

## 4. Federal Electricity Programs

### Introduction

The Federal government provides Federal utilities and electric utilities (primarily cooperatives), participating in the RUS electric program, access to capital at reduced interest rates resulting from Federal government support. The Federally-owned utilities include the Tennessee Valley Authority (TVA) and the four Power Marketing Administrations (PMAs), the Bonneville Power Administration (BPA), the Western Area Power Administration (WAPA), the Southeastern Power Administration (SEPA), and the Southwestern Power Administration (SWPA).<sup>79</sup> Even though Federal ownership is not a factor, lending subsidies provided through the RUS loan programs are included due to the advantages that these programs provide to eligible borrowers.

### Federal Power Programs

Federal utilities are a conduit for and not the ultimate beneficiaries of low-cost capital. The customers for whom they have a statutory obligation to serve are the primary beneficiaries of low-cost Federal power, the price of which includes capital cost recovery. They are generally cooperatives and government-owned utilities (State and local) that resell the power to their customers at cost. These benefits derive from the Federal utilities' ability to borrow directly from the Treasury, sell bonds to the public in the case of TVA, or assume payment of debt obligations of third parties in the case of BPA, at interest rates that reflect investors' perception that such obligations are guaranteed by the Federal government. Even though TVA and BPA bond issuances state that no Federal government guarantees exist, the Nationally Recognized Statistical Rating Organizations, i.e., credit rating agencies recognized by the Securities and Exchange Commission, indicate that perceived implicit Federal government support and the ability to borrow from the Treasury enhances their creditworthiness. However, due to the less than unconditional nature of this support, this report refers to Federal utilities' advantaged access to capital as "support" rather than "subsidy."

In the early years of Federal power, its proponents asserted that publicly-supported electricity was essential in order to electrify large parts of rural America. Critics at the time argued that Federal power was a subsidy provided by urban taxpayers to rural areas.<sup>80</sup> For example, investor-owned utilities (IOU) mounted a legal challenge to the creation of the TVA out of competitive concerns.<sup>81</sup> Moreover, the original and primary purpose of TVA, BPA, and the smaller PMAs, as utilities, was to market the surplus output of hydroelectric facilities that was incidental to flood control, navigation, and irrigation operations. In the early years of their operations, however, the provision and marketing of electricity has evolved as a core function of TVA, BPA and the smaller PMAs.

Federal utilities do not directly service residential or commercial customers. They make wholesale sales to municipalities and cooperatives and some direct sales to large industrial customers. In 2006, TVA, for instance, sold 87 percent of its power to municipalities and

<sup>79</sup> The United States Department of Interior, Bureau of Indian Affairs owns or has interests in irrigations projects primarily engaged in irrigation that also provide electric service on Indian Reservations. See NEOS Corporation, "Draft Final Report: Tribal Authority Case Studies: The Conversion of on-Reservation Electric Utilities to Tribal Ownership and Operation," prepared for the Western Area Power Administration, Contract No. DE-AC65-91WA07849, January 1996. Any subsidies that may exist with respect to these government-owned projects are excluded from the analysis because their primary purpose is agricultural irrigation, not electricity production.

<sup>80</sup> Shapiro, D. "Public Power Policy: The Controversial Origins," in *Generating Failure* (New York, NY: University Press of America, 1989).

<sup>81</sup> In *Ashwander v. Tennessee Valley Authority*, 297 U.S. 288 (1936) minority shareholders of the Alabama Power Company claimed that TVA lacked the authority to sell its energy and that the creation of the TVA was unconstitutional. The Supreme Court upheld the constitutionality of TVA's (i.e., the Federal Government's) right to dispose of electricity and property (in this case, the sale of surplus electricity by TVA and the purchase of transmission lines from Alabama Power Company).

cooperatives, 12 percent directly to industrial customers, and 1 percent to Federal agencies.<sup>82</sup> In 2006, about one-half of BPA's sales for power and transmission services were to public utility districts, city light departments, and cooperatives, another 15 percent was sold to IOUs, and roughly one-quarter was sold to aluminum companies and other large industrial concerns. WAPA sold nearly half of its power to municipalities and cooperatives, 18 percent to State agencies, 6 percent to IOUs, 12 percent to public utility districts, 4 percent to Federal agencies, and the remaining 1 percent to other customers.<sup>83</sup> In 2006, cooperatives accounted for 57 percent of SWPA's power sales, municipals, 25 percent. Two percent was sold to Federal agencies.<sup>84</sup>

The Federal role in providing electric power is at least a century old and was very prominent in the early years of the Nation's electrification. Federal interventions in electricity markets started with the Reclamation Act of 1902 (Public Law 57-161). In large measure, these interventions were related to electricity produced at hydropower generation facilities as a byproduct of Federally-supported irrigation projects for reclamation of arid lands. At the time, hydroelectric power was the Nation's dominant source of electricity. The Reclamation Act was amended in 1906 to permit the lease of surplus power to towns and the revenue credited to repay irrigation costs.<sup>85</sup> The Federal role in marketing electricity from Federally-owned facilities grew rapidly during the 1930s. The recipients of preference power were largely municipals and cooperatives. Some of the largest hydroelectric power plants were placed in service during this era including the Hoover Dam in 1936, the Bonneville Dam in 1938, and the Grand Coulee Dam in 1941. Between 1933 and 1941, Federal power accounted for half of the Nation's new generating capacity.<sup>86</sup> These projects facilitated electrification and regional economic development. Federal utilities rely more heavily on hydroelectric power than other electricity producers which in general makes their power relatively inexpensive. Although Federal power is widely sold throughout the contiguous United States, with the exception of most of the Midwest and Northwest, Federal power sales are concentrated in particular geographic areas. The States located in the Pacific Northwest<sup>87</sup> and the Tennessee River Valley are the largest recipients of Federal power.<sup>88</sup> This chapter primarily focuses on the Federal utilities, which consist of the four PMAs and TVA.

Federal electric utilities are primarily transmitters and wholesale marketers of electricity generated by Federally-owned generating facilities. As required by law, they are not-for-profit and are obligated to offer power to statutorily defined preference customers first. Federally-owned utilities are by Federal statute obligated to recover costs and enjoined by law from pricing power to make a profit. Preference customers include municipal utilities, cooperatives, Indian tribes, State utilities, and irrigation districts. They may also include State governments and Federal agencies. After meeting commitments for electricity to preference customers, the Federal utilities can and do sell surplus electricity to IOUs in wholesale markets or directly to industry.

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<sup>82</sup> Tennessee Valley Authority, SEC 10-K, 2005, p. 8.

<sup>83</sup> Western Area Power Administration, Statistical Appendix to the 2004 Annual Report.

<sup>84</sup> Southwestern Power Administration, Annual Report 2004-2006, p. 14.

<sup>85</sup> Town Sites and Power Development Act of 1906 (34 Stat.116), codified as 43 USC 522 provided surplus electricity produced at hydro projects constructed for irrigation purposes be sold to preference customers.

<sup>86</sup> *Ibid.*, p. 6.

<sup>87</sup> The genesis of Federal power in the Northwest relates in part to the regional strength of the public power movement in the early days of electrification. The public power movement during the 1930s was very strong in the State of Washington. In 1936, 15 districts voted to establish public utility districts.

<sup>88</sup> Most of this hydroelectric power was constructed long ago. Currently, prospects for the expansion of hydroelectric power are limited. Particularly in the case of TVA, future expansion of electric generation is likely to be thermal resources.

The PMAs' electricity generation facilities are owned and operated by the U.S. Department of the Interior's Bureau of Reclamation, the U.S. Army Corps of Engineers, and the International Boundary and Water Commission.<sup>89</sup> Most of the electricity produced by these facilities is marketed by the four PMAs. The yearly financial and operational results for the power purpose activity of the Corp of Engineers, the Bureau of Reclamation, and the International Boundary and Water Commission are reported in each of the four PMAs' annual reports as consolidated operations. For an example, the SEPA balance sheet, income, and cash flow statements consolidate SEPA's financial data with the Corp of Engineers. TVA, the largest producer of Federal power, owns, operates, and markets its own electricity.

Rural cooperative electric utilities are member-owned, i.e., a cooperative's members and customers are one and the same. They are established in rural areas to provide electricity to those members. Cooperatives are organized under State law. They are governed in accordance with the principles of cooperative operation, which includes: (1) operation on the basis of cost; (2) members are entitled to receive a return of, but not a return on, capital they contributed to the organization; and (3) governance based on one-member-one vote. The organization is governed by a board of directors elected by the membership. Electric cooperatives also may qualify as tax-exempt organizations under Section 501(c)(12) of the Internal Revenue Code (IRC or Code). There are a number of requirements in the Code and Internal Revenue Service (IRS) pronouncements required to qualify for tax-exempt status. The most significant requirement is that cooperatives receive at least 85 percent of their income from business conducted with members. Cooperatives that meet RUS eligibility requirements have access to low-cost Federal government loans and loan guarantees. Cooperatives account for roughly 10 percent of electricity sales to ultimate consumers.

This chapter examines support provided by the Federal government to certain electric power customers. This support differs significantly from the subsidies provided to other energy sectors described in this report. First, the Federal support outlined in the following discussion does not include any direct expenditures provided to Federal utilities by the Federal government, as is the case for other Federal programs (such as the Low Income Home Energy Assistance Program expenditures discussed under direct expenditures in Chapter 2). The market value of the interest subsidies provided to TVA, the PMAs, and RUS borrowers is not measured by the Treasury Department, and it is not reported in Federal budget documents. The measures of support described in this chapter are values estimated by the EIA.

### **Areas Excluded from the Analysis**

This report examines the support that the Federal government provides to electricity that is unique to electricity producers. Hence, some means of support provided to electricity is excluded because it is not exclusively applied to electricity or it is not Federal in nature. These include:

The ability of publicly-owned utilities to issue tax-exempt debt is not considered in this analysis because this benefit is available to government-owned enterprises outside of the electric utility industry. Additionally, government entities, including State and municipal utilities may issue tax-exempt debt for the benefit of third parties to finance eligible utility plant and equipment (e.g., pollution control equipment).

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<sup>89</sup> Federal utilities provide consolidated financial and operational data for their own operations, as well as for the operations of related Bureau of Reclamation and U.S. Army Corps of Engineers power facilities.

The tax-exempt status of electric cooperatives and publicly-owned utilities pursuant to Federal tax law and State tax law and corporate law permitting utilities to organize as cooperatives or governmentally-owned enterprises is not included in this analysis. These benefits exist under Federal and State law for other enterprises operated on a cooperative basis and governmentally-owned enterprises. They are not unique to the electric utility industry.

### **Federal Policies Affecting Power Costs and Pricing**

The prices charged by Federal utilities and RUS borrowers are generally lower than those charged by IOUs.<sup>90</sup> Prices are generally lower because Federal utilities and cooperatives have a distinct legal status and access to low-cost capital. These long-established Federal programs include:

**Access to Low-Cost Credit.** As a result of a number of Federal government programs (some of which date back to the inception of Federal power), in some instances, Federal utilities and RUS borrowers have been able to borrow funds at interest rates below prevailing Treasury rates.<sup>91</sup> In some instances, Federal utilities have been able to borrow at rates linked to Treasury rates for debt of comparable maturity or at rates available to government agencies. In other instances, Federal utilities borrow at private-sector interest rates, but their creditworthiness is enhanced by an implicit Federal guarantee that they will not default on their debt obligations. All of these interest rate advantages constitute Federal government support for the Federal utilities.

**Access to Low-Cost Generation.** Federal utilities are required to sell their electricity preferentially to certain users. By law, PMA electricity is sold "at the lowest possible rates consistent with sound business principles,"<sup>92</sup> which today is less than what the price of power would be under competitive market conditions. The "lowest possible rates" require Federal utilities to price electricity so as not to earn a profit. Essentially, Federal utilities pass lower prices on to statutorily defined preference customers in lieu of profits.<sup>93</sup> Charging prices below market constitutes price support to particular groups of customers, i.e., preference customers.

**The RUS Electric Program.** Rural electric cooperatives, under a program dating from 1935, are eligible for low-interest long-term loans from the Federal government, which were made at a 2-percent interest rate until 1973. Direct loans made between 1973 and 1993 were made at a 5-percent interest rate, with up to a 35-year term to maturity.<sup>94</sup> At the same, the RUS loan guarantee program was initiated. Under this program, eligible RUS power supply borrowers may obtain loan guarantees to finance generation and transmission projects. Loans made by the Federal Financing Bank (FFB) are made at the Treasury's cost of money plus one-eighth of a

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<sup>90</sup> The exception being the Tennessee Valley Authority, which EIA estimates to have had higher wholesale prices than neighboring utilities in 2006.

<sup>91</sup> In general, the extent to which Federal utility average cost of funds is less than the U.S. Treasury's own cost of raising capital is due to the more favorable treatment of past Federal treatment of debt.

<sup>92</sup> The Flood Control Act of 1944 (58 Stat. 887, 890); Department of Energy Delegation Order No. 00-37.00, which is applicable to the three smaller PMAs was issued in December of 2001. Delegation Order 00-37.00 directs the Federal Energy Regulatory Commission ascertain whether PMA rates are" (a) whether the rates are the lowest possible to customers consistent with sound business principles, (b) whether the revenue levels generated by the rates are sufficient to recover the costs of producing and transmitting electric energy including the repayment, within the period of cost recovery permitted by law, of the capital investment allocated to power and costs assigned by Acts of Congress to power for repayment; and (c) the assumptions and projections used in developing the rate components that are subject to Commission review.

<sup>93</sup> The PMAs' rates fluctuate on the basis of hydrological conditions. In lower water years, they often must purchase higher priced wholesale power to meet their contractual obligations.

<sup>94</sup> Rural Utilities Service: [http://www.usda.gov/rus/electric/loans/loan\\_types041118.pdf](http://www.usda.gov/rus/electric/loans/loan_types041118.pdf).

point.<sup>95</sup> In 1993, the Municipal Rate Loan program replaced 5-percent interest rate loans. Interest rates for these loans are based on an index of interest rates for municipal bonds. Debt remains on the balance sheets of RUS borrowers at interest rates that applied at the time funds were advanced, including 2-percent and 5-percent loans.<sup>96</sup> At the end of 2005, RUS borrowers had roughly \$30 billion (2007 dollars) in Federal loans and guarantees.<sup>97</sup>

### Measuring the Support

For purposes of this report, EIA measured Federal support to TVA, the PMAs, and RUS borrowers in term of the their reduced borrowing costs relative to current market interest rates stemming from their ability to benefit from (1) borrowing from the Treasury, (2) accessing low cost Federal loans and loan guarantees, and (3) the financial markets' perception of an implied Federal guarantee of non-Federal obligations of TVA and BPA. This measure consists of a snapshot of the difference between the interest expense paid by TVA, the PMAs, and RUS borrowers at their embedded cost of debt relative to what they would have paid at a range of interest rates. These interest rates include the Treasury's cost of money and interest rates that reflect the variations in credit quality within the general category of investment grade debt (i.e., AAA to BBB-) for IOU bonds rated by nationally-recognized rating agencies.<sup>98</sup>

Two other methods for measuring the effect of Federal support to these enterprises include a comparison of the prices charged for electricity under Federal programs and an estimate of relevant "market" prices. That is, the quantifiable benefit received by preference customers is defined as the difference between the cost-based rates charged for Federal power versus the rates that would be estimated to prevail in competitive wholesale markets. The third method addresses the question: if Federal utilities were allowed to achieve a competitive rate of return (similar to IOUs), how much higher would their revenues (and associated electricity prices) be? Of the three, the chosen measure of support is the most direct, because interest rate subsidies directly reduce the utilities' borrowings costs. This method is discussed in this chapter. The other two methods appear in Appendix B "Alternative Methods of Estimating Federal Electricity Subsidies and Interventions."

