, 2019 or May 31, 2019.

In addition to the allowance for loan losses, we also maintain a reserve for unadvanced loan commitments at a level estimated by management to provide for probable losses under these commitments as of each balance sheet date, which was less than $1 million as of both November 30, 2019 and May 31, 2019.

NOTE 6—SHORT-TERM BORROWINGS

Short-term borrowings consist of borrowings with an original contractual maturity of one year or less and do not include the current portion of long-term debt. Our short-term borrowings totaled $4,789 million and accounted for 19% of total debt outstanding as of November 30, 2019, compared with $3,608 million, or 14%, of total debt outstanding as of May 31, 2019. The following table provides comparative information on our short-term borrowings as of November 30, 2019 and May 31, 2019.

(Dollars in thousands)	November 30, 2019	May 31, 2019
Short-term borrowings:		
Commercial paper:		
Commercial paper sold through dealers, net of discounts	**$ 1,038,862**	$ 944,616
Commercial paper sold directly to members, at par	**1,371,902**	1,111,795
Total commercial paper	**2,410,764**	2,056,411
Select notes to members	**1,470,579**	1,023,952
Daily liquidity fund notes to members	**508,169**	298,817
Medium-term notes to members	**249,512**	228,546
Farmer Mac revolving facility[1]	**150,000**	—
Total short-term borrowings	**$ 4,789,024**	$ 3,607,726

[1]Advanced under the revolving note purchase agreement with Farmer Mac dated July 31, 2015. See “Note 7—Long-Term Debt” for additional information on this revolving note purchase agreement with Farmer Mac.

Committed Bank Revolving Line of Credit Agreements

We had $2,725 million and $2,975 million of commitments under committed bank revolving line of credit agreements as of November 30, 2019 and May 31, 2019, respectively. Under our current committed bank revolving line of credit agreements, we have the ability to request up to $300 million of letters of credit, which would result in a reduction in the remaining available amount under the facilities.

On November 26, 2019, we amended the three-year and five-year committed bank revolving line of credit agreements to extend the maturity date of the three-year agreement to November 28, 2022, and to terminate certain bank commitments totaling $125 million under the three-year agreement and $125 million under the five-year agreement. As a result, the total commitment amount from third-parties under the three-year facility and the five-year facility is $1,315 million and $1,410 million, respectively, resulting in a combined total commitment amount under the two facilities of $2,725 million.

The following table presents the total commitment, the net amount available for use and the outstanding letters of credit under our committed bank revolving line of credit agreements as of November 30, 2019 and May 31, 2019.

	November 30, 2019			May 31, 2019				
(Dollars in millions)	Total Commitment	Letters of Credit Outstanding	Net Available for Use	Total Commitment	Letters of Credit Outstanding	Net Available for Use	Maturity	Annual Facility Fee [1]
3-year agreement....	**$ —**	**$ —**	**$ —**	$ 1,440	$ —	$ 1,440	November 28, 2021	7.5 bps
3-year agreement....	**1,315**	**—**	**1,315**	—	—	—	November 28, 2022	7.5 bps
Total 3-year agreement	**1,315**	**—**	**1,315**	1,440	—	1,440		
5-year agreement....	**1,410**	**3**	**1,407**	1,535	3	1,532	November 28, 2023	10 bps
Total.....................	**$ 2,725**	**$ 3**	**$ 2,722**	$ 2,975	$ 3	$ 2,972		

[1] Facility fee determined by CFC's senior unsecured credit ratings based on the pricing schedules put in place at the inception of the related agreement.

We had no borrowings outstanding under our committed bank revolving line of credit agreements as of November 30, 2019 or May 31, 2019, and we were in compliance with all covenants and conditions under the agreements as of each date.

NOTE 7—LONG-TERM DEBT

The following table displays long-term debt outstanding, by debt type, as of November 30, 2019 and May 31, 2019.

(Dollars in thousands)	November 30, 2019	May 31, 2019
Secured long-term debt:		
Collateral trust bonds	**$ 7,357,711**	$ 7,662,711
Unamortized discount	**(239,551)**	(244,643)
Debt issuance costs	**(31,575)**	(34,336)
Total collateral trust bonds	**7,086,585**	7,383,732
Guaranteed Underwriter Program notes payable	**5,363,798**	5,410,507
Farmer Mac notes payable	**2,944,954**	3,054,914
Other secured notes payable	**9,225**	9,225
Debt issuance costs	**(146)**	(178)
Total other secured notes payable	**9,079**	9,047
Total secured notes payable	**8,317,831**	8,474,468
Total secured long-term debt	**15,404,416**	15,858,200
Unsecured long-term debt:		
Medium-term notes sold through dealers	**2,617,353**	2,962,375
Medium-term notes sold to members	**423,539**	397,080
Subtotal medium-term notes	**3,040,892**	3,359,455
Unamortized discount	**(764)**	(931)
Debt issuance costs	**(17,617)**	(19,399)
Total unsecured medium-term notes	**3,022,511**	3,339,125
Unsecured notes payable	**7,701**	13,701
Unamortized discount	**(142)**	(187)
Debt issuance costs	**(35)**	(46)
Total unsecured notes payable	**7,524**	13,468
Total unsecured long-term debt	**3,030,035**	3,352,593
Total long-term debt	**$ 18,434,451**	$ 19,210,793

Collateral Trust Bonds

Collateral trust bonds represent secured obligations sold to investors in the capital markets. Collateral trust bonds are secured by the pledge of mortgage notes or eligible securities in an amount at least equal to the principal balance of the bonds outstanding.

On October 15, 2019, we redeemed the $300 million outstanding principal amount of our 2.30% collateral trust bonds due November 15, 2019 at par.

On November 27, 2019, we provided notice to investors of our intent to redeem all $400 million outstanding principal amount of our 2.00% collateral trust bonds due January 27, 2020 on December 27, 2019. We redeemed these outstanding collateral trust bonds at par on December 27, 2019.

Secured Notes Payable

We had outstanding secured notes payable totaling $5,364 million and $5,411 million as of November 30, 2019 and May 31, 2019, respectively, under bond purchase agreements with the Federal Financing Bank and a bond guarantee agreement with RUS issued under the Guaranteed Underwriter Program, which provides guarantees to the Federal Financing Bank. We pay RUS a fee of 30 basis points per year on the total amount outstanding. We had up to $1,350 million available for access under the Guaranteed Underwriter Program as of November 30, 2019. On September 25, 2019, we received a commitment letter for the guarantee by RUS of a $500 million loan facility from the Federal Financing Bank under the Guaranteed Underwriter Program.

The notes outstanding under the Guaranteed Underwriter Program contain a provision that if during any portion of the fiscal year, our senior secured credit ratings do not have at least two of the following ratings: (i) A3 or higher from Moody's, (ii) A- or higher from S&P, (iii) A- or higher from Fitch, or (iv) an equivalent rating from a successor rating agency to any of the above rating agencies, we may not make cash patronage capital distributions in excess of 5% of total patronage capital. We are required to pledge eligible distribution system or power supply system loans as collateral in an amount at least equal to the total principal amount of notes outstanding under the Guaranteed Underwriter Program. See "Note 4—Loans" for additional information on the collateral pledged to secure notes payable under this program.

We had two revolving note purchase agreements with Farmer Mac as of November 30, 2019, which together allowed us to borrow up to $5,500 million from Farmer Mac. Under the first revolving note purchase agreement, dated March 24, 2011, as amended, we can borrow up to $5,200 million as of November 30, 2019, at any time, subject to market conditions, through January 11, 2022. This date automatically extends on each anniversary date of the closing for an additional year, unless prior to any such anniversary date, Farmer Mac provides us with a notice that the draw period will not be extended beyond the remaining term. Pursuant to this revolving note purchase agreement, we can borrow, repay and re-borrow funds at any time through maturity, as market conditions permit, provided that the outstanding principal amount at any time does not exceed the total available under the agreement. We had outstanding secured notes payable totaling $2,945 million and $3,055 million as of November 30, 2019 and May 31, 2019, respectively, under this Farmer Mac revolving note purchase agreement. The available borrowing amount totaled $2,255 million as of November 30, 2019.

Under our second revolving note purchase agreement with Farmer Mac, dated July 31, 2015, as amended, we could borrow up to $300 million at any time through December 20, 2023 at a fixed spread over London Interbank Offered Rate ("LIBOR"). This agreement also allowed us to borrow, repay and re-borrow funds at any time through maturity, provided that the outstanding principal amount at any time does not exceed the total available under the agreement. Under this revolving note purchase agreement, we had outstanding secured notes payable totaling $150 million and an available borrowing amount of $150 million as of November 30, 2019. We had no notes payable outstanding under this agreement as of May 31, 2019. On November 14, 2019, we provided notice to Farmer Mac of termination of the $300 million revolving note purchase agreement, effective December 20, 2019. We repaid the outstanding secured notes payable of $150 million on December 4, 2019, prior to termination of the agreement.

Under the terms of the first Farmer Mac revolving note purchase agreement of $5,200 million discussed above, the commitment amount increases by $300 million in the event of termination of the second revolving note purchase agreement of $300 million. As a result of the termination of the second revolving note purchase agreement, the commitment amount under the $5,200 million revolving note purchase agreement increased to $5,500 million, effective December 20, 2019.

Pursuant to both Farmer Mac revolving note purchase agreements, we are required to pledge eligible distribution system or power supply system loans as collateral in an amount at least equal to the total principal amount of notes outstanding. See "Note 4—Loans" for additional information on pledged collateral.

Unsecured Notes Payable

On November 15, 2019, we redeemed the $6 million outstanding principal amount of our 9.07% notes payable due May 15, 2022, at a premium of less than $1 million.

We were in compliance with all covenants and conditions under our senior debt indentures as of November 30, 2019 and May 31, 2019.

NOTE 8—SUBORDINATED DEFERRABLE DEBT

The following table presents subordinated deferrable debt outstanding as of November 30, 2019 and May 31, 2019. See "Note 8—Subordinated Deferrable Debt" of our 2019 Form 10-K for additional information on the terms of our subordinated deferrable debt outstanding.

(Dollars in thousands)	November 30, 2019	May 31, 2019
4.75% due 2043 with a call date of April 30, 2023	**$ 400,000**	$ 400,000
5.25% due 2046 with a call date of April 20, 2026	**350,000**	350,000
5.50% due 2064 with a call date of May 15, 2024	**250,000**	250,000
Debt issuance costs	**(13,974)**	(13,980)
Total subordinated deferrable debt	**$ 986,026**	$ 986,020

NOTE 9—DERIVATIVE INSTRUMENTS AND HEDGING ACTIVITIES

We are an end user of derivative financial instruments and do not engage in derivative trading. We use derivatives, primarily interest rate swaps and Treasury rate locks, to manage interest rate risk. Derivatives may be privately negotiated contracts, which are often referred to as OTC derivatives, or they may be listed and traded on an exchange. We generally engage in OTC derivative transactions.

Accounting for Derivatives

In accordance with the accounting standards for derivatives and hedging activities, we record derivative instruments at fair value as either a derivative asset or derivative liability on our condensed consolidated balance sheets. We report derivative asset and liability amounts on a gross basis based on individual contracts, which does not take into consideration the effects of master netting agreements or collateral netting. Our derivatives transactions are not collateralized and do not include collateralization agreements with counterparties. Derivatives in a gain position are reported as derivative assets on our condensed consolidated balance sheets, while derivatives in a loss position are reported as derivative liabilities. Accrued interest related to derivatives is reported on our condensed consolidated balance sheets as a component of either accrued interest receivable or accrued interest payable.

If we do not elect hedge accounting treatment, changes in the fair value of derivative instruments, which consist of net accrued periodic derivative cash settlements expense and derivative forward value amounts, are recognized in our condensed consolidated statements of operations under derivative gains (losses). If we elect hedge accounting treatment for derivatives, we formally document, designate and assess the effectiveness of the hedge relationship. Changes in the fair value of derivatives designated as qualifying fair value hedges are recognized in the same line item on our condensed consolidated statements of operations as the earnings effect of the related hedged item. Changes in the fair value of derivatives designated as qualifying cash flow hedges are recorded as a component of AOCI. Those amounts are reclassified into earnings in the same period during which the forecasted transaction impacts earnings and presented in the same line item on our condensed consolidated statements of operations as the earnings effect of the related hedged item.

We generally do not designate interest rate swaps, which represented all of our outstanding derivatives as of November 30, 2019, for hedge accounting. Accordingly, changes in the fair value of interest rate swaps are reported in our condensed consolidated statements of operations under derivative gains (losses). Net periodic cash settlements expense related to interest rate swaps are classified as an operating activity in our consolidated statements of cash flows.

Outstanding Notional Amount of Derivatives Not Designated as Accounting Hedges

The notional amount provides an indication of the volume of our derivatives activity, but this amount is not recorded on our condensed consolidated balance sheets. The notional amount is used only as the basis on which interest payments are determined and is not the amount exchanged. The following table shows the outstanding notional amounts and the weighted-average rate paid and received for our interest rate swaps, by type, as of November 30, 2019 and May 31, 2019. The substantial majority of our interest rate swaps use an index based on LIBOR for either the pay or receive leg of the swap agreement.

	November 30, 2019			**May 31, 2019**		
(Dollars in thousands)	**Notional Amount**	**Weighted-Average Rate Paid**	**Weighted-Average Rate Received**	**Notional Amount**	**Weighted-Average Rate Paid**	**Weighted-Average Rate Received**
Pay-fixed swaps	**$ 7,271,741**	**2.84%**	**2.00%**	$ 7,379,280	2.83%	2.60%
Receive-fixed swaps	**3,099,000**	**2.66**	**2.66**	3,399,000	3.25	2.56
Total interest rate swaps	**10,370,741**	**2.78**	**2.20**	10,778,280	2.97	2.58
Forward pay-fixed swaps	**65,000**			65,000		
Total	**$10,435,741**			$10,843,280		

Impact of Derivatives on Condensed Consolidated Balance Sheets

The following table displays the fair value of the derivative assets and derivative liabilities recorded on our condensed consolidated balance sheets and the related outstanding notional amount of our interest rate swaps by derivatives type, as of November 30, 2019 and May 31, 2019.

	November 30, 2019		**May 31, 2019**	
(Dollars in thousands)	**Fair Value**	**Notional Balance**	**Fair Value**	**Notional Balance**
Derivative assets:				
Interest rate swaps	**$ 53,174**	**$ 2,335,476**	$ 41,179	$ 2,332,104
Derivative liabilities:				
Interest rate swaps	**$ 591,027**	**$ 8,100,265**	$ 391,724	$ 8,511,176

All of our master swap agreements include netting provisions that allow for offsetting of all contracts with a given counterparty in the event of default by one of the two parties. However, as indicated above, we report derivative asset and liability amounts on a gross basis by individual contracts. The following table presents the gross fair value of derivative assets and liabilities reported on our condensed consolidated balance sheets as of November 30, 2019 and May 31, 2019, and provides information on the impact of netting provisions and collateral pledged, if any.

	November 30, 2019					
				Gross Amount Not Offset in the Balance Sheet		
(Dollars in thousands)	Gross Amount of Recognized Assets/ Liabilities	Gross Amount Offset in the Balance Sheet	Net Amount of Assets/ Liabilities Presented in the Balance Sheet	Financial Instruments	Cash Collateral Pledged	Net Amount
Derivative assets:						
Interest rate swaps	**$ 53,174**	**$ —**	**$ 53,174**	**$ 53,174**	**$ —**	**$ —**
Derivative liabilities:						
Interest rate swaps	**591,027**	**—**	**591,027**	**53,174**	**—**	**537,853**

	May 31, 2019					
				Gross Amount Not Offset in the Balance Sheet		
(Dollars in thousands)	Gross Amount of Recognized Assets/ Liabilities	Gross Amount Offset in the Balance Sheet	Net Amount of Assets/ Liabilities Presented in the Balance Sheet	Financial Instruments	Cash Collateral Pledged	Net Amount
Derivative assets:						
Interest rate swaps	$ 41,179	$ —	$ 41,179	$ 41,176	$ —	$ 3
Derivative liabilities:						
Interest rate swaps	391,724	—	391,724	41,176	—	350,548

Impact of Derivatives on Condensed Consolidated Statements of Operations

Derivative gains (losses) reported in our condensed consolidated statements of operations consist of derivative cash settlements expense and derivative forward value gains (losses). Derivative cash settlements expense represents net contractual interest expense accruals on interest rate swaps during the period. The derivative forward value gains (losses) represent the change in fair value of our interest rate swaps during the reporting period due to changes in the estimate of future interest rates over the remaining life of our derivative contracts.

The following table presents the components of the derivative gains (losses) reported in our condensed consolidated statements of operations for our interest rate swaps for the three and six months ended November 30, 2019 and 2018.

	Three Months Ended November 30,		Six Months Ended November 30,	
(Dollars in thousands)	2019	2018	2019	2018
Derivative gains (losses) attributable to:				
Derivative cash settlements expense	**$ (14,150)**	$ (11,805)	**$ (25,193)**	$ (24,634)
Derivative forward value gains (losses)	**197,600**	75,148	**(187,082)**	95,160
Derivative gains (losses)	**$ 183,450**	$ 63,343	**$ (212,275)**	$ 70,526

Credit Risk-Related Contingent Features

Our derivative contracts typically contain mutual early-termination provisions, generally in the form of a credit rating trigger. Under the mutual credit rating trigger provisions, either counterparty may, but is not obligated to, terminate and settle the agreement if the credit rating of the other counterparty falls below a level specified in the agreement. If a derivative contract is terminated, the amount to be received or paid by us would be equal to the prevailing fair value, as defined in the agreement, as of the termination date.

Our senior unsecured credit ratings from Moody's and S&P were A2 and A, respectively, as of November 30, 2019. Both Moody's and S&P had our ratings on stable outlook as of November 30, 2019. The following table displays the notional amounts of our derivative contracts with rating triggers as of November 30, 2019, and the payments that would be required if the contracts were terminated as of that date because of a downgrade of our unsecured credit ratings or the counterparty's unsecured credit ratings below A3/A-, below Baa1/BBB+, to or below Baa2/BBB, below Baa3/BBB-, or to or below Ba2/BB+ by Moody's or S&P, respectively. In calculating the payment amounts that would be required upon termination of the derivative contracts, we assumed that the amounts for each counterparty would be netted in accordance with the provisions of the master netting agreements for each counterparty. The net payment amounts are based on the fair value of the underlying derivative instrument, excluding the credit risk valuation adjustment, plus any unpaid accrued interest amounts.

(Dollars in thousands)	Notional Amount	Payable Due from CFC	Receivable Due to CFC	Net (Payable)/ Receivable
Impact of rating downgrade trigger:				
Falls below A3/A-[1]	$ 47,955	$ (9,457)	$ —	$ (9,457)
Falls below Baa1/BBB+	6,861,619	(346,099)	—	(346,099)
Falls to or below Baa2/BBB [2]	479,629	(13,704)	—	(13,704)
Falls below Baa3/BBB-	221,078	(12,385)	—	(12,385)
Total	$ 7,610,281	$ (381,645)	$ —	$ (381,645)

[1] Rating trigger for CFC falls below A3/A-, while rating trigger for counterparty falls below Baa1/BBB+ by Moody's or S&P, respectively.
[2] Rating trigger for CFC falls to or below Baa2/BBB, while rating trigger for counterparty falls to or below Ba2/BB+ by Moody's or S&P, respectively.

We have outstanding notional amount of derivatives with one counterparty subject to a ratings trigger and early termination provision in the event of a downgrade of CFC's senior unsecured credit ratings below Baa3, BBB- or BBB- by Moody's, S&P or Fitch, respectively, which is not included in the above table, totaling $165 million as of November 30, 2019. These contracts were in an unrealized loss position of $31 million as of November 30, 2019.

Our largest counterparty exposure, based on the outstanding notional amount, accounted for approximately 23% of the total outstanding notional amount of derivatives as of both November 30, 2019 and May 31, 2019. The aggregate fair value amount, including the credit valuation adjustment, of all interest rate swaps with rating triggers that were in a net liability position was $402 million as of November 30, 2019.

NOTE 10—EQUITY

Total equity decreased by $146 million to $1,158 million as of November 30, 2019. The decrease was primarily attributable to our reported net loss of $82 million for the six months ended November 30, 2019 and the patronage capital retirement of $63 million in September 2019.

In July 2019, the CFC Board of Directors authorized the allocation of the fiscal year 2019 net earnings as follows: $97 million to members in the form of patronage, $71 million to the members' capital reserve and $1 million to the cooperative educational fund. The amount of patronage capital allocated each year by CFC's Board of Directors is based on adjusted net income, which excludes the impact of derivative forward value gains (losses). See "MD&A—Non-GAAP Financial Measures" for information on adjusted net income.

In July 2019, the CFC Board of Directors authorized the retirement of allocated net earnings totaling $63 million, consisting of $48 million, which represented 50% of the patronage capital allocation for fiscal year 2019, and $15 million, which represented the portion of the allocation from fiscal year 1994 net earnings that has been held for 25 years pursuant to the CFC Board of Directors policy. This amount was returned to members in cash in September 2019. The remaining portion of the amount allocated for fiscal year 2019 will be retained by CFC for 25 years under current guidelines adopted by the CFC Board of Directors in June 2009.

The CFC Board of Directors is required to make annual allocations of adjusted net income, if any. CFC has made annual retirements of allocated net earnings in 39 of the last 40 fiscal years; however, future retirements of allocated amounts are determined based on CFC's financial condition. The CFC Board of Directors has the authority to change the current practice for allocating and retiring net earnings at any time, subject to applicable laws. See "Item 1. Business—Allocation and Retirement of Patronage Capital" of our 2019 Form 10-K for additional information.

Accumulated Other Comprehensive Income (Loss)

The following tables summarize, by component, the activity in AOCI as of and for the three and six months ended November 30, 2019 and 2018.

	Three Months Ended November 30, 2019				
(Dollars in thousands)	Unrealized Gains (Losses) Equity Securities	Unrealized Gains Derivatives	Unrealized Gains (Losses) Cash Flow Hedges	Unrealized Losses Defined Benefit Plan	Total
Beginning balance	**$ —**	**$ 2,459**	**$ —**	**$ (2,573)**	**$ (114)**
(Gains) losses reclassified into earnings	**—**	**(114)**	**—**	**146**	**32**
Ending balance	**$ —**	**$ 2,345**	**$ —**	**$ (2,427)**	**$ (82)**

	Three Months Ended November 30, 2018				
(Dollars in thousands)	Unrealized Gains (Losses) Equity Securities	Unrealized Gains Derivatives	Unrealized Gains (Losses) Cash Flow Hedges	Unrealized Losses Defined Benefit Plan	Total
Beginning balance	$ —	$ 2,920	$ (1,035)	$ (2,099)	$ (214)
Unrealized gains	—	—	1,035	—	1,035
(Gains) losses reclassified into earnings	—	(120)	—	131	11
Other comprehensive income (loss)	—	(120)	1,035	131	1,046
Ending balance	$ —	$ 2,800	$ —	$ (1,968)	$ 832

	Six Months Ended November 30, 2019				
(Dollars in thousands)	Unrealized Gains (Losses) Equity Securities	Unrealized Gains Derivatives(1)	Unrealized Gains (Losses) Cash Flow Hedges	Unrealized Losses Defined Benefit Plan(2)	Total
Beginning balance	**$ —**	**$ 2,571**	**$ —**	**$ (2,718)**	**$ (147)**
(Gains) losses reclassified into earnings	**—**	**(226)**	**—**	**291**	**65**
Ending balance	**$ —**	**$ 2,345**	**$ —**	**$ (2,427)**	**$ (82)**

	Six Months Ended November 30, 2018				
(Dollars in thousands)	Unrealized Gains (Losses) Equity Securities	Unrealized Gains Derivatives[1]	Unrealized Gains (Losses) Cash Flow Hedges	Unrealized Losses Defined Benefit Plan[2]	Total
Beginning balance	$ 8,794	$ 3,039	$ (1,059)	$ (2,230)	$ 8,544
Cumulative effect of changes from adoption of new accounting standard	(8,794)	—	—	—	(8,794)
Unrealized gains	—	—	1,059	—	1,059
(Gains) losses reclassified into earnings	—	(239)	—	262	23
Other comprehensive income (loss)	—	(239)	1,059	262	1,082
Ending balance	$ —	$ 2,800	$ —	$ (1,968)	$ 832

(1)Amounts are reclassified into income in the derivative forward value gains (losses) component of the derivative gains (losses) line item of our condensed consolidated statements of operations.

