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Gregory McKee

On a cold Saturday morning in February 2011, Scott Handy, CEO of Cass County Electric Cooperative (CCEC), received a phone call informing him that thousands of businesses and homes in West Fargo had lost electrical power. Although Scott realized this area was served by a neighboring investor-owned utility, he volunteered the aid of the employees and equipment of the electrical cooperative. After about twelve hours of repairs to damaged equipment, power was restored to the nearly 6,000 customers. Although the power loss resulted from the failure of equipment the cooperative didn't own, the incident reminded Scott that CCEC's customers expected him to enable the cooperative to provide reliable and affordable electricity. During the past few months, Scott had worked with his staff to determine exactly what steps to take to maintain and grow the capacity of CCEC's electricity distribution system and to figure out how to pay the ever-increasing costs of electricity distribution. He now faces the question of whether CCEC should continue to borrow aggressively and keep its current member rates low, or should he raise current electric rates and borrow less. In making his decision, he gives careful thought to who benefits most from infrastructure investments

The Cooperative

Formed in 1937, CCEC is an electricity distribution cooperative. CCEC, and hundreds of other distribution cooperatives, were initially funded by loans from the Rural Electrification Administration (REA). Because of the relatively high costs associated with providing electricity to rural areas, investor-owned utilities had declined to build in these areas. The REA, now Rural Utilities Service (RUS), was created by federal legislation signed by President Franklin Roosevelt to speed the provision of electricity to rural areas by providing low-cost loans to finance installation of electrical distribution networks.

Distribution cooperatives purchase electricity and distribute it to the final user. CCEC distributes electricity to residential and commercial customers in all

or parts of eight counties in east central North Dakota. At the end of 2010, CCEC served approximately 35,000 member owners, making it the largest distribution cooperative in the Dakotas. Sales of electricity by CCEC in 2009 totaled just over $70 million.

Despite increasing electricity costs across the US, CCEC has maintained low retail power rates since 2003. At the same time, CCEC posted strong revenue growth and remained profitable. During this period, CCEC added over 9,000 members, a growth of nearly 40%. This growth enables CCEC to exploit opportunities to expand its distribution network, including serving new residential and commercial accounts, investing in technology improvements associated with electricity distribution, and diversifying its assets, such as making investments in telecommunications.

By virtue of its cooperative business structure, CCEC is owned and governed by its customers. By the end of 2009, CCEC member equity was approximately $51 million. Members regularly contribute to CCEC's equity through a retained income program. Retained income is allocated to member accounts in proportion to revenue paid for electricity use. Collectively this retained income is known as capital credits.

A board of nine member owners governs the cooperative, each elected to staggered three-year terms. The board of directors delegates management of the cooperative's daily operations to Scott Handy, CCEC's President and CEO. Members interact with directors and the management team of the cooperative to express their preferences for electricity services provided to them by the cooperative and the prices they pay for these services.

The board of directors serves a representative function for its members. Each director represents members from one of eight districts (Figure 1), with two directors serving from the Fargo district (District 5). Sales in the Fargo district primarily come from residential and commercial customers. Sales in the other seven districts primarily come from farming operations, with their own seasonal demands for electricity, such as for grain drying, space heating, or irrigation.

The board of directors provides oversight for the key financial management issue for distribution cooperatives, the amount of debt and equity used to finance future additions, improvements, and replacements to the distribution system. The board strives to understand the costs and benefits of debt and equity in order to determine the right mix. For instance, the board makes decisions about how much and how fast members invest in the cooperative and when that equity can be withdrawn. In 2009, the board allocated $4 million in capital credits and authorized the return of $636,000 to the members. The board also authorizes requests for long-term debt. Leverage can enable the cooperative to earn net income without having to invest member equity in a project. By the end of 2009, CCEC had long-term debt in excess of $100 million.

Due to their oversight role, the board of directors affects the rate of return on the member's investment in the cooperative. Investors in publicly-held companies, such as Xcel Energy, earn a return on their investment in two ways, dividends on stock, and appreciation in stock value. In contrast, equity in electricity distribution cooperatives is not marketable. Members earn a return on their investment through capital credits, relatively low electricity prices, and returns from funds not required for investment in the cooperative. Lewis (1993) explains that since stockholders of investor-owned utilities cannot obtain financial returns in the form of reduced electricity prices, these utilities must charge a higher price in order to provide a return equal to the value of equity and power rates that a cooperative can provide.

Electricity Distribution

CCEC physically distributes electricity through a network of transformers, distribution lines, and control equipment. Transformers accept electricity of a particular voltage (a measure of electric potential energy) and change (transform) it into electricity of another voltage. Transformers change the high voltage electricity, used for efficiency in bulk distribution, to the low voltage necessary for residential and commercial consumption use. Distribution lines provide the conductive material through which the electrical current can be carried. CCEC places approximately 65% of its distribution line on poles, with the rest buried in the ground. CCEC uses two types of distribution line, a 15kV system and a 25kV system, each with a different electricity-carrying capacity.