<sup>95</sup> These loans have up to a 35-year term to maturity. The interest rate is based on the Treasury Department's cost of money at the comparable term to maturity. The interest rate is established when loan funds are advanced.

<sup>96</sup> 1987 regulations permitted RUS borrowers to "buyout" their debt at a discount. Thus, the amount of 2-percent and 5-percent funds has significantly diminished.

<sup>97</sup> Rural Utilities Service, *2005 Statistical Report Rural Electric Borrowers*, I.P. 201-1, Tables 3 and 5.

<sup>98</sup> An alternative measure of Federal support would employ a comparison of a weighted average of the various maturities of all Federal debt at the time of issuance against Treasury and IOU debt being issued contemporaneously to the Federal debt with the same maturities. There are several shortcomings with this alternative measure. First there is a lack of relevant interest data. The source of constant-maturity U.S. Treasury interest rates used in this report is the Federal Reserve Bank's Federal Statistical Release H-15 (FRB: H-15). In 2001, due to expectations of future budgetary surpluses, the United States Treasury announced that it would suspend issuance of its 30-year bond, the long-bond. Hence, FRB: H-15 lacks historical data on constant-maturity 30-year Treasuries for the years 2003 through 2005, making a comparison for those years subject to estimating 30-year Treasury surrogates. A second issue also concerns data availability. While the Federal utilities reported debt issuances that go back 50 years or more, corresponding data are unavailable for U.S. Treasuries and IOUs. For instance, FRB: H-15 reports long-bond Treasury rates going back no earlier than 1977. Another issue concerns standardized maturities. While the Treasury issues bonds with standardized maturities of 10, 20, and 30 years, Federal utilities issue debt with various maturities. For instance, a Federal utility issuing debt having a maturity of 15 years would have no U.S. Treasury counterpart with the same maturity. Moreover, Federal utilities issue debt with maturities ranging well in excess of 30 years. For instance, for 2007, the TVA reported that 15 percent of its total debt had a maturity ranging from 31 to 50 years. Furthermore, a portion of BPA's ENW debt has variable interest rates (See: *Energy Northwest 2007 Annual Report*, p. 54. Any attempt to estimate interest rates based upon "hypothetical" comparative Treasuries involves extrapolations for debt with maturity dates greater than 30 years, which would have to surmount a number of issues, such as how to deal with periodic yield curve inversions. Finally, bond-by-bond comparison would overlook an advantage available to the PMAs in that they are allowed by the Department of Energy to pay off their high cost debt prior to maturity. While IOUs may issue callable debt, which also may be retired prior to maturity, this debt would be priced at rates higher than those associated with debt, which could not be retired prior to maturity.



## Interest Rate Support

An important element of Federal aid to Federal utilities and RUS borrowers is access to low-cost credit. Low-cost credit means more than raising capital advantageously. It also means a potential shift of capital from bond issuers and commercial borrowers with market-based risk profiles to entities whose risk is being underwritten by the Federal government. For instance, the three smaller PMAs are currently carrying debt at interest rates that result in their average cost of embedded debt being less than the Treasury's current cost of money. In the case of RUS borrowers, some past interest paid on insured loans was fixed by statute. Thus, at various points in time they were able to borrow at rates below the Treasury's cost of money.<sup>99,100</sup> Some Federal utilities receive appropriations, to be repaid as if they were borrowings at, or near, Treasury rates or U.S. Government agency rates. Even when Federal utilities borrow by issuing bonds, they receive higher credit ratings than would be attained if it were not for the widely-held view by the financial community that this debt carries an implicit Federal guarantee. That is, notwithstanding that both TVA and BPA state that debt issued to the public is not supported by a government guarantee, financial markets believe the government would intervene to prevent a default. The magnitude of the resulting support can be computed by comparing the actual interest paid with interest that would be paid at various market interest rates. When Federal utilities are able to raise funds in capital markets at interest rates lower than those at which they could borrow were it not for their Federal government status, a measure of support is conferred.

Although some Federal utilities borrow at various interest rates under various legal authorities, on balance they pay lower rates than privately-owned utilities. In the case of their private sector borrowings, the credit markets view Federal utility debt as having an implicit Treasury guarantee, although no guarantee in fact exists.<sup>101</sup> In its issuer rating of TVA bonds sold in 2003, Standard and Poor's assigned the debt an AAA rating. In doing so, Standard and Poor's noted that: "Status (TVA's) as government agency affords implicit support, monopoly service territory, legal authority to set rates without regulatory oversight, low-variable-cost generating units leading to competitive rates..."<sup>102</sup> According to Standard and Poor's, only six U.S. non-bank companies carry an AAA bond rating.<sup>103</sup>

<sup>99</sup> In general, loans made below the Treasury cost of funds, pursuant to statutory interest rates are of an older vintage and many have been paid down. In the case of the RUS lending, loans made prior to 1973 were made at a rate of 2-percent. Between 1973 and 1993 direct loans were made at a 5-percent statutory interest rate. After 1993, the RUS interest rate structure was tied to rates on municipal bonds.

<sup>100</sup> In debt financing the timing of debt issuance and maturities can have an impact upon embedded interest costs. For instance, under unusual assumptions, it is theoretically possible for an advantaged borrower, with access to debt financing at interest rates lower than those available to an unadvantaged borrower at any particular point in time, to have higher embedded interest costs. In such a case, there would be a significant difference in the vintage of each entity's debt portfolio. This might occur if, say, the advantaged borrower consistently issued debt during high interest periods, while the unadvantaged borrower consistently issued debt during periods when interest rates were low. Practically, this possibility is very remote, as utilities (both Federal and non-Federal) issue debt during most years, with both entities trying to avail themselves of credit in periods when interest rates are relatively low. Moreover, both have the ability to restructure their outstanding debt to adapt to changes in interest rate environments, such as by refinancing or by paying down high cost debt early.

<sup>101</sup> In its offering statements, TVA discloses in bold print that its bonds: "Will not be obligations of, nor will payment of the principal thereof or the interest thereon be guaranteed by, the United States of America." Source: [www.tva.gov/finance/opportun/pdf](http://www.tva.gov/finance/opportun/pdf). Accessed February 26, 2008. TVA also states that: "TVA bonds are backed solely by the net power proceeds of the TVA power system and are neither obligations of nor guaranteed by the U.S. Government." Source: Tennessee Valley Authority, <http://www.tva.gov/finance/opportun/>. In a Fitch Ratings, *Public Power New Issues for Energy Northwest*, BPA notes that: "BPA's obligations are not general obligations of the United States government and are not secured by the full faith and credit of the United States." Source: [www.bpa.gov/corporate/finance/debt\\_management/reports\\_articles\\_docs/Fitch\\_03\\_02\\_06.pdf](http://www.bpa.gov/corporate/finance/debt_management/reports_articles_docs/Fitch_03_02_06.pdf), Sourced: February 25, 2008.

<sup>102</sup> Standard and Poor's, <http://www2.standardandpoors.com/portal/site/sp/en/us/page.search/search/0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0.html>. Accessed October 15, 2007.

<sup>103</sup> The Economist, "AAAsking for Trouble," July 12, 2007.

As a result, even publicly-issued debt of the Federal utilities is priced at rates below those paid by all but the IOUs with ratings at the higher side of the range of the investment grade category. TVA- and BPA-backed debt have outstanding debt rated between AA- and AAA.

A long-standing issue in financial markets has been the degree to which the Federal government would prevent a default by government corporations such as the TVA or the Federal Deposit Insurance Corporation (FDIC);<sup>104</sup> and government-sponsored entities (GSE) such as the Federal National Mortgage Association (FNMA) and financial institutions within the Farm Credit System (FCS). The debt of these entities carries no explicit guarantee by the Treasury. In fact, TVA explicitly states that its debt is not a legal obligation of the Federal government.<sup>105,106</sup> However, financial markets perceive otherwise, believing that the Federal government would not allow TVA to default on its obligations. Although the financial community's assumptions are subject to debate, there is evidence suggesting that their view is correct.

According to a study completed by the Federal Reserve Bank of Richmond, Virginia, twice during the 1980s, the Treasury Department provided support to two GSEs—the FNMA and the FCS—during times of financial difficulty. The Federal Reserve Bank study noted that in both cases the Treasury Department acted to mitigate the increased yield spread between GSE and Treasury securities from increasing the Treasury's borrowing costs. In both cases, the Treasury made the "implicit guarantee explicit by providing Federal government loans to the GSEs. Once the loans were made, the interest spread of the GSE securities and comparable Treasury securities narrowed."<sup>107</sup>

When rating TVA's debt, the nationally-recognized credit agencies assume that the government will provide support if needed. According to Moody's Credit Service: "Although TVA's debt is not an obligation of the U.S. Government, the company's status as an agency and the fact that the Government is TVA's only shareholder, indicates strong 'implied support' [that] would afford assistance in times of difficulty . . . . This implied support provides important bondholder protection." Similarly, according to Standard and Poor's: "The [AAA] rating reflects the U.S. Government's implicit support of TVA and Standard and Poor's view that, without a binding legal obligation, the Federal government will support principal and interest payments on certain debt issued by entities created by Congress. The rating does not reflect TVA's underlying business or financial conditions." Standard financial texts also describe Federal agency debt as carrying a "de facto backing from the Federal government."<sup>108</sup> Fitch Ratings notes that its AAA rating "reflects TVA's status as a wholly-owned corporation of the U.S. government and Fitch's assessment of the likelihood and degree of government support for TVA and similarly rated institutions. The rating also takes into account "TVA's strong historical operating and financial performance, its solid competitive position (compared to the other highly rated public power utilities in the "AA" category) and its integral role in developing and supporting the regional economy...TVA's outstanding debt is not a full faith and credit, or limited obligation of the U.S. government. However, Fitch believes that U.S. authorities would use extraordinary efforts to

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<sup>104</sup> OMB characterizes Federal insurance programs as an alternative to direct spending. See, *Analytical Perspectives of the Budget of the United States, Fiscal Year 2008*, p. 67.

<sup>105</sup> General Accounting Office, *Tennessee Valley Authority: Financial Problems Raise Questions About Long-Term Viability*, GAO/AIMD/RCED-95-134 (Washington, DC, August 1995), p. 29.

<sup>106</sup> For example, TVA clearly states that its securities receive no credit enhancement from the Federal government on page 41 of its 2006 SEC 10K. "Although TVA is a corporate agency and instrumentality of the United States government, TVA securities are not backed by the full faith and credit of the United States. Principal and interest on TVA securities are payable solely from TVA's net power proceeds."

<sup>107</sup> T.Q. Cook and R.K. Laroche, eds., "Instruments of the Money Market," (Richmond, VA: Federal Reserve Bank, 1993).

<sup>108</sup> M. Stigum, "The Money Markets: Myth, Reality, and Practice," (Homewood, IL: Dow Jones-Irwin, 1978), p. 161.

support their operations and senior debt obligations in the unlikely event that the TVA encountered financial difficulties."<sup>109</sup>

In addition, TVA's former chairman has acknowledged the implicit guarantee arising from potential pressure on the Treasury to prevent any agency default. According to a quote appearing in the March 5, 1997, *Wall Street Journal*, then TVA chairman Craven Crowell stated: "If Congress does anything that devalues us, you always have the potential for the Treasury having to get involved."<sup>110</sup> Were the Federal government to allow a default by an agency or GSE, the ability of all Federal agencies and GSEs to borrow money at favorable rates could be affected. The failure of the Federal government to remedy a default could cause financial markets to downgrade the value of all government corporations, government agency and GSE debt, an action that could significantly affect their borrowing costs and their ability to carry out their government mandates. In all likelihood this potential hazard weighs heavily on the Federal government to prevent even one default. TVA may have an even closer relationship with the Federal government than do the GSEs, which may increase whatever implicit support its debt derives. For instance, unlike the GSEs, the Treasury Department treats TVA debt as gross Federal debt. TVA's borrowings accounted for 98 percent of \$26 billion in Federal government agency debt outstanding as of the end of 2006.<sup>111</sup> GSEs had, however, \$1.3 trillion in debt (2005 dollars) outstanding at the end of 2005, which makes them a considerable component of total U.S. credit markets.<sup>112</sup> Total Treasury obligations, for instance, equaled \$7.9 trillion in 2005.<sup>113,114</sup> In this report, "implicit support" is included in the estimates of total support provided by the Federal government to TVA and the PMAs, because the ratings and yields on their debt instruments would be different in the absence of Federal government support.

There are alternative viewpoints on the issue of implicit interest support. These viewpoints question whether the Federal government support truly exists in the absence of a binding legal obligation to intervene to preclude a TVA default. According to these views, market expectations that the Federal government would act to prevent default are a perception and not necessarily a reality. Although the market views a TVA debt default as "highly unlikely," there is no absolute guarantee that the market is infallible. On the other hand, the Federal government ownership of TVA and the overall statutory framework in which it operates appears to be sufficient to justify the highest of investment grade credit ratings and attendant lower borrowing costs than lesser quality bonds.

According to a Congressional Budget Office report on GSEs and their implicit Federal subsidy: "Agency or GSE status substantially enhances the debt rating of these enterprises... The subsidy conveyed is the avoided cost of meeting the standards of credit worthiness. In concept, the subsidy has a cost to government equal to the insurance premiums that would be charged by a group of highly-rated insurers to guarantee the timely payment of interest and principal on GSE debt in the absence of government sponsorship... The implicit guarantee of GSE debt has never required a cash outlay by the Federal government. The subsidy that never leads to a cash payment may appear not to be 'real'—that is, not costly. The implicit guarantee of GSE

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<sup>109</sup> "Fitch Rates Tennessee Valley Auth's \$500 Global Power Bonds 2008 Series A "AAA," *Reuters*, <http://www.reuters.com/article/pressRelease/idUS241174+18-Jan-2008+BW20080118>, accessed March 10, 2008

<sup>110</sup> J. Ball, "TVA Plan Seen by Critics as Unfair Grab for Power," *Wall Street Journal* (March 5, 1997), p. 1.

<sup>111</sup> Office of Management and Budget, *Analytical Perspectives of the United States Budget 2008*, (Washington, DC, 2007), p. 229.

<sup>112</sup> Office of Management and Budget, *Analytical Perspectives of the United States Budget 2007*, (Washington, DC, 2006), p. 223.

<sup>113</sup> Office of Management and Budget, *Analytical Perspectives of the United States Budget 2007*, (Washington, DC, 2006), p. 86.

<sup>114</sup> The term "agency debt" is defined more narrowly in the budget than customarily in the securities market, where it includes not only the debt of the Federal agencies but also the debt of government sponsored agencies. See, Office of Management and Budget, *Analytical Perspectives of the United States Budget, Fiscal Year 2006*, p. 222.



debt is costly in terms of alternatives that must be necessarily, if unconsciously, given up by the economy."<sup>115</sup>

Larger corporations or financial institutions may also benefit from an implicit guarantee against failure. There have been periodic episodes of Federal intervention to prevent their demise, giving rise to the “too-big-to-fail” argument. For instance, during the late 1970s, the Federal government intervened to assist the Chrysler Corporation, and in 1984 the Federal government intervened to help Continental Illinois Bank. In the late 1980s and early 1990s, Federal intervention was used to assist the Nation’s Savings and Loan industry, costing the Federal government in excess of \$100 billion. In all cases, concerns that the failure of these entities would have widespread economic repercussions motivated government action.