(2)Amounts are reclassified into income in the other general and administrative expenses line item of our condensed consolidated statements of operations.

We expect to reclassify less than $1 million of amounts in AOCI related to unrealized derivative gains into earnings over the next 12 months.

NOTE 11—GUARANTEES

The following table summarizes total guarantees, by type of guarantee and by member class, as of November 30, 2019 and May 31, 2019.

(Dollars in thousands)	November 30, 2019	May 31, 2019
Total by type:		
Long-term tax-exempt bonds[1]	**$ 308,750**	$ 312,190
Letters of credit[2]	**339,241**	379,001
Other guarantees	**146,732**	146,244
Total	**$ 794,723**	$ 837,435
Total by member class:		
CFC:		
Distribution	**$ 243,668**	$ 235,919
Power supply	**533,168**	586,717
Statewide and associate	**5,296**	4,708
CFC total	**782,132**	827,344
NCSC	**12,591**	8,517
RTFC	**—**	1,574
Total	**$ 794,723**	$ 837,435

(1)Represents the outstanding principal amount of long-term fixed-rate and variable-rate guaranteed bonds.

(2)Reflects our maximum potential exposure for letters of credit.

Long-term tax-exempt bonds of $309 million and $312 million as of November 30, 2019 and May 31, 2019, respectively, included $245 million and $247 million, respectively, of adjustable or variable-rate bonds that may be converted to a fixed rate as specified in the applicable indenture for each bond offering. We are unable to determine the maximum amount of interest that we may be required to pay related to the remaining adjustable and variable-rate bonds. Many of these bonds have a call provision that allows us to call the bond in the event of a default, which would limit our exposure to future interest payments on these bonds. Our maximum potential exposure generally is secured by mortgage liens on the members' assets and future revenue. If a member's debt is accelerated because of a determination that the interest thereon is not tax-exempt, the member's obligation to reimburse us for any guarantee payments will be treated as a long-term loan. The remaining long-term tax-exempt bonds of $64 million as of November 30, 2019 are fixed-rate. The maximum potential exposure for these bonds, including the outstanding principal of $64 million and related interest through maturity, totaled $89 million as of November 30, 2019. The maturities for long-term tax-exempt bonds and the related guarantees extend through calendar year 2042.

Of the outstanding letters of credit of $339 million and $379 million as of November 30, 2019 and May 31, 2019, respectively, $109 million and $126 million, respectively, were secured. We did not have any letters of credit outstanding that provided for standby liquidity for adjustable and floating-rate tax-exempt bonds issued for the benefit of our members as of November 30, 2019. The maturities for the outstanding letters of credit as of November 30, 2019 extend through calendar year 2039.

In addition to the letters of credit listed in the table above, under master letter of credit facilities in place as of November 30, 2019, we may be required to issue up to an additional $54 million in letters of credit to third parties for the benefit of our members. All of our master letter of credit facilities were subject to material adverse change clauses at the time of issuance as of November 30, 2019. Prior to issuing a letter of credit, we would confirm that there has been no material adverse change in the business or condition, financial or otherwise, of the borrower since the time the loan was approved and confirm that the borrower is currently in compliance with the letter of credit terms and conditions.

The maximum potential exposure for other guarantees was $147 million as of both November 30, 2019 and May 31, 2019 of which $25 million was secured as of both November 30, 2019 and May 31, 2019. The maturities for these other guarantees listed in the table above extend through calendar year 2025. Guarantees under which our right of recovery from our members was not secured totaled $352 million and $374 million and represented 44% and 45% of total guarantees as of November 30, 2019 and May 31, 2019, respectively.

In addition to the guarantees described above, we were also the liquidity provider for $245 million of variable-rate tax-exempt bonds as of November 30, 2019, issued for our member cooperatives. While the bonds are in variable-rate mode, in return for a fee, we have unconditionally agreed to purchase bonds tendered or put for redemption if the remarketing agents are unable to sell such bonds to other investors. We were not required to perform as liquidity provider pursuant to these obligations during the six months ended November 30, 2019 or the prior fiscal year.

Guarantee Liability

As of November 30, 2019 and May 31, 2019, we recorded a guarantee liability of $13 million and $14 million, respectively, which represents the contingent and noncontingent exposures related to guarantees and liquidity obligations. The contingent guarantee liability was $1 million as of both November 30, 2019 and May 31, 2019, based on management's estimate of exposure to losses within the guarantee portfolio. The remaining balance of the total guarantee liability of $12 million and $13 million as of November 30, 2019 and May 31, 2019, respectively, relates to our noncontingent obligation to stand ready to perform over the term of our guarantees and liquidity obligations that we have entered into or modified since January 1, 2003.

NOTE 12—FAIR VALUE MEASUREMENT

We use fair value measurements for the initial recording of certain assets and liabilities and periodic remeasurement of certain assets and liabilities on a recurring or nonrecurring basis. The accounting guidance for fair value measurements and disclosures establishes a three-level fair value hierarchy that prioritizes the inputs into the valuation techniques used to measure fair value. The levels of the fair value hierarchy, in priority order, include Level 1, Level 2 and Level 3. For additional information regarding the fair value hierarchy and a description of the methodologies we use to measure fair value, see “Note 14—Fair Value Measurement” to the Consolidated Financial Statements in our 2019 Form 10-K.

The following tables present the carrying value and fair value for all of our financial instruments, including those carried at amortized cost, as of November 30, 2019 and May 31, 2019. The tables also display the classification within the fair value hierarchy of the valuation technique used in estimating fair value.

	November 30, 2019		Fair Value Measurement Level		
(Dollars in thousands)	Carrying Value	Fair Value	Level 1	Level 2	Level 3
Assets:					
Cash and cash equivalents	$ 114,033	$ 114,033	$ 114,033	$ —	$ —
Restricted cash	10,638	10,638	10,638	—	—
Equity securities	63,809	63,809	63,809	—	—
Debt securities held-to-maturity	573,547	583,439	—	583,439	—
Deferred compensation investments	5,682	5,682	5,682	—	—
Loans to members, net	26,421,661	28,008,555	—	—	28,008,555
Accrued interest receivable	130,950	130,950	—	130,950	—
Debt service reserve funds	17,151	17,151	17,151	—	—
Derivative assets	53,174	53,174	—	53,174	—
Liabilities:					
Short-term borrowings	$ 4,789,024	$ 4,789,768	$ —	$ 4,639,768	$ 150,000
Long-term debt	18,434,451	19,783,264	—	11,153,207	8,630,057
Accrued interest payable	148,875	148,875	—	148,875	—
Guarantee liability	13,489	13,763	—	—	13,763
Derivative liabilities	591,027	591,027	—	591,027	—
Subordinated deferrable debt	986,026	1,052,215	—	1,052,215	—
Members’ subordinated certificates	1,355,052	1,355,052	—	—	1,355,052

	May 31, 2019		Fair Value Measurement Level		
(Dollars in thousands)	**Carrying Value**	**Fair Value**	**Level 1**	**Level 2**	**Level 3**
Assets:					
Cash and cash equivalents	$ 177,922	$ 177,922	$ 177,922	$ —	$ —
Restricted cash	8,282	8,282	8,282	—	—
Equity securities	87,533	87,533	87,533	—	—
Debt securities held-to-maturity	565,444	570,549	—	570,549	—
Deferred compensation investments	4,984	4,984	4,984	—	—
Loans to members, net	25,899,369	25,743,503	—	—	25,743,503
Accrued interest receivable	133,605	133,605	—	133,605	—
Debt service reserve funds	17,151	17,151	17,151	—	—
Derivative assets	41,179	41,179	—	41,179	—
Liabilities:					
Short-term borrowings	$ 3,607,726	$ 3,608,259	$ —	$ 3,608,259	$ —
Long-term debt	19,210,793	20,147,183	—	11,482,715	8,664,468
Accrued interest payable	158,997	158,997	—	158,997	—
Guarantee liability	13,666	13,307	—	—	13,307
Derivative liabilities	391,724	391,724	—	391,724	—
Subordinated deferrable debt	986,020	1,004,707	—	1,004,707	—
Members' subordinated certificates	1,357,129	1,357,129	—	—	1,357,129

Transfers Between Levels

We monitor the availability of observable market data to assess the appropriate classification of financial instruments within the fair value hierarchy and transfer between Level 1, Level 2, and Level 3 accordingly. Observable market data includes but is not limited to quoted prices and market transactions. Changes in economic conditions or market liquidity generally will drive changes in availability of observable market data. Changes in availability of observable market data, which also may result in changes in the valuation technique used, are generally the cause of transfers between levels. We did not have any transfers between levels for financial instruments measured at fair value on a recurring basis for the six months ended November 30, 2019 and 2018.

Recurring Fair Value Measurements

The following table presents the carrying value and fair value of financial instruments reported in our condensed consolidated financial statements at fair value on a recurring basis as of November 30, 2019 and May 31, 2019, and the classification of the valuation technique within the fair value hierarchy.

	November 30, 2019			May 31, 2019		
(Dollars in thousands)	**Level 1**	**Level 2**	**Total**	**Level 1**	**Level 2**	**Total**
Equity securities	**$ 63,809**	**$ —**	**$ 63,809**	$ 87,533	$ —	$ 87,533
Deferred compensation investments	**5,682**	**—**	**5,682**	4,984	—	4,984
Derivative assets	**—**	**53,174**	**53,174**	—	41,179	41,179
Derivative liabilities	**—**	**591,027**	**591,027**	—	391,724	391,724

Nonrecurring Fair Value

We may be required, from time to time, to measure certain assets at fair value on a nonrecurring basis on our condensed consolidated balance sheets. These assets are not measured at fair value on an ongoing basis but are subject to fair value adjustments in certain circumstances, such as in the application of lower of cost or fair value accounting or when we evaluate for impairment. Assets measured at fair value on a nonrecurring basis and still held during the six months ended November 30, 2019 and 2018 consisted of certain impaired loans. Fair value measurement adjustments for individually impaired loans are recorded in the provision for loan losses on our condensed consolidated statements of operations. The fair value of these assets is determined based on the use of significant unobservable inputs, which are considered Level 3 in the fair value hierarchy. We did not have any nonrecurring fair value measurement adjustments recorded in earnings attributable to these assets during the three and six months ended November 30, 2019 and 2018.

Significant Unobservable Level 3 Inputs

Impaired Loans

The fair value of impaired loans is typically measured based on the present value of expected future cash flows. Our estimate of expected future cash flows incorporates, among other items, assumptions regarding default rates, loss severities, the amounts and timing of prepayments, as well as the characteristics of the loan. If we expect repayment to be provided solely by the continued operation or sale of the underlying collateral, the fair value of the collateral less estimated costs to sell is used as the basis for measuring fair value. We employ various approaches and techniques to determine the fair value of collateral-dependent loans, including developing market multiples and obtaining valuations from third-party specialists. The significant unobservable inputs used in measuring the fair value of collateral-dependent loans include estimated cash flows before interest, taxes, depreciation and amortization and market multiples for comparable companies. Our Credit Risk Management group reviews the unobservable inputs to assess the reasonableness of the assumptions used and the accuracy of the work performed. We did not have any impaired collateral-dependent loans as of November 30, 2019 or May 31, 2019.

NOTE 13—BUSINESS SEGMENTS

The following tables display segment results for the three and six months ended November 30, 2019 and 2018, and assets attributable to each segment as of November 30, 2019 and November 30, 2018.

	Three Months Ended November 30, 2019			
(Dollars in thousands)	**CFC**	**Other**	**Elimination**	**Consolidated Total**
Statement of operations:				
Interest income	$ 285,036	$ 11,719	$ (9,718)	$ 287,037
Interest expense	(207,759)	(9,830)	9,718	(207,871)
Net interest income	77,277	1,889	—	79,166
Benefit for loan losses	1,045	—	—	1,045
Net interest income after benefit for loan losses	78,322	1,889	—	80,211
Non-interest income:				
Fee and other income	5,181	587	(1,926)	3,842
Derivative gains (losses):				
Derivative cash settlements expense	(13,874)	(276)	—	(14,150)
Derivative forward value gains	196,387	1,213	—	197,600
Derivative gains	182,513	937	—	183,450
Unrealized losses on equity securities	(114)	—	—	(114)
Total non-interest income	187,580	1,524	(1,926)	187,178
Non-interest expense:				
General and administrative expenses	(23,994)	(2,420)	1,645	(24,769)
Losses on early extinguishment of debt	—	(614)	—	(614)
Other non-interest expense	(316)	(280)	281	(315)
Total non-interest expense	(24,310)	(3,314)	1,926	(25,698)
Income before income taxes	241,592	99	—	241,691
Income tax expense	—	(91)	—	(91)
Net income	$ 241,592	$ 8	$ —	$ 241,600

	Three Months Ended November 30, 2018			
(Dollars in thousands)	**CFC**	**Other**	**Elimination**	**Consolidated Total**
Statement of operations:				
Interest income	$ 279,033	$ 12,945	$ (10,725)	$ 281,253
Interest expense	(203,985)	(10,906)	10,725	(204,166)
Net interest income	75,048	2,039	—	77,087
Benefit for loan losses	1,788	—	—	1,788
Net interest income after benefit for loan losses	76,836	2,039	—	78,875
Non-interest income:				
Fee and other income	4,897	490	(1,792)	3,595
Derivative gains (losses):				
Derivative cash settlements	(11,546)	(259)	—	(11,805)
Derivative forward value gains	74,591	557	—	75,148
Derivative gains	63,045	298	—	63,343
Unrealized losses on equity securities	(1,619)	—	—	(1,619)
Total non-interest income	66,323	788	(1,792)	65,319
Non-interest expense:				
General and administrative expenses	(23,544)	(1,919)	1,593	(23,870)
Other non-interest expense	(355)	(199)	199	(355)
Total non-interest expense	(23,899)	(2,118)	1,792	(24,225)
Income before income taxes	119,260	709	—	119,969
Income tax expense	—	(243)	—	(243)
Net income	$ 119,260	$ 466	$ —	$ 119,726

	Six Months Ended November 30, 2019			
(Dollars in thousands)	CFC	Other	Elimination	Consolidated Total
Statement of operations:				
Interest income	$ 573,000	$ 24,066	$ (20,014)	$ 577,052
Interest expense	(420,894)	(20,262)	20,014	(421,142)
Net interest income	152,106	3,804	—	155,910
Benefit for loan losses	1,015	—	—	1,015
Net interest income after benefit for loan losses	153,121	3,804	—	156,925
Non-interest income:				
Fee and other income	17,463	8,408	(11,088)	14,783
Derivative losses:				
Derivative cash settlements expense	(24,675)	(518)	—	(25,193)
Derivative forward value losses	(186,375)	(707)	—	(187,082)
Derivative losses	(211,050)	(1,225)	—	(212,275)
Unrealized gains on equity securities	1,506	—	—	1,506
Total non-interest income	(192,081)	7,183	(11,088)	(195,986)
Non-interest expense:				
General and administrative expenses	(48,733)	(4,655)	3,290	(50,098)
Losses on early extinguishment of debt	—	(614)	—	(614)
Other non-interest (expense) income	6,863	(7,797)	7,798	6,864
Total non-interest expense	(41,870)	(13,066)	11,088	(43,848)
Loss before income taxes	(80,830)	(2,079)	—	(82,909)
Income tax benefit	—	430	—	430
Net loss	$ (80,830)	$ (1,649)	$ —	$ (82,479)

	November 30, 2019			
	CFC	Other	Elimination	Consolidated Total
Assets:				
Total loans outstanding	$ 26,406,139	$ 1,058,603	$ (1,037,863)	$ 26,426,879
Deferred loan origination costs	11,302	—	—	11,302
Loans to members	26,417,441	1,058,603	(1,037,863)	26,438,181
Less: Allowance for loan losses	(16,520)	—	—	(16,520)
Loans to members, net	26,400,921	1,058,603	(1,037,863)	26,421,661
Other assets	1,132,171	106,301	(93,532)	1,144,940
Total assets	$ 27,533,092	$ 1,164,904	$ (1,131,395)	$ 27,566,601

	Six Months Ended November 30, 2018			
(Dollars in thousands)	CFC	Other	Elimination	Consolidated Total
Statement of operations:				
Interest income	$ 555,276	$ 25,929	$ (21,461)	$ 559,744
Interest expense	(414,035)	(21,823)	21,461	(414,397)
Net interest income	141,241	4,106	—	145,347
Benefit for loan losses	1,897	—	—	1,897
Net interest income after benefit for loan losses	143,138	4,106	—	147,244
Non-interest income:				
Fee and other income	10,096	1,054	(3,644)	7,506
Derivative gains (losses):				
Derivative cash settlements expense	(24,108)	(526)	—	(24,634)
Derivative forward value gains	94,262	898	—	95,160
Derivative gains	70,154	372	—	70,526
Unrealized losses on equity securities	(2,345)	—	—	(2,345)
Total non-interest income	77,905	1,426	(3,644)	75,687
Non-interest expense:				
General and administrative expenses	(45,969)	(4,293)	3,187	(47,075)
Losses on early extinguishment of debt	(7,100)	—	—	(7,100)
Other non-interest expense	(749)	(457)	457	(749)
Total non-interest expense	(53,818)	(4,750)	3,644	(54,924)
Income before income taxes	167,225	782	—	168,007
Income tax expense	—	(303)	—	(303)
Net income	$ 167,225	$ 479	$ —	$ 167,704

	November 30, 2018			
	CFC	Other	Elimination	Consolidated Total
Assets:				
Total loans outstanding	$ 25,250,000	$ 1,122,718	$ (1,089,765)	$ 25,282,953
Deferred loan origination costs	11,222	—	—	11,222
Loans to members	25,261,222	1,122,718	(1,089,765)	25,294,175
Less: Allowance for loan losses	(16,904)	—	—	(16,904)
Loans to members, net	25,244,318	1,122,718	(1,089,765)	25,277,271
Other assets	1,542,099	112,923	(102,535)	1,552,487
Total assets	$ 26,786,417	$ 1,235,641	$ (1,192,300)	$ 26,829,758

Item 3. Quantitative and Qualitative Disclosures About Market Risk

For quantitative and qualitative disclosures about market risk, see "Part I—Item 2. MD&A—Market Risk" and "Note 9—Derivative Instruments and Hedging Activities."

Item 4. Controls and Procedures

As of the end of the period covered by this report, senior management, including the Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures as defined in Rules 13a-15(e) and 15d-15(e) of the Securities Exchange Act of 1934. Based on this evaluation process, the Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures are effective. There were no changes in our internal control over financial reporting that occurred during the three months ended November 30, 2019 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II—OTHER INFORMATION

Item 1. Legal Proceedings

From time to time, CFC is subject to certain legal proceedings and claims in the ordinary course of business, including litigation with borrowers related to enforcement or collection actions. Management presently believes that the ultimate outcome of these proceedings, individually and in the aggregate, will not materially harm our financial position, liquidity or results of operations. CFC establishes reserves for specific legal matters when it determines that the likelihood of an unfavorable outcome is probable and the loss is reasonably estimable. Accordingly, no reserve has been recorded with respect to any legal proceedings at this time.

Item 1A. Risk Factors

Refer to "Part I— Item 1A. Risk Factors" in our 2019 Form 10-K for information regarding factors that could affect our results of operations, financial condition and liquidity. We are not aware of any material changes in the risk factors set forth under "Part I— Item 1A. Risk Factors" in our 2019 Form 10-K.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds

Not applicable.

Item 3. Defaults Upon Senior Securities

Not applicable.

Item 4. Mine Safety Disclosures

Not applicable.

Item 5. Other Information

None.

Item 6. Exhibits

The following exhibits are incorporated by reference or filed as part of this Report.

EXHIBIT INDEX

Exhibit No.		Description
10.1*	—	Amendment No. 4 dated as of November 26, 2019 to the Amended and Restated Revolving Credit Agreement dated as of November 19, 2015 maturing on November 28, 2022.
10.2*	—	Amendment No. 4 dated as of November 26, 2019 to the Amended and Restated Revolving Credit Agreement dated as of November 19, 2015 maturing on November 28, 2023.
31.1*	—	Certification of the Chief Executive Officer required by Section 302 of the Sarbanes-Oxley Act of 2002.
31.2*	—	Certification of the Chief Financial Officer required by Section 302 of the Sarbanes-Oxley Act of 2002.
32.1†	—	Certification of the Chief Executive Officer required by Section 906 of the Sarbanes-Oxley Act of 2002.
32.2†	—	Certification of the Chief Financial Officer required by Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS*	—	XBRL Instance Document
101.SCH*	—	XBRL Taxonomy Extension Schema Document
101.CAL*	—	XBRL Taxonomy Calculation Linkbase Document
101.LAB*	—	XBRL Taxonomy Label Linkbase Document
101.PRE*	—	XBRL Taxonomy Presentation Linkbase Document
101.DEF*	—	XBRL Taxonomy Definition Linkbase Document

*Indicates a document being filed with this Report.

†Indicates a document that is furnished with this Report, which shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, or otherwise subject to the liability of that Section.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

NATIONAL RURAL UTILITIES
COOPERATIVE FINANCE CORPORATION

Date: January 13, 2020

By: /s/ J. ANDREW DON

J. Andrew Don
Senior Vice President and Chief Financial Officer

By: /s/ ROBERT E. GEIER

Robert E. Geier
Controller and Principal Accounting Officer

EXECUTION VERSION

AMENDMENT NO. 4

Dated as of November 26, 2019

to the

AMENDED AND RESTATED REVOLVING CREDIT AGREEMENT

Dated as of November 19, 2015

Among

NATIONAL RURAL UTILITIES

COOPERATIVE FINANCE CORPORATION,

THE BANKS PARTY HERETO,

MIZUHO BANK, LTD.,

as Administrative Agent and Initial Issuing Bank,

JPMORGAN CHASE BANK, N.A.,

as Syndication Agent

and

MUFG BANK, LTD.
(F/K/A THE BANK OF TOKYO-MITSUBISHI UFJ, LTD.),
PNC BANK, NATIONAL ASSOCIATION,
THE BANK OF NOVA SCOTIA,
and

ROYAL BANK OF CANADA

as Co-Documentation Agents

MIZUHO BANK, LTD.,

JPMORGAN CHASE BANK, N.A.,

MUFG BANK, LTD.
(F/K/A THE BANK OF TOKYO-MITSUBISHI UFJ, LTD.),
PNC CAPITAL MARKETS LLC,
THE BANK OF NOVA SCOTIA

and

RBC CAPITAL MARKETS
as Co-Lead Arrangers and Joint Bookrunners

AMENDMENT NO. 4

AMENDMENT NO. 4 dated as of November 26, 2019 (this "Amendment") to the Amended and Restated Revolving Credit Agreement dated as of November 19, 2015, as amended by Amendment No. 1 dated as of November 18, 2016, as further amended by Amendment No. 2 dated as of November 20, 2017 and as further amended by Amendment No. 3 dated as of November 28, 2018, among NATIONAL RURAL UTILITIES COOPERATIVE FINANCE CORPORATION, a not-for-profit cooperative association incorporated under the laws of the District of Columbia, the BANKS party thereto from time to time, MIZUHO BANK, LTD., as Administrative Agent and as Initial Issuing Bank, JPMORGAN CHASE BANK, N.A., as Syndication Agent, and MUFG BANK, LTD. (F/K/A THE BANK OF TOKYO-MITSUBISHI UFJ, LTD.), PNC BANK, NATIONAL ASSOCIATION, THE BANK OF NOVA SCOTIA and ROYAL BANK OF CANADA, as Co-Documentation Agents (the "Existing Credit Agreement" and, as amended by this Amendment, the "Amended Credit Agreement").