A variety of control devices are associated with electricity distribution, including switches and monitoring and control equipment. Switches are small pieces of conductive material that can be manipulated to complete or interrupt the flow of electricity through a circuit. In practice, switches are used to temporarily disconnect transmission lines or other components of the electricity distribution network from each other. For example, a switch might be used to isolate a faulty network component. Monitoring and control equipment are used to activate or deactivate components of the distribution network, manage outages, monitor voltage conditions, and measure electricity consumption. CCEC uses a system of computerized sensors and switches to control its network.

The intensity of distribution network use at any given time, measured in kilowatt hours (kWh), is a function of time of day and time of year. Everyday activities generate a regular time for peak and low electricity demand. Early morning and late-night hours are periods of relatively low demand. Late afternoon and early evening periods generate the highest demand as consumers use domestic appliances and heating or cooling systems. CCEC monitors members' electricity demands and invests in assets that allow it to obtain sufficient power to

meet peak daily demand. CCEC is a member-owner of a generation and transmission power cooperative, Minnkota Power Cooperative, from which it obtains all its power. The average price of power obtained from Minnkota in 2009 was $0.0464, an increase of 12.9% over 2008 (Cass County Electric Cooperative, 2010). When CCEC cannot obtain sufficient power from Minnkota, CCEC activates diesel-fueled generators to provide the balance of the electricity needed.

Climate is a major factor affecting seasonal electricity demand. The service territory of CCEC is a region with relatively cold winters and mild summers, compared with other parts of the United States. As a result, CCEC experiences its greatest intensity of electricity demand during the winter. For instance, in 2010, peak intensity of electricity consumption by CCEC members in the winter was 222 MW and 181 MW during the summer. Other factors affecting seasonal electricity demand include religious events and holidays.

Another feature of electricity distribution networks is their distribution capacity, measured in kilowatts (kW). This refers to the maximum electricity the network can provide per unit time. For instance, although CCEC sold nearly 1 billion kWh to its members in 2009, it only needs to have sufficient electricity distribution capacity to meet its peak demand, a function of the number of members served by the CCEC network and the amount of power each demands. The CCEC's network capacity to satisfy peak demand is a function of the quantity of line and transformers, and substations; the presence of monitoring and control systems; the quality of these physical resources; and the number of employees available to build and maintain the network.

To assure that the distribution network meets the needs of its member, CCEC conducts a network maintenance program. CCEC regularly inspects and replaces its overhead distribution system. CCEC first provided electricity to its customers in 1937. An important measure of the quality for the distribution network is it rate of line losses. Line losses are the amount of electricity lost by virtue of transporting it over a distance. In 2010, line losses were approximately 3.86% of purchased power (Figure 2).

One component of CCEC's maintenance plan is to inspect and replace, when necessary, nearly 4,700 miles of distribution line. In addition to monitoring the physical condition of the conducting material, overhead line maintenance includes protecting the lines from interference from trees, and installing shielding to protect birds from electrocution. Underground line maintenance includes inspecting line for failure and replacing cable with either underground or overhead line as needed. CCEC prioritizes line maintenance based on observed failure rates, including line loss—lost electricity associated with the transmission of electricity over a power line—and anticipated future demand for a given line. For instance, if a line is serving an inactive account, relatively less maintenance is dedicated to it.

CCEC also maintains its supply of power poles. Much of its overhead electricity distribution system is over 50 years old. CCEC annually inspects a fraction of its 63,000 wood poles, replacing several hundred annually. Replacement poles are made from Red Cedar and Douglas Fir. Poles are 35' tall and spaced no more than 275' apart.

CCEC regularly projects changes in the size of peak electricity demand. West Fargo, part of CCEC's service territory, has seen an 8% average annual growth rate in its population, now 26,000 residents. Land use by industrial companies grew by 40% between 1999 and 2006 (Ormer 2011). As a result of these statistics, in 2007 CCEC estimated winter peak system demand would grow annually at 2.9% and its energy requirements would grow annually at 2.68%. CCEC estimated that summer peak system demand would grow annually at 2.96%. Since it serves both a metropolitan area (parts of Fargo and West Fargo) and rural areas, CCEC further categorizes these estimates based on location, with rural area winter peak growth increasing annually at 1.1%, the metro area 15kV system winter peak demand was projected to grow at 2.78% annually, and the metro area 25kV system winter peak demand was projected to grow at 4.27% annually (Table 1). In order to meet the projected growth shown in Table 1 and the maintenance requirements for the distribution network, CCEC projected expenditures of nearly $38 million in construction and replacement costs for the three-year period ending 2010 (Table 2).

The Choice Between Equity and Debt

The rural electric cooperative system began in 1935 as a New Deal program. The Rural Electrification Administration (REA) provided subsidized loans to locally organized electric cooperatives and most of them started business with almost 100% debt capitalization. However, the cooperatives quickly created systems to increase equity. Electric cooperatives require substantial amounts of capital, only part of which can be borrowed from lenders such as the REA. For a cooperative to successfully borrow from lenders, at least some of its capital must be furnished by the members. As a matter of cooperative economic theory and cooperative principles, the members allow the cooperative to retain a portion of their profits which are placed in a revolving equity plan. Under this structure the members temporarily furnish the cooperative equity capital with the expectation that some or all of their money will be returned to them as new capital is collected from other members.