Unlike TVA, the PMAs are not government corporations; they are line agencies within DOE. They submit annual budgets to Congress. Like the TVA, however, one PMA – the Bonneville Power Administration (BPA) – does benefit from the implicit support which results from its government status. Bonneville Power Administration has nuclear-related obligations. BPA has a contractual obligation to pay the debt service on bonds issued by Energy Northwest, the successor to the Washington Public Power Supply System. Payments are based on cash flow generated from a net billing arrangement between BPA and utilities in the Pacific Northwest.<sup>116</sup> In Moody’s High Profile New Issue April 2004 issue, Moody’s states: “Contributing to the Aaa rating on the Energy Northwest (ENW) bonds are the evident implicit support by the Federal government for Energy Northwest bonds through BPA and BPA’s established record of full cost recovery from its business operation and rates.”<sup>117</sup> Both Standard and Poor’s and Fitch Ratings assign AA- issue ratings to BPA’s ENW debt. Standard and Poor’s notes that BPA’s rating is based upon the fact that BPA is the obligor for ENW debt and that this debt is “senior to the more than \$7 billion in Treasury obligations at Bonneville.”<sup>118</sup> Fitch noted in its 2006 AA-issue rating that BPA’s “Payments to the U.S. Treasury are subordinate to ENW bonds, providing added security to these instruments.”<sup>119</sup>

The three smaller PMAs’ (SEPA, SWPA, and WAPA) average embedded cost of outstanding debt is below the current cost of borrowing by the U.S. Treasury. In part, this is because DOE allows them to repay higher cost debt early whenever possible, a privilege not held by the Treasury Department.<sup>120</sup> Moreover, before 1983, the three smaller PMAs were allowed to finance capital projects at rates lower than the Treasury’s cost of money, which also lowers the average embedded cost of combined debt currently carried on the PMAs’ books.<sup>121</sup>

<sup>115</sup> Congressional Budget Office, *Government-Sponsored Enterprises and Their Implicit Government Subsidy: The Case of Sallie Mae*, (Washington, DC, December 1985), pp. 29-30.

<sup>116</sup> Rating agencies rate both bond issuers and bond issuances. In the case of bond issuers, it is the creditworthiness of the issuer that is being rated. In the case of bond issuances, it is the creditworthiness of an obligor with respect to a specific financial obligation that is being rated. In this latter category, rating agencies would consider such matters as whether the bond were insured, or other forms of credit enhancement. While Moody’s provides Energy Northwest Bonds with an Aaa rating based upon the issuer, Fitch and Standard and Poor’s provide Energy Northwest bonds with an AA- rating based upon the issuance.

<sup>117</sup> Moody’s Investors Service, High Profile New Issue, April 2004.

<sup>118</sup> Standard and Poor’s, Ratings Direct, Summary: Bonneville Pwr Admin, or: Utility, Wholesale Electric, March 16, 2006.

<sup>119</sup> Fitch Ratings, Public Power New Issue, Energy Northwest (Bonneville Power Administration, March 21, 2006. Fitch also noted that “Positive support for the rating is BPA’s position as a leading provider of electricity and transmission in the Pacific Northwest and its highly competitive wholesale power rates derived from its hydro-based system.”

<sup>120</sup> General Accounting Office, *Power Marketing Administrations: Cost Recovery, Financing, and Comparison to Nonfederal Utilities*, GAO/AIMD-96-145 (Washington, DC, September 1996), p. 7.

<sup>121</sup> General Accounting Office, *Federal Power: Options for Selected Power Marketing Administrations’ Role in a Changing Electricity Industry*, GAO/RCED-98-43 (Washington, DC, March 1998), p. 7.

In addition to being able to pay off their high-cost debt first, the PMAs also have discretion in deciding how to make the annual payments for their appropriated debt to the Treasury.<sup>122</sup> These borrowings do not have to be amortized on a straight-line basis, but can occur anytime over the maturity of the debt instrument, which can be as long as 50 years for electric generating assets. These are appropriations for capital projects only and not appropriations for operations, which generally need to be repaid in the current operating year.<sup>123</sup> Typically, unless the bonds of IOUs, publicly-owned utilities, and a few cooperatives, are callable, interest is paid on a current basis, and principal is paid based on the terms of each specific bond issue.<sup>124</sup>

The analysis in this report uses both public-sector and private-sector interest rates as benchmarks against which to measure the value of interest rate support. The public-sector benchmark is the Treasury's constant yield to maturity for 30-year obligations. For the private-sector rates, the benchmarks used are the interest rates paid by utilities using various Moody's utility bond ratings ranging from Aaa down to Baa. These ratings indicate two different measures of support. When debt carried on the balance sheets of Federal utilities has lower average borrowing costs than the U.S. Treasury itself, the underlying advantage can be viewed as support provided directly to the borrower by the U.S. Treasury or by the public at large. The second measure of support assumes that Federal utilities are advantaged to the extent that the associated average interest costs of their outstanding borrowing costs are at rates less than they would be if they were private entities or otherwise unable to issue tax-exempt debt. This measure of support compares the borrowing costs of the Federal utilities with the cost of funds realized by risk-adjusted groups of IOUs that raise debt in the market place. The comparable IOU rating may or may not be appropriate, depending on the presumed creditworthiness a Federal utility would command were it to lose the borrowing benefits derived from Federal ownership or its implicit financial backing from the U.S. Treasury.

The measure used to estimate the Federal interest rate support for Federally-owned utilities is highly dependent on the risk differential reflected by the spread between the interest rates for the various categories of investment grade bonds described above. In 2006, interest rates were generally lower than in 1998 (Table 18).<sup>125</sup> However, in measuring interest support for a single year, what matters is the interest rate spread, which reflects the risk premium. Table 18 illustrates that the level of estimated support varies directly with the benchmark interest rate chosen. The spread between these rates could remain relatively stable or could change over time. In 2006, the average yield on 30-year Treasury bonds was 4.91 percent while the average yield on Aaa-rated utility bonds was 5.59 percent, producing a spread of 68 basis points; in contrast, the spread between the 5.58 percent 30-year Treasury and the 6.77 percent investor-owned Aaa rate in 1998 equaled 119 basis points.

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<sup>122</sup> Of the 4 PMAs, Bonneville is an exception. Since 1974, Bonneville has not received appropriations from the Congress but instead relies on a revolving fund with the Treasury.

<sup>123</sup> A GAO study concluded that the PMAs pay off their high interest debt first and defer repayment of lower interest rate debt. See: General Accounting Office, *Power Marketing Administrations, Their Ratesetting Practices Compared with Those of Nonfederal Utilities*, GAO/AIMD-00-114, March 2000, pp. 27-30.

<sup>124</sup> In the Southeastern Power Administrations 2004 Annual Report, it states: "Annual net revenues available for repayment are generally applied first against investments in projects bearing the highest interest rates. To the extent that funds are not available for payment of such operating expenses and interest, such amounts become payable from the subsequent year's revenue prior to any repayment of the Federal investment." Source: Southeastern Power Administration, *2004 Annual Report*, p. 40.

<sup>125</sup> Changes over time in the spread between interest rates of Federal utilities and the benchmark rates they are being measured against do not reflect intended changes in Federal support for these electricity programs. Rather, they reflect supply and demand conditions in credit markets prevailing in 1998 and in 2006.

**Table 18. Interest Rates used to Estimate Federal Utilities and RUS Interest Subsidies, 1998 and 2006 (percent)**

Comparison Debt	1998	2006
30-Year Treasury	5.58	4.91
Investor-Owned Aaa	6.77	5.59
Investor-Owned Aa	6.91	5.84
Investor-Owned A	7.04	6.07
Investor-Owned Baa	7.26	6.32

Sources: The Investor-Owned Aa, A, and Baa Utility rates: Global Insight; Original Source: Moody's Investor Services. The Aaa Investor-Owned rate was obtained from the Federal Reserve Bank's Statistical Release H-15 (FRB: H-15) with the following note: Moody's Aaa rates through December 6, 2006, are averages of Aaa utility and Aaa industrial bond rates. As of December 7, 2001, these rates are averages of Aaa industrial bonds only. The Municipals were provided by Global Insight. The U.S. Treasury 30-year rate was also obtained from FRB: H-15. Treasury rates reflect constant maturities.

The estimated interest support will be higher when the IOU Aa rate is compared to the Treasury rate and higher still when the comparison is graduated downward to the IOU Baa rate. For the year 2006, the difference in yield between a 30-year Treasury and a Baa IOU rated bond was 141 basis points. The difference in yield between an Aaa utility rating and Baa utility was 73 basis points versus 49 basis points in 1998. The level of support therefore rises and falls depending on three developments: (1) changes in the yield spread between different debt instruments (e.g., Treasuries and utilities); (2) changes in the level of outstanding debt; and, (3) the Federal utilities and RUS borrowers embedded cost of debt versus the Treasury's and utilities' current cost of money.

### Selection of a Market Interest Rate

The statutory provisions under which Federal utilities operate provide them with independent authority to establish electric rates on a cost basis, including the repayment of debt. Similar considerations apply to RUS borrowers. Cooperatives set their rates on the basis of cost to meet the requirements of IRC Section 501(c)(12). The board of directors is responsible for setting rates, subject to regulatory approval in some States. Therefore, it can be argued that the benefit of low-cost capital that flows through to Federal utilities' customers is not a Federal support in the absence of a default. With respect to RUS borrowers, the Federal Credit Reform Act requires that the interest subsidy associated with RUS loans be included in the budget. The methodology used to calculate the subsidy incorporates a default rate and recovery rate. Therefore, one can argue that there is no additional support over and above the subsidy reflected in the budget.

The contrary argument is that notwithstanding the statutory framework under which the Federal utilities operate, their customers are receiving financial support because there is neither explicit recognition of the market risk that is borne by the Federal government in the event of a default nor of the opportunity cost to the Federal government's stakeholders, i.e., taxpayers and the customers, in the capital cost associated with the electricity sold by Federal utilities. The value of this financial support is a cost to the Federal government which is not quantified and assigned to the Federal utilities in the budget. To the extent it is a significant and measurable cost, it is reflected in the interest rate set in the market for Treasury securities and in the annual interest expense on Federal debt included in the budget, compared with the interest rate that would otherwise be obtained.

In order to estimate the value of the financial support provided to the customers of the Federal utilities, EIA has adopted a cost-of-capital approach that estimates the value based on the difference between the interest expense that Federal utilities actually paid in 2006 versus what they would have paid under a range of contemporaneous interest rates to their outstanding debt. The interest rates range from the risk-free Treasury rate to the highest interest rate for IOU bonds. For purposes of estimating the value of Federal financial incentives provided directly and indirectly to electricity production be expressed on a unit of production basis, EIA used the interest rate associated with an A-rated IOU bond to compare with Federal utilities' weighted average cost-of-capital.

The analysis is a snapshot that compares the current interest expense based on the average cost of outstanding debt to a hypothetical interest expense that applies a contemporaneous market interest rate to the outstanding debt. In effect this implies the debt is being refinanced. A more accurate measure would have been to estimate the value based on the sum of the difference between face amount of each original loan or bond and present value of each loan or bond issue at the market rate of interest at the time the obligation was incurred. The data required to perform this alternative analysis would be extremely complex, and in any event, were not available to EIA.

Opinions vary with regard to the extent to which there is a significant risk premium between the risk-free Treasury rate and the market rate of interest that Federal utilities would be required to pay in the absence of their ownership status and the statutory framework under which they operate. This is true with respect to TVA and BPA, both of which have received AAA and AA ratings, as well as imputing a market interest rate to the smaller PMAs. In order to develop a point estimate of the value of the support provided to the customers of the Federal utilities, EIA performed a financial ratio analysis that compared TVA and the PMAs to comparably structured governmentally-owned wholesale power suppliers. The financial ratios measure an entity's ability to meet its debt and other fixed obligations, such as lease payments. This approach was adopted in order to neutralize any actual or perceived credit enhancement that financial markets attribute to Federal ownership and/or the ability to borrow at the Federal government's cost of funds or at interest rates comparable to GSE interest rates. This resulted in the adoption of a market interest rate associated with an A credit rating. Limiting the derivation of the market interest rate to consideration of only liquidity-related financial ratios allowed for uniformity in EIA's analysis and eliminated the effects of actual or perceived credit enhancement attributed to Federal support provided in accordance with Federal statutes applicable to the Federal utilities. Therefore, the rating used to develop a point estimate of the value of Federal support should not in any way be construed as an alternative to actual credit ratings issued by the nationally-recognized credit rating agencies. The rating agencies' consider a multitude of factors in addition to financial performance in developing credit ratings that were not considered by EIA.

The interest support associated with the benchmark A rated IOU bond is used only for purpose of estimating the generation portion of the support by fuel type. The benchmark A rating was selected for purposes of calculating the support based on a comparison of financial metrics for the Federal utilities and RUS borrowers to data compiled by Fitch Ratings for comparable wholesale public power entities (i.e., rated generation and transmission cooperatives (G&T), and public power agencies) and retail public power systems that purchase their power supply requirements. The financial metrics are standard measures used by the financial community to assess creditworthiness. Fitch Ratings defines the debt service coverage ratio (DSC) as the ratio of funds available to meet debt service payments (FADS) to annual debt service

payments, i.e., principal and debt service. Numerically, it illustrates how much free cash flow is available to meet debt service payments and other fixed obligations after taking into account operating expenses. A 1.0 DSC indicates that a business has FADS exactly equal to annual debt service payments. A DSC of less than 1.0 indicates the enterprise is not generating sufficient cash flow to meet its debt service payments and other fixed obligations treated as debt for purposes of assessing creditworthiness. It should be noted that government-owned utilities such as Federal utilities and G&T cooperatives financed by RUS borrowers, by virtue of their ownership structure, rely primarily on long-term debt to finance capital investments, unlike investor-owned utilities that finance capital investment through a combination of debt and equity. The Federal utilities and G&Ts' rates are set with the intention of insuring that sufficient free cash flow is available after operating expenses to cover annual debt service payments and to accrue equity.<sup>126</sup> Accordingly, their DSC ratios are typically lower than that of IOUs.

Days of cash on hand provides a gauge of the amount of cash immediately available to respond to unforeseen events such as the purchase of replacement power due to an unscheduled outage of a power plant, or increases in other operating expenses. Days of liquidity adds other sources of cash such as commercial paper and credit lines. High levels of unrestricted cash and liquidity on hand provide a measure of the enterprises ability to meet contingencies from cash generated by operations and short-term borrowing, and still be able to meet debt service and other fixed obligations. Variable rate exposure (VRE) quantifies the net amount of outstanding debt and the VRE-to-capitalization measures the portion of total capitalization that is subject to interest rate risk. The higher the ratio, the greater the exposure to an increase in interest rates and interest expense. If all other factors remain constant, i.e., revenue, operating expenses and depreciation expense (which is a source of cash) financial risk increases. This is because free cash flow will decline.

The ratio of total debt to funds available for debt service (Debt/FADS) measures the factor by which total debt exceeds cash and short-term credit instruments. In effect it measures how much cash is available to meet total debt and fixed obligations in the event of default and an acceleration of the payment of such obligations. A low Debt/FADS ratio indicates the enterprise has adequate cash and liquidity and lower financial risk relative to comparable businesses with higher ratios.