W I T N E S S E T H :

WHEREAS, the Borrower has requested that the Banks party to the Existing Credit Agreement, immediately prior to the effectiveness of this Amendment (each, an "Existing Bank"), enter into this Amendment pursuant to which (i) the Existing Banks agree to extend the termination of their Commitments to November 28, 2022 (the "Extended Commitment Termination Date") and (ii) certain other provisions of the Existing Credit Agreement will be amended, including, but not limited to, an increase to the "Lien Exception Amount"(as defined therein) to $15,000,000,000;

WHEREAS, each financial institution identified on Schedule 1 hereto as an "Extending Bank" (each, an "Extending Bank") has agreed, on the terms and conditions set forth herein, to provide Commitments terminating on the Extended Commitment Termination Date in the amounts set forth on Schedule 1 hereto opposite such Extending Bank's name under the heading "Commitment" (the "Extended Commitments");

WHEREAS, on the Fourth Amendment Effective Date (as defined in Section 7 below), the existing Commitment of each Extending Bank will be converted into an Extended Commitment; and

NOW, THEREFORE, in consideration of the foregoing and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto agree as follows:

Section 1. *Defined Terms; References*. Unless otherwise specifically defined herein, each term used herein that is defined in the Existing Credit Agreement or in the Amended Credit

Agreement, as the context shall require, has the meaning assigned to such term in the Existing Credit Agreement or in the Amended Credit Agreement, as applicable. Each reference to "hereof", "hereunder", "herein" and "hereby" and each other similar reference and each reference to "this Amendment" and each other similar reference contained in the Existing Credit Agreement shall, on and after the Fourth Amendment Effective Date, refer to the Amended Credit Agreement.

Section 2. *Amended Terms and Fourth Amendment Effective Date Transactions*

(a) Each of the parties hereto agrees that, effective on the Fourth Amendment Effective Date, the Existing Credit Agreement shall be amended to delete the stricken text (indicated textually in the same manner as the following example: ~~stricken text~~) and to add the double-underlined text (indicated textually in the same manner as the following example: double-underlined text) as set forth in the amended pages of the Existing Credit Agreement attached hereto as Exhibit A, and the Banks party hereto authorize the Administrative Agent and the Borrower to prepare a conformed copy of the Amended Credit Agreement that includes the changes contained in, and consistent with, the amended pages attached as Exhibit A.

(b) Notwithstanding Section 2.10 of the Existing Credit Agreement, on the Fourth Amendment Effective Date, the Commitment of each of Mizuho Bank, Ltd., JPMorgan Chase Bank, N.A., Royal Bank of Canada, The Bank of Nova Scotia and MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, LTD.) shall be reduced to $150,000,000.

(c) PNC Capital Markets LLC is hereby appointed as Co-Lead Arranger and PNC Bank, National Association is hereby appointed as Co-Documentation Agent.

(d) On the Fourth Amendment Effective Date, the Commitment of each Existing Bank that is an Extending Bank will be converted into an Extended Commitment under the Amended Credit Agreement in the amounts set forth on Schedule 1 hereto, so that the Commitment of such Extending Bank under the Amended Credit Agreement shall equal such Extended Bank's Extended Commitments.

Section 3. *Representations of Borrower.* The Borrower represents and warrants, as of the date hereof, that:

(a) the Borrower has the corporate power and authority to execute, deliver and perform its obligations under this Amendment and under the Amended Credit Agreement, and has taken all necessary corporate action to authorize the execution, delivery and performance by it of this Amendment and the Amended Credit Agreement. The Borrower has duly executed and delivered this Amendment, and this Amendment and the Amended Credit Agreement constitutes its legal, valid and binding obligation enforceable in accordance with its terms, except as enforceability thereof may be limited by applicable bankruptcy, insolvency, reorganization, moratorium or other similar laws affecting the enforcement of creditors' rights generally and by general equitable principles (regardless of whether enforcement is sought by proceeding in equity or at law);

(b) no material authorization, consent, approval or license of, or declaration, filing or registration with or exemption by, any Governmental Authority, body or agency is required in connection with the execution, delivery and performance by the Borrower of this Amendment. The Banks acknowledge that the Borrower may file this Amendment with the Securities and Exchange Commission on or after the Fourth Amendment Effective Date; and

(c) the execution, delivery and performance by the Borrower of this Amendment and the Amended Credit Agreement, the borrowings contemplated hereunder and the use of the proceeds thereof will not (i) contravene any material provision of any law, statute, rule or regulation or any order, writ, injunction or decree of any court or Governmental Authority to which the Borrower is subject, (ii) require any consent under, or violate or result in any breach of any of the material terms, covenants, conditions or provisions of, or constitute a material default under, or give rise to any right to accelerate or to require the prepayment, repurchase or redemption of any obligation under, or result in the creation or imposition of (or the obligation to create or impose) any Lien upon any of the property or assets of the Borrower pursuant to the terms of the Amended Credit Agreement or any material indenture, mortgage, deed of trust, agreement or instrument, in each case to which the Borrower is a party or by which it or any its property or assets is bound or to which it may be subject, or (iii) violate any provision of the articles of incorporation or by-laws, as applicable, of the Borrower.

Section 4. *GOVERNING LAW*. (a) THIS AMENDMENT SHALL BE GOVERNED BY AND CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE STATE OF NEW YORK.

(b) EACH PARTY HERETO HEREBY IRREVOCABLY AND UNCONDITIONALLY SUBMITS, FOR ITSELF AND ITS PROPERTY, TO THE EXCLUSIVE JURISDICTION OF THE SUPREME COURT OF THE STATE OF NEW YORK SITTING IN NEW YORK COUNTY AND OF THE UNITED STATES DISTRICT COURT OF THE SOUTHERN DISTRICT OF NEW YORK, AND ANY APPELLATE COURT FROM ANY THEREOF, IN ANY ACTION OR PROCEEDING ARISING OUT OF OR RELATING TO THIS AMENDMENT, OR FOR RECOGNITION OR ENFORCEMENT OF ANY JUDGMENT, AND EACH OF THE PARTIES HERETO HEREBY IRREVOCABLY AND UNCONDITIONALLY AGREES THAT ALL CLAIMS IN RESPECT OF ANY SUCH ACTION OR PROCEEDING MAY BE HEARD AND DETERMINED IN SUCH NEW YORK STATE COURT OR, TO THE EXTENT PERMITTED BY LAW, IN SUCH FEDERAL COURT. EACH OF THE PARTIES HERETO AGREES, TO THE FULLEST EXTENT PERMITTED BY LAW, THAT A FINAL JUDGMENT IN ANY SUCH ACTION OR PROCEEDING SHALL BE CONCLUSIVE AND MAY BE ENFORCED IN OTHER JURISDICTIONS BY SUIT ON THE JUDGMENT OR IN ANY OTHER MANNER PROVIDED BY LAW. NOTHING IN THIS AMENDMENT SHALL AFFECT ANY RIGHT THAT ANY PARTY HERETO OR ANY BANK MAY OTHERWISE HAVE TO BRING ANY ACTION OR PROCEEDING RELATING TO THIS AMENDMENT AGAINST ANY OTHER PARTY HERETO OR ANY BANK OR THEIR RESPECTIVE PROPERTIES IN THE COURTS OF ANY JURISDICTION.

(c) EACH PARTY HERETO HEREBY IRREVOCABLY AND UNCONDITIONALLY WAIVES, TO THE FULLEST EXTENT IT MAY LEGALLY AND

EFFECTIVELY DO SO, ANY OBJECTION WHICH IT MAY NOW OR HEREAFTER HAVE TO THE LAYING OF VENUE OF ANY SUIT, ACTION OR PROCEEDING ARISING OUT OF OR RELATING TO THIS AMENDMENT IN ANY COURT REFERRED TO IN PARAGRAPH (B) OF THIS SECTION. EACH OF THE PARTIES HERETO HEREBY IRREVOCABLY WAIVES, TO THE FULLEST EXTENT PERMITTED BY LAW, THE DEFENSE OF AN INCONVENIENT FORUM TO THE MAINTENANCE OF SUCH ACTION OR PROCEEDING IN ANY SUCH COURT.

(d) EACH PARTY TO THIS AMENDMENT IRREVOCABLY CONSENTS TO SERVICE OF PROCESS IN THE MANNER PROVIDED FOR NOTICES IN SECTION 9.01 OF THE AMENDED CREDIT AGREEMENT. NOTHING IN THIS AMENDMENT WILL AFFECT THE RIGHT OF ANY PARTY TO THIS AMENDMENT TO SERVE PROCESS IN ANY OTHER MANNER PERMITTED BY LAW.

Section 5. *WAIVER OF JURY TRIAL.* EACH PARTY HERETO HEREBY IRREVOCABLY WAIVES ANY AND ALL RIGHT TO TRIAL BY JURY IN ANY LEGAL PROCEEDING ARISING OUT OF OR RELATING TO THIS AMENDMENT OR THE TRANSACTIONS CONTEMPLATED HEREBY.

Section 6. *Counterparts*. This Amendment may be signed in any number of counterparts, each of which shall be an original, with the same effect as if the signatures thereto and hereto were upon the same instrument.

Section 7. *Effectiveness.* This Amendment shall become effective on the date (the "Fourth Amendment Effective Date") on which the Administrative Agent shall have received the following documents or other items, each dated the Fourth Amendment Effective Date unless otherwise indicated:

(a) receipt by the Administrative Agent of counterparts hereof signed by each of the parties hereto (or, in the case of any party as to which an executed counterpart shall not have been received, receipt by the Administrative Agent in form satisfactory to it of telegraphic, telex or other written confirmation from such party of execution of a counterpart hereof by such party), including receipt of consent from (i) each Extending Bank, and (ii) the Required Banks under the Existing Credit Agreement;

(b) receipt by the Administrative Agent of an opinion of the General Counsel of the Borrower, substantially in the form of Exhibit F to the Existing Credit Agreement, *provided* that an enforceability opinion under New York law, that is reasonably acceptable to the Administrative Agent, shall be furnished by the Borrower's New York counsel, Norton Rose Fulbright US LLP, subject to customary assumptions, qualifications and limitations;

(c) receipt by the Administrative Agent of a certificate signed by any one of the Chief Financial Officer, the Chief Executive Officer, the Treasurer, an Assistant Secretary-Treasurer, the Controller or the Vice President, Capital Markets Relations of the Borrower to the effect that the conditions set forth in clauses (c) through (g), inclusive, of Section 3.03 of the Amended Credit Agreement have been satisfied as of the Fourth Amendment Effective Date and, in the case of clauses (c), (d) and (g), setting forth in reasonable detail the calculations required to establish such compliance;

(d) receipt by the Administrative Agent of a certificate of an officer of the Borrower acceptable to the Administrative Agent stating that all consents, authorizations, notices and filings required or advisable in connection with this Amendment are in full force and effect, and the Administrative Agent shall have received evidence thereof reasonably satisfactory to it;

(e) receipt by the Administrative Agent and the Syndication Agent (or their respective permitted assigns) and by each Bank Party of all fees required to be paid in the respective amounts heretofore mutually agreed in writing, and all expenses required to be reimbursed pursuant to the terms of the Existing Credit Agreement and for which invoices have been presented, at least one (1) business day prior to the Fourth Amendment Effective Date;

(f) receipt by the Administrative Agent and the Banks of a Beneficial Ownership Certification on the Fourth Amendment Effective Date and all documentation and other information required by regulatory authorities under applicable "know your customer" and anti-money laundering rules and regulations, including, without limitation, the USA PATRIOT Act (Title III of Pub. L. 107-56) and the FinCEN beneficial ownership regulations under the Beneficial Ownership Regulation; and

(g) receipt by the Administrative Agent of all documents the Administrative Agent may reasonably request relating to the existence of the Borrower, the corporate authority for and the validity of this Amendment all in form and substance reasonably satisfactory to the Administrative Agent.

The Administrative Agent shall promptly notify the Borrower and the Bank Parties of the Fourth Amendment Effective Date, and such notice shall be conclusive and binding on all parties hereto.

IN WITNESS WHEREOF, the parties hereto have caused this Amendment to be duly executed as of the date first above written.

NATIONAL RURAL UTILITIES
COOPERATIVE FINANCE
CORPORATION

By: /s/ J. ANDREW DON
Name: J. Andrew Don
Title: Senior Vice President and
Chief Financial Officer

MIZUHO BANK, LTD., as
Administrative Agent, Initial Issuing
Bank and Extending Bank

By: /s/ Edward Sacks

Name: Edward Sacks

Title: Authorized Signatory

JPMORGAN CHASE BANK, N.A., as
Syndication Agent and Extending Bank

By: /s/ Amit Guar

Name: /s/ Amit Guar

Title: Vice President

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Check only one of the following:

☒ The undersigned is a Bank with an existing Commitment and consents to this Amendment with respect to the full amount set forth on Schedule 1 hereto, which amount will be converted in full to an Extended Commitment.

☐ The undersigned Bank with an existing Commitment consents to this Amendment with respect to its existing Commitment and also confirms its willingness to provide additional Commitment under the Amended Credit Agreement in an aggregate principal amount of $_______________.

ROYAL BANK OF CANADA

By: /s/ Justin Painter
Name: Justin Painter
Title: Authorized Signatory

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☐ The undersigned is a "Non-Extending Bank" and consents to this Amendment and the termination of its exiting Commitment.

THE BANK OF NOVA SCOTIA

By: /s/ David Dewar
Name: David Dewar
Title: Director

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MUFG BANK, LTD. (F/K/A THE BANK OF TOKYO-MITSUBISHI UFJ, LTD.)

By: /s/ Cherese Joseph
Name: Cherese Joseph
Title: Vice President

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PNC BANK, NATIONAL ASSOCIATION

By: /s/ Nancy Rosal Bonnell
Name: Nancy Rosal Bonnell
Title: Sr. Vice President

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U.S. BANK NATIONAL ASSOCIATION

By: /s/ Eric J. Cosgrove
Name: Eric J. Cosgrove
Title: Senior Vice President

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SUNTRUST BANK

By: /s/ Carmen Malizia
Name: Carmen Malizia
Title: Director

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REGIONS BANK

By: /s/ Tedrick Tarver
Name: Tedrick Tarver
Title: Director

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KEYBANK NATIONAL ASSOCIATION

By: /s/ Benjamin C. Cooper
Name: Benjamin C. Cooper
Title: Vice President

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APPLE BANK FOR SAVINGS

By: /s/ Jonathan C. Byron
Name: Jonathan C. Byron
Title: Senior Vice President

SCHEDULE 1

EXTENDED COMMITMENTS

Extending Banks	Commitment
Mizuho Bank Ltd.	$150,000,000.00
Royal Bank of Canada	$150,000,000.00
The Bank of Nova Scotia	$150,000,000.00
MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.)	$150,000,000.00
JPMorgan Chase Bank, N.A.	$150,000,000.00
PNC Bank, National Association	$150,000,000.00
US Bank National Association	$125,000,000.00
SunTrust Bank	$125,000,000.00
Regions Bank	$75,000,000.00
KeyBank National Association	$70,000,000.00
Apple Bank for Savings	$20,000,000.00
Total	**$1,315,000,000.00**

EXHIBIT A

NOT A LEGAL DOCUMENT

COMPOSITE COPY REFLECTING
AMENDMENT NO. ~~3~~4
DATED AS OF NOVEMBER ~~28~~26, ~~2018~~2019

AMENDED AND RESTATED REVOLVING CREDIT AGREEMENT

dated as of

November 19, 2015

among

NATIONAL RURAL UTILITIES
COOPERATIVE FINANCE CORPORATION,

THE BANKS LISTED HEREIN,
MIZUHO BANK, LTD.,
as Administrative Agent and Initial Issuing Bank,
JPMORGAN CHASE BANK, N.A.,
as Syndication Agent,

and

MUFG BANK, LTD.
(F/K/A THE BANK OF TOKYO-MITSUBISHI UFJ, LTD.),
PNC BANK, NATIONAL ASSOCIATION,
THE BANK OF NOVA SCOTIA,
and
ROYAL BANK OF CANADA
as Co-Documentation Agents

MIZUHO BANK, LTD.,
JPMORGAN CHASE BANK, N.A.,
MUFG BANK, LTD.
(F/K/A THE BANK OF TOKYO-MITSUBISHI UFJ, LTD.),
PNC CAPITAL MARKETS LLC,
THE BANK OF NOVA SCOTIA

and

RBC CAPITAL MARKETS
as Co-Lead Arrangers and Joint Bookrunners

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AMENDED AND RESTATED REVOLVING CREDIT AGREEMENT

This AMENDED AND RESTATED REVOLVING CREDIT AGREEMENT dated as of November 19, 2015, is made by and among NATIONAL RURAL UTILITIES COOPERATIVE FINANCE CORPORATION, a not-for-profit cooperative association incorporated under the laws of the District of Columbia, as Borrower, the BANKS listed on the signature pages hereof, MIZUHO BANK, LTD., as Administrative Agent and as Initial Issuing Bank for the Letters of Credit issued or to be issued pursuant to this Agreement, JPMORGAN CHASE BANK, N.A., as Syndication Agent, and MUFG BANK, LTD. (F/K/A THE BANK OF TOKYO-MITSUBISHI UFJ, LTD.), **PNC BANK, NATIONAL ASSOCIATION,** THE BANK OF NOVA SCOTIA and ROYAL BANK OF CANADA, as Co-Documentation Agents.

WHEREAS, the Borrower, the several Banks, the Administrative Agent, the Syndication Agent and Co-Documentation Agents (as each is defined hereinafter) entered into a Revolving Credit Agreement dated as of October 21, 2011, as amended by Amendment No. 1 dated as of March 28, 2013, Amendment No. 2 dated as of October 28, 2013, Amendment No. 3 dated as of October 28, 2014 and Amendment No. 4 dated as of October 9, 2015 (collectively, the "Existing Credit Agreement"); and

WHEREAS, the Borrower has requested that the Banks, the Administrative Agent, the Syndication Agent and the Co-Documentation Agents agree, on the terms and conditions set forth herein, to amend and restate the Existing Credit Agreement. The Banks, Administrative Agent, Syndication Agent and Co-Documentation Agents have indicated their willingness to amend and restate the Existing Credit Agreement on the terms and conditions of this Agreement.

NOW, THEREFORE, in consideration of the foregoing and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto do hereby amend and restate the Existing Credit Agreement in its entirety and the parties hereto hereby agree as follows:

ARTICLE 1
Definitions

Section 1.01. *Definitions.* The following terms, as used herein, have the following meanings:

"**1994 Indenture**" means the Indenture dated as of February 15, 1994 and as amended as of September 16, 1994 between the Borrower and U.S. Bank National Association, as trustee, as amended and supplemented from time to time, providing for the issuance in series of certain collateral trust bonds of the Borrower.

"**2007 Indenture**" means the Indenture dated as of October 25, 2007 between the Borrower and U.S. Bank National Association, as trustee, as amended and supplemented from time to time, providing for the issuance in series of certain collateral trust bonds of the Borrower.

"**2016 Amendment**" means Amendment No. 1 to this Agreement dated as of November 18, 2016 among the Borrower, the Administrative Agent, the Syndication Agent and the Banks thereto.

"**2017 Amendment**" means Amendment No. 2 to this Agreement dated as of November 20, 2017 among the Borrower, the Administrative Agent, the Syndication Agent and the Banks thereto.

"**2017 Fee Letters**" means those certain Fee Letters dated October 13, 2017 among the Borrower, the Administrative Agent and the Syndication Agent.

"**2018 Amendment**" means Amendment No. 3 to this Agreement dated as of November 28, 2018 among the Borrower, the Administrative Agent, the Syndication Agent and the Banks thereto.

"**2018 Fee Letters**" means those certain Fee Letters dated October 16, 2018 among the Borrower, the Administrative Agent and the Syndication Agent.

"2019 Amendment" means Amendment No. 4 to this Agreement dated as of November [26], 2019 among the Borrower, the Administrative Agent, the Syndication Agent and the Banks thereto.

"2019 Fee Letters" means those certain Fee Letters dated October 16, 2019 among the Borrower, the Administrative Agent, the Syndication Agent and the Co-Lead Arrangers.

"**Absolute Rate Auction**" means a solicitation of Money Market Quotes setting forth Money Market Absolute Rates pursuant to Section 2.03.

"**Additional Commitment Bank**" has the meaning set forth in Section 2.22(d).

"**Adjusted London Interbank Offered Rate**" has the meaning set forth in Section 2.07(b).

"**Administrative Agent**" means Mizuho Bank, Ltd., in its capacity as administrative agent for the Banks hereunder, and its successors in such capacity.

"**Administrative Questionnaire**" means, with respect to each Bank, the administrative questionnaire in the form submitted to such Bank by the Administrative Agent and submitted to the Administrative Agent (with a copy to the Borrower) duly completed by such Bank.

requirements are generally applicable to (and for which reimbursement is generally being sought by the Banks in respect of) credit transactions similar to this transaction from borrowers similarly situated to the Borrower.

"**Code**" means the Internal Revenue Code of 1986, as amended.

"**Co-Documentation Agents**" means MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.), **PNC Bank, National Association,** The Bank of Nova Scotia and Royal Bank of Canada, each in their respective capacity as documentation agent hereunder, and their respective successors in such capacity.

"**Co-Lead Arrangers**" means Mizuho Bank, Ltd., JPMorgan Chase Bank, N.A., MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.), **PNC Capital Markets LLC,** The Bank of Nova Scotia, and RBC Capital Markets,[1] each in their capacity as co-lead arranger and joint bookrunner.

"**Commitment**" means (i) with respect to any Bank, the amount, if any, set forth opposite the name of such Bank on the Commitment Schedule and (ii) with respect to any Bank that is an Assignee pursuant to Section 9.06(c), the amount of the transferor Bank's commitment specified on the Commitment Schedule that is assigned to such Bank, and further, any subsequent assignment made by an Assignee to another Assignee of such amounts pursuant to Section 9.06(c), in each case as such amount may from time to time be increased or decreased from time to time in accordance with the terms and conditions of this Agreement.

"**Commitment Schedule**" means the commitment schedule attached hereto under the heading, Commitment Schedule.

"**Commitment Termination Date**" means November 28, ~~2021~~2022 or, if such day is not a Euro-Dollar Business Day, the immediately preceding Euro-Dollar Business Day.

"**Committed Borrowing**" means a Borrowing under Section 2.01(a).

"**Committed Loan**" means a Revolving Loan; *provided* that, if any such loan or loans (or portions thereof) are combined or subdivided pursuant to a Notice of Interest Rate Election, the term "Committed Loan" shall refer to the combined principal amount resulting from such combination or to each of the separate principal amounts resulting from such subdivision, as the case may be.

"**Confidential Information**" has the meaning set forth in Section 9.12.

"**Consolidated Entity**" means at any date any Subsidiary, and any other entity the accounts of which would be combined or consolidated with those of the

RBC Capital Markets is a brand name for the capital markets businesses of Royal Bank of Canada and its affiliates.