Electrical cooperatives select their capital structure--the mix of debt and equity—based on the costs and advantages and disadvantages of each. Financing the firm with debt (increasing financial leverage) has a tax benefit because the interest payments are a tax deductible expense. Companies with higher tax rates

thus have a higher tax benefit using debt. This may not be an important consideration for rural electric cooperatives since they generally achieve low marginal tax rates as discussed later in this article. Another rationale for debt financing is that debt adds discipline to management because interest expenses cause lower residual cashflows, which makes management more likely to be efficient and non-complacent. This rationale for debt financing is also likely not the principal reason for decisions on debt in rural electric cooperatives since members do not actively invest in the cooperative for investment returns but rather generated their equity as a by-product of using the cooperative's services.

The effect of leverage on the cooperative's interest rate is an important consideration. A disadvantage of debt financing is that it increases bankruptcy risk because the lender can foreclose on the cooperative's assets if interest payments are not made. For this reason, as debt levels increase, the firm must pay higher interest rates because lenders perceive the firm as riskier. The firm's future financial flexibility is also limited as debt financing increases since lenders are unwilling to provide addition loans to highly leveraged firms. For these reasons, the ability of an REC to obtain favorable interest rates is partially a function of its equity level.

The advantages and disadvantages of debt financing are also related to several characteristics of the firm. Among those identified in the literature are the size and growth rate of the firm, the industry the firm produces in, and the asset structure of the firm (Titman and Wessels, 1988). Other determinants are related to the firms' income stream, including profitability, income variability, and the tax treatment of the firm's income.

Larger firms tend be to more diversified, further reducing the business risk per dollar of assets. In other words, smaller businesses have a higher probability of failure than larger ones. Second, larger firms are more effective at documenting credit worthiness, providing better and more current information to lenders. Third, since larger firms may earn relatively more income, they will experience larger marginal tax rates, leading to relatively larger tax offsets per dollar of assets if tax shields are available. For these reasons, a positive relationship exists between firm size and quantity of debt (Castanias 1983).

Firm growth is also a determinant of capital structure. Mature industries are characterized by relatively limited opportunities for growth in sales. Hence, growth typically comes through acquisition, diversification, or changes in demand. Growth opportunities are even further restricted when assets are purchased for a specific use and cannot be costlessly used for some other purpose. The electric utility industry possesses both of these characteristics. Firms with high growth opportunities would be expected to maintain lower leverage levels to preserve their flexibility to finance future growth opportunities. Conversely,

firms like rural electric cooperatives with fewer growth opportunities and very stable revenue projections would be expected to have relatively higher leverage.

Profitability also affects capital structure. Both lenders and owners perceive that more profitable firms as less likely to fail. Because they are considered less risky relative to less profitable firms, a profitable firm can maintain a higher leverage ratio without incurring higher interest rates. This creates an incentive for the firm to maintain high and consistent profits to demonstrate to lenders their ability to avoid failure (Harris and Raviv 1991). The board of directors of a profitable firm are ismore likely to be comfortable with high debt levels because they perceive the firm will maintain the cash flows to pay the loan payments. Hence, profitability and leverage are positively related.

Closely related to profitability are the tax aspects of debt financing. The cooperative business structure of the rural electric cooperative enables members to take advantage of much lower marginal tax rates. Since the federal government views cooperatives as vertically integrated extensions of the electricity consumer's household, section 501(c)(12) of the tax code provides an exemption for electric cooperative under certain conditions: when 85 percent of its business is done with it members, the cooperative operates under democratic member control, and distributes all income to its members.

The tax impacts of debt financing include both the tax deductible of interest payments and indirect benefits of debt, such as the corporate income tax on gains derived from investments financed by leveraged equity. Given their pass through taxation structure, rural electric cooperatives might be expected to have lower leverage relative to investor owned utilities. However, investor-owned electricity firms can also gain tax advantages related to accelerated asset depreciation and investment tax credits, some of which are unavailable to the cooperative firm. Investor-owned utility companies are able to exempt an amount of income from consideration for income taxes as they invest in new equipment or accelerate the depreciation of existing equipment. This results in a lower effective tax rate and may explain why investor-owned utilities are typically lower leveraged relative to rural electric cooperatives. However, Bacon et al. (1994) note the relative use of debt for cooperatives as compared with investor-owned utilities is narrowing.

Finally, the structure of a firms' debt is related to its asset structure. Lenders require firms to provide collateral for a loan and prefer to match the length of the term to repay debt to the anticipated useful lifespan of the financed asset. Hence, firms with a high proportion of fixed assets to total assets will tend to borrow long-term debt instead of short-term debt. Rural Electric Cooperatives generally have higher ratios of long term to short term debt because the majority of their assets are fixed assets such as lines, transformers and poles.