#### Fitch Ratings Definitions of Selected Financial Terms

- **Debt Service Coverage (DSC):** Funds Available for Debt Service Divided by Total Annual Debt Service.
- **Funds Available for Debt Service (FADS):** The sum of operating income, depreciation and amortization, and interest income.
- **Total Annual Debt Service:** Sum of scheduled long-term principal and annual short- and long-term debt interest payments.
- **Total Debt (Debt):** Sum of long-term debt (including capital leases) plus commercial paper, notes payable, current maturity of long-term debt (including capital leases). No adjustment is made for unamortized discounts or premiums.
- **Debt-to-FADS:** The ratio of total debt to funds available for debt service.
- **Unrestricted Cash:** Cash that is available for immediate liquidity needs, with flexible (e.g., board or management policy) or no limitations on use.
- **Days of Cash on Hand:**  
Numerator = Unrestricted cash and investments.  
Denominator = Operating expenses less depreciation.  
Multiplied by 365.
- **Days Liquidity on Hand:**  
Numerator = Unrestricted cash + available lines of credit + commercial paper capacity.  
Denominator = Operating expenses less depreciation.  
Multiplied by 365.
- **Capitalization:** The sum of total debt and total equity.
- **Variable Rate Exposure (VRE):** The sum of variable rate debt, outstanding commercial paper and fixed-to-variable-rate swaps less variable-to- fixed-rate swaps.
- **Variable Rate Exposure-to-Capitalization:** Ratio of VRE to Capitalization

Source: Fitch Ratings, *U.S. Public Power Peer Study*, June 2007, pp.27-28.

<sup>126</sup> The PMAs' audited financial statements refer to equity as Accumulated Net Revenue. For example, in 2006, BPA reported \$1.9 million in Accumulated Net Revenue. Fitch Ratings refers to the same value as equity in its March 16, 2007 issue rating for Energy Northwest 2007 A-D refunding and revenue bonds which BPA is obligated to pay.

Fitch Ratings classifies its bond ratings according to the primary activity of the rated entity. Entities such as joint municipal action agencies, public power authorities, G&Ts, TVA and BPA are classified as wholesale systems. Fitch Ratings provides financial statistics that measure the ability of wholesale systems to meet their fixed obligations based on certain measures of liquidity. The definitions of formulas and financial inputs to the formulas developed by Fitch Ratings that are used in EIA's analysis are provided (see text box: Fitch Ratings Definitions of Selected Financial Terms).

The comparison of TVA's financial metrics to all wholesale suppliers rated by Fitch Ratings shows that with the exception of its DSC and debt as a percentage of funds on hand, TVA's remaining metrics are consistent with median values for wholesale systems in the A to BBB range (Table 19). An A rating appears to be a reasonable benchmark comparison for TVA when its high debt service coverage ratio and days' liquidity on hand are balanced against the remaining metrics that in some instances fall below the median value for the lowest investment grade rating (BBB).

The comparison of BPA's financial metrics to all wholesale suppliers rated by Fitch Ratings shows that with the exception of the DSC and equity as a percentage of total capitalization,

**Table 19. Median Financial Ratios: Investment Grade Rated Wholesale Public Power Suppliers**

	Debt Service Coverage	Equity as Percent of Total Capital	Debt/FADS Ratio	Days Cash On Hand	Days Liquidity on Hand	VRE as Percent of Capitalization
BPA (FY ending 2006)	1.26	13	8.0	204	235	NA
TVA	1.95	10	8.2	32	183	9.0
<b>Median Value for All Rated Wholesale Suppliers</b>						
AA (All Wholesale Systems)	1.70	27	7.0	98	200	3.0
A (All Wholesale Systems)	1.29	17	8.6	74	126	5.0
BBB (All Wholesale Systems)	1.18	5	9.8	92	143	4.0
<b>Median Value for All Rated G&amp;Ts</b>						
AA (G&Ts)	1.42	30	6.1	135	199	5.0
A (G&Ts)	1.10	18	8.2	29	139	1.5
BBB (G&Ts)	1.15	11	9.0	52	155	8.0

**NOTE:** A borrower's desired liquidity on hand can in turn be affected by its credit status in that having a higher credit rating might allow the borrower more ready access to borrowing short-term funds.

NA: No ratio provided by Fitch Ratings.

Sources: Fitch Ratings, *U.S. Public Power Peer Group Study, June 2007*, p. 18; Fitch Ratings, *Public Power New Issue, Energy Northwest (Bonneville Power Administration)*, March 16, 2007, [www.bpa.gov/corporate/Finance/Debt\\_Management/reports\\_articles/](http://www.bpa.gov/corporate/Finance/Debt_Management/reports_articles/)

BPA's financial metrics are consistent with the median values of wholesale systems within the A to AA range (Table 19). The DSC at 1.26 is slightly below that of the median value for A rated



wholesale systems (1.29).<sup>127</sup> However, BPA's days of cash on hand and days of liquidity exceed the median values for AA-rated wholesale systems. This tends to mitigate against the low DSC. Based on this analysis, EIA has also adopted an A rating for purposes of benchmarking BPA's Federal interest rate support in this report.

With respect to the smaller PMAs, EIA also selected the benchmark A rating based on a review of their audited financial statements. SEPA reported its DSC ratio has ranged from 0.38 to 1.30 between 2001 and 2005. It has exceeded 1.0 for the 3-year period ending in 2005. During this period, SEPA's DSC was within a range consistent with that of the median DSC for wholesale systems rated with BBB to A ratings by Fitch Ratings.<sup>128</sup> SWPA and WAPA reported operating losses in 2005. However, they were able to meet their obligations to the Treasury and appear to have adequate cash reserves. Accordingly, an A rating was assumed for purposes of estimating the market value of their respective interest support levels.

The ratings data suggest an A rating is appropriate for the RUS loans for generation and transmission facilities made to G&Ts. Fitch Rating's financial data include 39 public power authorities and G&Ts. Among these 39 entities are 14 G&Ts. Of these 14 G&Ts, 10 received Secured Debt ratings ranging from A- to A+. Three received AA Secured Debt ratings 129 and 1 received a BBB+ ratings.<sup>130</sup> Their total RUS debt was \$8.5 billion, which was equivalent to 55 percent of RUS loans to G&T at the end of 2005.<sup>131</sup>

The benchmark interest rate for an A-rated IOU bond is also used to estimate the support associated with the distribution cooperative segment of the RUS loan portfolio. This is based on the use of the National Rural Utilities Cooperative Finance Corporation's (CFC) credit ratings as a proxy for the creditworthiness of RUS distribution borrowers. CFC provides interim construction, permanent financing, and loan guarantees to G&Ts. It also provides supplemental loans to RUS distribution cooperatives and total financing to former RUS distribution borrowers. For its fiscal year ending May 31, 2006, CFC reported \$12.9 billion of distribution loans and \$3.7 billion of power supply loans and loan guarantees. Collectively, these loans and loan guarantees accounted for 86 percent of its total portfolio.<sup>132</sup> CFC's Senior Secured and Senior Unsecured debt received A1 and A2 ratings, respectively, from Moody's and A ratings from Standard & Poor's and Fitch. Given that CFC's secured debt is secured by its loan portfolio, and given the breadth of its electric cooperative loan portfolio, it is reasonable to use CFC's A rating as a proxy for RUS distribution debt.<sup>133</sup>

Since the financial accounts of the four PMAs, TVA, and RUS borrowers differ considerably, and due to reasons cited below, a single Federal interest rate support estimate was used in this

<sup>127</sup> Fitch Ratings reports that BPA's 2006 DSC was 4.93 for non-Federal Project debt issued by Energy Northwest. The terms under which BPA has assumed the payment obligation for this debt provides that debt service payments to the Federal government are subordinated to Energy Northwest, i.e., Energy Northwest bondholders have payment priority over the Federal government. The 1.26 DSC includes BPA's Federal and non-Federal obligations.

<sup>128</sup> Southeastern Power Administration, Annual Report 2005, p. 26.

<sup>129</sup> Georgia Transmission Corporation, an RUS financed transmission cooperative received an AA rating by Fitch.

<sup>130</sup> Three of the G&Ts rated by Fitch, Old Dominion Electric Cooperative (A rated Senior Debt), Great River Energy (A- rated Senior Debt), and Golden Spread Electric Cooperative (A- rated Senior Debt), are no longer RUS borrowers.

<sup>131</sup> The credit rating agencies' criteria for wholesale systems include an examination of the financial strength and service territories of the members of a G&T. Basin Electric Power Cooperative and Associated Electric Cooperative members include 14 G&Ts, of which 12 are RUS borrowers. Collectively, the outstanding RUS debt of these 12 G&Ts, excluding Tri-State Generation and Transmission Association which is included in the \$8.5 billion of rated G&T debt, in 2005 was \$296 million. Associated and Basin are rated AA and AA-, respectively, by Fitch Ratings.

<sup>132</sup> National Rural Utilities Cooperative Finance Corporation, 2007 SEC 10-K, p. 33.

<sup>133</sup> For Moody's rating see, [www.nrucfc.org/investors/pdfs/cfc\\_credit\\_opinion.pdf](http://www.nrucfc.org/investors/pdfs/cfc_credit_opinion.pdf). For Standard and Poor's rating see [www.nrucfc.org/investors/pdfs/cfc\\_sp\\_analysis.pdf](http://www.nrucfc.org/investors/pdfs/cfc_sp_analysis.pdf). For Fitch's rating see, [www.nrucfc.org/investors/pdfs/fitch\\_02-23-07.pdf](http://www.nrucfc.org/investors/pdfs/fitch_02-23-07.pdf), accessed December 10, 2007.

analysis. A more complicated method would be to measure the interest paid by Federally-supported power entities against the interest paid on similar debt (i.e., same maturity) issued by the Treasury or by IOUs at the same time the debt was issued. However, several difficulties arise with the latter methodology. In essence the yield curve for the Federal utilities is fundamentally different from the yield curve for the IOUs. One problem is that the debt maturities cannot always be matched. For instance, TVA has issued debt with maturities as long as 50 years, for which there are no similar Treasury or IOU debt instruments. Another difficulty is that some bonds are callable, which means it may not be held to maturity. There is an interest rate differential between callable and non-callable debt. Callable debt, all other factors being equal, has a higher interest rate. Another problem is the lack of available data. Although some of the debt on the books of the PMAs dates back to the 1940s, there is little in the way of comparable IOU and Treasury interest rate data available. For instance, the U.S. Treasury did not start to issue 30-year debt until 1978 and in the years 2003, 2004 and 2005, no 30-year Treasury bonds were in circulation. Finally, the PMAs also have two other advantages over IOUs that tend to make an IOU/PMA bond-to-bond comparison problematic. First, the PMAs have the right to pay off high-interest debt first and, second, the PMAs can defer payments of debt during revenue shortfalls up to the point of the maturity of the loan. These deferrals can be as long as 50 years.<sup>134</sup>

In making comparisons between the interest costs faced by the Federal utilities and the IOUs, two other complications arise. The first began in FY 2000, when TVA initiated lease/lease back arrangements.<sup>135</sup> In lease/lease back arrangements, the TVA "leases" TVA generation assets to investors for a one-time cash payment used to retire debt.<sup>136</sup> In turn, the TVA leases back the plants and makes periodic lease payments.<sup>137</sup> The second complication relates to TVA's prepayment plan. In 2003, the TVA initiated a pre-payment plan, which allowed TVA customers to pay for their power in advance in return for discounted, wholesale rates. Again, TVA used the transactions proceeds to retire long-term debt. Due to both of these transactions, the TVA significantly reduced its long-term debt. Both of these obligations are recorded as liabilities on TVA's balance sheet. TVA does not define these liabilities as debt. However, due to their strong resemblance to debt, this report defines them as such. Both lease/lease back arrangements and prepayments are discussed later in the TVA section of this chapter.

TVA's debt in 2006 received an Aaa bond rating. The imputed interest expense in TVA lease payments and the prepayment discount were not treated as interest expense in TVA's financial documents. Therefore, TVA's interest costs were estimated by applying an Aaa interest expense to TVA's long-term debt which includes both the values of its lease payment obligation and the unamortized balance of the prepayment which is TVA's power supply obligation to those who prepaid. The Aaa interest rate expense was then compared to what the TVA would pay in interest with a lower bond rating.

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<sup>134</sup> General Accounting Office, Power Marketing Administrations, *Their Ratesetting Practices Compared with those of Nonfederal Utilities*, GAO/AIMD-00-114, (Washington, DC, March 2000), p.14.

<sup>135</sup> In general, lease/leaseback arrangements appeared in the 1980s. These leases often involved the transfer of tax benefits to third parties when the utility cannot use them (i.e., publicly-owned utilities do not benefit from accelerated depreciation). Source: Public Utilities Report Guide, Chapter 5 Financial Issues for Utilities 1999, p. 5-28, Public Utilities Reports Inc., Vienna, Virginia.

<sup>136</sup> TVA's lease/leaseback arrangements also include a secondary lease with structured payments over time.

<sup>137</sup> One of the benefits of this arrangement is the transfer of the tax benefit of depreciation to the equity investors participating in the lease lease/back transaction that is not available to TVA. Under this type of transaction, the parties typically share in the benefit of the tax benefit being transferred. In this case, TVA realizes a portion of the benefit in lease payments that are passed on to its customers. The equity investors realize the benefits of the deductibility of depreciation as an operating expense and the deferral associated with the timing difference between book and tax depreciation. The value of the portion of the transaction transferred to the counterparty may be viewed as a form of Federal government support, although insufficient information prevents estimating its value in this report.

For the PMAs, the debt values and interest expenses were obtained from their 2006 annual reports. Having actual data on both PMAs' long-term debt and interest on long-term debt allows for a comparison of what that interest might be if PMA's borrowed at IOU rates. The three smaller PMAs have embedded cost of debt below the current 30-year Treasury rate. Although currently all new debt issued by the three smaller PMAs is at or near prevailing Treasury rates, much of their old debt bears interest well below that of similar Treasury debt with comparable maturities at today's rate. Furthermore, unlike TVA, the three smaller PMAs have an advantage unavailable to the Treasury itself in that DOE allows the retirement of high-interest debt first. Therefore, borrowing costs for the 3 smaller PMAs were also measured against borrowing costs at the Treasury rate along with the interest rates for investment grade IOU bonds rated Aaa, Aa, A, and Baa. However, the comparison with an A rating is used as the benchmark.

### Tennessee Valley Authority

The TVA was established in 1933 under the Tennessee Valley Act (Public Law 73-17). Its original purpose was to promote economic development in the Tennessee Valley, to improve navigation, and to aid in flood control. TVA is far and away the largest of the Federal utilities, having an asset base greater than that of the four PMAs combined. TVA is operated as an independent government-owned corporation. Its nine-member board of directors is solely responsible for setting rates and for policymaking.<sup>138</sup> The board is appointed by the President of the United States. Unlike the other Federal utilities, TVA's hydropower accounts for a relatively small share of its total generation. In 2006, generation from fossil fuels accounted for 64 percent of TVA's total generation, while nuclear generation accounted for 29 percent, and hydroelectric generation accounted for 6 percent.<sup>139</sup> TVA's service territory covers 8.7 million people located in nearly all of Tennessee and parts of Alabama, Kentucky, North Carolina, Mississippi, Georgia, and Virginia. Tennessee accounted for 64 percent of TVA's electricity sales in 2006. Its wholesale customers include 108 utilities and 20 electric cooperatives. TVA received 87 percent of its revenue from cooperatives in 2006. Memphis Light Gas and Water Division and Nashville Electric Services are the largest utility customers of TVA. The United States Enrichment Corporation is the largest direct service industrial customer.<sup>140</sup>

Prior to the TVA Act of 1959, TVA was financed through Federal appropriations. The 1959 TVA Act authorized the TVA to raise capital on its own—to be "self-financing," allowing TVA considerably more latitude in making its investment decisions. Congress initially imposed a \$750 million debt cap on TVA. This debt cap was later raised to \$1.75 billion in 1966, \$5 billion in 1970, \$15 billion in 1975, and \$30 billion in 1979. In 2006, long-term debt stood at \$26 billion.<sup>141</sup> Since 2000, TVA has not relied on Federal appropriations to fund its non-power operations, such as multipurpose activities and recreational programs, when other sources of revenues, such as user's fees, were insufficient to fund those programs. Funding for these programs has been derived from user fees, other revenues, and electricity sales.