"**Excluded Taxes**" means, with respect to any payment made by the Borrower under this Agreement or the Notes, any of the following Taxes imposed on or with respect to a Recipient:

(a) income Taxes imposed on (or measured by) net income and franchise Taxes by the United States of America, or by the jurisdiction under the laws of which such Recipient is organized or in which its principal office is located or, in the case of any Bank Party, in which its applicable lending office is located or are Other Connection Taxes, (b) any branch profits Taxes imposed by the United States of America or any similar Taxes imposed by any other jurisdiction in which the Borrower is located or are Other Connection Taxes, (c) in the case of a Non U.S. Bank Party (other than an assignee pursuant to a request by the Borrower under Section 2.18(b)), any U.S. Federal withholding Taxes resulting from any law in effect on the date such Non U.S. Bank Party becomes a party to this Agreement (or designates a new lending office) or is attributable to such Non U.S. Bank Party's failure to comply with Section 2.16(f), except to the extent that such Non U.S. Bank Party (or its assignor, if any) was entitled, at the time of designation of a new lending office (or assignment), to receive additional amounts from the Borrower with respect to such withholding Taxes pursuant to Section 2.16(a) and (d) any U.S. Federal withholding Taxes imposed under FATCA.

"**Existing Commitment Termination Date**" has the meaning set forth in Section 2.22(d).

"**Existing Credit Agreement**" has the meaning set forth in first WHEREAS clause above.

"**Existing Letters of Credit**" means the letters of credit issued and outstanding under the Existing Credit Agreement as of the Amendment Effective Date and set forth in the Existing Letters of Credit Schedule hereto.

"**Extended Commitment**" means an Extended Commitment as defined in the ~~2018~~2019 Amendment.

"**Extension Date**" has the meaning set forth in Section 2.22(d).

"**Facility Fee Rate**" means a rate per annum determined in accordance with the Pricing Schedule.

"**Farmer Mac**" means the Federal Agricultural Mortgage Corporation, a corporation organized and existing under the laws of the United States of America and a federally-chartered instrumentality of the United States of America and an institution of the Farm Credit System.

"**Farmer Mac Master Note Purchase Agreement**" means that certain Master Note Purchase Agreement, dated as of July 31, 2015, among Farmer Mac

“**Fixed Rate Loans**” means Euro-Dollar Loans or Money Market Loans (excluding Money Market LIBOR Loans bearing interest at the Base Rate pursuant to Section 8.01) or any combination of the foregoing.

“**Foreclosed Asset**” has the meaning set forth in Section 5.12.

“Fourth Amendment Effective Date” means the Fourth Amendment Effective Date as defined in the 2019 Amendment.

“**Fronting Fee**” has the meaning specified in Section 2.09(d).

“**Governmental Authority**” means any national, state, county, city, town, village, municipal or other government department, commission, board, bureau, agency, authority or instrumentality of a country or any political subdivision thereof, exercising executive, legislative, judicial, regulatory or administrative powers or functions of or pertaining to government.

“**Group of Loans**” means, at any time, a group of Loans consisting of (i) all Committed Loans which are Base Rate Loans at such time or (ii) all Euro-Dollar Loans having the same Interest Period at such time; *provided* that if a Committed Loan of any particular Bank is converted to or made as a Base Rate Loan pursuant to Article 8, such Loan shall be included in the same Group or Groups of Loans from time to time as it would have been in if it had not been so converted or made.

“**Guarantee**” by any Person means any obligation, contingent or otherwise, of such Person directly or indirectly guaranteeing any Indebtedness or lease payments of any other Person or otherwise in any manner assuring the holder of any Indebtedness of, or the obligee under any lease of, any other Person through an agreement, contingent or otherwise, to purchase Indebtedness or the property subject to such lease, or to purchase goods, supplies or services primarily for the purpose of enabling the debtor or obligor to make payment of the Indebtedness or under such lease or of assuring such Person against loss, or to supply funds to or in any other manner invest in the debtor or obligor, or otherwise; *provided* that the term “**Guarantee**” shall not include endorsements for collection or deposit in the ordinary course of business. The term “**Guarantee**” when used as a verb has a correlative meaning.

“**Guaranteed Portion**” has the meaning set forth in the definition of RUS Guaranteed Loan.

“**Hazardous Substances**” means any toxic, radioactive, caustic or otherwise hazardous substance, including petroleum, its derivatives, by-products and other hydrocarbons, or any substance having any constituent elements displaying any of the foregoing characteristics.

“**Honor Date**” has the meaning specified in Section 2.20(b)(i).

"**Letter of Credit Fee**" has the meaning specified in Section 2.09(c).

"**Letter of Credit Sublimit**" means $150,000,000. The Letter of Credit Sublimit is part of, and not in addition to, the aggregate Commitments.

"**Letters of Credit**" means letters of credit issued by any Issuing Bank pursuant to Section 2.01(b) and any Existing Letters of Credit.

"**LIBOR Auction**" means a solicitation of Money Market Quotes setting forth Money Market Margins based on the London Interbank Offered Rate pursuant to Section 2.03.

"**Lien**" means, with respect to any asset, any mortgage, lien, pledge, charge, security interest or encumbrance of any kind in respect of such asset. For the purposes of this Agreement, the Borrower or any Subsidiary shall be deemed to own subject to a Lien any asset which it has acquired or holds subject to the interest of a vendor or lessor under any conditional sale agreement, capital lease or other title retention agreement relating to such asset.

"**Lien Exception Amount**" means $~~**10,000,000,000 plus an amount equal to the incremental increase in the allocated amount of REDLG Obligations from the Amendment Effective Date; *provided* that the Lien Exception Amount shall at no time exceed $12,500,000,000.**~~15,000,000,000.

"**Loan**" means a Base Rate Loan or a Euro-Dollar Loan or a Money Market Loan in each case, made by any Bank, as applicable and "**Loans**" means Base Rate Loans or Euro-Dollar Loans or Money Market Loans or any combination of the foregoing in each case, made hereunder by a Bank.

"**London Interbank Offered Rate**" has the meaning set forth in Section 2.07(b).

"**Maturity Date**" means (i) with respect to any Revolving Loan, the Commitment Termination Date and (ii) with respect to any Money Market Loan, the last day of the Interest Period applicable thereto.

"**Member**" means any Person which is a member or a patron of the Borrower.

"**Members' Subordinated Certificate**" means a note of the Borrower or its Consolidated Entities substantially in the form of the membership subordinated subscription certificates and the loan and guarantee subordinated certificates outstanding on the date of the execution and delivery of this Agreement and any other Indebtedness of the Borrower or its Consolidated Entities having substantially similar provisions as to subordination as those contained in said outstanding membership subordinated subscription certificates and loan and guarantee subordinated certificates.

the issuance of Letters of Credit generally or such Letter of Credit in particular or shall impose upon such Issuing Bank with respect to such Letter of Credit any restriction, reserve or capital requirement (for which such Issuing Bank is not otherwise compensated hereunder) not in effect on the ~~Third~~**Fourth** Amendment Effective Date, or shall impose upon such Issuing Bank any unreimbursed loss, cost or expense which was not applicable on the ~~Third~~**Fourth** Amendment Effective Date and which such Issuing Bank in good faith reasonably deems material to it; *provided*, *however*, that in the event a Bank Party participating in the Letters of Credit is not affected by any such restriction, requirement or imposition, and is able to issue such Letter of Credit and expressly agrees in its sole discretion to issue such Letter of Credit, such Bank Party, subject to the consent of the Administrative Agent, such consent not to be unreasonably withheld, conditioned or delayed, shall issue such Letter of Credit and shall be deemed the Issuing Bank with regard to such Letter of Credit for all purposes of this Agreement;

(B) the making of such L/C Credit Extension would violate any Applicable Laws;

(C) except as otherwise agreed by the Administrative Agent and such Issuing Bank, such Letter of Credit is in an initial face amount less than $25,000;

(D) such L/C Credit Extension is to be denominated in a currency other than Dollars;

(E) such L/C Credit Extension contains any provisions for automatic reinstatement of the stated amount after any L/C Borrowing thereunder; or

(F) a default of any Bank's obligations to fund under Section 2.20 exists, or any Bank is then a Defaulting Bank, unless, after giving effect to Section 2.19(a)(iv)) with respect to such Bank, such Issuing Bank has entered into satisfactory arrangements, including the delivery of Cash Collateral satisfactory to the Issuing Bank (in its sole discretion) with the Borrower or such Bank to eliminate such Issuing Bank's risk.

(iii) No Issuing Bank shall be under the obligation to amend any Letter of Credit if (A) such Issuing Bank would have no obligation at such time to issue such Letter of Credit in its amended form under the terms hereof, or (B) the beneficiary of such Letter of Credit does not accept the proposed amendment to such Letter of Credit.

first day but excluding the last day), as pro-rated for any partial quarter, as applicable, and shall be due and payable on each January 1, April 1, July 1 and October 1, commencing with the first such date to occur after the issuance of such Letter of Credit, on the Letter of Credit Expiration Date and thereafter on demand. In addition, the Borrower shall, with respect to all Letters of Credit issued at its request, pay directly to each Issuing Bank for its own account the customary issuance, presentation, amendment and other processing fees, and other standard costs and charges, of such Issuing Bank relating to letters of credit as from time to time in effect. Such customary fees and standard costs and charges are due and payable on demand and are nonrefundable.

(e) *Amendment Fees*. The Borrower agrees to pay to the Administrative Agent for the account of each Bank on the ~~Third~~**Fourth** Amendment Effective Date the upfront fees required to be paid on such date, as set forth in the ~~2018~~**2019** Fee Letters.

Section 2.10. *Optional Termination or Reduction of Commitments*. During the Revolving Credit Period, the Borrower may, upon at least three Domestic Business Days' notice to the Administrative Agent (which notice the Administrative Agent will promptly deliver to the Banks), (i) terminate all Commitments at any time, if no Loans are outstanding at such time or (ii) ratably reduce from time to time by an aggregate amount of $10,000,000 or any larger multiple of $1,000,000, the aggregate amount of the Commitments in excess of the aggregate outstanding principal amount of the Loans.

Section 2.11. *Mandatory Termination of Commitments*. The Commitments shall terminate on the Commitment Termination Date.

Section 2.12. *Optional Prepayments*. (a) Subject in the case of Euro-Dollar Loans to Section 2.14, the Borrower may (i) on any Domestic Business Day, upon notice to the Administrative Agent, prepay any Group of Base Rate Loans (or any Money Market Borrowing bearing interest at the Base Rate pursuant to Section 8.01(a)) or (ii) upon at least three Euro-Dollar Business Days' notice to the Administrative Agent, prepay any Group of Euro-Dollar Loans, in each case in whole at any time, or from time to time in part in amounts aggregating $10,000,000 or any larger multiple of $1,000,000, by paying the principal amount to be prepaid together with accrued interest thereon to the date of prepayment. Each such optional prepayment shall be applied to prepay ratably the Loans of the several Banks included in such Group of Loans (or such Money Market Borrowing).

(b) Except as provided in Section 2.12(a), the Borrower may not prepay all or any portion of the principal amount of any Money Market Loan prior to the maturity thereof.

(c) Upon receipt of a notice of prepayment pursuant to this Section, the Administrative Agent shall promptly notify each Bank of the contents thereof this Agreement with respect to Letters of Credit issued by it prior to such replacement, but shall not be required to issue additional Letters of Credit.

Section 2.21. [*Reserved*]

Section 2.22. *Extension of Commitment Termination Date*. (a) The Borrower may, by notice to the Administrative Agent (which shall promptly notify the Banks) not earlier than 45 days prior to any anniversary of the ~~Third~~**Fourth** Amendment Effective Date (each, an "**Anniversary Date**") but no later than 30 days prior to any such Anniversary Date, request that each Bank extend such Bank's Commitment Termination Date for an additional one year after the Commitment Termination Date then in effect for such Bank hereunder (the "**Existing Commitment Termination Date**"); *provided*, *however*, the Borrower may request no more than two extensions pursuant to this Section.

(a) In the event it receives a notice from the Administrative Agent pursuant to Section 2.22(a), each Bank, acting in its sole and individual discretion, shall, by notice to the Administrative Agent given not earlier than 30 days prior to the applicable Anniversary Date and not later than the date (the "**Bank Extension Notice Date**") that is 20 days prior to the applicable Anniversary Date, advise the Administrative Agent whether or not such Bank agrees to such extension (and each Bank that determines not to so extend its Existing Commitment Termination Date (a "**Non-Extending Bank**") shall notify the Administrative Agent of such fact promptly after such determination (but in any event no later than the Bank Extension Notice Date)), and any Bank that does not so advise the Administrative Agent on or before the Bank Extension Notice Date shall be deemed to be a Non-Extending Bank. The election of any Bank to agree to any such extension shall not obligate any other Bank to so agree.

(b) The Administrative Agent shall notify the Borrower of each Bank's determination (or deemed determination) under this Section no later than the date that is 15 days prior to the applicable Anniversary Date, or, if such date is not a Business Day, on the next preceding Business Day (the "**Specified Date**").

(c) The Borrower shall have the right on or before the fifth Business Day after the Specified Date (the "**Extension Date**") to replace each Non-Extending Bank (i) with an existing Bank, and/or (ii) by adding as "Banks" under this Agreement in place thereof, one or more Persons (each Bank in clauses (i) and (ii), an "Additional Commitment Bank"), each of which Additional Commitment Banks shall be an Assignee and shall have entered into an agreement in form and substance satisfactory to the Borrower and the Administrative Agent pursuant to which such Additional Commitment Bank shall, effective as of the Extension Date, undertake a Commitment (and, if any such Additional Commitment Bank is already a Bank, its Commitment shall be in addition to such Bank's Commitment hereunder on such date); provided that the aggregate amount of the Commitments for all Additional Commitment Banks shall be no more than the aggregate amount of the Commitments of all Non-

Effective Date and, in the case of clauses (c), (e) and (g), setting forth in reasonable detail the calculations required to establish such compliance;

(e) receipt by the Administrative Agent, with a copy for each Bank, of a certificate of an officer of the Borrower acceptable to the Administrative Agent stating that all consents, authorizations, notices and filings required or advisable in connection with this Agreement are in full force and effect, and the Administrative Agent shall have received evidence thereof reasonably satisfactory to it;

(f) receipt by the Administrative Agent and the Syndication Agent (or their respective assigns) and by each Bank Party of all fees required to be paid in the respective amounts heretofore mutually agreed in writing, and all expenses for which invoices have been presented, on or before the Amendment Effective Date;

(g) receipt by the Administrative Agent and the Banks of all documentation and other information requested by the Administrative Agent or such Bank and required by regulatory authorities under applicable "know your customer" and anti-money laundering rules and regulations, including, without limitation, the USA PATRIOT Act (Title III of Pub. L. 107-56); and

(h) receipt by the Administrative Agent of all documents the Required Banks may reasonably request relating to the existence of the Borrower, the corporate authority for and the validity of this Agreement and the Notes, and any other matters relevant hereto, all in form and substance reasonably satisfactory to the Administrative Agent.

The Administrative Agent shall promptly notify the Borrower and the Bank Parties of the Amendment Effective Date, and such notice shall be conclusive and binding on all parties hereto.

Section 3.02. [Reserved]

Section 3.03. *Borrowings and L/C Credit Extensions*. The obligation of any Bank to make a Loan on the occasion of any Borrowing and the obligation of the Issuing Bank to issue, amend or increase the principal amount thereof or extend any Letter of Credit (other than an extension pursuant to an Auto-Extension Letter of Credit in accordance with the original terms thereof) is subject to the satisfaction of the following conditions, in each case at the time of such Borrowing or L/C Credit Extensions and immediately thereafter:

(a) The Amendment Effective Date shall have occurred on or prior to November 19, 2015, the First Amendment Effective Date shall have occurred on or prior to November 18, 2016, the Second Amendment Effective Date shall have occurred on or prior to November 20, 2017 ~~and~~**;** the Third Amendment Effective Date shall have occurred on or prior to November 28, 2018; **and the Fourth**

Amendment Effective Date shall have occurred on or prior to November 26, 2019

(b) receipt by the Administrative Agent of a Notice of Borrowing as required by Section 2.02 or 2.03, as the case may be;

(c) the fact that the Borrower is in compliance with Section 7.11 of the 1994 Indenture, as such Indenture is in effect as of the Effective Date and the Amendment Effective Date;

(d) Prior to the Commitment Termination Date, the fact that the sum of (i) the aggregate outstanding principal amount of the Loans and (ii) the Outstanding Amount of L/C Obligations will not exceed the Aggregate Commitments (as such Commitments may be increased or decreased from time to time in accordance with the terms and conditions of this Agreement);

(e) the fact that no Default shall have occurred and be continuing;

(f) the fact that the representations and warranties of the Borrower (in the case of a Borrowing or L/C Credit Extension, other than the representations set forth in Section 4.02(c), Section 4.03 and Section 4.14) contained in this Agreement shall be true in all material respects (other than any such representations or warranties that, by their terms, refer to a specific date other than the date of Borrowing or L/C Credit Extension, in which case such representations and warranties shall be true in all material respects as of such specific date); *provided that*, (i) in the case of the representations set forth in Section 4.02(a) and Section 4.02(b) being made after the Amendment Effective Date shall be deemed to refer to the most recent balance sheets and statements furnished pursuant to Section 5.03(b)(ii) and Section 5.03(b)(i), respectively and (ii) in the case of the representation set forth in Section 4.06 being made after the ~~**Third**~~**Fourth** Amendment Effective Date, such representation shall be true except to the extent not reasonably expected to have a material adverse effect on the business, financial position or results of operations of the Borrower; and

(g) the fact that (i) there shall be no collateral securing Bonds issued pursuant to any Indenture of a type other than the types of collateral permitted to secure Bonds issued pursuant to such Indenture as of the date hereof, (ii) the allowable amount of eligible collateral then pledged under any Indenture shall not exceed 150% of the aggregate principal amount of Bonds then outstanding under such Indenture and (iii) no collateral shall secure Bonds other than (A) eligible collateral under such Indenture, the allowable amount of which is included within the computation under subsection (ii) above or (B) collateral previously so pledged which ceases to be such eligible collateral not as a result of any acts or omissions to act of the Borrower (other than the declaration of an "**event of default**" as defined in a mortgage which results in the exercise of any right or remedy described in such mortgage).

~~ROYAL BANK OF CANADA~~ PNC BANK, NATIONAL ASSOCIATION, as Co-Documentation Agent ~~and as a Bank~~

By: /s/ ~~Rahul D. Shah~~Brian Prettyman

Name: ~~Rahul D. Shah~~Brian Prettyman

Title: ~~Authorized Signatory~~Managing Director

ROYAL BANK OF CANADA , as Co-Documentation Agent and as a Bank

By: **/s/ Rahul D. Shah**

Name: **Rahul D. Shah**

Title: **Authorized Signatory**

AGENT SCHEDULE

Institution	**Title**
Mizuho Bank, Ltd.	Administrative Agent
JPMorgan Chase Bank, N.A.	Syndication Agent
MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.)	Co-Documentation Agent
PNC Bank, National Association	**Co-Documentation Agent**
The Bank of Nova Scotia	Co-Documentation Agent
Royal Bank of Canada	Co-Documentation Agent

EXISTING COMMITMENT SCHEDULE

Institution	**Commitment Prior to the ~~Third~~Fourth Amendment Effective Date**	**Loans Outstanding on the ~~Third~~Fourth Amendment Effective Date**
Bank		
Mizuho Bank Ltd.	$187,500,000.00	$0
Royal Bank of Canada	$187,500,000.00	$0
The Bank of Nova Scotia	$187,500,000.00	$0
MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.)	$187,500,000.00	$0
JPMorgan Chase Bank, N.A.	$180,000,000.00	$0
PNC Bank, National Association	$150,000,000.00	$0
US Bank National Association	$125,000,000.00	$0
SunTrust Bank	$125,000,000.00	$0
Regions Bank	$75,000,000.00	$0
KeyBank National Association	$70,000,000.00	$0
Apple Bank for Savings	$17,500,000.00	$0
Total	$1,532,500,000.00	**$0**

COMMITMENT SCHEDULE

Commitment Schedule

Bank	Commitment
Mizuho Bank Ltd.	$~~175,000,000.00~~150,000,000.00
Royal Bank of Canada	$~~175,000,000.00~~150,000,000.00
The Bank of Nova Scotia	$~~175,000,000.00~~150,000,000.00
MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.)	$~~175,000,000.00~~150,000,000.00
JPMorgan Chase Bank, N.A.	$~~175,000,000.00~~150,000,000.00
PNC Bank, National Association	$150,000,000.00
US Bank National Association	$125,000,000.00
SunTrust Bank	$125,000,000.00
Regions Bank	$75,000,000.00
KeyBank National Association	$70,000,000.00
Apple Bank for Savings	$20,000,000.00
Total:	**$~~1,440,000,000.00~~ 1,315,000.00**

EXHIBIT A

FORM OF NOTE

New York, New York [DATE]

For value received, National Rural Utilities Cooperative Finance Corporation, a not-for-profit cooperative association incorporated under the laws of the District of Columbia (the "**Borrower**"), promises to pay to the order of [] (the "**Bank**"), for the account of its Applicable Lending Office, the principal sum of $[_________] ($_________), or, if less, the aggregate unpaid principal amount of each Loan and L/C Borrowing made by the Bank to the Borrower pursuant to the Revolving Credit Agreement referred to below on the Maturity Date with respect to such Loan or L/C Borrowing. The Borrower promises to pay interest on the unpaid principal amount of each such Loan and L/C Borrowing on the dates and at the rate or rates provided for in the Revolving Credit Agreement. All such payments of principal and interest shall be made in lawful money of the United States in Federal or other immediately available funds at the office of Mizuho Bank, Ltd., 1251 Avenue of the Americas, New York, New York 10020, Attn: Cole Darrington, Email: lau_agent@mizuhocbus.com.

All Loans and L/C Borrowings made by the Bank, the respective types and maturities thereof and all repayments of the principal thereof shall be recorded by the Bank and, prior to any transfer hereof, appropriate notations to evidence the foregoing information with respect to each such Loan then outstanding may be endorsed by the Bank on the schedule attached hereto, or on a continuation of such schedule attached to and made a part hereof; *provided* that the failure of the Bank to make any such recordation or endorsement shall not affect the obligations of the Borrower hereunder or under the Revolving Credit Agreement.

This note is one of the Notes referred to in that certain Amended and Restated Revolving Credit Agreement, dated as of November 19, 2015, among the Borrower, the Banks listed on the signature pages thereof, Mizuho Bank, Ltd., as Administrative Agent and Initial Issuing Bank, JPMorgan Chase Bank, N.A., as Syndication Agent, and MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.), **PNC Bank, National Association,** The Bank of Nova Scotia and Royal Bank of Canada as Co-Documentation Agents (as the same may be amended, supplemented or otherwise modified, from time to time, in each case, pursuant to the terms and conditions thereof, the "**Revolving Credit Agreement**"). Terms defined in the Revolving Credit Agreement are used herein with the same meanings. Reference is made to the Revolving Credit Agreement for provisions for the prepayment hereof and the acceleration of the maturity hereof. This Note shall be governed by and construed in accordance with the laws of the State of New York.