The variety of responses by electric distribution cooperatives to the combination of these influences on capital structure can be observed in Table 3. The 2009 average statewide liquidity, debt to equity, and long term debt to asset ratios are displayed for each state for which data are available (USDA, 2010). For each ratio, almost all statewide averages lie within a 95% confidence interval of the observed mean ratio. Potentially therefore, in 2009, a relatively wide range of capital structure choices was commonly accepted. The variety of capital structure choices reveals many member opinions about whether cooperatives should borrow aggressively at this time instead of raising electric rates and borrowing less. This situation also suggests varying attitudes about whether current or future members should pay for today's infrastructure investments.

CCEC's Financing Alternatives

An important question for CCEC is to identify its optimal mix of debt and equity. Should CCEC change its rate of equity accrual or should it use more debt to grow and maintain its electricity distribution system? Many factors may affect the choice between debt and equity. Fundamentally, this choice is decided based on the costs of using equity or obtaining debt.

Scott knows that the U.S. Federal Government is a major source of lending for rural electric cooperatives. The federal government offers rural electric cooperatives a variety of loan products through its Rural Utilities Service (RUS) program, which is administered by the U.S. Department of Agriculture. Commonly used loan products have interest rates equal to or one-eighth of one percent greater than U.S. Treasury interest rates (Figure 3). The availability of the total amount of funds for lending depends on budget appropriations and regulatory constraints. For instance, the federal government's 2011 budget limits loan funds to renewable energy transmission, distribution, and carbon capture projects on generation facilities, eliminating funding for nuclear, coal facilities, and gas-fired facilities. Upon approval for an RUS loan, distribution cooperatives must adhere to specifications for various physical assets, such as poles, line construction (overhead or underground), and distribution equipment (insulators, transformers, etc.). Other requirements include a detailed description of cost estimates, including specific equipment used and location used; insurance requirements; to produce an inventory of work orders—documents requesting and authorizing use of co-op assets for maintenance or construction of the distribution network; and a report of overall system performance. The approval process begins with completing the necessary documentation, discussing the application with a USDA RUS field representative, and finally, presenting a formal request to the USDA RUS in Washington, DC.

Two alternative sources of loans other than the federal government are CoBank and the National Rural Utilities Cooperative Finance Corporation (CFC). Both of these are cooperatively owned banks, meaning that the customers make investments in the banks in proportion to the amount of funds borrowed and govern the overall direction of each bank. Scott has a close relationship with the CFC, because he currently serves on its board of directors. These three lending sources suggest CCEC could refinance portions of a loan from time to time by borrowing shorter-term funds or funds with lower rates. This choice may be important even though the cooperative business structure allows CCEC to deduct interest expenses from its corporate income tax liability.

Creditors require cooperatives to maintain a minimum level of equity in order to qualify for credit. Hence, Scott also plans to use member equity as a source of funds to maintain and grow the electricity distribution network. Membership in a cooperative is characterized by the joint decision to patronize and invest in the firm. Ideally, members invest in the cooperative in proportion to the current or anticipated level of benefits they receive from it. CCEC member investments provide a reserve against unforeseen contingencies and a sense of ownership, and they enable the distribution cooperative to form relationships with Minnkota Power. As a result, members have incentives to properly care for and oversee the distribution network.

The most common method used by cooperatives to acquire member equity is through retained net income. “Capital credits” is the term given to allocation of pro rata share of net income to the member, usually based on the member's patronage. In 2009, CCEC members invested over $4.1 million of the net income that CCEC earned in 2008. In 2009, CCEC’s equity as a fraction of total liabilities was just over 33% (Figure 4). Federal policy and RUS mortgage guidelines suggest 40% is “desirable” (Phillips, 2001). The most effective mechanism to generate additional equity is to increase retail electricity rates, or to reduce cost of service.

The process of allocating equity to the member comes with an implicit promise that it will be returned at some point in the future. The CCEC board of directors redeems member equity on a first-in, first-out basis. The board of directors selects the length of time between the initial equity allocation and final equity redemption. In 2009, the CCEC board chose to redeem equity allocated to members in the early 1980s. In making these decisions, the board balances the cooperative’s need for cash, its obligation to redeem equity, and the level of debt obtained (Table 4).

With these alternatives in mind, Scott and his team began the loan application process for the board of director’s approval.