A number of explicit and implicit benefits are received by TVA due to its status. For example, TVA receives implicit interest rate support via a favorable debt rating since it is owned by the

<sup>138</sup> Unlike the PMA administrators who receive their appointments through the Department of Energy, the TVA's commissioners receive their appointments from the President. The Consolidated Appropriations Act of 2005 restructured the board to include nine part time commissions from the previous three full time commissioners. The commissioners are appointed for 5-year terms as compared to the 9-year term appointments under the previous regime. A Chief Executive Officer is to be chosen by the nine-member board. The board is responsible for establishing the broad goals, objectives, and policies of the Corporation and approving an annual budget. Source: Public Law 108-447.

<sup>139</sup> Tennessee Valley Authority, SEC 10-K, 2006, pp. 6, 14, 11, 18.

<sup>140</sup> Tennessee Valley Authority, SEC 10-K, 2006, pp. 9 and 11.

<sup>141</sup> General Accounting Office, Tennessee Valley Authority: *Bond Ratings Based on Ties to the Federal Government and Other Nonfinancial Factors*, GAO-01-540 (Washington, DC, April 2001), p. 3.

Federal government. In general, TVA borrows at rates comparable to those of Federal government agencies. In addition, TVA's customers are required to provide up to 10-years notice before they are allowed to switch their service to another utility. This provides for stability in TVA's revenue from electricity generation. It is also exempt from antitrust laws, an exemption IOUs and the other Federal utilities do not enjoy. EPCRA 1992 provided an exemption for TVA from amendments to the Federal Power Act that enhanced the Federal Energy Regulatory Commission's (FERC) authority to order utilities to provide transmission service. This exemption is referred to as the "anti-cherry picking" advantage.<sup>142,143</sup> The anti-cherry picking provision although regulatory (and not included as a Federal support in this report) reinforces the financial community's perception that TVA bonds are virtually a risk-free investment.<sup>144</sup> However, the TVA Act of 1959 places strict limits on how much power the TVA can sell outside of its jurisdiction. The TVA Act of 1959 established a "fence" based upon the geographic area of the distributors served by the TVA in 1957.

TVA rates are not regulated by the FERC, nor are its rates subject to State regulation. TVA's Board has complete discretion in setting rates. Over the last decade, TVA's rates have been generally higher than those of surrounding utilities. Until recently, TVA was exempt from the reporting requirements required of publicly-held companies. However, in February 2003, the TVA Board adopted the TVA Corporate Accountability and Disclosure Plan which required TVA to develop corporate practices that reflect the reforms of the Sarbanes-Oxley Act of 2002 (Public Law 107-204), including certification of financial statements and related disclosures by the TVA Board of Directors and the Chief Financial Officer.<sup>145</sup>

Based on these factors, EIA adjusted TVA's outstanding debt to reflect two obligations, which pursuant to Generally Accepted Accounting Practices (GAAP), are not reflected as long-term debt on its balance sheet, but as other liabilities. These liabilities included TVA's (1) obligations pursuant to two lease/lease back transactions associated with 24 generating plants and other system electric system facilities and (2) future obligations to supply power to its largest customer, Memphis Light, Gas, and Water Division (MLGW). MLGW issued tax-exempt debt, the proceeds of which were used to prepay future power supply costs at a discount.<sup>146</sup>

In 2006, the TVA carried over \$1.1 billion (2007 dollars) in lease/lease back liabilities on its balance sheet and energy prepayment obligations totaling \$1.2 billion (2007 dollars). These obligations have an effect on TVA's cash flow and therefore its ability to meet debt service obligations. The Office of Management and Budget (OMB) treats TVA's lease/lease back arrangements as debt and has advised that this should be included in the TVA's \$30 billion debt ceiling.<sup>147</sup> In the FY 2008 budget, the OMB determined "that each of these methods (lease/lease back obligations and prepayment financing methods) is a means of financing the

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<sup>142</sup> General Accounting Office, *Tennessee Valley Authority, Debt Reduction Efforts and Potential Stranded Costs*, GAO-01-327, (Washington, DC, February 2001), p. 6.

<sup>143</sup> General Accounting Office, *Tennessee Valley Authority, Assessment of 10-year Business Plan*, GAO/T-AIMD-99-295, (Washington, DC, September 1999), p. 2.

<sup>144</sup> In July 2005, a bill was introduced (S.1499) that would effectively remove any area within Kentucky from coverage by the anti-cherry-picking provision. This bill would require the FERC to mandate that the TVA wheel power from a supplier other than TVA for use inside that portion of TVA's service area that is within Kentucky.

<sup>145</sup> Tennessee Valley Authority: <http://www.tva.gov/foia/readroom/policy/prinprac/bun24.htm>, accessed October 11, 2007.

<sup>146</sup> In 2003 TVA initiated a pre-payment plan, which allowed TVA customers to pay for their power in advance but in return receive discounted rates, again resulting in a reduction in long-term debt. In 2004, TVA and MLGW, entered into an energy prepayment agreement under which MLGW prepaid TVA \$1.5 billion for the future costs of electricity to be delivered by TVA to MLGW over a period of 180 months. TVA reported the prepayment as unearned revenue, and booked future energy sales obligations to MLGW as a long-term liability on its balance sheet. In 2006, TVA reported \$1.2 billion (2007 dollars) liability in energy prepayment obligations.

<sup>147</sup> Office of Management and Budget: <http://www.whitehouse.gov/omb/budget/fy2004/pma/tvapower.pdf> and <http://www.whitehouse.gov/omb/budget/fy2004/agencies.html>; accessed October 11, 2007.

acquisition of assets owned and used by the Federal government, or refinancing debt previously incurred to finance such assets. They are equivalent in concept to other forms of borrowing from the public, although at different terms and conditions."<sup>148</sup> The GAO also concluded that "while the lease/lease back arrangements are not considered debt for purposes of financial reporting and debt cap compliances, they have substantially the same economic impact on TVA's financial condition and future competitiveness as traditional debt financing... Thus while the lease/lease back arrangements are not treated as debt for financial reporting purposes, they are in essence debt because they have substantially the same economic impact on TVA as traditional debt financing."<sup>149</sup> GAO also noted that GAAP does not require that the lease/lease back arrangements be classified as debt.

For its part, TVA has expressed concerns that applying the \$30-billion debt ceiling to lease/lease back arrangements may result in a capital shortfall: "If Congress decides to broaden the type of financial instruments that are covered by the debt ceiling or to lower the debt ceiling, TVA might not be able to raise enough capital to, among other things, service its then-existing financial obligations, properly operate and maintain its power assets, and provide for reinvestment in its power program."<sup>150</sup> TVA records lease/lease back transactions and power prepayment obligations—along with more traditional forms of debt—as Total Financial Obligations (TFOs). In the President's 2007 budget, the TVA indicated that it intended to reduce its TFOs by \$7.8 billion by 2016.<sup>151</sup>

In 2006, TVA had outstanding long-and short-term debt of \$26 billion (Table 20), which compares to the \$33 billion in debt it reported in 1998 (2007 dollars). One method of calculating the value underlying TVA's high credit rating would be to compare TVA's total interest costs against what TVA would pay if it had a lower credit rating. To determine the different levels of borrowing costs under various credit ratings, an estimate of the spread between different interest rates was calculated. The spread between TVA's borrowing costs and alternative borrowing costs presents a measure of the value of TVA's interest rate support. This report uses TVA's Aaa bond rating as a comparison to other interest rates for purposes of measuring Federal support. In other words, if TVA borrowed money at the Aa rate rather than the Aaa rate, its borrowing costs in 2006 would increase 25 basis points, or result in \$65 million (2007 dollars) in additional interest expense. This is one measure of Federal support. An A bond rating would raise TVA's 2006 borrowing costs by \$124 million (2007 dollars), and the Baa rating by \$189 million (2007 dollars). In 1998, an Aa rating would have raised TVA's borrowing costs by \$46 million (2007 dollars), an A rating by \$88 million (2007 dollars), and a Baa rating by \$160 million (2007 dollars). Although the basis point spread between the 30-year Treasury and corresponding utility rates narrowed between 1998 and 2006, the spread between the Aaa utility bonds and all other investment-grade rated utility bonds increased, thereby increasing the estimated support going to the TVA despite lower interest costs and lower debt outstanding. For purposes of a point estimate for this report, the comparison with an A rating yield support of \$124 million is used.

<sup>148</sup> Office of Management and Budget, *Analytical Perspectives of the United States Budget, Fiscal Year 2008*, (Washington, 2007), p. 229.

<sup>149</sup> General Accounting Office, *Information on Lease-Leaseback and Other Financing Arrangements*, GAO-03-784, (Washington, DC, June 2003).

<sup>150</sup> Tennessee Valley Authority, SEC 10-K, 2006, p. 42.

<sup>151</sup> Tennessee Valley Authority, [http://www.tva.gov/news/reduction\\_tfo.htm](http://www.tva.gov/news/reduction_tfo.htm), accessed October 11, 2007.

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**Table 20. Estimate of Federal Electricity Interest Rate Support to TVA, 1998 and 2006**  
(million 2007 dollars)

	Treasury Rate	Aaa IOU Rate	Aa IOU Rate	A IOU Rate	Baa IOU Rate
<b>1998</b>					
1. Benchmark Interest Rate (%)	5.58	6.77	6.91	7.04	7.26
2. Outstanding Debt (\$)	32,678	32,678	32,678	32,678	32,678
3. Average Cost of Outstanding Debt (%)	6.77	6.77	6.77	6.77	6.77
4. Actual Interest Expense (\$)	2,212	2,212	2,212	2,212	2,212
5. Interest Expense Computed at Benchmark Rate (\$) [(1) x (2)]	1,823	2,212	2,258	2,301	2,372
6. Estimated Interest Support at Benchmark Interest Rate (\$) [(5)-(4)]	(389)	0	46	88	160
<b>2006</b>					
1. Benchmark Interest Rate (%)	4.91	5.59	5.84	6.07	6.32
2. Outstanding Debt (\$)	25,848	25,848	25,848	25,848	25,848
3. Average Cost of Outstanding Debt (%)	5.59	5.59	5.59	5.59	5.59
4. Actual Interest Expense (\$)	1,445	1,445	1,445	1,445	1,445
5. Interest Expense Computed at Benchmark Rate (\$) [(1) x (2)]	1,269	1,445	1,510	1,569	1,634
6. Estimated Interest Support at Benchmark Interest Rate (\$) [(5)-(4)]	(176)	0	65	124	189

**NOTES:** The table above presents the historic value of TVA's debt in 2007 dollars for purposes of illustrating how the support values for 1998 and 2006 were calculated. The nominal value of debt reported on TVA's balance sheet was at \$26,582 million in 1998.

A negative value for estimated interest support indicates that the weighted average cost of outstanding debt exceeds the benchmark interest rate.

Sources: Tennessee Valley Authority Annual Report 1998 and SEC 10-K, 2006, Moody's Utility Manual, Federal Reserve Bank Form H-15, and Table 18.

### The Power Marketing Administrations

The Bonneville Project Act of 1937 (Public Law 75-329) resulted in the creation of the Bonneville Power Administration. The Act required BPA to market hydropower produced from the Columbia River and to promote regional economic development. BPA is the largest of the Federal PMAs and the second largest Federal utility in terms of assets after TVA. The second largest PMA, the Western Area Power Administration (WAPA), was created in 1977 with the Department of Energy Organization Act of 1977 (Public Law 95-91). WAPA was charged with marketing hydropower facilities in the western United States including the power from the Hoover Dam, which was built in 1935. Both the Southwestern Power Administration and the



Southeastern Power Administration owe their existence to the Flood Control Act of 1944 (Public Law 78-534) although the Southeastern Power Administration was not actually created until 1950. The Flood Control Act required: "Electric power and energy generated at reservoir projects under the control of the Department of the Army and in the opinion of the Secretary of the Army not required in the operation of such projects shall be delivered to the Secretary of the Interior, who shall transmit and dispose of such power and energy in such manner as to encourage the most widespread use thereof at the lowest possible rate to consumers consistent with sound business principles...Rate schedules shall be drawn having regard to the recovery (upon the basis of the application of such rate schedules to the capacity of the electric facilities of the projects) of the cost of producing and transmitting such electric energy, including the amortization of the capital investment allocated to power over a reasonable period of years. Preference in the sale of such power and energy shall be given to public bodies and cooperatives. The PMAs operate within the Department of Energy and the Secretary of Energy selects the PMA administrators."

The PMAs sell about 5 percent of the Nation's electricity, virtually all of it wholesale. BPA's service territory covers Washington, Oregon, and small pieces of western Montana and western Wyoming. WAPA covers California, Nevada, Utah, Arizona, New Mexico, Utah, most of Montana, most of Wyoming, west Texas, North and South Dakota, Nebraska, western and southern Kansas, and the western edges of Minnesota and Iowa. The SWPA serves the rest of Kansas, Missouri, and Oklahoma, the rest of Texas, Arkansas, and Louisiana. The SEPA serves Illinois, West Virginia, Kentucky, Tennessee, Mississippi, Alabama, Georgia, and the Florida panhandle, North and South Carolina, and Virginia.

### **BPA's Borrowing Costs**

BPA receives no direct payment from the Treasury. Rather, the support it receives is implicit, involving the interest it pays on its debt. As with all other Federal utilities, BPA is a not-for-profit enterprise and prices its power to recover its operating and capital costs. Although in large measure BPA's lower prices are the result of its access to low-cost generation from Federal hydropower facilities, below-market borrowing costs also contribute. The size of BPA's estimated Federal interest rate support is a function of the interest rate chosen to reflect the appropriate "market" interest rate, as discussed below. For purposes of a point estimate for this report, a comparison with A-rated debt is used (Table 20).

**Appropriated Debt.** BPA appropriated debt refers to the unpaid portion of pre-1992 appropriations by Congress to fund the construction and replacement of U.S. Army Corps of Engineer's generation facilities.<sup>152</sup> Since passage of the EPACT1992, BPA has been required to fund these operations directly. BPA's appropriated debt was restructured in 1996. Under the BPA Appropriations Refinancing Act of 1996<sup>153</sup> (The Refinancing Act), BPA reduced its principal obligation of the debt by \$2.5 billion based on the present values of its debt service payment. It was then required to pay interest on the restated principal balance based on prevailing Treasury rates as of October 1996.<sup>154</sup> The \$2.5 billion reflects the difference between BPA's original principal balance and restated principal. It appears on BPA's financial statements as a

<sup>152</sup> This includes some funding for fish and wildlife recovery.

<sup>153</sup> 16 U.S.C. 838l.

<sup>154</sup> The Act also required the BPA to pay the Treasury an additional \$100 million, prorated over the course of the appropriations. This value was incorporated by BPA into its interest payment on appropriated debt and was captured in the interest support estimated in this chapter. In 2006, BPA's appropriated debt stood at \$6.4 billion. This includes a capitalization adjustment of \$2.1 billion, which was included under appropriated debt prior to 1997. In 1997, the principal on BPA's appropriated debt was reduced by \$2.6 billion while interest on the debt was raised to 7.1 percent from 3.5 percent. BPA realized a \$100-million dollar transaction cost as a result of this principal and interest adjustment.

Capitalization Adjustment. Because BPA sets its own rates, it is able to record the Capitalization Adjustment on its balance sheet as a regulatory liability and to amortize through its income statement under Financial Accounting Standards Board Announcement No. 71 (FAS No. 71). In the absence of meeting the requirements of FAS No. 71, BPA would be required to write off the Capitalization Adjustment. In other words, the Refinancing Act obligated BPA to pay a higher interest rate on a lower amount of debt. After the refinancing, the total cash flow to the Treasury, including a \$100 million up-front cash payment, yields the same present value as BPA's pre-refinancing obligation.