EXHIBIT D

FORM OF INVITATION FOR MONEY MARKET QUOTES

[Date]

To: [Name of Bank]

Re: Invitation for Money Market Quotes to the National Rural Utilities Cooperative Finance Corporation (the "**Borrower**")

Pursuant to Section 2.03 of the Amended and Restated Revolving Credit Agreement, dated as of November 19, 2015, among the Borrower, the Banks listed on the signature pages thereof, Mizuho Bank, Ltd., as Administrative Agent and Initial Issuing Bank, JPMorgan Chase Bank, N.A., as Syndication Agent, and MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.), **PNC Bank, National Association,** The Bank of Nova Scotia and Royal Bank of Canada as Co-Documentation Agents (as amended, supplemented or otherwise modified from time to time, in each case, pursuant to the terms and conditions thereof, the "**Revolving Credit Agreement**"):

Date of Borrowing: __________________

Principal Amount	*Interest Period*
$	

Such Money Market Quotes should offer a Money Market [Margin] [Absolute Rate]. [The applicable base rate is the London Interbank Offered Rate.]

Please respond to this invitation by no later than 9:30 A.M. (New York City time) on [date].

MIZUHO BANK, LTD.

By:
Name:_____________________
Title: Authorized Officer

[*provided*, that the aggregate principal amount of Money Market Loans for which the above offers may be accepted shall not exceed $____________.]**

We understand and agree that the offer[s] set forth above [is][are] subject to the satisfaction of the applicable conditions set forth in the Amended and Restated Revolving Credit Agreement, dated as of November 19, 2015, among the Borrower, the Banks listed on the signature pages thereof, Mizuho Bank, Ltd., as Administrative Agent and Initial Issuing Bank, JPMorgan Chase Bank, N.A., as Syndication Agent, and MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.), **PNC Bank, National Association,** The Bank of Nova Scotia and Royal Bank of Canada as Co-Documentation Agents, as amended, supplemented or otherwise modified from time to time, in each case, pursuant to the terms and conditions thereof.

Very truly yours,

[NAME OF BANK]

By: ________________________

Name:

Title: Authorized Officer

Dated: _______________

EXHIBIT F

OPINION OF GENERAL COUNSEL OF THE BORROWER

November ~~28~~26, ~~2018~~2019

To the Administrative Agent and each of the Banks party
to the Revolving Credit Agreement referred to below
c/o Mizuho Bank, Ltd.
1251 Avenue of the Americas
New York, New York 10020

Ladies and Gentlemen:

Reference is hereby made to (i) that certain Amended and Restated Revolving Credit Agreement dated as of November 19, 2015 (as amended by the Amendments (defined below), the "**Extended Agreement**"), by and among the Borrower, the Banks listed on the signature pages thereof, Mizuho Bank, Ltd., as Administrative Agent and Initial Issuing Bank, JPMorgan Chase Bank, N.A., as Syndication Agent, and MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.), **PNC Bank, National Association,** The Bank of Nova Scotia, and Royal Bank of Canada, as Co-Documentation Agents, (ii) that certain Amendment No. 1 dated as of November 18, 2016 ("**Amendment No. 1**"), by and among the Borrower, the Banks listed on the signature pages thereof, Mizuho Bank, Ltd., as Administrative Agent and Initial Issuing Bank, JPMorgan Chase Bank, N.A., as Syndication Agent, and MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.), The Bank of Nova Scotia, and Royal Bank of Canada, as Co-Documentation Agents~~ and~~, (iii) that certain Amendment No. ~~3~~2 dated as of November ~~28~~20, ~~2018~~2017 ("**Amendment No. ~~3" and together with Amendment No. 1 and Amendment No.~~ 2~~, the "Amendments~~**"), by and among the Borrower, the Banks listed on the signature pages thereof, Mizuho Bank, Ltd., as Administrative Agent and Initial Issuing Bank, JPMorgan Chase Bank, N.A., as Syndication Agent, and MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.), The Bank of Nova Scotia, and Royal Bank of Canada, as Co-Documentation Agents**, (iv) that certain Amendment No. 3 dated as of November 18, 2016 ("Amendment No. 3"), by and among the Borrower, the Banks listed on the signature pages thereof, Mizuho Bank, Ltd., as Administrative Agent and Initial Issuing Bank, JPMorgan Chase Bank, N.A., as Syndication Agent, and MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.), PNC Bank, National Associaiton, The Bank of Nova Scotia, and Royal Bank of Canada, as Co-Documentation Agents and (v) that certain Amendment No. 4 dated as of November 26, 2019 ("Amendment No. 4" and together with Amendment No. 1, Amendment No. 2 and Amendment No. 3, the "Amendments"), by and among the Borrower, the Banks listed on the signature pages thereof, Mizuho Bank, Ltd., as Administrative Agent and Initial Issuing Bank, JPMorgan Chase Bank, N.A., as Syndication Agent, and MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.), PNC**

Bank, National Association, The Bank of Nova Scotia, and Royal Bank of Canada, as Co-Documentation Agents. I, Roberta B. Aronson, General Counsel of the National Rural Utilities Cooperative Finance Corporation (the "**Borrower**"), am delivering this opinion at the request of the Borrower pursuant to Section 7(b) of Amendment No. 3. Terms defined in the Extended Agreement are used herein as therein defined.

I have examined originals or copies, certified or otherwise identified to my satisfaction, of such documents, corporate records, certificates of public officials and other instruments and have conducted such other investigations of fact and law as I have deemed necessary or advisable for purposes of this opinion. This opinion is limited to the laws of the District of Columbia.

Upon the basis of the foregoing, I am of the opinion that:

1. The Borrower is a cooperative association duly incorporated, validly existing and in good standing under the laws of the District of Columbia and has the corporate power and authority and all material governmental licenses, authorizations, consents and approvals required to own its property and assets and to transact the business in which it is engaged. The Borrower is duly qualified or licensed as a foreign corporation in good standing in every jurisdiction in which the nature of the business in which it is engaged makes such qualification or licensing necessary, except in those jurisdictions in which the failure to be so qualified or licensed would not (after qualification, assuming that the Borrower could so qualify without the payment of any fee or penalty and retain its rights as they existed prior to such qualification all to an extent so that any fees or penalties required to be so paid or any rights not so retained would not, individually or in the aggregate, have a material adverse effect on the business or financial position of the Borrower), individually or in the aggregate, have a material adverse effect upon the business or financial position of the Borrower.

2. The Borrower has the corporate power and authority to execute, deliver and carry out the terms and provisions of the Extended Agreement and each of the Notes dated the date hereof (the "**Subject Notes**"). The Extended Agreement and the Subject Notes have been duly and validly authorized, executed and delivered by the Borrower. The opinion with respect to the enforceability of the Amended and Restated Revolving Credit Agreement under New York law shall be provided by Borrower's New York counsel, Norton Rose Fulbright US LLP, subject to customary assumptions, qualifications and limitations.

3. There are no actions, suits, proceedings or investigations pending or, to my knowledge, threatened against or affecting the Borrower by or before any court or any governmental authority, body or agency or any arbitration board which are reasonably likely to materially adversely affect the business, financial position or results of operations of the Borrower or the authority or ability of the

[1] The opinion with respect to the enforceability of the Amended and Restated Revolving Credit Agreement under New York law shall be provided by Borrower's New York counsel, Norton Rose Fulbright US LLP, subject to customary assumptions, qualifications and limitations.

EXHIBIT G

ASSIGNMENT AND ASSUMPTION AGREEMENT

AGREEMENT dated as of ___________, 20__ among [ASSIGNOR] (the "**Assignor**"), [ASSIGNEE] (the "**Assignee**"), NATIONAL RURAL UTILITIES COOPERATIVE FINANCE CORPORATION (the "**Borrower**") and MIZUHO BANK, LTD., as Administrative Agent (the "**Agent**").

W I T N E S S E T H

WHEREAS, this Assignment and Assumption Agreement (the "**Agreement**") relates to the Amended and Restated Revolving Credit Agreement, dated as of November 19, 2015 (as amended, supplemented or otherwise modified from time to time, in each case pursuant to the terms and conditions thereof, (the "**Credit Agreement**"), among the Borrower, the Banks listed on the signature pages thereof, Mizuho Bank, Ltd., as Administrative Agent and Initial Issuing Bank (the "**Agent**"), and JPMorgan Chase Bank, N.A., as Syndication Agent, and MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.), **PNC Bank, National Association,** The Bank of Nova Scotia and Royal Bank of Canada, as Co-Documentation Agents.

WHEREAS, as provided under the Credit Agreement, the Assignor has a Commitment to make Loans and/or make or participate in L/C Obligations to the Borrower in an aggregate principal amount at any time outstanding not to exceed $__________;

WHEREAS, Committed Loans and L/C Obligations made to the Borrower by the Assignor under the Credit Agreement in the aggregate principal amount of $__________ are outstanding at the date hereof; and

WHEREAS, the Assignor proposes to assign to the Assignee all of the rights of the Assignor under the Credit Agreement in respect of a portion of its Commitment thereunder in an amount equal to $__________ (the "**Assigned Amount**"), together with a corresponding portion of its outstanding Committed Loans and/or L/C Obligations, and the Assignee proposes to accept assignment of such rights and assume the corresponding obligations from the Assignor on such terms;

NOW, THEREFORE, in consideration of the foregoing and the mutual agreements contained herein, the parties hereto agree as follows:

SECTION 1. *Definitions*. All capitalized terms not otherwise defined herein shall have the respective meanings set forth in the Credit Agreement.

SECTION 2. *Assignment*. The Assignor hereby assigns and sells to the Assignee all of the rights of the Assignor under the Credit Agreement to the extent of the Assigned Amount, and the Assignee hereby accepts such assignment

EXHIBIT H-1

[FORM OF]

U.S. TAX CERTIFICATE

(For Non-U.S. Bank Parties That Are Not Partnerships For U.S. Federal Income Tax Purposes)

Reference is hereby made to the Amended and Restated Revolving Credit Agreement dated as of November 19, 2015 (as amended, supplemented or otherwise modified from time to time, the "***Credit Agreement***"), among the Borrower, the Banks listed on the signature pages thereof, Mizuho Bank, Ltd., as Administrative Agent and Initial Issuing Bank, JPMorgan Chase Bank, N.A., as Syndication Agent, and MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.), **PNC Bank, National Association,** The Bank of Nova Scotia and Royal Bank of Canada, as Co-Documentation Agents.

Pursuant to the provisions of Section 2.16 of the Credit Agreement, the undersigned hereby certifies that (i) it is the sole record and beneficial owner of the Loan(s) (as well as any Note(s) evidencing such Loan(s)) in respect of which it is providing this certificate, (ii) it is not a bank within the meaning of Section 881(c)(3)(A) of the Code, (iii) it is not a member of Borrower, it does not exercise voting power over Borrower and is not a ten percent shareholder of the Borrower within the meaning of Section 871(h)(3)(B) of the Code, (iv) it is not a controlled foreign corporation related to the Borrower as described in Section 881(c)(3)(C) of the Code and (v) the interest payments in question are not effectively connected with the undersigned's conduct of a U.S. trade or business.

The undersigned has furnished the Administrative Agent and the Borrower with a certificate of its non-U.S. person status on IRS Form W-8BEN. By executing this certificate, the undersigned agrees that (1) if the information provided on this certificate changes, the undersigned shall promptly so inform the Borrower and the Administrative Agent and (2) the undersigned shall have at all times furnished the Borrower and the Administrative Agent with a properly completed and currently effective certificate in either the calendar year in which each payment is to be made to the undersigned, or in either of the two calendar years preceding such payments.

Unless otherwise defined herein, terms defined in the Credit Agreement and used herein shall have the meanings given to them in the Credit Agreement.

[NAME OF BANK PARTY]

By: ________________________________

Name:

EXHIBIT H-2

[FORM OF]

U.S. TAX CERTIFICATE

(For Non-U.S. Bank Parties That Are Partnerships For U.S. Federal Income Tax Purposes)

Reference is hereby made to the Amended and Restated Revolving Credit Agreement dated as of November 19, 2015 (as amended, supplemented or otherwise modified from time to time, the "***Credit Agreement***"), among the Borrower, the Banks listed on the signature pages thereof, Mizuho Bank, Ltd., as Administrative Agent and Initial Issuing Bank, JPMorgan Chase Bank, N.A., as Syndication Agent, and MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.), **PNC Bank, National Association,** The Bank of Nova Scotia and Royal Bank of Canada, as Co-Documentation Agents.

Pursuant to the provisions of Section 2.16 of the Credit Agreement, the undersigned hereby certifies that (i) it is the sole record owner of the Loan(s) (as well as any Note(s) evidencing such Loan(s)) in respect of which it is providing this certificate, (ii) its direct or indirect partners/members are the sole beneficial owners of such Loan(s) (as well as any Note(s) evidencing such Loan(s)), (iii) with respect to the extension of credit pursuant to this Credit Agreement, neither the undersigned nor any of its direct or indirect partners/members is a bank extending credit pursuant to a loan agreement entered into in the ordinary course of its trade or business within the meaning of Section 881(c)(3)(A) of the Code, (iv) none of its direct or indirect partners/members is a member of Borrower, exercise voting power over Borrower or otherwise is a ten percent shareholder of the Borrower within the meaning of Section 871(h)(3)(B) of the Code, (v) none of its partners/members is a controlled foreign corporation related to the Borrower as described in Section 881(c)(3)(C) of the Code, and (vi) the interest payments in question are not effectively connected with the undersigned's or its partners/members' conduct of a U.S. trade or business.

The undersigned has furnished the Administrative Agent and the Borrower with IRS Form W-8IMY accompanied by an IRS Form W-8BEN from each of its partners/members claiming the portfolio interest exemption. By executing this certificate, the undersigned agrees that (1) if the information provided on this certificate changes, the undersigned shall promptly so inform the Borrower and the Administrative Agent and (2) the undersigned shall have at all times furnished the Borrower and the Administrative Agent with a properly completed and currently effective certificate in either the calendar year in which each payment is to be made to the undersigned, or in either of the two calendar years preceding such payments.

EXHIBIT H-3

[FORM OF]

U.S. TAX CERTIFICATE

(For Non-U.S. Participants That Are Not Partnerships For U.S. Federal Income Tax Purposes)

Reference is hereby made to the Amended and Restated Revolving Credit Agreement dated as of November 19, 2015 (as amended, supplemented or otherwise modified from time to time, the "***Credit Agreement***"), among the Borrower, the Banks listed on the signature pages thereof, Mizuho Bank, Ltd., as Administrative Agent and Initial Issuing Bank, JPMorgan Chase Bank, N.A., as Syndication Agent, and MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.), **PNC Bank National Association,** The Bank of Nova Scotia and Royal Bank of Canada, as Co-Documentation Agents.

Pursuant to the provisions of Section 2.16 of the Credit Agreement, the undersigned hereby certifies that (i) it is the sole record and beneficial owner of the participation in respect of which it is providing this certificate, (ii) it is not a bank within the meaning of Section 881(c)(3)(A) of the Code, (iii) it is not a ten percent shareholder of the Borrower within the meaning of Section 871(h)(3)(B) of the Code, (iv) it is not a controlled foreign corporation related to the Borrower as described in Section 881(c)(3)(C) of the Code, and (v) the interest payments in question are not effectively connected with the undersigned's conduct of a U.S. trade or business.

The undersigned has furnished its participating Bank with a certificate of its non-U.S. person status on IRS Form W-8BEN. By executing this certificate, the undersigned agrees that (1) if the information provided on this certificate changes, the undersigned shall promptly so inform such Bank in writing and (2) the undersigned shall have at all times furnished such Bank with a properly completed and currently effective certificate in either the calendar year in which each payment is to be made to the undersigned, or in either of the two calendar years preceding such payments.

Unless otherwise defined herein, terms defined in the Credit Agreement and used herein shall have the meanings given to them in the Credit Agreement.

[NAME OF PARTICIPANT]

By: ______________________________
Name:
Title:

Date: ______ , 20[ ]

EXHIBIT H-4

[FORM OF]
U.S. TAX CERTIFICATE

(For Non-U.S. Participants That Are Partnerships For U.S. Federal Income Tax Purposes)

Reference is hereby made to the Amended and Restated Revolving Credit Agreement dated as of November 19, 2015 (as amended, supplemented or otherwise modified from time to time, the "***Credit Agreement***"), among the Borrower, the Banks listed on the signature pages thereof, Mizuho Bank, Ltd., as Administrative Agent and Initial Issuing Bank, JPMorgan Chase Bank, N.A., as Syndication Agent, and MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.), **PNC Bank, National Association,** The Bank of Nova Scotia and Royal Bank of Canada, as Co-Documentation Agents.

Pursuant to the provisions of Section 2.16 of the Credit Agreement, the undersigned hereby certifies that (i) it is the sole record owner of the participation in respect of which it is providing this certificate, (ii) its partners/members are the sole beneficial owners of such participation, (iii) with respect such participation, neither the undersigned nor any of its partners/members is a bank extending credit pursuant to a loan agreement entered into in the ordinary course of its trade or business within the meaning of Section 881(c)(3)(A) of the Code, (iv) none of its partners/members is a ten percent shareholder of the Borrower within the meaning of Section 871(h)(3)(B) of the Code, (v) none of its partners/members is a controlled foreign corporation related to the Borrower as described in Section 881(c)(3)(C) of the Code, and (vi) the interest payments in question are not effectively connected with the undersigned's or its partners/members' conduct of a U.S. trade or business.

The undersigned has furnished its participating Bank with IRS Form W-8IMY accompanied by an IRS Form W-8BEN from each of its partners/members claiming the portfolio interest exemption. By executing this certificate, the undersigned agrees that (1) if the information provided on this certificate changes, the undersigned shall promptly so inform such Bank and (2) the undersigned shall have at all times furnished such Bank with a properly completed and currently effective certificate in either the calendar year in which each payment is to be made to the undersigned, or in either of the two calendar years preceding such payments.

Unless otherwise defined herein, terms defined in the Credit Agreement and used herein shall have the meanings given to them in the Credit Agreement.

[NAME OF PARTICIPANT]

Name:
Title:

Date: ______ , 20[ ]

AMENDMENT NO. 4

Dated as of November 26, 2019

to the

AMENDED AND RESTATED REVOLVING CREDIT AGREEMENT

Dated as of November 19, 2015

Among

NATIONAL RURAL UTILITIES
COOPERATIVE FINANCE CORPORATION,

THE BANKS PARTY HERETO,

JPMORGAN CHASE BANK, N.A.,
as Administrative Agent and Initial Issuing Bank,

MIZUHO BANK, LTD.
as Syndication Agent

and

MUFG BANK, LTD.
(F/K/A THE BANK OF TOKYO-MITSUBISHI UFJ, LTD.),
PNC BANK, NATIONAL ASSOCIATION,
THE BANK OF NOVA SCOTIA
and
ROYAL BANK OF CANADA,
as Co-Documentation Agents

J.P. MORGAN CHASE BANK, N.A.
MIZUHO BANK, LTD.
MUFG BANK, LTD.
(F/K/A THE BANK OF TOKYO-MITSUBISHI UFJ, LTD.),
PNC CAPITAL MARKETS LLC
THE BANK OF NOVA SCOTIA,
and

RBC CAPITAL MARKETS
as Co-Lead Arrangers and Joint Bookrunners

AMENDMENT NO. 4

AMENDMENT NO. 4 dated as of November 26, 2019 (this "Amendment") to the Amended and Restated Revolving Credit Agreement dated as of November 19, 2015, as amended by Amendment No. 1 dated as of November 18, 2016, as further amended by Amendment No. 2 dated as of November 20, 2017 and as further amended by Amendment No. 3 dated as of November 28, 2018, among NATIONAL RURAL UTILITIES COOPERATIVE FINANCE CORPORATION, a not-for-profit cooperative association incorporated under the laws of the District of Columbia, the BANKS party thereto from time to time, JPMORGAN CHASE BANK, N.A., as Administrative Agent and as Initial Issuing Bank, MIZUHO BANK (USA), as Syndication Agent, and MUFG BANK, LTD. (F/K/A THE BANK OF TOKYO-MITSUBISHI UFJ, LTD.), PNC BANK, NATIONAL ASSOCIATION, THE BANK OF NOVA SCOTIA and ROYAL BANK OF CANADA, as Co-Documentation Agents (the "Existing Credit Agreement" and, as amended by this Amendment, the "Amended Credit Agreement").

W I T N E S S E T H :

WHEREAS, the Borrower has requested that the Banks party to the Existing Credit Agreement, immediately prior to the effectiveness of this Amendment (each, an "Existing Bank") enter into this Amendment pursuant to which certain provisions of the Existing Credit Agreement will be amended, including, but not limited to, an increase to the "Lien Exception Amount"(as defined therein) to $15,000,000,000;

WHEREAS, each financial institution identified on Schedule 1 hereto as a "Committing Bank" (each, a "Committing Bank") has agreed, on the terms and conditions set forth herein, to provide Commitments terminating on the Commitment Termination Date in the amounts set forth on Schedule 1 hereto opposite such Committing Bank's name under the heading "Commitment" (the "Updated Commitments");

WHEREAS, on the Fourth Amendment Effective Date (as defined in Section 7 below), the existing Commitment of each Committing Bank will be converted into an Updated Commitment; and

NOW, THEREFORE, in consideration of the foregoing and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto agree as follows:

Section 1. *Defined Terms; References*. Unless otherwise specifically defined herein, each term used herein that is defined in the Existing Credit Agreement or in the Amended Credit Agreement, as the context shall require, has the meaning assigned to such term in the Existing Credit Agreement or in the Amended Credit Agreement, as applicable. Each reference to “hereof”, “hereunder”, “herein” and “hereby” and each other similar reference and each reference to “this Amendment” and each other similar reference contained in the Existing Credit Agreement shall, on and after the Fourth Amendment Effective Date, refer to the Amended Credit Agreement.

Section 2. *Amended Terms and Fourth Amendment Effective Date Transactions*.

(a) Each of the parties hereto agrees that, effective on the Fourth Amendment Effective Date, the Existing Credit Agreement shall be amended to delete the stricken text (indicated textually in the same manner as the following example: ~~stricken text~~) and to add the double-underlined text (indicated textually in the same manner as the following example: double-underlined text) as set forth in the amended pages of the Existing Credit Agreement attached hereto as Exhibit A, and the Banks party hereto authorize the Administrative Agent and the Borrower to prepare a conformed copy of the Amended Credit Agreement that includes the changes contained in, and consistent with, the amended pages attached as Exhibit A.

(b) Notwithstanding Section 2.10 of the Existing Credit Agreement, on the Fourth Amendment Effective Date, the Commitment of each of Mizuho Bank, Ltd., JPMorgan Chase Bank, N.A., Royal Bank of Canada, The Bank of Nova Scotia and MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd..) shall be reduced to $150,000,000.

(c) PNC Capital Markets LLC is hereby appointed as Co-Lead Arranger and PNC Bank, National Association is hereby appointed as Co-Documentation Agent.

Section 3. *Representations of Borrower*. The Borrower represents and warrants, as of the date hereof, that:

(a) the Borrower has the corporate power and authority to execute, deliver and perform its obligations under this Amendment and under the Amended Credit Agreement, and has taken all necessary corporate action to authorize the execution, delivery and performance by it of this Amendment and the Amended Credit Agreement. The Borrower has duly executed and delivered this Amendment, and this Amendment and the Amended Credit Agreement constitutes its legal, valid and binding obligation enforceable in accordance with its terms, except as enforceability thereof may be limited by applicable bankruptcy, insolvency, reorganization, moratorium or other similar laws affecting the enforcement of creditors’ rights generally and by general equitable principles (regardless of whether enforcement is sought by proceeding in equity or at law);

(b) no material authorization, consent, approval or license of, or declaration, filing or registration with or exemption by, any Governmental Authority, body or agency is required in connection with the execution, delivery and performance by the Borrower of this Amendment. The Banks acknowledge that the Borrower may file this Amendment with the Securities and Exchange Commission on or after the Fourth Amendment Effective Date; and

(c) the execution, delivery and performance by the Borrower of this Amendment and the Amended Credit Agreement, the borrowings contemplated hereunder and the use of the proceeds thereof will not (i) contravene any material provision of any law, statute, rule or regulation or any order, writ, injunction or decree of any court or Governmental Authority to which the Borrower is subject, (ii) require any consent under, or violate or result in any breach of any of the material terms, covenants, conditions or provisions of, or constitute a material default under, or give rise to any right to accelerate or to require the prepayment, repurchase or redemption of any obligation under, or result in the creation or imposition of (or the obligation to create or impose) any Lien upon any of the property or assets of the Borrower pursuant to the terms of the Amended Credit Agreement or any material indenture, mortgage, deed of trust, agreement or instrument, in each case to which the Borrower is a party or by which it or any its property or assets is bound or to which it may be subject, or (iii) violate any provision of the articles of incorporation or by-laws, as applicable, of the Borrower.