Questions for the reader

1. What factors should determine the mix of equity and debt that Scott should suggest to his board this year?
2. CCEC is a member of the Minnkota Power Cooperative, a company that generates and transmits electricity to CCEC for retail sale. As a member of Minnkota Power Cooperative, CCEC has the opportunity to influence the development of Minnkota's major policies, such as the price of wholesale electricity and investments in physical assets. How might changes in wholesale power rates affect CCEC's capital structure choice?
3. One duty of a cooperative board of directors is to monitor and control the level of benefits the cooperative creates and to suggest changes in operations where necessary. What financial and non-financial benefits does the cooperative create for its members? Will differences in capital structure affect the flow of those benefits?
4. The Fargo metropolitan area has grown rapidly in the past decade, but its growth rate is decreasing. Describe how this will affect the importance of using debt and equity as sources of financing for growing and maintaining CCEC's electric distribution system.
5. If the cooperative decides to increase its level of debt, what are the implications for its profitability if interest rates suddenly increase?
6. The RUS-recommended equity-to-assets ratio for an electricity distribution cooperative is 40%. CCEC has consistently had a target less than 33%. What does this suggest about how the board members think about risk?

References

Bacon, F.W., J. Lavely, and E. Adusei. 1994. "Rural Electric Cooperative Debt Usage." Management Quarterly 35(2).

Cass County Electric Cooperative. Various Years. "Highline Notes."

Castanias, R. 1983. "Bankruptcy Risk and Optimal Capital Structure." The Journal of Finance 38(5):1617-1635.

Harris, M., and A. Raviv. 1991. "The Theory Of Capital Structure." Journal of Finance 46(1):297-355.

Phillips, C. 2001. "Revisiting Equity Management--the Art of Wise Compromise." Management Quarterly 42(4):25-34.

Titman, S., and R. Wessels. 1988. "The Determinants of Capital Structure Choice." The Journal of Finance 43(1):1-19.

U. S. Department of Agriculture, Rural Utilities Service (USDA, RUS). 2010. 2009 Statistical Report: Rural Electric Borrowers. Washington, D.C.

Table 1. CCEC service territory population and electricity sales

Year	Number of Customers	Energy sold (kWh)	Energy per customer
2003	24,079	694,751,744	28,854
2004	25,900	710,522,852	27,433
2005	27,979	763,874,352	27,302
2006	29,828	805,191,308	26,995
2007	31,366	865,029,298	27,579
2008	32,542	936,577,708	28,781
2009	33,505	968,569,455	28,908
2010	34,399	950,755,664	27,639
2011	35,776	996,674,670	27,858
2012	37,097	1,031,634,580	27,809
2013	38,417	1,066,594,489	27,764
2014	39,737	1,101,554,399	27,721
2015	41,057	1,136,514,309	27,681

Table 2. Cost estimates for distribution network construction and maintenance (2008-2010)

	Total Cost
New electricity services	$11,156,250
New construction	$1,969,000
Line conversion	$1,759,000
Miscellaneous distribution expenses	$21,213,377
Other	$1,553,750
Total	$37,651,377

Table 3. Selected Statewide Aggregate Financial Ratios of Rural Electric Borrowers (2009)

State	Current Ratio	Debt to Equity	Long term Debt to Assets
AK	1.56	2.53	0.52
AL	0.89	2.59	0.42
AR	1.20	3.63	0.60
AZ	2.37	1.75	0.36
CA	1.12	1.99	0.38
CO	1.06	2.17	0.42
DE	1.70	2.83	0.54
FL	0.72	3.51	0.60
GA	0.47	2.92	0.44
HI	1.02	2.90	0.55
IA	0.69	2.94	0.41
ID	0.84	3.27	0.58
IL	1.34	5.44	0.69
IN	1.02	2.57	0.53
KS	1.24	1.75	0.33
KY	1.16	2.77	0.53
LA	1.42	1.61	0.28
MD	1.48	1.84	0.34
ME	1.32	2.17	0.46
MI	1.20	1.86	0.32
MN	1.23	2.30	0.43
MO	1.47	3.50	0.65
MS	1.70	2.35	0.50
MT	2.31	2.70	0.50
NC	1.28	2.27	0.43
ND	1.03	2.54	0.49
NE	0.70	5.19	0.55
NM	2.49	4.52	0.55
NY	1.00	2.19	0.40
OH	1.16	1.92	0.34
OK	0.84	2.16	0.45
OR	1.01	3.19	0.58
PA	1.25	2.28	0.43
RI	1.00	11.08	0.39

Table 3 (cont.)

State	Current Ratio	Debt to Equity	Long term Debt to Assets
SC	1.36	2.71	0.52
SD	1.26	2.36	0.47
TN	0.94	2.53	0.50
TX	1.66	2.31	0.50
VA	1.26	3.76	0.63
VT	1.79	1.92	0.39
WA	0.64	3.01	0.48
WI	2.45	2.85	0.56
WV	1.28	3.11	0.56
WY	1.37	2.53	0.48
USA	1.19	2.48	0.48
Average	1.28	2.91	0.48
Low 95% interval	0.38	0.00	0.30
High 95% interval	2.18	5.83	0.66
Northwest[1]	1.18	2.61	0.47
Northeast[2]	1.39	3.55	0.49
Southwest[3]	1.22	2.35	0.45
Southeast[4]	1.30	2.56	0.48

1. Northwest is defined by the USDA RUS as AK, American Samoa, Guam, HI, ID, IA, Marshall Islands, Micronesia, MN, MT, NE, ND, Northern Mariana Islands, OR, Palau, SD, WA and WY.
2. Northeast is defined by the USDA RUS as CT, DE, DC, IL, IN, KY, ME, MD, MA, MI, NH, NJ, NY, OH, PA, RI, VT, VA, WV, and WI.
3. Southwest is defined by the USDA RUS as AZ, CA, CO, KS, NV, NM, OK, TX, and UT.
4. Southeast is defined by the USDA RUS as AL, AR, FL, GA, LA, MS, MO, NC, Puerto Rico, SC, TN, and Virgin Islands.