In 2006, BPA's appropriated debt plus the Capitalization Adjustment equaled \$6.4 billion (2007 dollars) versus \$8.4 billion in 1998 (2007 dollars). The nominal value of BPA's appropriated debt was \$6.9 billion in 1998. BPA's estimated interest rate on its average embedded cost of funds was 4.3 percent in 2006.

**Long-Term Debt.** BPA's long-term debt primarily funds its transmission system. In 1974, the Congress, as a part of the Columbia River Transmission Act (Public Law 93-454), allowed BPA an amount limited to a nominal \$4.5 billion in direct borrowing authority from the Treasury with \$3.2 billion earmarked to fund the utility's transmission and other investment capital program and \$1.3 billion for conservation and renewable energy investments. The appropriations are to be repaid to the Treasury by BPA. This long-term debt is actually a combination of medium- and long-term maturities. The debt is held by the Treasury at interest rates set by the Treasury, which approximate the interest rates paid by government agencies. The rates are adjusted to reflect the cost of specific features of BPA's bonds. In 2006, BPA's long-term debt equaled approximately \$1.9 billion versus \$2.8 billion in 1998 (2007 dollars). The nominal value of BPA's debt equaled \$2.4 billion in 1998.

**Non-Federal Projects Debt.** Non-Federal projects debt stems from BPA's assumption of the payment obligation on the debt of three Washington State Public Power Supply System (WPPSS) nuclear projects and several smaller generation and conservation investments. In 2000, BPA's one commercially-operating reactor, WNP-2 was renamed the Columbia Generating Station. During the 1980s, WPPSS defaulted on nuclear units 4 and 5.<sup>155</sup> WPPSS is now known as Energy Northwest.<sup>156</sup> Energy Northwest is responsible for the financing of Nuclear Projects 1, 2, and 3.<sup>157</sup> As a result of its net billing arrangements, BPA passes on the cost of its non-Federal project debt to its customers. Net billing agreements are contractual arrangements under which the BPA bills participants in its inoperable Trojan nuclear plant<sup>158,159</sup> and the Columbia Generating Station. Each participant assigns its share of output to the BPA and in return BPA credits the participant's wholesale bill up to the monetary value of the participant's share of the generation output.<sup>160</sup> Thus, non-Federal project debt is not actually issued by BPA, but rather it is issued by Energy Northwest with BPA as the obligor pursuant to a net billing power supply arrangement.<sup>161</sup>

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<sup>155</sup> Myers, Elaine and David, Lessons from WPPSS, "In Context," Volume No. 7, p. 28 August 1984. See, <http://www.context.org/ICLIB/IC07/Myers.htm>

<sup>156</sup> Unit 4 is located at Richland, Washington while unit 5 is located at Satsop, Washington.

<sup>157</sup> The only operating unit among these is Project 2, the Columbia Generating Station.

<sup>158</sup> The Trojan project is among Bonneville's terminated nuclear plants along with Energy Northwest Nuclear Projects 1 and 3.

<sup>159</sup> BPA charges preference customers' entitlement shares of output from the abandoned Trojan project. BPA became responsible for Trojan's debt service and decommissioning costs.

<sup>160</sup> Bonneville Power Administration: [http://www.bpa.gov/Power/PSR/pbl\\_billing\\_procedures.pdf](http://www.bpa.gov/Power/PSR/pbl_billing_procedures.pdf), accessed October 11, 2007.

<sup>161</sup> Standard and Poor's notes that "Debt service on the \$7.17 billion of outstanding ENW debt as of March 1, 2007 is legally an operating expense of Bonneville." Source: Standard and Poor's Public Finance: [http://www.bpa.gov/corporate/Finance/Debt\\_Management/reports\\_articles/docs/SP\\_2\\_17\\_04.pdf](http://www.bpa.gov/corporate/Finance/Debt_Management/reports_articles/docs/SP_2_17_04.pdf), accessed October 11, 2007.

In 2006, approximately \$4.0 billion of BPA's \$6.6 billion (2007 dollars) in non-Federal project debt was devoted to cancelled nuclear power plants. Although the Federal government does not explicitly guarantee BPA's non-Federal debt, the financial community treats the debt as though it was guaranteed. BPA is line agency within DOE, and for its latest debt financing in 2007, Standard and Poor's and Fitch Ratings assigned newly issued Energy Northwest revenue and refinancing bonds an AA- rating.<sup>162</sup> Moody's rated the bonds as Aaa.<sup>163</sup> According to Moody's: "The Aaa rating is rooted in the strength of the legal arrangements between Energy Northwest and the Federal entity that provides the underlying security for the bonds, Bonneville Power Administration...Credit strength is derived from BPA's status as a line agency of the U.S. Department of Energy and the strong relationship with the U.S. Government that allows for direct borrowing authority with the U.S. Treasury and the legal ability to defer annual Treasury repayment when necessary to meet commitments under the net billing agreements."<sup>164,165</sup> In Moody's High Profile New Issue, dated April 2004, the credit rating agency states: "Contributing to the Aaa rating on the Energy Northwest bonds are the evident implicit support by the Federal government for Energy Northwest bonds through BPA and BPA's established record of full cost recovery from its business operation and rates."<sup>166</sup> In providing its AA- rating to Energy Northwest debt, Fitch notes that payments of debt to the U.S. Treasury is subordinate to payment on Energy Northwest debt. Fitch also notes that the positive support for the rating is BPA's position as a leading provider of electricity and transmission in the Pacific Northwest and its highly competitive wholesale power rates.

In the estimate of BPA's Federal interest rate support presented below, the interest cost of BPA's non-Federal power debt is compared to the cost of similar debt issued by IOUs. This methodology is not without controversy. On the one hand, although much of BPA's Energy Northwest debt is exempt from Federal taxation, BPA is obligated to pay the debt service on Energy Northwest bonds and this debt appears on the balance sheet of a Federally-owned utility.<sup>167</sup> As obligor of this debt, whatever tax-free status this debt enjoys due to its "municipal" status, is deemed not relevant to the calculation of interest support provided through implicit Federal ownership and backing. However, an alternative view might be to compare the cost of this debt to the cost of debt on tax-free municipal bonds.

### **BPA's Federal Interest Support**

The difference between BPA's current total cost of funds compared to what it would have spent had it borrowed at the U.S. Treasury rate and various IOU rates varies by the alternative interest rate selected (Table 21). Borrowing at the Treasury 30-year bond rating would have cost BPA an additional \$19 million, in 2006. Borrowing at a public utility rating of Aaa would have cost BPA an additional \$120 million (2007 dollars); an Aa rating would have cost BPA an additional \$157 million (2007 dollars); an A rate would have cost BPA an additional \$191 million (2007 dollars) over its 2006 interest charges; and, a Baa rating an additional \$228 million (2007

<sup>162</sup> Standard and Poor's Public Finance, Bonneville Power Administration: [http://www.bpa.gov/corporate/Finance/Debt\\_Management/reports\\_articles/docs/2007/S%20&%20P%20Report.pdf](http://www.bpa.gov/corporate/Finance/Debt_Management/reports_articles/docs/2007/S%20&%20P%20Report.pdf). Accessed October 15, 2007.

<sup>163</sup> S&P and Fitch have provide issue ratings that are applicable to the specific bonds. Moody's has provided an issuer rating corporate rating that applies to the enterprise and not specific bond issues.

<sup>164</sup> Bonneville Power Authority, Ratings Update: Energy Northwest, WA, March 19, 2004, [http://www.bpa.gov/corporate/Finance/Debt\\_Management/reports\\_articles/docs/Moodys\\_3\\_19\\_04.pdf](http://www.bpa.gov/corporate/Finance/Debt_Management/reports_articles/docs/Moodys_3_19_04.pdf), accessed October 11, 2007.

<sup>165</sup> Net billing agreements are an arrangement under which the more than 100 Northwest utilities purchased all of the project capability of Nuclear Project No. 1, Columbia and Energy Northwest's 70 percent ownership of Nuclear Project No. 3. These utilities resold their electricity to BPA and in return BPA is required to finance the annual costs of these projects. Source: Energy Northwest, <http://www.energy-northwest.com/annualbudgetdownloads/Final%202008%20Glossary.pdf>, accessed October 11, 2007.

<sup>166</sup> Moody's Investors Service, *High Profile New Issue*, April 2004.

<sup>167</sup> Certain Energy Northwest bond issues are also enhanced with bond insurance.

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dollars). These values represent an increase from 1998 when, for instance, borrowing at an A rating would have raised BPA's borrowing costs by \$138 million over the Treasury rate. A large portion of the reduction in borrowing costs can be attributed to the \$4.7-billion reduction in debt between 1998 and 2006. For purposes of a point estimate for this report, the comparison with the A rating is used.

**Table 21. Estimate of Federal Electricity Interest Rate Support to BPA, 1998 and 2006 (million 2007 dollars)**

	Treasury Rate	Aaa IOU Rate	Aa IOU Rate	A IOU Rate	Baa IOU Rate
<b>1998</b>					
1. Benchmark Interest Rate (%)	5.58	6.77	6.91	7.04	7.26
2. Outstanding Debt (\$)	19,610	19,610	19,610	19,610	19,610
3. Average Cost of Outstanding Debt (%)	6.34	6.34	6.34	6.34	6.34
4. Actual Interest Expense (\$)	1,243	1,243	1,243	1,243	1,243
5. Interest Expense Computed at Benchmark Rate (\$) [(1) x (2)]	1,094	1,328	1,355	1,381	1,424
6. Estimated Interest Support at Benchmark Interest Rate (\$) [(5)-(4)]	(149)	85	112	138	181
<b>2006</b>					
1. Benchmark Interest Rate (%)	4.91	5.59	5.84	6.07	6.32
2. Outstanding Debt (\$)	14,810	14,810	14,810	14,810	14,810
3. Average Cost of Outstanding Debt (%)	4.78	4.78	4.78	4.78	4.78
4. Actual Interest Expense (\$)	708	708	708	708	708
5. Interest Expense Computed at Benchmark Rate (\$) [(1) x (2)]	727	828	865	899	936
6. Estimated Interest Support at Benchmark Interest Rate (\$) [(5)-(4)]	19	120	157	191	228

**NOTES:** BPA's debt values are exclusive of BPA's current liabilities. BPA's current liabilities consist of payments to the Treasury to fund Federal post retirement programs and irrigation assistance programs. The table above presents the historic value of BPA's debt in 2007 dollars for purposes of illustrating how the support values for 1998 and 2006 were calculated. The nominal value of the debt reported on BPA's balance sheet was at \$15,951 million in 1998.

A negative value for interest rate support indicates that the weighted average cost of outstanding debt exceeds the benchmark interest rate.

Sources: Bonneville Power Administration 1998 and 2006 Annual Reports and Table 18.

### The Smaller Power Marketing Administrations

The three smaller PMAs are the SEPA, the SWPA, and the WAPA. Each is headed by an administrator appointed by the Secretary of Energy. More so than either BPA or TVA, the three smaller PMAs benefit from low-cost hydropower dams that were built as long as 60 years ago. The PMAs receive appropriations from the Treasury for most of their operations and maintenance expenses, as well as for capital expenditures. The former is expected to be paid off in the year it is received; the latter can be paid back with interest over the service life of the investment, for a period not to exceed 50 years. In the 2007 budget, the OMB proposed that the

borrowing costs of the three PMAs be raised to those of a "government corporation."<sup>168</sup> This would raise the rate charged by the Treasury to the PMAs closer to the rate the BPA pays on its long-term debt. In a 2008 budget document, the Bush Administration proposed an initiative to charge the three smaller PMAs interest rates on new capital investments, occurring after September 30, 2006, at levels similar to those charged to governmental corporations.<sup>169</sup> In 2006, the PMAs' embedded cost of debt was more than 100 basis points below the Treasury's own borrowing costs.

Before 1983, the interest rate on the three smaller PMAs' debt was set below prevailing Treasury rates. In 1983, DOE required the PMAs to pay a rate equal to the average Treasury yield during the previous fiscal year for new projects. According to an OMB study on PMA debt repayment, the Treasury has made a practice of borrowing money for the PMAs at 6 to 12 percent and accepting repayments on that debt at 2 to 4 percent.<sup>170</sup> The PMAs are required to retire their high-cost debt first whenever possible, an advantage unavailable to the Treasury itself.<sup>171</sup> This is another reason that the PMAs can realize an effective borrowing rate lower than the Treasury.<sup>172</sup>

### **PMA Borrowing Costs**

The three PMAs' current interest expense was compared to what they would have paid had they borrowed at long-term Treasury rates or A, Aa, Aaa, or Baa IOU rates. The Federal interest rate support is estimated as the difference between a hypothetical interest payment based on Treasury and market interest rates and the actual interest expense reported by each PMA. Depending on the comparative interest rate benchmarks, the three smaller PMAs received Federal support ranging from \$69 million (2007 dollars) if their debt were priced at the Treasury rate to \$164 million (2007 dollars) at the Baa rate in 2006 (Table 22). This compares with no estimated support at the Treasury rate<sup>173</sup> in 1998 (2007 dollars) and \$92 million at the Baa rate. Based upon an A utility rate, the PMA interest support rose from \$77 million to \$148 million. This latter value is used as the point estimate for purposes of this report.

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<sup>168</sup> Department of Energy, Budget 2007, [www.cfo.doe.gov/budget/07budget/Content/Highlights/Highlights.pdf](http://www.cfo.doe.gov/budget/07budget/Content/Highlights/Highlights.pdf). Accessed March 5, 2008.

<sup>169</sup> <http://www.whitehouse.gov/omb/budget/fy2008/pdf/budget/energy.pdf>

<sup>170</sup> Office of Management and Budget, "Fact Sheet on Reform of Federal Power Marketing Administration Debt Repayment Practices," (Washington, DC, 1990).

<sup>171</sup> IOUs have the ability to issue callable bonds which allows them the same advantage. However, when a bond is called, typically the issuer of the bond pays the bondholder a premium above the par value of the bond.

<sup>172</sup> General Accounting Office, Federal Power: *Options for Selected Power Marketing Administrations' Role in a Changing Electricity Industry*, GAO/RCED-98-43, (Washington, DC, March 1998), p. 7.

<sup>173</sup> When the PMA have average embedded borrowing costs below that of the U.S. Treasury, estimated Federal interest rate support is nonexistent.

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**Table 22. Estimate of Federal Electricity Interest Rate Support to the Three Smaller PMAs, 1998 and 2006 (million 2007 dollars)**

	Treasury Rate	Aaa IOU Rate	Aa IOU Rate	A IOU Rate	Baa IOU Rate
<b>1998</b>					
1. Benchmark Interest Rate (%)	5.58	6.77	6.91	7.04	7.26
2. Outstanding Debt (\$)	7,060	7,060	7,060	7,060	7,060
3. Average Cost of Outstanding Debt (%)	5.96	5.96	5.96	5.96	5.96
4. Actual Interest Expense (\$)	420	420	420	420	420
5. Interest Expense Computed at Benchmark Rate (\$) [(1) x (2)]	393	478	488	497	513
6. Estimated Interest Support at Benchmark Interest Rate (\$) [(5)-(4)]	(27)	57	67	77	92
<b>2006</b>					
1. Benchmark Interest Rate (%)	4.91	5.59	5.84	6.07	6.32
2. Outstanding Debt (\$)	6,742	6,742	6,742	6,742	6,742
3. Average Cost of Outstanding Debt (%)	3.88	3.88	3.88	3.88	3.88
4. Actual Interest Expense (\$)	262	262	262	262	262
5. Interest Expense Computed at Benchmark Rate (\$) [(1) x (2)]	331	377	394	409	426
6. Estimated Interest Support at Benchmark Interest Rate (\$) [(5)-(4)]	69	115	132	148	164

**NOTES:** 2006 data for WAPA were obtained from their 2006 Annual Report. 2006 data for SEPA were extrapolated based on 2005 data appearing in SEPA's 2005 Annual Report. SWPA produced a single 2004-2006 Annual Report with a 2006 income statement but with a balance sheet lacking U.S. Army Corp of Engineer data. SWPA's outstanding debt was extrapolated from 2003 data reported in its 2003 Annual Report.