Section 4. *GOVERNING LAW*. (a) THIS AMENDMENT SHALL BE GOVERNED BY AND CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE STATE OF NEW YORK.

(b) EACH PARTY HERETO HEREBY IRREVOCABLY AND UNCONDITIONALLY SUBMITS, FOR ITSELF AND ITS PROPERTY, TO THE EXCLUSIVE JURISDICTION OF THE SUPREME COURT OF THE STATE OF NEW YORK SITTING IN NEW YORK COUNTY AND OF THE UNITED STATES DISTRICT COURT OF THE SOUTHERN DISTRICT OF NEW YORK, AND ANY APPELLATE COURT FROM ANY THEREOF, IN ANY ACTION OR PROCEEDING ARISING OUT OF OR RELATING TO THIS AMENDMENT, OR FOR RECOGNITION OR ENFORCEMENT OF ANY JUDGMENT, AND EACH OF THE PARTIES HERETO HEREBY IRREVOCABLY AND UNCONDITIONALLY AGREES THAT ALL CLAIMS IN RESPECT OF ANY SUCH ACTION OR PROCEEDING MAY BE HEARD AND DETERMINED IN SUCH NEW YORK STATE COURT OR, TO THE EXTENT PERMITTED BY LAW, IN SUCH FEDERAL COURT. EACH OF THE PARTIES HERETO AGREES, TO THE FULLEST EXTENT PERMITTED BY LAW, THAT A FINAL JUDGMENT IN ANY SUCH ACTION OR PROCEEDING SHALL BE CONCLUSIVE AND MAY BE ENFORCED IN OTHER JURISDICTIONS BY SUIT ON THE JUDGMENT OR IN ANY OTHER MANNER PROVIDED BY LAW. NOTHING IN THIS AMENDMENT SHALL AFFECT ANY RIGHT THAT ANY PARTY HERETO OR ANY BANK MAY OTHERWISE HAVE TO BRING ANY ACTION OR PROCEEDING RELATING TO THIS AMENDMENT AGAINST ANY OTHER PARTY HERETO OR ANY BANK OR THEIR RESPECTIVE PROPERTIES IN THE COURTS OF ANY JURISDICTION.

(c) EACH PARTY HERETO HEREBY IRREVOCABLY AND UNCONDITIONALLY WAIVES, TO THE FULLEST EXTENT IT MAY LEGALLY AND EFFECTIVELY DO SO, ANY OBJECTION WHICH IT MAY NOW OR HEREAFTER HAVE TO THE LAYING OF VENUE OF ANY SUIT, ACTION OR PROCEEDING ARISING OUT OF OR RELATING TO THIS AMENDMENT IN ANY COURT REFERRED TO IN PARAGRAPH (B) OF THIS SECTION. EACH OF THE PARTIES HERETO HEREBY IRREVOCABLY WAIVES, TO THE FULLEST EXTENT PERMITTED BY LAW, THE DEFENSE OF AN INCONVENIENT FORUM TO THE MAINTENANCE OF SUCH ACTION OR PROCEEDING IN ANY SUCH COURT.

(d) EACH PARTY TO THIS AMENDMENT IRREVOCABLY CONSENTS TO SERVICE OF PROCESS IN THE MANNER PROVIDED FOR NOTICES IN SECTION 9.01 OF THE AMENDED CREDIT AGREEMENT. NOTHING IN THIS AMENDMENT WILL AFFECT THE RIGHT OF ANY PARTY TO THIS AMENDMENT TO SERVE PROCESS IN ANY OTHER MANNER PERMITTED BY LAW.

Section 5. *WAIVER OF JURY TRIAL*. EACH PARTY HERETO HEREBY IRREVOCABLY WAIVES ANY AND ALL RIGHT TO TRIAL BY JURY IN ANY LEGAL PROCEEDING ARISING OUT OF OR RELATING TO THIS AMENDMENT OR THE TRANSACTIONS CONTEMPLATED HEREBY.

Section 6. *Counterparts*. This Amendment may be signed in any number of counterparts, each of which shall be an original, with the same effect as if the signatures thereto and hereto were upon the same instrument.

Section 7. *Effectiveness.* This Amendment shall become effective on the date (the "Fourth Amendment Effective Date") on which the Administrative Agent shall have received the following documents or other items, each dated the Fourth Amendment Effective Date unless otherwise indicated:

(a) receipt by the Administrative Agent of counterparts hereof signed by each of the parties hereto (or, in the case of any party as to which an executed counterpart shall not have been received, receipt by the Administrative Agent in form satisfactory to it of telegraphic, telex or other written confirmation from such party of execution of a counterpart hereof by such party), including receipt of consent from each of JPMorgan Chase Bank, N.A., Mizuho Bank, Ltd., MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.), PNC Bank, National Association, Royal Bank of Canada and The Bank of Nova Scotia, as Required Banks under the Existing Credit Agreement;

(b) receipt by the Administrative Agent of an opinion of the General Counsel of the Borrower, substantially in the form of Exhibit F to the Existing Credit Agreement, *provided* that an enforceability opinion under New York law, that is reasonably acceptable to the Administrative Agent, shall be furnished by the Borrower's New York counsel, Norton Rose Fulbright US LLP, subject to customary assumptions, qualifications and limitations;

(c) receipt by the Administrative Agent of a certificate signed by any one of the Chief Financial Officer, the Chief Executive Officer, the Treasurer, an Assistant Secretary-Treasurer, the Controller or the Vice President, Capital Markets Relations of the Borrower to the effect that the conditions set forth in clauses (c) through (g), inclusive, of Section 3.03 of the Amended Credit Agreement have been satisfied as of the Fourth Amendment Effective Date and, in the case of clauses (c), (d) and (g), setting forth in reasonable detail the calculations required to establish such compliance;

(d) receipt by the Administrative Agent of a certificate of an officer of the Borrower acceptable to the Administrative Agent stating that all consents, authorizations, notices and filings required or advisable in connection with this Amendment are in full force and effect, and the Administrative Agent shall have received evidence thereof reasonably satisfactory to it;

(e) receipt by the Administrative Agent and the Syndication Agent (or their respective permitted assigns) and by each Co-Lead Arranger of all fees required to be paid in the respective amounts heretofore mutually agreed in writing, and all expenses required to be reimbursed pursuant to the terms of the Existing Credit Agreement and for which invoices have been presented, at least one (1) business day prior to the Fourth Amendment Effective Date;

(f) receipt by the Administrative Agent and the Banks of a Beneficial Ownership Certification on the Fourth Amendment Effective Date and all documentation and other information required by regulatory authorities under applicable “know your customer” and anti-money laundering rules and regulations, including, without limitation, the USA PATRIOT Act (Title III of Pub. L. 107-56) and the FinCEN beneficial ownership regulations under the Beneficial Ownership Regulation; and

(g) receipt by the Administrative Agent of all documents the Administrative Agent may reasonably request relating to the existence of the Borrower, the corporate authority for and the validity of this Amendment all in form and substance reasonably satisfactory to the Administrative Agent.

The Administrative Agent shall promptly notify the Borrower and the Bank Parties of the Fourth Amendment Effective Date, and such notice shall be conclusive and binding on all parties hereto.

IN WITNESS WHEREOF, the parties hereto have caused this Amendment to be duly executed as of the date first above written.

NATIONAL RURAL UTILITIES
COOPERATIVE FINANCE
CORPORATION

By: /s/ J. ANDREW DON
Name: J. Andrew Don
Title: Senior Vice President and
Chief Financial Officer

JPMORGAN CHASE BANK, N.A., as Administrative Agent, Initial Issuing Bank and Bank

By: /s/ AMIT GAUR

Name: Amit Gaur

Title: Vice President

MIZUHO BANK, LTD., as Syndication Agent and Bank

By: /s/ Edward Sacks

Name: Edward Sacks

Title: Authorized Signatory

SIGNATURE PAGE TO AMENDMENT NO. 4 (THE "**AMENDMENT**") TO THE AMENDED AND RESTATED REVOLVING CREDIT AGREEMENT DATED AS OF NOVEMBER 19, 2015, AS AMENDED BY AMENDMENT NO. 1 TO THE EXISTING CREDIT AGREEMENT, DATED AS OF NOVEMBER 18, 2016, AS FURTHER AMENDED BY AMENDMENT NO. 2 TO THE EXISTING CREDIT AGREEMENT, DATED AS OF NOVEMBER 20, 2017, AS FURTHER AMENDED BY AMENDMENT NO. 3 TO THE EXISTING CREDIT AGREEMENT, DATED AS OF NOVEMBER 28, 2018 AMONG NATIONAL RURAL UTILITIES COOPERATIVE FINANCE CORPORATION, AS BORROWER, THE BANKS PARTY THERETO, JPMORGAN CHASE BANK, N.A., AS ADMINISTRATIVE AGENT, MIZUHO BANK (USA) AS SYNDICATION AGENT AND THE OTHER AGENTS PARTY THERETO (THE "**EXISTING CREDIT AGREEMENT**").

MUFG BANK, LTD. (F/K/A THE BANK OF TOKYO-MITSUBISHI UFJ, LTD.)

By: /s/ Cherese Joseph

Name: Cherese Joseph

Title: Vice President

SIGNATURE PAGE TO AMENDMENT NO. 4 (THE "**AMENDMENT**") TO THE AMENDED AND RESTATED REVOLVING CREDIT AGREEMENT DATED AS OF NOVEMBER 19, 2015, AS AMENDED BY AMENDMENT NO. 1 TO THE EXISTING CREDIT AGREEMENT, DATED AS OF NOVEMBER 18, 2016, AS FURTHER AMENDED BY AMENDMENT NO. 2 TO THE EXISTING CREDIT AGREEMENT, DATED AS OF NOVEMBER 20, 2017, AS FURTHER AMENDED BY AMENDMENT NO. 3 TO THE EXISTING CREDIT AGREEMENT, DATED AS OF NOVEMBER 28, 2018 AMONG NATIONAL RURAL UTILITIES COOPERATIVE FINANCE CORPORATION, AS BORROWER, THE BANKS PARTY THERETO, JPMORGAN CHASE BANK, N.A., AS ADMINISTRATIVE AGENT, MIZUHO BANK (USA) AS SYNDICATION AGENT AND THE OTHER AGENTS PARTY THERETO (THE "**EXISTING CREDIT AGREEMENT**").

PNC BANK, NATIONAL ASSOCIATION

By: /s/ Nancy Rosal Bonnell

Name: Nancy Rosal Bonnell

Title: Sr. Vice President

SIGNATURE PAGE TO AMENDMENT NO. 4 (THE "**AMENDMENT**") TO THE AMENDED AND RESTATED REVOLVING CREDIT AGREEMENT DATED AS OF NOVEMBER 19, 2015, AS AMENDED BY AMENDMENT NO. 1 TO THE EXISTING CREDIT AGREEMENT, DATED AS OF NOVEMBER 18, 2016, AS FURTHER AMENDED BY AMENDMENT NO. 2 TO THE EXISTING CREDIT AGREEMENT, DATED AS OF NOVEMBER 20, 2017, AS FURTHER AMENDED BY AMENDMENT NO. 3 TO THE EXISTING CREDIT AGREEMENT, DATED AS OF NOVEMBER 28, 2018 AMONG NATIONAL RURAL UTILITIES COOPERATIVE FINANCE CORPORATION, AS BORROWER, THE BANKS PARTY THERETO, JPMORGAN CHASE BANK, N.A., AS ADMINISTRATIVE AGENT, MIZUHO BANK (USA) AS SYNDICATION AGENT AND THE OTHER AGENTS PARTY THERETO (THE "**EXISTING CREDIT AGREEMENT**").

THE BANK OF NOVA SCOTIA

By: /s/ David Dewar
Name: David Dewar
Title: Director

SIGNATURE PAGE TO AMENDMENT NO. 4 (THE "**AMENDMENT**") TO THE AMENDED AND RESTATED REVOLVING CREDIT AGREEMENT DATED AS OF NOVEMBER 19, 2015, AS AMENDED BY AMENDMENT NO. 1 TO THE EXISTING CREDIT AGREEMENT, DATED AS OF NOVEMBER 18, 2016, AS FURTHER AMENDED BY AMENDMENT NO. 2 TO THE EXISTING CREDIT AGREEMENT, DATED AS OF NOVEMBER 20, 2017, AS FURTHER AMENDED BY AMENDMENT NO. 3 TO THE EXISTING CREDIT AGREEMENT, DATED AS OF NOVEMBER 28, 2018 AMONG NATIONAL RURAL UTILITIES COOPERATIVE FINANCE CORPORATION, AS BORROWER, THE BANKS PARTY THERETO, JPMORGAN CHASE BANK, N.A., AS ADMINISTRATIVE AGENT, MIZUHO BANK (USA) AS SYNDICATION AGENT AND THE OTHER AGENTS PARTY THERETO (THE "**EXISTING CREDIT AGREEMENT**").

ROYAL BANK OF CANADA

By: /s/ Justin Painter
Name: Justin Painter
Title: Authorized Signatory

SIGNATURE PAGE TO AMENDMENT NO. 4 (THE "**AMENDMENT**") TO THE AMENDED AND RESTATED REVOLVING CREDIT AGREEMENT DATED AS OF NOVEMBER 19, 2015, AS AMENDED BY AMENDMENT NO. 1 TO THE EXISTING CREDIT AGREEMENT, DATED AS OF NOVEMBER 18, 2016, AS FURTHER AMENDED BY AMENDMENT NO. 2 TO THE EXISTING CREDIT AGREEMENT, DATED AS OF NOVEMBER 20, 2017, AS FURTHER AMENDED BY AMENDMENT NO. 3 TO THE EXISTING CREDIT AGREEMENT, DATED AS OF NOVEMBER 28, 2018 AMONG NATIONAL RURAL UTILITIES COOPERATIVE FINANCE CORPORATION, AS BORROWER, THE BANKS PARTY THERETO, JPMORGAN CHASE BANK, N.A., AS ADMINISTRATIVE AGENT, MIZUHO BANK (USA) AS SYNDICATION AGENT AND THE OTHER AGENTS PARTY THERETO (THE "**EXISTING CREDIT AGREEMENT**").

KEYBANK NATIONAL ASSOCIATION

By: /s/ Benjamin C. Cooper

Name: Benjamin C. Cooper

Title: Vice President

SIGNATURE PAGE TO AMENDMENT NO. 4 (THE “**AMENDMENT**”) TO THE AMENDED AND RESTATED REVOLVING CREDIT AGREEMENT DATED AS OF NOVEMBER 19, 2015, AS AMENDED BY AMENDMENT NO. 1 TO THE EXISTING CREDIT AGREEMENT, DATED AS OF NOVEMBER 18, 2016, AS FURTHER AMENDED BY AMENDMENT NO. 2 TO THE EXISTING CREDIT AGREEMENT, DATED AS OF NOVEMBER 20, 2017, AS FURTHER AMENDED BY AMENDMENT NO. 3 TO THE EXISTING CREDIT AGREEMENT, DATED AS OF NOVEMBER 28, 2018 AMONG NATIONAL RURAL UTILITIES COOPERATIVE FINANCE CORPORATION, AS BORROWER, THE BANKS PARTY THERETO, JPMORGAN CHASE BANK, N.A., AS ADMINISTRATIVE AGENT, MIZUHO BANK (USA) AS SYNDICATION AGENT AND THE OTHER AGENTS PARTY THERETO (THE “**EXISTING CREDIT AGREEMENT**”).

US Bank National Association

By: /s/ Eric J. Cosgrove

Name: Eric J. Cosgrove

Title: Senior Vice President

SIGNATURE PAGE TO AMENDMENT NO. 4 (THE “**AMENDMENT**”) TO THE AMENDED AND RESTATED REVOLVING CREDIT AGREEMENT DATED AS OF NOVEMBER 19, 2015, AS AMENDED BY AMENDMENT NO. 1 TO THE EXISTING CREDIT AGREEMENT, DATED AS OF NOVEMBER 18, 2016, AS FURTHER AMENDED BY AMENDMENT NO. 2 TO THE EXISTING CREDIT AGREEMENT, DATED AS OF NOVEMBER 20, 2017, AS FURTHER AMENDED BY AMENDMENT NO. 3 TO THE EXISTING CREDIT AGREEMENT, DATED AS OF NOVEMBER 28, 2018 AMONG NATIONAL RURAL UTILITIES COOPERATIVE FINANCE CORPORATION, AS BORROWER, THE BANKS PARTY THERETO, JPMORGAN CHASE BANK, N.A., AS ADMINISTRATIVE AGENT, MIZUHO BANK (USA) AS SYNDICATION AGENT AND THE OTHER AGENTS PARTY THERETO (THE “**EXISTING CREDIT AGREEMENT**”).

SUNTRUST BANK

By: /s/ CARMEN MALIZIA

Name: Carmen Malizia

Title: Director

SIGNATURE PAGE TO AMENDMENT NO. 4 (THE "**AMENDMENT**") TO THE AMENDED AND RESTATED REVOLVING CREDIT AGREEMENT DATED AS OF NOVEMBER 19, 2015, AS AMENDED BY AMENDMENT NO. 1 TO THE EXISTING CREDIT AGREEMENT, DATED AS OF NOVEMBER 18, 2016, AS FURTHER AMENDED BY AMENDMENT NO. 2 TO THE EXISTING CREDIT AGREEMENT, DATED AS OF NOVEMBER 20, 2017, AS FURTHER AMENDED BY AMENDMENT NO. 3 TO THE EXISTING CREDIT AGREEMENT, DATED AS OF NOVEMBER 28, 2018 AMONG NATIONAL RURAL UTILITIES COOPERATIVE FINANCE CORPORATION, AS BORROWER, THE BANKS PARTY THERETO, JPMORGAN CHASE BANK, N.A., AS ADMINISTRATIVE AGENT, MIZUHO BANK (USA) AS SYNDICATION AGENT AND THE OTHER AGENTS PARTY THERETO (THE "**EXISTING CREDIT AGREEMENT**").

REGIONS BANK

By: /s/ TEDRICK TARVER
Name: Tedrick Tarver
Title: Director

SIGNATURE PAGE TO AMENDMENT NO. 4 (THE “**AMENDMENT**”) TO THE AMENDED AND RESTATED REVOLVING CREDIT AGREEMENT DATED AS OF NOVEMBER 19, 2015, AS AMENDED BY AMENDMENT NO. 1 TO THE EXISTING CREDIT AGREEMENT, DATED AS OF NOVEMBER 18, 2016, AS FURTHER AMENDED BY AMENDMENT NO. 2 TO THE EXISTING CREDIT AGREEMENT, DATED AS OF NOVEMBER 20, 2017, AS FURTHER AMENDED BY AMENDMENT NO. 3 TO THE EXISTING CREDIT AGREEMENT, DATED AS OF NOVEMBER 28, 2018 AMONG NATIONAL RURAL UTILITIES COOPERATIVE FINANCE CORPORATION, AS BORROWER, THE BANKS PARTY THERETO, JPMORGAN CHASE BANK, N.A., AS ADMINISTRATIVE AGENT, MIZUHO BANK (USA) AS SYNDICATION AGENT AND THE OTHER AGENTS PARTY THERETO (THE “**EXISTING CREDIT AGREEMENT**”).

APPLE BANK FOR SAVINGS

By: /s/ JONATHAN C. BYRON
Name: Jonathan C. Byron
Title: Senior Vice President

SCHEDULE 1

UPDATED COMMITMENTS

Committing Banks	Commitment
JPMorgan Chase Bank, N.A.	$150,000,000.00
Mizuho Bank, Ltd.	$150,000,000.00
Royal Bank of Canada	$150,000,000.00
The Bank of Nova Scotia	$150,000,000.00
MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.)	$150,000,000.00
PNC Bank, National Association	$150,000,000.00
KeyBank National Association	$180,000,000.00
US Bank National Association	$125,000,000.00
SunTrust Bank	$125,000,000.00
Regions Bank	$75,000,000.00
Apple Bank for Savings	$5,000,000.00
Total:	**$1,410,000,000.00**

EXHIBIT A

NOT A LEGAL DOCUMENT

COMPOSITE COPY REFLECTING
AMENDMENT NO. ~~3~~4
DATED AS OF NOVEMBER ~~28~~26, ~~2018~~2019

AMENDED AND RESTATED REVOLVING CREDIT AGREEMENT

dated as of

November 19, 2015

among

NATIONAL RURAL UTILITIES
COOPERATIVE FINANCE CORPORATION,

THE BANKS LISTED HEREIN,

JPMORGAN CHASE BANK, N.A.,
as Administrative Agent and Initial Issuing Bank,

MIZUHO BANK, LTD.,
as successor Syndication Agent,

and

MUFG BANK, LTD,
(F/K/A THE BANK OF TOKYO-MITSUBISHI UFJ, LTD.),
PNC BANK, NATIONAL ASSOCIATION,
THE BANK OF NOVA SCOTIA,
and
ROYAL BANK OF CANADA
as Co-Documentation Agents

J.P. MORGAN CHASE BANK, N.A.
MIZUHO BANK, LTD.
MUFG BANK, LTD.
(F/K/A THE BANK OF TOKYO-MITSUBISHI UFJ, LTD.),
PNC CAPITAL MARKETS LLC
THE BANK OF NOVA SCOTIA,
and
RBC CAPITAL MARKETS
as Co-Lead Arrangers and Joint Bookrunners

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MISCELLANEOUS

AMENDED AND RESTATED REVOLVING CREDIT AGREEMENT

This AMENDED AND RESTATED REVOLVING CREDIT AGREEMENT dated as of November 19, 2015, is made by and among NATIONAL RURAL UTILITIES COOPERATIVE FINANCE CORPORATION, a not-for-profit cooperative association incorporated under the laws of the District of Columbia, as Borrower, the BANKS listed on the signature pages hereof, JPMORGAN CHASE BANK, N.A., as Administrative Agent and as Initial Issuing Bank for the Letters of Credit issued or to be issued pursuant to this Agreement, MIZUHO BANK, LTD., as successor Syndication Agent, and MUFG BANK, LTD. (F/K/A THE BANK OF TOKYO-MITSUBISHI UFJ, LTD.), **PNC BANK, NATIONAL ASSOCIATION,** THE BANK OF NOVA SCOTIA and ROYAL BANK OF CANADA, as Co-Documentation Agents.

WHEREAS, the Borrower, the several Banks, the Administrative Agent, the Syndication Agent and Co-Documentation Agents (as each is defined hereinafter) entered into a Revolving Credit Agreement dated as of October 21, 2011, as amended by Amendment No. 1 dated as of March 28, 2013, Amendment No. 2 dated as of October 28, 2013 and Amendment No. 3 dated as of October 28, 2014 (collectively, the "Existing Credit Agreement"); and

WHEREAS, the Borrower has requested that the Banks, the Administrative Agent, the Syndication Agent and the Co-Documentation Agents agree, on the terms and conditions set forth herein, to amend and restate the Existing Credit Agreement. The Banks, Administrative Agent, Syndication Agent and Co-Documentation Agents have indicated their willingness to amend and restate the Existing Credit Agreement on the terms and conditions of this Agreement.