	2003	2004	2005	2006	2007	2008	2009
Income Statement							
Revenue from electricity	$40,310,471	$43,902,234	$48,071,211	$51,943,946	$57,997,334	$62,826,047	$69,718,798
Cost of electricity	$22,573,690	$25,584,713	$27,921,992	$29,773,952	$34,028,765	$38,502,029	$44,955,941
Interest on long-term debt	$2,747,539	$2,938,903	$3,138,061	$3,349,819	$4,166,838	$4,145,555	$4,413,565
All other costs	$11,988,518	$12,468,172	$13,498,320	$14,465,662	$16,801,459	$17,026,271	$17,287,067
Net Income	$3,741,994	$3,798,895	$4,845,325	$5,993,358	$5,924,260	$4,639,383	$4,570,265
Balance Sheet							
Distribution assets	$94,437,261	$100,920,635	$106,600,024	$117,489,340	$128,526,368	$136,249,561	$142,107,764
Current assets	$8,034,583	$7,662,045	$8,351,946	$15,707,172	$12,683,825	$11,501,875	$14,978,154
Other assets	$12,555,314	$13,118,933	$13,584,853	$14,056,996	$14,130,752	$13,951,568	$14,268,121
Total assets	$115,027,158	$121,701,613	$128,536,823	$147,253,508	$155,340,945	$161,703,004	$171,354,039
Patron capital	$30,166,759	$33,056,083	$36,457,323	$40,743,950	$44,639,622	$47,700,139	$50,889,742
Current liabilities	$7,511,406	$8,246,737	$10,594,828	$11,912,801	$11,523,227	$12,657,188	$13,503,872
Long-term debt	$68,997,278	$70,373,220	$79,756,794	$83,204,017	$92,595,104	$89,429,840	$100,175,666
Other liabilities	$38,518,474	$43,081,656	$38,185,201	$52,136,690	$51,222,614	$59,615,976	$57,674,501
Total liabilities	$115,027,158	$121,701,613	$128,536,823	$147,253,508	$155,340,945	$161,703,004	$171,354,039
Operations							
Member Accounts	25,199	27,216	29,340	31,018	32,394	33,526	34,339
Electricity sold (kWh)	694,751,744	710,522,852	763,874,352	805,191,308	865,029,298	936,577,708	968,569,455
kWh/member account	27,571	26,107	26,035	25,959	26,703	27,936	28,206
Average kWh sale price	$0.058	$0.062	$0.063	$0.065	$0.067	$0.067	$0.072
ROE	12.40%	11.49%	13.29%	14.71%	13.27%	9.73%	8.98%
ROA	3.25%	3.12%	3.77%	4.07%	3.81%	2.87%	2.67%
Leverage (total assets/patron capital)	3.81	3.68	3.53	3.61	3.48	3.39	3.37