The table above presents the historic value of 3 smaller PMAs debt in 2007 dollars for purposes of illustrating how the support values for 1998 and 2006 were calculated. The collective value of the debt reported on the 3 smaller PMA's balance sheets has not changed due to inflation. The nominal value of their debt stood at \$5,743 million in 1998.

A negative value for interest rate support indicates that the weighted average cost of outstanding debt exceeds the benchmark interest rate.

Sources: Southeastern Power Administration, Annual Reports, 1998 and 2004-2006, Western Area Power Administration, Annual Reports, 1998 and 2006.

### Rural Utilities Service Electric Loans, Guarantees, and Grants

RUS is an agency within USDA. In 2005, the RUS served nearly 12 million customers and provided 7 percent of the Nation's electricity (Table 23). RUS is the successor to the Rural Electrification Administration (REA). It was established under the Federal Crop Insurance



Reform and Department of Agriculture Reorganization Act of 1994 (Public Law 103-354) as one of the Federal program agencies authorized to provide financial and technical assistance under the USDA Rural Development Mission Area. REA was created by Executive Order in May 1935. The functions and authority of the REA administrator were initially codified with the passage of the Rural Electrification Act of 1936 (the REAct).<sup>174</sup> The REAct, as amended, authorizes the RUS to provide direct loans and loan guarantees to electric utilities serving customers in rural areas.<sup>175</sup> RUS loans and loan guarantees may be used to finance the construction of electric distribution, transmission, and generation facilities, including system improvements and replacement required to furnish and improve electric service in rural areas. Borrowers may also submit applications to finance demand side management, energy conservation programs, and on-grid and off-grid renewable energy systems. Entities eligible to apply for loan and loan guarantees include corporations, States, territories, and subdivisions and agencies such as municipalities, people's utility districts, and cooperative, nonprofit, limited-dividend, or mutual associations that provide retail electric service needs to rural areas or supply the power needs of distribution borrowers in rural areas. Section 3 of the REAct<sup>176</sup> provides that a preference be given to government-owned utilities (e.g., State, municipal and public power districts) and cooperatives.

To qualify for loans and loan guarantees, borrowers must demonstrate financial feasibility, i.e., that all loans will be repaid in accordance with their terms, and provide adequate security pursuant to the RUS mortgage and loan contract. In addition, the borrower must demonstrate that it serves customers in rural areas in accordance with Section 13 of the RE Act.<sup>177</sup> Borrowers that meet this test are referred to as REAct beneficiaries.

The original mission of RUS was to facilitate electrification of rural America. Suburban growth into cooperatives' service areas heretofore deemed rural has raised questions concerning the extent to which current recipients of RUS are receiving loans and loan guarantees, a portion of which benefits customers in non-rural areas. The results of a USDA analysis of borrower and community characteristics for \$3.3 billion in financing approved in 2005 were in connection with power supply, transmission, and distribution loans in 1,682 of 2,500 non-metropolitan counties that included 332 counties classified as persistent poverty counties. The distribution loans supported investment in facilities to serve approximately 2 million consumers of which 92.5 percent were classified as rural by the Census Bureau.<sup>178</sup>

The FY 2008 budget proposed two programmatic reforms. First, in recognition of the deregulation of wholesale electric markets, RUS will focus on providing financial assistance for transmission and distribution facilities. It will continue to provide funding for upgrading existing generation, but G&Ts should be expected to consider commercial capital markets for funding new generation. Second, the budget proposed that RUS promulgate rules requiring electric and telecommunications borrowers to recertify their rural status commencing with their first loan request submitted in or after 2008 and the first loan requested after each decennial Census.<sup>179</sup>

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<sup>174</sup> 7 U.S.C. 901, et seq.

<sup>175</sup> In addition to the Electric Loan Program, RUS administers loan programs for infrastructure investment in rural telecommunications systems (i.e., telephony, broadband, distance learning, telemedicine) and water and wastewater systems.

<sup>176</sup> 7 U.S.C. 903.

<sup>177</sup> 7 U.S.C. 913.

<sup>178</sup> Office of Management and Budget, *Budget of the United States Government, Fiscal Year 2008—Appendix*, Department of Agriculture, p. 146. See, <http://www.whitehouse.gov/omb/budget/fy2008/appendix.html>.

<sup>179</sup> *Ibid.* In the FY 2008 budget, the Congress approved a provision precluding RUS from incurring administrative expenses, drafting regulations, or implementing rules that require recertification of rural status. See, House Report 110-497, Division A-Agriculture Rural Development, Food and Drug Administration and Related Agencies Appropriation Act of 2008, Title VII, Section 726.

The total population of RUS borrowers has declined as distribution borrowers and G&Ts have paid off their RUS loans. Since 1986, 224 distribution cooperatives prepaid their loans at a discount as provided in RUS regulations. The number of power supply borrowers has declined over the past 15 years as financially-distressed borrowers were liquidated or exited the program as part of debt settlement or bankruptcy reorganization plans. The number of consumers served by the RUS borrowers in 2005 accounted for 6.6 percent of total electricity sales (Table 23).

**Table 23. Key Statistics for the Rural Utilities Service Electricity Program, 1998 and 2005**

Statistic	1998		2005	
	RUS Borrowers	RUS Borrowers as Percent of National Total	RUS Borrowers	RUS Borrowers as Percent of National Total
Retail Consumers Served	10,858,441	8.7	11,548,604	8.2
<b>End-Use Sales (thousand megawatthours)</b>				
Residential	125,210	11.1	144,944	10.7
Commercial/Industrial	84,269	4.1	100,568	4.4
Other	8,166	7.9	7,523	NA
Total Sales	217,645	6.7	253,035	6.6

**NOTE:** Other sales include street lighting sales, sales to public authorities, railroads and railways, and interdepartmental sales.

EIA no longer collects data for the "Other" sector.

Sources: Rural Utilities Service, *1998 Statistical Report Rural Electric Borrowers*, IP 201-1 (Washington, DC, August 1999), pp. 10 and 14, and *2005 Statistical Report Rural Electric Borrowers*, IP 201-1 (Washington, DC, December 2006), pp. 10. Energy Information Administration, *Electric Power Annual 1998*, Volume 2, DOE/EIA-0348(89/2) (Washington, DC, December 1999) and *Electric Power Annual 2005*, Table ES1: <http://www.eia.doe.gov/cneaf/electricity/epa/epaxlfiles1.pdf>

The RUS Electric Program provides financial assistance to eligible borrowers by making direct loans and providing loan guarantees for loans made by the Federal Financing Bank (FFB) to distribution and power supply borrowers. Additionally, the Farm Security and Rural Investment Act of 2002 (2002 Farm Bill) amended the REAct by adding Section 313A,<sup>180</sup> which authorizes RUS to guarantee bonds and notes to eligible cooperatives and non-profit lenders.<sup>181</sup> RUS also administers a grant program to mitigate high energy costs for those entities that meet the eligibility criteria. The five electric loan programs and grant program administered by RUS are described below.

### Hardship Loans

Hardship loans are available to electric distribution borrowers that have experienced an unavoidable natural disaster. They are also available to electric distribution borrowers that meet a rate disparity and consumer income test that compares the borrower's retail rates and its

<sup>180</sup> 7 U.S.C. 940c-1; Guarantees for bonds and notes issued for electrification and telephone purposes.

<sup>181</sup> Public Law 107-171.

customers' per capita or household income to statewide values.<sup>182</sup> The hardship loans may be used for distribution, subtransmission, and headquarters facilities. The loan carries a fixed 5-percent interest rate for a term equal to the lesser of the useful life of the facilities, or 35 years.<sup>183</sup>

### **Municipal Rate Loans**

These loans are available to finance distribution, subtransmission, and headquarters facilities. Distribution and power supply borrowers may participate in this program. Power supply borrowers participation is limited to subtransmission and headquarters facilities. The interest rate is established quarterly by RUS based on a municipal bond market index for loans of comparable maturity. The interest rate is determined when loan funds are advanced. The term of the loan is equal to the lesser of the useful life of the facilities being financed, or 35 years. The borrower must obtain supplemental financing from another lender for typically 30 percent of the loan amount. Traditionally, cooperatives have relied upon CoBank and the CFC to meet the supplemental lending requirement.<sup>184</sup>

### **Treasury Direct Loans**

Treasury Direct loans are available to distribution cooperatives to construct distribution, subtransmission, headquarters facilities and renewable generating facilities. Power supply borrowers may participate in this program to finance renewable generating facilities. Interest rates are set daily by the Treasury Department based on its current cost of money over a yield curve with maturities ranging from 3 months to 30 years. The interest rate is set on the date of each advance of approved loan funds to the borrower. The term of a Treasury Direct loan is set at the lesser of the useful life of the facilities being financed, or 35 years. There is no supplement financing requirement associated with this program.

### **FFB Guaranteed Loans**

RUS guarantees of FFB loans are available to distribution and power supply borrowers to finance distribution, transmission, generation, and headquarters facilities. The interest rate for FFB loans is established daily by the Treasury Department based on its current cost of money plus one-eighth of 1 percent. The interest rate is set on the date of each advance of approved loan funds to the borrower.<sup>185</sup> The term of an FFB loan may not exceed the lesser of the useful life of the facilities, or 35 years.<sup>186</sup> The wholesale power contract between power supply

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<sup>182</sup> Residential and average system rates must not be less than 120 percent of the average for all utilities in the State and either per capita income or household income must be less than State average per capita income or the State median household income. (See, 7 CFR 1714.8).

<sup>183</sup> The interest rate for hardship loans was increased from 2 percent to 5 percent in the Rural Electric Loan Restructuring Act of 1993 (Public Law 103-129).

<sup>184</sup> The Municipal Rate loan program was created with the enactment of Rural Electric Loan Restructuring Act of 1993.

<sup>185</sup> Under the FFB Note, borrowers may opt for a long-term maturity date (e.g., 35 years), but select interim maturity dates to obtain the benefit of lower interest rates associated the Treasury Department's lower cost of money for securities with shorter maturities. At the interim maturity date, the note reprices based on the applicable rate for the next interim maturity date selected by the borrower. Alternatively, the borrower has the option of paying off the loan. See, RUS Bulletin 1710b-1 Guide to Federal Financing Bank Loans Guaranteed by RUS at <http://www.usda.gov/rus/regs/bulls/1710b-1>, accessed October 11, 2007.

<sup>186</sup> The Agricultural, Rural Development, Food and Drug Administration and Related Agencies and Appropriation Act of 2006 (Public Law 109-97) amended the RE Act by adding Section 316, which provides for the term extension of FFB loans guaranteed by RUS for power plants and transmission facilities. The primary purpose of this amendment was to permit power supply cooperatives to extend the term of loans on nuclear power plants to be coterminous with NRC license extension. In the absence of a term extension, the prospective reduction in depreciation expense based on the license extension can create an adverse mismatch between cash flow and principal payments on existing loans with a maturity date coterminous with the termination of the existing NRC operating license. Under Section 316, borrowers are permitted to apply for term extensions for nuclear, fossil and transmission facilities. Extensions are permitted subject to the borrower demonstrating financial feasibility, sufficient collateral to support the loan extension, and, where applicable, regulatory orders (i.e., NRC orders extending operating licenses). Borrowers are required to pay a modification fee based on the requirements of Section 502 of the Federal Credit Reform Act of 1990 (Public Law 101-58), as amended (2 U.S.C. 661a).

borrowers and their distribution members is pledged as security for FFB guaranteed loans. Accordingly, the loan may not exceed the terms of the contract.

### **Guarantees for Bonds and Notes Issued for Electrification and Telephone Purposes**

Under this program, RUS guarantees bonds and notes issued by cooperatives and not-for-profit lenders to the FFB. Eligible cooperatives and not-for-profit borrowers participating in the program are required to pay a 30-basis point annual fee for the guarantee. It is applied to the unpaid principal. Up to one-third of the 30-basis point guarantee fee may be used to pay for the guarantee. This amount may be adjusted by Congress or at the mutual consent of RUS and the borrower to ensure sufficient funds are available to pay for the guarantee. The remaining portion of the guarantee is deposited in the Rural Economic Development Subaccount, which funds the Rural Economic Development Loan and Grant Fund (REDLG).<sup>187</sup>

Under this program, eligible applicants identify existing secured loans not previously pledged as collateral to secure bonds purchased by FFB. The bonds may have a maximum maturity of 20 years. If the guaranteed lender's credit rating, irrespective of the RUS guarantee, on senior secured debt falls below A, it must provide the secured loans identified as collateral to RUS. The guaranteed lender, RUS and FFB must execute various security agreements including a guarantee agreement and bond purchase agreements for an amount not to exceed the maximum funding authorized by Congress. The guaranteed lender must submit documentation for advances under the bond document at which time the interest rate and term are determined. Presently, the CFC is the only non-profit lender participating in the program. Congress has authorized RUS to guarantee \$2 billion for which CFC has executed Bond Purchase Agreements with RUS and FFB.

The proceeds from any advances made to CFC may not be used to directly or indirectly fund generation projects. The guaranteed bond proceeds may be used for electrification and telephony purposes or to refinance debt previously issued by the guaranteed lender. The funds may not be used to reduce interest rates on new or outstanding loans other than supplemental loans issued under the Municipal Rate program.<sup>188</sup> CFC executed a Series A Bond Purchase Agreement with FFB and RUS with a loan commitment amount not to exceed \$1 billion on June 14, 2005. A Serial B Bond Purchase Agreement was executed on April 28, 2006 with a loan commitment amount not to exceed \$1.5 billion.<sup>189</sup> In addition to providing a source of funding for the Rural Development REDLG program, this loan program provides CFC with another source of liquidity to reduce its borrowing cost, which in turn reduces cooperatives' cost of borrowing from CFC. According to CFC's 2007 SEC Form 10-K, as of May 31, 2007, it has pledged \$2.8 billion of loans to the trust for \$2 billion in notes payable to RUS. There is not sufficient data available to determine the benefit that CFC borrowers receive in lower borrowing costs from this program.<sup>190</sup>

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<sup>187</sup> The REDLG program provides funding to rural projects through local utility organizations. The program is administered by the Rural Business-Cooperative Service (RBS), which is in the USDA Rural Development Mission Area. Under the loan program, USDA provides zero interest loans to local utilities which they, in turn, pass through to local businesses (ultimate recipients) for projects that will create and retain employment in rural areas. The ultimate recipients repay the lending utility directly. The utility is responsible for repayment to RBS. The grant program provides funds to local utility organizations to establish revolving loan funds. Loans are made from the revolving loan fund to projects that will create or retain rural jobs. When the revolving loan fund is terminated, the grant is repaid to RBS.

<sup>188</sup> For a complete description of the application process, eligibility criteria, collateral and creditworthiness requirements see RUS Regulation Guarantees for Bonds and Notes for Electrification or Telephone Purposes, 7 C.F.R. 1720 (2004).

<sup>189</sup> The Bond Purchase Agreements and related documents are available on the Securities Exchange Commission website (EDGAR) as exhibits to CFC's SEC 10-K.