NOW, THEREFORE, in consideration of the foregoing and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto do hereby amend and restate the Existing Credit Agreement in its entirety and the parties hereto hereby agree as follows:

ARTICLE 1

DEFINITIONS

Section 1.01. *Definitions*. The following terms, as used herein, have the following meanings:

"**1994 Indenture**" means the Indenture dated as of February 15, 1994 and as amended as of September 16, 1994 between the Borrower and U.S. Bank National Association, as trustee, as amended and supplemented from time to time, providing for the issuance in series of certain collateral trust bonds of the Borrower.

"**2007 Indenture**" means the Indenture dated as of October 25, 2007 between the Borrower and U.S. Bank National Association, as trustee, as amended and supplemented from time to time, providing for the issuance in series of certain collateral trust bonds of the Borrower.

"**2016 Amendment**" means Amendment No. 1 to this Agreement dated as of November 18, 2016 among the Borrower, the Administrative Agent, the Syndication Agent and the Banks thereto.

"**2017 Amendment**" means Amendment No. 2 to this Agreement dated as of November 20, 2017 among the Borrower, the Administrative Agent, the Syndication Agent and the Banks thereto.

"**2017 Fee Letters**" means those certain Fee Letters dated October 13, 2017 among the Borrower, the Administrative Agent and the Syndication Agent.

"2018 Amendment" means Amendment No. 3 to this Agreement dated as of November 28, 2018 among the Borrower, the Administrative Agent, the Syndication Agent and the Banks thereto.

"2018 Fee Letters" means those certain Fee Letters dated October 16, 2018 among the Borrower, the Administrative Agent and the Syndication Agent.

"2019 Amendment" means Amendment No. 4 to this Agreement dated as of November [26], 2019 among the Borrower, the Administrative Agent, the Syndication Agent and the Banks thereto.

"2019 Fee Letters" means those certain Fee Letters dated October 16, 2019 among the Borrower, the Administrative Agent, the Syndication Agent and the Co-Lead Arrangers; *provided, that*, it is understood that the Agency Fee and Fronting Letter, dated October 16, 2018 between the Borrower and the Administrative Agent is still in effect and shall be considered a 2019 Fee Letter.

"**Absolute Rate Auction**" means a solicitation of Money Market Quotes setting forth Money Market Absolute Rates pursuant to Section 2.03.

"**Additional Commitment Bank**" has the meaning set forth in Section 2.22(d).

"**Adjusted London Interbank Offered Rate**" has the meaning set forth in Section 2.07(b).

"**Administrative Agent**" means JPMorgan Chase Bank, N.A., in its capacity as administrative agent for the Banks hereunder, and its successors in such capacity.

"**Administrative Questionnaire**" means, with respect to each Bank, the administrative questionnaire in the form submitted to such Bank by the pursuant to Basel III, shall be deemed to be a "Change in Law", regardless of the date adopted, issued, promulgated or implemented, but only if any such requirements are generally applicable to (and for which reimbursement is generally being sought by the Banks in respect of) credit transactions similar to this transaction from borrowers similarly situated to the Borrower.

"**Code**" means the Internal Revenue Code of 1986, as amended.

"**Co-Documentation Agents**" means MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.), **PNC Bank, National Association,** The Bank of Nova Scotia and Royal Bank of Canada, each in their respective capacity as documentation agent hereunder, and their respective successors in such capacity.

"**Co-Lead Arrangers**" means J.P. Morgan Chase Bank, N.A., Mizuho Bank, Ltd., MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.), **PNC Capital Markets LLC,** The Bank of Nova Scotia, and RBC Capital Markets, RBC Capital Markets is a brand name for the capital markets businesses of Royal Bank of Canada and its affiliates. each in their capacity as co-lead arranger and joint bookrunner.

"**Commitment**" means (i) with respect to any Bank, the amount, if any, set forth opposite the name of such Bank on the Commitment Schedule and (ii) with respect to any Bank that is an Assignee pursuant to Section 9.06(c), the amount of the transferor Bank's commitment specified on the Commitment Schedule that is assigned to such Bank, and further, any subsequent assignment made by an Assignee to another Assignee of such amounts pursuant to Section 9.06(c), in each case as such amount may from time to time be increased or decreased from time to time in accordance with the terms and conditions of this Agreement.

"**Commitment Schedule**" means the commitment schedule attached hereto under the heading, Commitment Schedule.

"**Commitment Termination Date**" means November 28, 2023 or, if such day is not a Euro-Dollar Business Day, the immediately preceding Euro-Dollar Business Day.

"**Committed Borrowing**" means a Borrowing under Section 2.01(a).

"**Committed Loan**" means a Revolving Loan; *provided* that, if any such loan or loans (or portions thereof) are combined or subdivided pursuant to a Notice of Interest Rate Election, the term "Committed Loan" shall refer to the combined principal amount resulting from such combination or to each of the separate principal amounts resulting from such subdivision, as the case may be.

"**Confidential Information**" has the meaning set forth in Section 9.12.

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[1]RBC Capital Markets is a brand name for the capital markets businesses of Royal Bank of Canada and its affiliates.

"**Fixed Rate Loans**" means Euro-Dollar Loans or Money Market Loans (excluding Money Market LIBOR Loans bearing interest at the Base Rate pursuant to Section 8.01) or any combination of the foregoing.

"**Foreclosed Asset**" has the meaning set forth in Section 5.12.

"Fourth Amendment Effective Date" means the Fourth Amendment Effective Date as defined in the 2019 Amendment.

"**Fronting Fee**" has the meaning specified in Section 2.09(d).

"**Governmental Authority**" means any national, state, county, city, town, village, municipal or other government department, commission, board, bureau, agency, authority or instrumentality of a country or any political subdivision thereof, exercising executive, legislative, judicial, regulatory or administrative powers or functions of or pertaining to government.

"**Group of Loans**" means, at any time, a group of Loans consisting of (i) all Committed Loans which are Base Rate Loans at such time or (ii) all Euro-Dollar Loans having the same Interest Period at such time; *provided* that if a Committed Loan of any particular Bank is converted to or made as a Base Rate Loan pursuant to Article 8, such Loan shall be included in the same Group or Groups of Loans from time to time as it would have been in if it had not been so converted or made.

"**Guarantee**" by any Person means any obligation, contingent or otherwise, of such Person directly or indirectly guaranteeing any Indebtedness or lease payments of any other Person or otherwise in any manner assuring the holder of any Indebtedness of, or the obligee under any lease of, any other Person through an agreement, contingent or otherwise, to purchase Indebtedness or the property subject to such lease, or to purchase goods, supplies or services primarily for the purpose of enabling the debtor or obligor to make payment of the Indebtedness or under such lease or of assuring such Person against loss, or to supply funds to or in any other manner invest in the debtor or obligor, or otherwise; *provided* that the term "**Guarantee**" shall not include endorsements for collection or deposit in the ordinary course of business. The term "**Guarantee**" when used as a verb has a correlative meaning.

"**Guaranteed Portion**" has the meaning set forth in the definition of RUS Guaranteed Loan.

"**Hazardous Substances**" means any toxic, radioactive, caustic or otherwise hazardous substance, including petroleum, its derivatives, by-products and other hydrocarbons, or any substance having any constituent elements displaying any of the foregoing characteristics.

"**Honor Date**" has the meaning specified in Section 2.20(b)(i).

"**Letter of Credit Sublimit**" means $150,000,000. The Letter of Credit Sublimit is part of , and not in addition to, the aggregate Commitments.

"**Letters of Credit**" means letters of credit issued by any Issuing Bank pursuant to Section 2.01(b) and any Existing Letters of Credit.

"**LIBOR Auction**" means a solicitation of Money Market Quotes setting forth Money Market Margins based on the London Interbank Offered Rate pursuant to Section 2.03.

"**Lien**" means, with respect to any asset, any mortgage, lien, pledge, charge, security interest or encumbrance of any kind in respect of such asset. For the purposes of this Agreement, the Borrower or any Subsidiary shall be deemed to own subject to a Lien any asset which it has acquired or holds subject to the interest of a vendor or lessor under any conditional sale agreement, capital lease or other title retention agreement relating to such asset.

"**Lien Exception Amount**" means $~~**10,000,000,000 plus an amount equal to the incremental increase in the allocated amount of REDLG Obligations from the Amendment Effective Date; *provided* that the Lien Exception Amount shall at no time exceed $12,500,000,000.**~~**15,000,000,000.**

"**Loan**" means a Base Rate Loan or a Euro-Dollar Loan or a Money Market Loan in each case, made by any Bank, as applicable and "**Loans**" means Base Rate Loans or Euro-Dollar Loans or Money Market Loans or any combination of the foregoing in each case made hereunder by a Bank.

"**London Interbank Offered Rate**" has the meaning set forth in Section 2.07(b).

"**Maturity Date**" means (i) with respect to any Revolving Loan, the Commitment Termination Date and (ii) with respect to any Money Market Loan, the last day of the Interest Period applicable thereto.

"**Member**" means any Person which is a member or a patron of the Borrower.

"**Members' Subordinated Certificate**" means a note of the Borrower or its Consolidated Entities substantially in the form of the membership subordinated subscription certificates and the loan and guarantee subordinated certificates outstanding on the date of the execution and delivery of this Agreement and any other Indebtedness of the Borrower or its Consolidated Entities having substantially similar provisions as to subordination as those contained in said outstanding membership subordinated subscription certificates and loan and guarantee subordinated certificates.

"**Money Market Absolute Rate**" has the meaning set forth in Section 2.03(d)(ii)(D).

(a) such expiry date; provided that in no event shall the expiry date of any requested Letter of Credit occur on or after the Domestic Business Day immediately preceding the Commitment Termination Date.

(i) No Issuing Bank shall be under any obligation to make any L/C Credit Extension if:

(A) any order, judgment or decree of any Governmental Authority or arbitrator shall by its terms purport to enjoin or restrain such Issuing Bank from issuing such Letter of Credit, or any Applicable Law applicable to such Issuing Bank or any request or directive (whether or not having the force of law, but if not having the force of law, being a request or directive which is generally complied with by comparable financial institutions) from any Governmental Authority with jurisdiction over such Issuing Bank shall prohibit, or request that the Issuing Bank refrain from the issuance of Letters of Credit generally or such Letter of Credit in particular or shall impose upon such Issuing Bank with respect to such Letter of Credit any restriction, reserve or capital requirement (for which such Issuing Bank is not otherwise compensated hereunder) not in effect on the ~~**Third**~~**Fourth** Amendment Effective Date, or shall impose upon such Issuing Bank any unreimbursed loss, cost or expense which was not applicable on the ~~**Third**~~**Fourth** Amendment Effective Date and which such Issuing Bank in good faith reasonably deems material to it; *provided*, *however*, that in the event a Bank Party participating in the Letters of Credit is not affected by any such restriction, requirement or imposition, and is able to issue such Letter of Credit and expressly agrees in its sole discretion to issue such Letter of Credit, such Bank Party, subject to the consent of the Administrative Agent, such consent not to be unreasonably withheld, conditioned or delayed, shall issue such Letter of Credit and shall be deemed the Issuing Bank with regard to such Letter of Credit for all purposes of this Agreement;

(B) the making of such L/C Credit Extension would violate any Applicable Laws;

(C) except as otherwise agreed by the Administrative Agent and such Issuing Bank, such Letter of Credit is in an initial face amount less than $25,000;

(D) such L/C Credit Extension is to be denominated in a currency other than Dollars;

Administrative Agent for the account of each Bank in accordance with its Pro Rata Share a Letter of Credit fee (the "**Letter of Credit Fee**") for each Letter of Credit equal to a rate per annum equal to (i) with respect to Standby Letters of Credit, the Euro-Dollar Margin in effect from time to time and (ii) with respect to (A) Performance Letters of Credit, (B) Trade Letters of Credit or (C) Back-Up Letters of Credit in support of performance letters of credit or trade letters of credit issued by the Borrower, 50% of the Euro-Dollar Margin in effect from time to time, in each case, multiplied by the average daily maximum amount available to be drawn under such Letter of Credit (whether or not such maximum amount is then in effect under such Letter of Credit) during the relevant calendar quarter or portion then ended. Letter of Credit Fees shall be (i) computed on a quarterly basis in arrears on the basis of the actual number of days elapsed in a year of 360 days (including the first day but excluding the last day), as pro-rated for any partial quarter, as applicable, and (ii) subject to Section 2.19(a)(ii), due and payable on each January 1, April 1, July 1 and October 1, commencing with the first such date to occur after the issuance of such Letter of Credit, on the Letter of Credit Expiration Date and thereafter on demand. Notwithstanding anything to the contrary contained herein, upon the request of the Required Banks, while any payment-related Event of Default exists, all Letter of Credit Fees shall accrue at a rate per annum equal to the Euro-Dollar Margin plus 2%.

[d] *Fronting Fee and Documentary and Processing Charges Payable to Issuing Banks, Etc.* The Borrower shall pay directly to the relevant Issuing Bank for its own account a fronting fee with respect to each Letter of Credit issued hereunder on the average daily maximum amount available to be drawn under such Letter of Credit in an amount to be agreed between the Borrower and the applicable Issuing Bank of the L/C Obligations (whether or not such maximum amount is then in effect under such Letter of Credit) (the "**Fronting Fee**"). The Fronting Fee shall be computed on a quarterly basis in arrears on the basis of the actual number of days elapsed in a year of 360 days (including the first day but excluding the last day), as pro-rated for any partial quarter, as applicable, and shall be due and payable on each January 1, April 1, July 1 and October 1, commencing with the first such date to occur after the issuance of such Letter of Credit, on the Letter of Credit Expiration Date and thereafter on demand. In addition, the Borrower shall, with respect to all Letters of Credit issued at its request, pay directly to each Issuing Bank for its own account the customary issuance, presentation, amendment and other processing fees, and other standard costs and charges, of such Issuing Bank relating to letters of credit as from time to time in effect. Such customary fees and standard costs and charges are due and payable on demand and are nonrefundable.

[e] *Amendment Fees*. The Borrower agrees to pay to the Administrative Agent for the account of each Bank on the ~~**Third**~~**Fourth** Amendment Effective Date the upfront fees required to be paid on such date, as set forth in the ~~**2018**~~**2019** Fee Letters

the respective amounts heretofore mutually agreed in writing, and all expenses for which invoices have been presented, on or before the Amendment Effective Date;

[g] receipt by the Administrative Agent and the Banks of all documentation and other information requested by the Administrative Agent or such Bank and required by regulatory authorities under applicable "know your customer" and anti-money laundering rules and regulations, including, without limitation, the USA PATRIOT Act (Title III of Pub. L. 107-56); and

[h] receipt by the Administrative Agent of all documents the Required Banks may reasonably request relating to the existence of the Borrower, the corporate authority for and the validity of this Agreement and the Notes, and any other matters relevant hereto, all in form and substance reasonably satisfactory to the Administrative Agent.

The Administrative Agent shall promptly notify the Borrower and the Bank Parties of the Amendment Effective Date, and such notice shall be conclusive and binding on all parties hereto.

Section 3.02. [Reserved]

Section 3.03 *Borrowings and L/C Credit Extensions*. The obligation of any Bank to make a Loan on the occasion of any Borrowing and the obligation of the Issuing Bank to issue, amend or increase the principal amount thereof or extend any Letter of Credit (other than an extension pursuant to an Auto-Extension Letter of Credit in accordance with the original terms thereof) is subject to the satisfaction of the following conditions, in each case at the time of such Borrowing or L/C Credit Extensions and immediately thereafter:

[a] The Amendment Effective Date shall have occurred on or prior to November 19, 2015, the First Amendment Effective Date shall have occurred on or prior to November 18, 2016, the Second Amendment Effective Date shall have occurred on or prior to November 20, 2017 ~~and~~**,** the Third Amendment Effective Date shall have occurred on or prior to November 28, 2018 **and the Fourth Amendment Effective Date shall have occurred on or prior to November 26, 2019**;

[b] receipt by the Administrative Agent of a Notice of Borrowing as required by Section 2.02 or 2.03, as the case may be;

[c] the fact that the Borrower is in compliance with Section 7.11 of the 1994 Indenture, as such Indenture is in effect as of the Effective Date and the Amendment Effective Date;

[d] Prior to the Commitment Termination Date, the fact that the sum of (i) the aggregate outstanding principal amount of the Loans and (ii) the Outstanding Amount of L/C Obligations will not exceed the Aggregate

Commitments (as such Commitments may be increased or decreased from time to time in accordance with the terms and conditions of this Agreement)

[e] the fact that no Default shall have occurred and be continuing;

[f] the fact that the representations and warranties of the Borrower (in the case of a Borrowing or L/C Credit Extension, other than the representations set forth in Section 4.02(c), Section 4.03 and Section 4.14) contained in this Agreement shall be true in all material respects (other than any such representations or warranties that, by their terms, refer to a specific date other than the date of Borrowing or L/C Credit Extension, in which case such representations and warranties shall be true in all material respects as of such specific date); *provided that*, (i) in the case of the representations set forth in Section 4.02(a) and Section 4.02(b) being made after the Amendment Effective Date shall be deemed to refer to the most recent balance sheets and statements furnished pursuant to Section 5.03(b)(ii) and Section 5.03(b)(i), respectively and (ii) in the case of the representation set forth in Section 4.06 being made after the ~~**Third**~~**Fourth** Amendment Effective Date, such representation shall be true except to the extent not reasonably expected to have a material adverse effect on the business, financial position or results of operations of the Borrower; and

[g] the fact that (i) there shall be no collateral securing Bonds issued pursuant to any Indenture of a type other than the types of collateral permitted to secure Bonds issued pursuant to such Indenture as of the date hereof, (ii) the allowable amount of eligible collateral then pledged under any Indenture shall not exceed 150% of the aggregate principal amount of Bonds then outstanding under such Indenture and (iii) no collateral shall secure Bonds other than (A) eligible collateral under such Indenture, the allowable amount of which is included within the computation under subsection (ii) above or (B) collateral previously so pledged which ceases to be such eligible collateral not as a result of any acts or omissions to act of the Borrower (other than the declaration of an "**event of default**" as defined in a mortgage which results in the exercise of any right or remedy described in such mortgage).

Each Borrowing or L/C Credit Extension hereunder shall be deemed to be a representation and warranty by the Borrower on the date of such Borrowing or L/C Credit Extension as to the facts specified in clauses (c), (d), (e), (f) and (g) of this Section 3.03.

Article 4
Representations and Warranties

The Borrower makes the following representations, warranties and agreements, which shall survive the execution and delivery of this Agreement and the Notes and the making of the Loans or L/C Credit Extensions:

~~ROYAL BANK OF CANADA~~PNC CAPITAL MARKETS LLC, as Co-Documentation Agent

By: /s/ ~~Rahul D. Shah~~Brian Prettyman

Name: ~~Rahul D. Shah~~Brian Prettyman

Title: ~~Authorized Signatory~~Managing Director

ROYAL BANK OF CANADA

By: /s/ Rahul D. Shah
Name: Rahul D. Shah
Title: Authorized Signatory

AGENT SCHEDULE

Institution	**Title**
JPMorgan Chase Bank, N.A.	Administrative Agent
Mizuho Bank, Ltd.	Syndication Agent
MUFG Bank, Ltd. (f/k/aThe Bank of Tokyo-Mitsubishi UFJ, Ltd.)	Co-Documentation Agent
PNC Bank, National Association	**Co-Documentation Agent**
The Bank of Nova Scotia	Co-Documentation Agent
Royal Bank of Canada	Co-Documentation Agent

EXISTING COMMITMENT SCHEDULE

Institution	**Commitment Prior to the ~~Third~~Fourth Amendment Effective Date**	**Loans Outstanding on the ~~Third~~Fourth Amendment Effective Date**
Bank		$0
JPMorgan Chase Bank, N.A.	$180,000,000.00	$0
Mizuho Bank (USA)	$187,500,000.00	$0
Royal Bank of Canada	$187,500,000.00	$0
The Bank of Nova Scotia	$187,500,000.00	$0
MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.)	$187,500,000.00	$0
KeyBank National Association	$180,000,000.00	$0
PNC Bank, National Association	$150,000,000.00	$0
US Bank National Association	$125,000,000.00	$0
SunTrust Bank	$125,000,000.00	$0
Regions Bank	$75,000,000.00	$0
Apple Bank for Savings	$7,500,000.00	$0
Total:	**$1 ,592,500,000.00**	**$0**

COMMITMENT SCHEDULE

Commitment Schedule

Bank	**Commitment**
JPMorgan Chase Bank, N.A.	$~~175,000,000.00~~150,000,000.00
Mizuho Bank, Ltd.	$~~175,000,000.00~~150,000,000.00
Royal Bank of Canada	$~~175,000,000.00~~150,000,000.00
The Bank of Nova Scotia	$~~175,000,000.00~~150,000,000.00
MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.)	$~~175,000,000.00~~150,000,000.00
KeyBank National Association	$180,000,000.00
PNC Bank, National Association	$150,000,000.00
US Bank National Association	$125,000,000.00
SunTrust Bank	$125,000,000.00
Regions Bank	$75,000,000.00
Apple Bank for Savings	$5,000,000.00
Total:	**$~~1,535,000,000.00~~1,410,000,000.00**

EXISTING LETTERS OF CREDIT[3]
L/C# TFTX-374881 - Deseret Generation & Transmission Cooperative
Beneficiary: Rockwood Casualty Insurance Company
Amount: $1,000,000
Effective Date: October 16, 2012
Expiration Date: November 28, 2018

L/C# SLCLSTL11173 - Allamakee-Clayton Electric Cooperative, Inc.
Beneficiary: Universal Service Administrative Company
Amount: $436,080
Effective Date: March 18, 2016
Expiration Date: March 18, 2018

EXHIBIT A

FORM OF NOTE

New York, New York [DATE]

For value received, National Rural Utilities Cooperative Finance Corporation, a not-for-profit cooperative association incorporated under the laws of the District of Columbia (the "**Borrower**"), promises to pay to the order of [] (the "**Bank**"), for the account of its Applicable Lending Office, the principal sum of [$_________]($_____),] or, if less, the aggregate unpaid principal amount of each Loan and L/C Borrowing made by the Bank to the Borrower pursuant to the Revolving Credit Agreement referred to below on the Maturity Date with respect to such Loan or L/C Borrowing. The Borrower promises to pay interest on the unpaid principal amount of each such Loan and L/C Borrowing on the dates and at the rate or rates provided for in the Revolving Credit Agreement. All such payments of principal and interest shall be made in lawful money of the United States in Federal or other immediately available funds at the office of JPMorgan Chase Bank, N.A., 1111 Fannin St., 10th Floor, Houston, TX 77002, Attn: Leslie Hill.

All Loans and L/C Borrowings made by the Bank, the respective types and maturities thereof and all repayments of the principal thereof shall be recorded by the Bank and, prior to any transfer hereof, appropriate notations to evidence the foregoing information with respect to each such Loan then outstanding may be endorsed by the Bank on the schedule attached hereto, or on a continuation of such schedule attached to and made a part hereof; *provided* that the failure of the Bank to make any such recordation or endorsement shall not affect the obligations of the Borrower hereunder or under the Revolving Credit Agreement.