Figure 1. Cass county electric cooperative's director districts

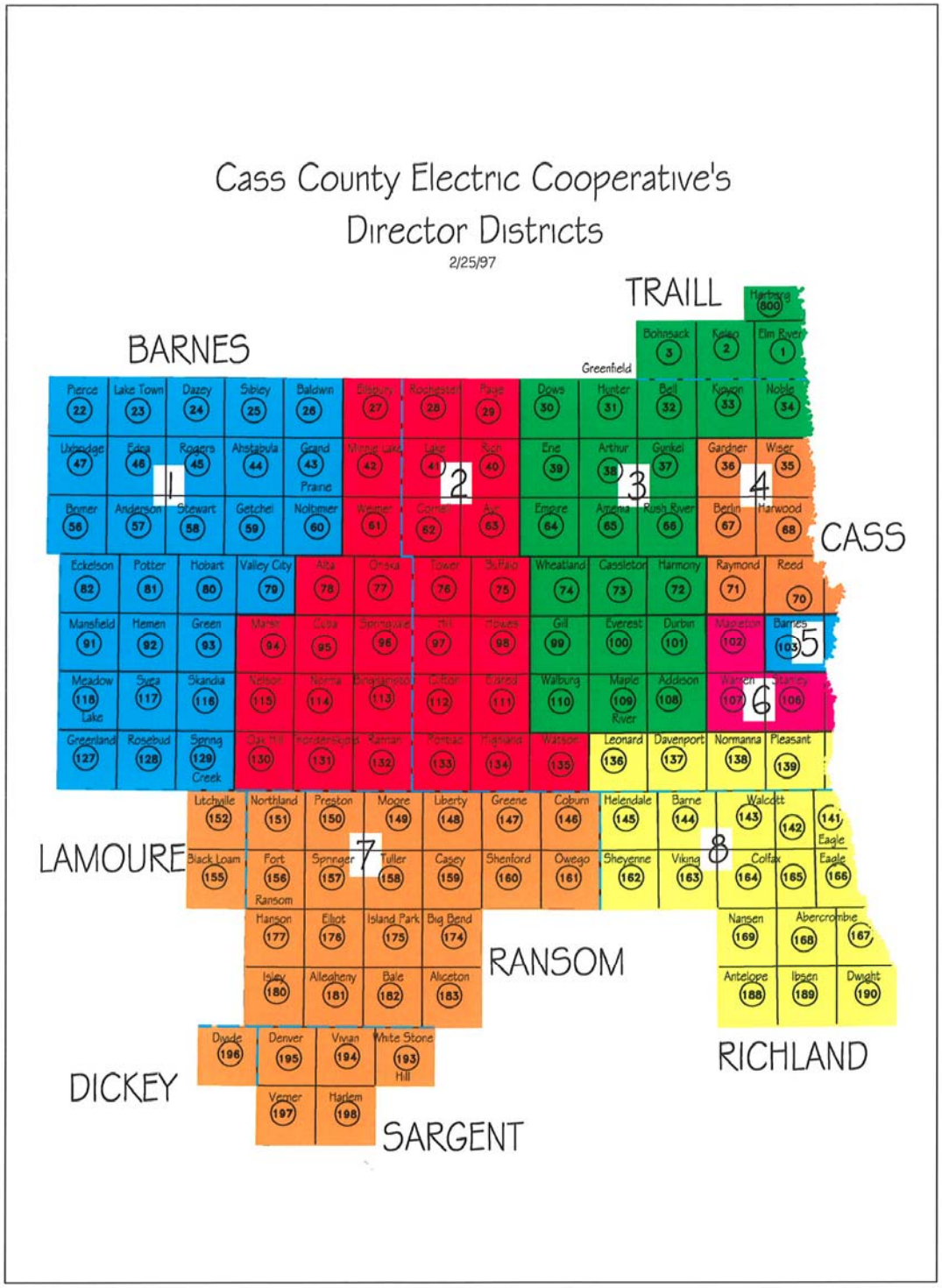

Figure 2. Line loss as a percent of CCEC energy purchases