This note is one of the Notes referred to in that certain Amended and Restated Revolving Credit Agreement, dated as of November 19, 2015, among the Borrower, the Banks listed on the signature pages thereof, JPMorgan Chase Bank, N.A., as Administrative Agent and Initial Issuing Bank, Mizuho Bank (USA), as Syndication Agent, and MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.), **PNC Bank, National Association,** The Bank of Nova Scotia and Royal Bank of Canada as Co-Documentation Agents (as the same may be amended, supplemented or otherwise modified, from time to time, in each case, pursuant to the terms and conditions thereof, the "**Revolving Credit Agreement**"). Terms defined in the Revolving Credit Agreement are used herein with the same meanings. Reference is made to the Revolving Credit Agreement for provisions for the prepayment hereof and the acceleration of the maturity hereof. This Note shall be governed by and construed in accordance with the laws of the State of New York.

EXHIBIT C

FORM OF MONEY MARKET QUOTE REQUEST

[Date]

To: JPMorgan Chase Bank, N.A. (the "**Administrative Agent**")

From: National Rural Utilities Cooperative Finance Corporation
(the "**Borrower**")

Re: Amended and Restated Revolving Credit Agreement, dated as of November 19, 2015, among the Borrower, the Banks listed on the signature pages thereof, JPMorgan Chase Bank, N.A., as Administrative Agent and Initial Issuing Bank, Mizuho Bank (USA), as Syndication Agent, and MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.), **PNC Bank, National Association,** The Bank of Nova Scotia and Royal Bank of Canada, as Co-Documentation Agents (as amended, supplemented, or otherwise modified from time to time, in each case, pursuant to the terms and conditions thereof, the **"Revolving Credit Agreement**")

We hereby give notice pursuant to Section 2.03 of the Revolving Credit Agreement that we request Money Market Quotes for the following proposed Money Market Borrowing(s):

Date of Borrowing: ___________________

Principal Amount[1]	*Interest Period*[2]
$	

Such Money Market Quotes should offer a Money Market [Margin] [Absolute Rate]. [The applicable base rate is the London Interbank Offered Rate.]

Terms used herein have the meanings assigned to them in the Revolving Credit Agreement.

NATIONAL RURAL UTILITIES
COOPERATIVE FINANCE
CORPORATION

By:
Name:

---

[1]Amount must be $10,000,000 or a larger multiple of $1,000,000.
[2]Any number of whole months (but not less than one month) (LIBOR Auction) or not less than 30 days (Absolute Rate Auction), subject to the provisions of the definition of Interest Period.

Title:

EXHIBIT D

FORM OF INVITATION FOR MONEY MARKET QUOTES

[Date]

To: [Name of Bank]

Re: Invitation for Money Market Quotes to the National Rural Utilities Cooperative Finance Corporation (the "**Borrower**")

Pursuant to Section 2.03 of the Amended and Restated Revolving Credit Agreement, dated as of November 19, 2015, among the Borrower, the Banks listed on the signature pages thereof, JPMorgan Chase Bank, N.A., as Administrative Agent and Initial Issuing Bank, Mizuho Bank (USA), as Syndication Agent, and MUFG Bank, Ltd.(f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.), **PNC Bank, National Association,** The Bank of Nova Scotia and Royal Bank of Canada, as Co-Documentation Agents (as amended, supplemented or otherwise modified from time to time, in each case, pursuant to the terms and conditions thereof, the "**Revolving Credit Agreement**"):

Date of Borrowing: ___________________

Principal Amount	*Interest Period*
$	

Such Money Market Quotes should offer a Money Market [Margin] [Absolute Rate]. [The applicable base rate is the London Interbank Offered Rate.]

Please respond to this invitation by no later than 9:30 A.M. (New York City time) on [date].

JPMORGAN CHASE BANK, N.A.

By:
Name:
Title: Authorized Officer

[*provided*, that the aggregate principal amount of Money Market Loans for which the above offers may be accepted shall not exceed $ ___________.]**

We understand and agree that the offer[s] set forth above [is][are] subject to the satisfaction of the applicable conditions set forth in the Amended and Restated Revolving Credit Agreement, dated as of November 19, 2015, among the Borrower, the Banks listed on the signature pages thereof, JPMorgan Chase Bank, N.A., as Administrative Agent and Initial Issuing Bank, Mizuho Bank (USA), as Syndication Agent, and MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.), **PNC Bank, National Association,** The Bank of Nova Scotia and Royal Bank of Canada, as Co-Documentation Agents, as amended, supplemented or otherwise modified from time to time, in each case, pursuant to the terms and conditions thereof.

Very truly yours,

[NAME OF BANK]

By:
Name:
Title: Authorized Officer

Dated:

EXHIBIT F

OPINION OF GENERAL COUNSEL OF THE BORROWER

November ~~28~~26, ~~2018~~2019

To the Administrative Agent and each of the Banks party
to the Revolving Credit Agreement referred to below
c/o JPMorgan Chase Bank, N.A.
1111 Fannin Street, 10th Floor
Houston, TX 77002

Ladies and Gentlemen:

Reference is hereby made to (i) that certain Amended and Restated Revolving Credit Agreement dated as of November 19, 2015 (as amended by the Amendments (defined below), the "**Extended Agreement**"), by and among the Borrower, the Banks listed on the signature pages thereof, JPMorgan Chase Bank, N.A., as Administrative Agent and Initial Issuing Bank, Mizuho Bank (USA), as successor Syndication Agent, and MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.), The Bank of Nova Scotia, and Royal Bank of Canada, as Co-Documentation Agents, (ii) that certain Amendment No. 1 dated as of November 18, 2016 ("**Amendment No. 1**"), by and among the Borrower, the Banks listed on the signature pages thereof, JPMorgan Chase Bank, N.A., as Administrative Agent and Initial Issuing Bank, Mizuho Bank (USA), as Syndication Agent, and MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.), The Bank of Nova Scotia, and Royal Bank of Canada, as Co-Documentation Agents ~~and~~, (iii) **that certain Amendment No. 2 dated as of November 20, 2017 ("Amendment No. 2"), by and among the Borrower, the Banks listed on the signature pages thereof, Mizuho Bank, Ltd., as Administrative Agent and Initial Issuing Bank, JPMorgan Chase Bank, N.A., as Syndication Agent, and MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.), The Bank of Nova Scotia, and Royal Bank of Canada, as Co-Documentation Agents, (iv)** that certain Amendment No. 3 dated as of November ~~28~~18, ~~2018~~2016 ("**Amendment No. 3**")**, by and among the Borrower, the Banks listed on the signature pages thereof, Mizuho Bank, Ltd., as Administrative Agent and Initial Issuing Bank, JPMorgan Chase Bank, N.A., as Syndication Agent, and MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.), PNC Bank, National Association, The Bank of Nova Scotia, and Royal Bank of Canada, as Co-Documentation Agents and (v) that certain Amendment No. 4 dated as of November 26, 2019 ("Amendment No. 4"** and together with Amendment No. 1 ~~and~~, Amendment No. 2 **and Amendment No. 3**, the "**Amendments**"), by and among the Borrower, the Banks listed on the signature pages thereof, JPMorgan Chase Bank, N.A., as Administrative Agent and Initial Issuing Bank, Mizuho Bank, Ltd., as Syndication Agent, and MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.), **PNC Bank, National Association,** The Bank of Nova Scotia, and

Royal Bank of Canada, as Co-Documentation Agents. I, Roberta B. Aronson, General Counsel of the National Rural Utilities Cooperative Finance Corporation (the "**Borrower**"), am delivering this opinion at the request of the Borrower pursuant to Section 7(b) of Amendment No. ~~2~~4. Terms defined in the Extended Agreement are used herein as therein defined.

I have examined originals or copies, certified or otherwise identified to my satisfaction, of such documents, corporate records, certificates of public officials and other instruments and have conducted such other investigations of fact and law as I have deemed necessary or advisable for purposes of this opinion. This opinion is limited to the laws of the District of Columbia.

Upon the basis of the foregoing, I am of the opinion that:

1. The Borrower is a cooperative association duly incorporated, validly existing and in good standing under the laws of the District of Columbia and has the corporate power and authority and all material governmental licenses, authorizations, consents and approvals required to own its property and assets and to transact the business in which it is engaged. The Borrower is duly qualified or licensed as a foreign corporation in good standing in every jurisdiction in which the nature of the business in which it is engaged makes such qualification or licensing necessary, except in those jurisdictions in which the failure to be so qualified or licensed would not (after qualification, assuming that the Borrower could so qualify without the payment of any fee or penalty and retain its rights as they existed prior to such qualification all to an extent so that any fees or penalties required to be so paid or any rights not so retained would not, individually or in the aggregate, have a material adverse effect on the business or financial position of the Borrower), individually or in the aggregate, have a material adverse effect upon the business or financial position of the Borrower.

2. The Borrower has the corporate power and authority to execute, deliver and carry out the terms and provisions of the Extended Agreement and each of the Notes dated the date hereof (the "**Subject Notes**"). The Extended Agreement and the Subject Notes have been duly and validly authorized, executed and delivered by the Borrower.[11]

3. There are no actions, suits, proceedings or investigations pending or, to my knowledge, threatened against or affecting the Borrower by or before any court or any governmental authority, body or agency or any arbitration board which are reasonably likely to materially adversely affect the business, financial position or results of operations of the Borrower or the authority or ability of the Borrower to perform its obligations under the Extended Agreement or the Subject Notes.

[1] The opinion with respect to the enforceability of the Amended and Restated Revolving Credit Agreement under New York law shall be provided by Borrower's New York counsel, Norton Rose Fulbright US LLP, subject to customary assumptions, qualifications and limitations.

EXHIBIT G

ASSIGNMENT AND ASSUMPTION AGREEMENT

AGREEMENT dated as of __________, 20__ among [ASSIGNOR] (the "**Assignor**"), [ASSIGNEE] (the "**Assignee**"), NATIONAL RURAL UTILITIES COOPERATIVE FINANCE CORPORATION (the "**Borrower**") and JPMORGAN CHASE BANK, N.A., as Administrative Agent (the "**Agent**").

W I T N E S S E T H

WHEREAS, this Assignment and Assumption Agreement (the "**Agreement**") relates to the Amended and Restated Revolving Credit Agreement, dated as of November 19, 2015 (as amended, supplemented or otherwise modified from time to time, in each case pursuant to the terms and conditions thereof, (the "**Credit Agreement**"), among the Borrower, the Banks listed on the signature pages thereof, JPMorgan Chase Bank, N.A., as Administrative Agent and Initial Issuing Bank (the "**Agent**"), and Mizuho Bank (USA), as Syndication Agent, and MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.), **PNC Bank, National Association,** The Bank of Nova Scotia and Royal Bank of Canada, as Co-Documentation Agents.

WHEREAS, as provided under the Credit Agreement, the Assignor has a Commitment to make Loans and/or make or participate in L/C Obligations to the Borrower in an aggregate principal amount at any time outstanding not to exceed $_________;

WHEREAS, Committed Loans and L/C Obligations made to the Borrower by the Assignor under the Credit Agreement in the aggregate principal amount of $__________ are outstanding at the date hereof; and

WHEREAS, the Assignor proposes to assign to the Assignee all of the rights of the Assignor under the Credit Agreement in respect of a portion of its Commitment thereunder in an amount equal to $__________ (the "**Assigned Amount**"), together with a corresponding portion of its outstanding Committed Loans and/or L/C Obligations, and the Assignee proposes to accept assignment of such rights and assume the corresponding obligations from the Assignor on such terms;

NOW, THEREFORE, in consideration of the foregoing and the mutual agreements contained herein, the parties hereto agree as follows:

SECTION 1. *Definitions*. All capitalized terms not otherwise defined herein shall have the respective meanings set forth in the Credit Agreement.

SECTION 2. *Assignment*. The Assignor hereby assigns and sells to the Assignee all of the rights of the Assignor under the Credit Agreement to the extent of the Assigned Amount, and the Assignee hereby accepts such assignment

EXHIBIT H-1

[FORM OF]

U.S. TAX CERTIFICATE

(For Non-U.S. Bank Parties That Are Not Partnerships For U.S. Federal Income Tax Purposes)

Reference is hereby made to the Amended and Restated Revolving Credit Agreement dated as of November 19, 2015 (as amended, supplemented or otherwise modified from time to time, the "***Credit Agreement***"), among the Borrower, the Banks listed on the signature pages thereof, JPMorgan Chase Bank, N.A., as Administrative Agent and Initial Issuing Bank, Mizuho Bank (USA), as Syndication Agent, and MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.), **PNC Bank, National Association,** The Bank of Nova Scotia and Royal Bank of Canada, as Co-Documentation Agents.

Pursuant to the provisions of Section 2.16 of the Credit Agreement, the undersigned hereby certifies that (i) it is the sole record and beneficial owner of the Loan(s) (as well as any Note(s) evidencing such Loan(s)) in respect of which it is providing this certificate, (ii) it is not a bank within the meaning of Section 881(c)(3)(A) of the Code, (iii) it is not a member of Borrower, it does not exercise voting power over Borrower and is not a ten percent shareholder of the Borrower within the meaning of Section 871(h)(3)(B) of the Code, (iv) it is not a controlled foreign corporation related to the Borrower as described in Section 881(c)(3)(C) of the Code and (v) the interest payments in question are not effectively connected with the undersigned's conduct of a U.S. trade or business.

The undersigned has furnished the Administrative Agent and the Borrower with a certificate of its non-U.S. person status on IRS Form W-8BEN. By executing this certificate, the undersigned agrees that (1) if the information provided on this certificate changes, the undersigned shall promptly so inform the Borrower and the Administrative Agent and (2) the undersigned shall have at all times furnished the Borrower and the Administrative Agent with a properly completed and currently effective certificate in either the calendar year in which each payment is to be made to the undersigned, or in either of the two calendar years preceding such payments.

Unless otherwise defined herein, terms defined in the Credit Agreement and used herein shall have the meanings given to them in the Credit Agreement.

[NAME OF BANK PARTY]

By:

Name:
Titel:
Date:___________,20[]

EXHIBIT H-2

[FORM OF]

U.S. TAX CERTIFICATE
(For Non-U.S. Bank Parties That Are Partnerships For U.S. Federal Income Tax Purposes)

Reference is hereby made to the Amended and Restated Revolving Credit Agreement dated as of November 19, 2015 (as amended, supplemented or otherwise modified from time to time, the "***Credit Agreement***"), among the Borrower, the Banks listed on the signature pages thereof, JPMorgan Chase Bank, N.A., as Administrative Agent and Initial Issuing Bank, Mizuho Bank (USA), as Syndication Agent, and MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.), **PNC Bank, National Association,** The Bank of Nova Scotia and Royal Bank of Canada, as Co-Documentation Agents.

Pursuant to the provisions of Section 2.16 of the Credit Agreement, the undersigned hereby certifies that (i) it is the sole record owner of the Loan(s) (as well as any Note(s) evidencing such Loan(s)) in respect of which it is providing this certificate, (ii) its direct or indirect partners/members are the sole beneficial owners of such Loan(s) (as well as any Note(s) evidencing such Loan(s)), (iii) with respect to the extension of credit pursuant to this Credit Agreement, neither the undersigned nor any of its direct or indirect partners/members is a bank extending credit pursuant to a loan agreement entered into in the ordinary course of its trade or business within the meaning of Section 881(c)(3)(A) of the Code, (iv) none of its direct or indirect partners/members is a member of Borrower, exercise voting power over Borrower or otherwise is a ten percent shareholder of the Borrower within the meaning of Section 871(h)(3)(B) of the Code, (v) none of its partners/members is a controlled foreign corporation related to the Borrower as described in Section 881(c)(3)(C) of the Code, and (vi) the interest payments in question are not effectively connected with the undersigned's or its direct or indirect partners/members' conduct of a U.S. trade or business.

The undersigned has furnished the Administrative Agent and the Borrower with IRS Form W-8IMY accompanied by an IRS Form W-8BEN from each of its partners/ members claiming the portfolio interest exemption. By executing this certificate, the undersigned agrees that (1) if the information provided on this certificate changes, the undersigned shall promptly so inform the Borrower and the Administrative Agent and (2) the undersigned shall have at all times furnished the Borrower and the Administrative Agent with a properly completed and currently effective certificate in either the calendar year in which each payment is to be made to the undersigned, or in either of the two calendar years preceding such payments.

Unless otherwise defined herein, terms defined in the Credit Agreement and used herein shall have the meanings given to them in the Credit Agreement.

EXHIBIT H-3

[FORM OF]

U.S. TAX CERTIFICATE
(For Non-U.S. Participants That Are Not Partnerships For U.S. Federal Income Tax Purposes)

Reference is hereby made to the Amended and Restated Revolving Credit Agreement dated as of November 19, 2015 (as amended, supplemented or otherwise modified from time to time, the "***Credit Agreement***"), among the Borrower, the Banks listed on the signature pages thereof, JPMorgan Chase Bank, N.A., as Administrative Agent and Initial Issuing Bank, Mizuho Bank (USA), as Syndication Agent, and MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.), **PNC Bank, National Association,** The Bank of Nova Scotia and Royal Bank of Canada, as Co-Documentation Agents.

Pursuant to the provisions of Section 2.16 of the Credit Agreement, the undersigned hereby certifies that (i) it is the sole record and beneficial owner of the participation in respect of which it is providing this certificate, (ii) it is not a bank within the meaning of Section 881(c)(3)(A) of the Code, (iii) it is not a ten percent shareholder of the Borrower within the meaning of Section 871(h)(3)(B) of the Code, (iv) it is not a controlled foreign corporation related to the Borrower as described in Section 881(c)(3)(C) of the Code, and (v) the interest payments in question are not effectively connected with the undersigned's conduct of a U.S. trade or business.

The undersigned has furnished its participating Bank with a certificate of its non-U.S. person status on IRS Form W-8BEN. By executing this certificate, the undersigned agrees that (1) if the information provided on this certificate changes, the undersigned shall promptly so inform such Bank in writing and (2) the undersigned shall have at all times furnished such Bank with a properly completed and currently effective certificate in either the calendar year in which each payment is to be made to the undersigned, or in either of the two calendar years preceding such payments.

Unless otherwise defined herein, terms defined in the Credit Agreement and used herein shall have the meanings given to them in the Credit Agreement.

[NAME OF PARTICIPANT]

By:
Name:
Title:

Date: _______, 20[ ]

EXHIBIT H-4

[FORM OF]

U.S. TAX CERTIFICATE
(For Non-U.S. Participants That Are Partnerships For U.S. Federal Income Tax Purposes)

Reference is hereby made to the Amended and Restated Revolving Credit Agreement dated as of November 19, 2015 (as amended, supplemented or otherwise modified from time to time, the "***Credit Agreement***"), among the Borrower, the Banks listed on the signature pages thereof, JPMorgan Chase Bank, N.A., as Administrative Agent and Initial Issuing Bank, Mizuho Bank (USA), as Syndication Agent, and MUFG Bank, Ltd. (f/k/a The Bank of Tokyo-Mitsubishi UFJ, Ltd.), **PNC Bank, National Association,** The Bank of Nova Scotia and Royal Bank of Canada, as Co-Documentation Agents.

Pursuant to the provisions of Section 2.16 of the Credit Agreement, the undersigned hereby certifies that (i) it is the sole record owner of the participation in respect of which it is providing this certificate, (ii) its partners/members are the sole beneficial owners of such participation, (iii) with respect such participation, neither the undersigned nor any of its partners/members is a bank extending credit pursuant to a loan agreement entered into in the ordinary course of its trade or business within the meaning of Section 881(c)(3)(A) of the Code, (iv) none of its partners/members is a ten percent shareholder of the Borrower within the meaning of Section 871(h)(3)(B) of the Code, (v) none of its partners/members is a controlled foreign corporation related to the Borrower as described in Section 881(c)(3)(C) of the Code, and (vi) the interest payments in question are not effectively connected with the undersigned's or its partners/members' conduct of a U.S. trade or business.

The undersigned has furnished its participating Bank with IRS Form W-8IMY accompanied by an IRS Form W-8BEN from each of its partners/members claiming the portfolio interest exemption. By executing this certificate, the undersigned agrees that (1) if the information provided on this certificate changes, the undersigned shall promptly so inform such Bank and (2) the undersigned shall have at all times furnished such Bank with a properly completed and currently effective certificate in either the calendar year in which each payment is to be made to the undersigned, or in either of the two calendar years preceding such payments.

Unless otherwise defined herein, terms defined in the Credit Agreement and used herein shall have the meanings given to them in the Credit Agreement.

[NAME OF PARTICIPANT]

By:

Name:
Titel:
Date:___________,20[ ]

Exhibit 31.1

National Rural Utilities Cooperative Finance Corporation
Certification Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
(18 U.S.C. Section 1350)

I, Sheldon C. Petersen, certify that:

1. I have reviewed this report on Form 10-Q of National Rural Utilities Cooperative Finance Corporation;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and we have:
   a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
   b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
   c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
   d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the Audit Committee of the registrant's board of directors:
   a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
   b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: January 13, 2020

By: /s/ SHELDON C. PETERSEN

Sheldon C. Petersen
Chief Executive Officer

A signed original of this written statement required by Section 302 has been provided to National Rural Utilities Cooperative Finance Corporation and will be retained by National Rural Utilities Cooperative Finance Corporation and furnished to the Securities and Exchange Commission or its staff upon request.

Exhibit 31.2

National Rural Utilities Cooperative Finance Corporation
Certification Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
(18 U.S.C. Section 1350)

I, J. Andrew Don, certify that:

1. I have reviewed this report on Form 10-Q of National Rural Utilities Cooperative Finance Corporation;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and we have:

   a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the Audit Committee of the registrant's board of directors:

   a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: January 13, 2020

By: /s/ J. ANDREW DON
J. Andrew Don
Chief Financial Officer

A signed original of this written statement required by Section 302 has been provided to National Rural Utilities Cooperative Finance Corporation and will be retained by National Rural Utilities Cooperative Finance Corporation and furnished to the Securities and Exchange Commission or its staff upon request.

Exhibit 32.1

National Rural Utilities Cooperative Finance Corporation
Certification Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
(18 U.S.C. Section 1350)

Pursuant to the requirements of Section 906 of the Sarbanes-Oxley Act of 2002 (18 U.S.C. Sections 1350(a) and (b)), I, the Chief Executive Officer of National Rural Utilities Cooperative Finance Corporation (“CFC”), hereby certify to the best of my knowledge as follows:

1. CFC’s Quarterly Report on Form 10-Q for the quarterly period ended November 30, 2019 filed with the Securities and Exchange Commission (the “Report”) fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of CFC.

Date: January 13, 2020

By: /s/ SHELDON C. PETERSEN
Sheldon C. Petersen
Chief Executive Officer

A signed original of this written statement required by Section 906 has been provided to National Rural Utilities Cooperative Finance Corporation and will be retained by National Rural Utilities Cooperative Finance Corporation and furnished to the Securities and Exchange Commission or its staff upon request.

Exhibit 32.2

National Rural Utilities Cooperative Finance Corporation
Certification Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
(18 U.S.C. Section 1350)

Pursuant to the requirements of Section 906 of the Sarbanes-Oxley Act of 2002 (18 U.S.C. Sections 1350(a) and (b)), I, the Chief Financial Officer of National Rural Utilities Cooperative Finance Corporation (“CFC”), hereby certify to the best of my knowledge as follows:

1. CFC’s Quarterly Report on Form 10-Q for the quarterly period ended November 30, 2019 filed with the Securities and Exchange Commission (the “Report”) fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of CFC.

Date: January 13, 2020

By: /s/ J. ANDREW DON
J. Andrew Don
Chief Financial Officer

A signed original of this written statement required by Section 906 has been provided to National Rural Utilities Cooperative Finance Corporation and will be retained by National Rural Utilities Cooperative Finance Corporation and furnished to the Securities and Exchange Commission or its staff upon request.