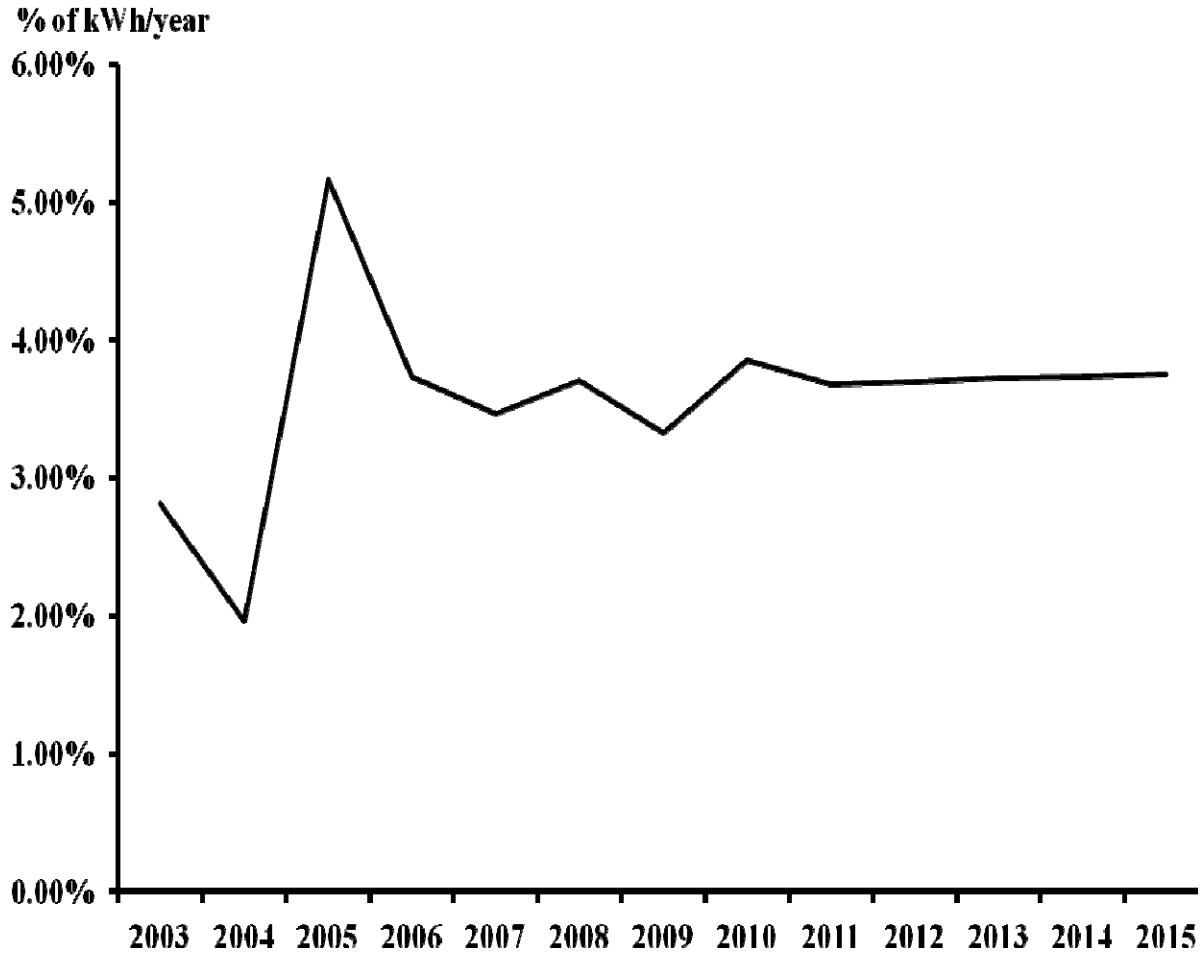

Figure 3. U.S. Nominal Treasury Rates, 2003-2010

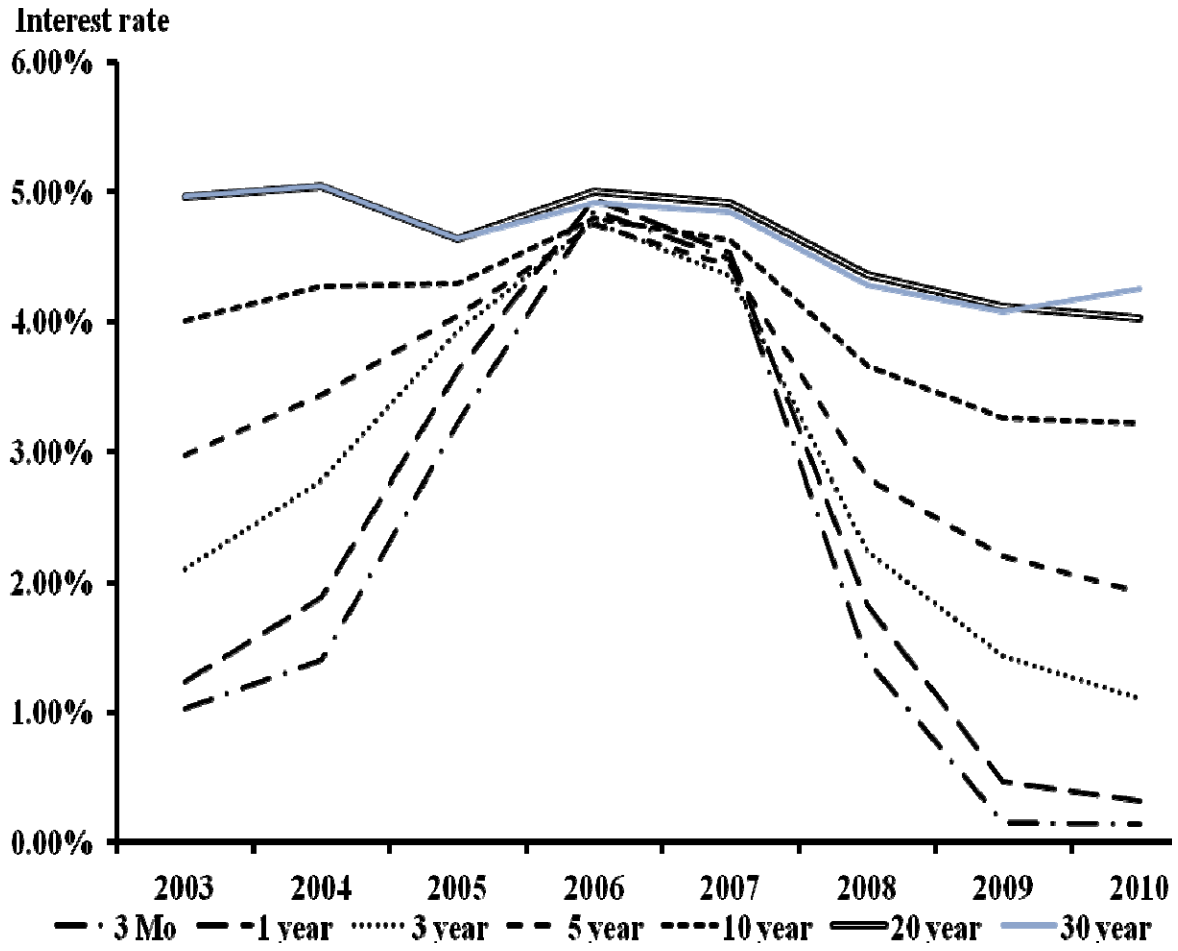

Figure 4. CCEC member equity as a fraction of total assets