<sup>190</sup> Based on the assumed default rate and recovery rate, and the 30 basis point payment over the Treasury's borrowing cost to pay for the guarantee, OMB estimated that the FY 2007 subsidy for this program was a negative \$5 million. Accordingly, no budget

### **Assistance to High Energy Cost Communities**

The High Energy Cost Grant Program provides financial assistance to communities with home energy costs in excess of 275 percent of the National average.<sup>191</sup> The program provides grants for the improvement of energy generation, transmission, and distribution facilities serving eligible rural communities. Eligible applicants include legally-organized for-profit or non-profit organizations, sole proprietorships, State or local government, or any agency or instrumentality of a State or local government, including a municipal utility or public power authority, Indian tribes, a tribally-owned entity, an Alaska Native Corporation, or other area authorized by law to participate in RUS programs or under the RE Act. Eligibility may be established using average annual household expenditures for individual fuels or for total energy, or average per unit cost for home energy.

Grants under this program may be used for the acquisition, construction, installation, repair, replacement, or improvement of energy generation, transmission, or distribution facilities in communities with extremely high energy costs. On-grid and off-grid renewable energy projects, energy efficiency, and energy conservation projects are eligible.<sup>192</sup>

### **Cost of Loan Support Provided to RUS Electricity Borrowers**

The RUS programs reduce the cost of borrowing to its borrowers relative to the contemporaneous cost of long-term secured debt in private capital markets. Enumerating the savings that flow to RUS borrowers requires assessing the administrative costs of running the RUS programs, the costs RUS incurs by loaning money to its borrowers at interest rates below the Treasury's cost of money, the costs RUS incurs when it covers defaults on loans it has guaranteed, and measuring the benefit RUS borrowers receive from being able to borrow money below competitive market interest rates. If the RUS did not exist, many of these costs would be borne by the borrowers in the form of higher fees and interest rates.

The benefit of the interest rate subsidy received by RUS borrowers is a function of the spread between the cost of borrowing from RUS relative to cost of long-term debt available in commercial capital markets. The latter reflects a risk premium associated with a borrower's credit worthiness. Absent the interest rates and remaining term to maturity for all direct loans and loan guarantees that RUS holds in its portfolio, it is difficult to obtain a present value estimate of the benefit received by RUS borrowers over the life of the existing loan portfolio. Therefore, the interest rate subsidy estimate contained in this report provides a 1-year snapshot of the subsidy by comparing the embedded cost of RUS loans and loan guarantees to the Treasury rate and a range of electric utility investment grade bonds for 2006. The difference in interest rates approximates the benefit consumers served by RUS electric borrowers received in 2006.<sup>193</sup>

The measurement of financial support provided to RUS borrowers has market risk and opportunity cost implications for the Federal government.<sup>194</sup> The difference between the

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authority is required. See, Office of Management and Budget, *Budget of the United States Government, Fiscal Year 2008-Appendix*, Department of Agriculture, p. 146.

<sup>191</sup> The 275 percent criteria are measured on the basis of either annual expenditures per household or in unit cost of designated energy sources including electricity, liquefied petroleum gas, natural gas, fuel oil and total household energy consumption (dollars per year or dollars per Btu). The benchmark values are derived from Energy Information Administration data.

<sup>192</sup> On May 25, 2005, RUS provided \$19.5 million in high energy cost grants. On August 17, 2007, it issued a Federal Register Notice of Availability of Funding for \$21.9 million.

<sup>193</sup> Data for 2006 were extrapolated based upon RUS 2005 data and the gross domestic product (GDP) implicit price deflator.

<sup>194</sup> In a 2004 study the Congressional Budget Office (CBO) examined the impact of using the risk-free Treasury rate versus a risk-adjusted commercial rate to measure the cost of Federal credit programs. CBO concluded that "for all programs, ignoring the cost

Federal utilities and RUS is that as a Federal credit agency RUS is required to calculate the subsidy associated with its loan and loan guarantee programs. This calculation is required by the Federal Credit Reform Act of 1990 (FCRA) (Public Law 101-158) and is included in the budget. FCRA requires that Federal agencies are required to calculate the lifetime costs for direct loans and loan guarantees for a budget year based on the expected cash flows for loan disbursements, fees, and repayment, taking into account default risk and recovery rates. The difference between present value of the cash outflows (disbursements) and cash inflows represents the subsidy. This value constitutes the budget authority for an authorized level of loans and loan guarantees for that fiscal year. The cash flows are discounted using the interest rate for marketable Treasury securities of comparable maturity. If a loan or loan guarantee is truly risk-free, then the subsidy value is equal to the market value. However, if the loan or loan guarantee is not a risk-free loan, the use of the Treasury rate as the discount rate understates the market risk of the loan. This may be the case with the RUS electric loan program, specifically with the loan guarantee program. Under the loan guarantee program, borrowers pay interest at the Treasury's cost of money at the time funds are advanced, plus 12.5 basis points, i.e., one-eighth of 1 percent.<sup>195</sup> Thus, under the methodology required to calculate the subsidy under FCRA, interest paid on FFB guaranteed loans is always computed at a rate that exceeds the discount rate used to determine the value of the subsidy. Therefore, unless the assumed default rate is very high (a reflection of a lack of creditworthiness) and the recovery rate is extremely low, the FCRA calculation can result in a negative subsidy.

The actual FY 2007 subsidy estimate for the RUS electric program consisted of the \$3 million for the Hardship Loan program and a (\$36) million for the Federal Financing Bank (FFB) loan guarantee program. Therefore, excluding program administration costs, the loan program generated net income of \$33 million because of the negative subsidy associated with the loan guarantee program.<sup>196</sup> EIA used the same cost of capital method applied to the Federal utilities to estimate support provided to RUS borrowers. A range of subsidy values was estimated for RUS loans to G&Ts and distribution cooperatives, as well as a point estimate that reflects a market rate of interest for an A-rated IOU. The A rating was based on an analysis of the financial ratios for all rated G&Ts.

As a surrogate measure, the weighted average interest rate, i.e., embedded cost of debt, of RUS borrowers is compared with the 2006 average 30-year Treasury Constant Maturity, and the 2006 Aaa, Aa, A, and Baa IOUs. The range is provided, because it is unclear what rate US

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of risk understates the federal cost of credit assistance, potentially biasing the allocation of budgetary resources." See, *Estimating the Value of Subsidies for Federal Loans and Loan Guarantees*, Congress of the United States, Congressional Budget Office, (Washington, DC, August 2004), p. 4.

<sup>195</sup> In a 1982 report, the Congressional Budget Office stated that a borrower with an FFB guaranteed loan would have to pay 50 basis points to issue securities in the market. See, Congressional Budget Office, *The Federal Financing Bank and the Budgetary Treatment of Federal Credit Activities*, (Washington, DC, January 1982) p. x.

<sup>196</sup> Office of Management and Budget, *Budget of the United States Government, Fiscal Year 2009-Appendix, Department of Agriculture*, <http://www.whitehouse.gov/omb/budget/fy2009/pdf/appendix/agr.pdf>, p.162. Accessed February 28, 2008. The estimated subsidy for FY2008 is zero for Hardship Loans. The FY2009 budget estimates no lending authority for either the Municipal Loan or Treasury Loan programs for either FY2008 or FY2009. Accordingly there are zero subsidy values associated with these programs. The negative subsidies for FY 2008 and FY 2009 for the FFB loan guarantee program are estimated to be (\$45) million and (\$91) million. Therefore, based on the scoring method prescribed by the FCRA, the estimated budget impact for the RUS electric program, excluding administrative costs is zero for both FY2008 and FY2009. Because of the estimated negative subsidy calculated for the FFB loan guarantee program, the program "makes money."

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electricity borrowers would face in private markets without RUS guarantees.<sup>197</sup> The average interest rate paid on the outstanding debt of RUS electricity borrowers in 2006 is actually slightly above the average 30-year Treasury rate for a bond issued in 2006 (Table 24).

**Table 24. Interest Support to RUS Borrowers, 1998 and 2006 (million 2007 dollars)**

	Treasury Rate	Aaa IOU Rate	Aa IOU Rate	A IOU Rate	Baa IOU Rate
<b>1998</b>					
1. Benchmark Interest Rate (%)	5.58	6.77	6.91	7.04	7.26
2. Outstanding Debt (\$)	39,547	39,547	39,547	39,547	39,547
3. Average Cost of Outstanding Debt (%)	5.90	5.90	5.90	5.90	5.90
4. Actual Interest Expense (\$)	2,333	2,333	2,333	2,333	2,333
5. Interest Expense Computed at Benchmark Rate (\$) [(1) x (2)]	2,207	2,677	2,733	2,784	2,871
6. Estimated Interest Support at Benchmark Interest Rate (\$) [(5)-(4)]	(127)	344	399	451	538
<b>2006</b>					
1. Benchmark Interest Rate (%)	4.91	5.59	5.84	6.07	6.32
2. Outstanding Debt (\$)	30,134	30,134	30,134	30,134	30,134
3. Average Cost of Outstanding Debt (%)	5.06	5.06	5.06	5.06	5.06
4. Actual Interest Expense (\$)	1,524	1,524	1,524	1,524	1,524
5. Interest Expense Computed at Benchmark Rate (\$) [(1) x (2)]	1,480	1,684	1,760	1,829	1,904
6. Estimated Interest Support at Benchmark Interest Rate (\$) [(5)-(4)]	(45)	160	235	305	380

**NOTES:** The table above presents the historic value of RUS debt in 2007 dollars only for purposes of illustrating how the support values for 1998 and 2006 were calculated. The value of the debt on the RUS borrower's balance sheets has not changed due to inflation. The nominal value of this debt was as reported by RUS at \$32,170 million in 1998.

A negative value for interest rate support indicates that the weighted average cost of outstanding debt exceeds the benchmark interest rate. In FY2007, the RUS hardship loan program was scored for budget purposes by the Office of Management and Budget (OMB) at \$3 million. The Federal Financing Bank loan guarantee program was scored at negative \$36 million. The budgetary cost is estimated using OMB's Credit Subsidy Calculator. See OMB, *Circular A-11, Part 5, Federal Credit*, [www.whitehouse.gov/omb/circulars/a11/current\\_year/a11\\_toc.html](http://www.whitehouse.gov/omb/circulars/a11/current_year/a11_toc.html).

Sources: Rural Utilities Service, *1998 Statistical Report Rural Electric Borrowers*, IP 201-1 (Washington, DC, August 1999), pp. 10 and 14, and *2005 Statistical Report Rural Electric Borrowers*, IP 201-1 (Washington, DC, December 2006). Table 18.

<sup>197</sup> Fifteen G&Ts have senior debt rated by Fitch Ratings. All 15 are rated investment grade. With the exception of one, which is rated BBB+, all are rated above A-. (See, Fitch Ratings, *Electric Cooperatives-An Industry Outlook and Primer*, June 14, 2007). For 11 of these G&Ts, outstanding debt accounted for 52.9 percent of the \$21.0 billion of outstanding debt for all RUS power supply borrowers. Two of the rated cooperatives had no RUS debt in 2005 (Old Dominion Electric Cooperative and Chugach Electric Association). A third G&T, Great River Energy, completed a \$1.3 billion through a bond issue on July 2, 2007 and retired all of its \$1.1 billion in RUS guaranteed debt. The transaction was supported with bond insurance provided by MBIA. See, [www.greatriverenergy.com/press/news/071007\\_capital\\_market.html](http://www.greatriverenergy.com/press/news/071007_capital_market.html), accessed October 11, 2007.



The estimated support value, using weighted borrowing rates, ranges from \$160 million (based upon the IOU Aaa rate) to an estimated \$380 million (based upon a Baa rate).

Several analyses have concluded that the RUS faces a significant risk of large loan defaults. For example, in 1997 GAO found that \$618 million of the outstanding electricity loan portfolio was owed by borrowers who were delinquent in their payments and that \$7.4 billion of the outstanding debt was owed by borrowers who were in financial distress. At that time the outstanding RUS electricity debt totaled \$32.3 billion, of which approximately 25 percent was at risk of not being fully repaid. In a subsequent GAO report found that the RUS wrote off more than \$3.2 billion in loans made to three borrowers.<sup>198</sup> Much of the problem debt was associated with loan guarantees for borrowers' investments in high-cost nuclear plants in the early 1980s. For example, the *Wall Street Journal* reported that more than \$1.5 billion in debt was written down for two borrowers in 1996. In 2006, the RUS reported \$818,000 in a loan write-down due to the default of Vermont Electric Generation and Transmission Cooperative.<sup>199</sup>

### Summary

The total value of support provided Federal utilities and RUS borrowers is estimated as \$767 million (Table 25) at the A benchmark rate although the estimate varies using different benchmark interest rates. Federal utilities and participants in RUS electricity lending programs borrow at rates typically below those available to non-publicly-owned power producers. The ratio of embedded cost of debt (interest expenses) to their outstanding debt for Federal utilities and RUS borrowers indicates that these entities have borrowed at rates ranging from below the Treasury's own costs of funds to as high as a highly-rated utility with a bond rating, i.e., the Aaa bond rating. For a discussion on bond ratings, see Appendix D.

Table 25 compares the cost of borrowing by Federal utilities and U.S. electricity loan participants to the Treasury borrowing costs and the borrowing costs of investor owned utilities with bond ratings ranging from Aaa to Baa for the years 1998 and 2006. The comparisons to the Treasury and Aaa rates in the table include only that portion of the debt that was below the respective interest rates. For example, only about \$22 billion of the total outstanding debt of \$78 billion has an average embedded cost below the benchmark Treasury rate. The corresponding debt below the Aaa rate was \$52 billion. For debt that has an average embedded cost above these rates, the implicit support is assumed to be zero. Table 25 indicates that of those borrowers that had debt with an embedded cost below the Treasury's cost of funds, the value of those preferential interest rates was \$89 million in 2006 (2007 dollars). The \$89 million value for the year 2006 is the difference between what the interest costs would be on those particular loans that have an average embedded cost below the Treasury's associated costs of funds and those realized by current borrowers from the Treasury. For each successively lower-graded utility bond rating in the table, the methodology increases the value of the support as the average cost of debt falls below the comparison utility bond rate.

For instance, for electricity loans priced at rates above the Treasury's cost of funds (as measured by the Treasury's 30-year bond), but below the utility Aaa rate, the value of the support rises to an estimated \$395 million for 2006. For loans priced below an Aa rate (all of them), support would equal an estimated \$589 million; below an A rate, an estimated \$767

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<sup>198</sup> Government Accountability Office, Rural Utilities Service: *Opportunities to Better Target Assistance to Rural Areas and Avoid Unnecessary Financial Risk*, GAO-04-647 (Washington, DC, June 2004), p. 8.

<sup>199</sup> Conversation with Chris Tuttle of the Rural Utilities Service, July 30, 2007.

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million (which serves as the point estimate measure); and, below a Baa rate, an estimated \$961 million.

**Table 25. Interest Support to Federal Utilities and RUS Borrowers 1998 and 2006 (million 2007 dollars)**

	Treasury Rate	Aaa IOU Rate	Aa IOU Rate	A IOU Rate	Baa IOU Rate
<b>1998</b>					
1. Benchmark Interest Rate (%)	NA	6.77	6.91	7.04	7.26
2. Outstanding Debt (\$)	0	66,217	98,895	98,895	98,895
3. Average Cost of Outstanding Debt (%)	NA	6.04	6.28	6.28	6.28
4. Actual Interest Expense (\$)	NA	3,997	6,209	6,209	6,209
5. Interest Expense Computed at Benchmark Rate (\$) [(1) x (2)]	NA	4,483	6,834	6,962	7,180
6. Estimated Interest Support at Benchmark Interest Rate (\$) [(5)-(4)]	NA	486	624	753	971
<b>2006</b>					
1. Benchmark Interest Rate (%)	4.91	5.59	5.84	6.07	6.32
2. Outstanding Debt (\$)	21,552	51,686	77,534	77,534	77,534
3. Average Cost of Outstanding Debt (%)	4.50	4.83	5.08	5.08	5.08
4. Actual Interest Expense (\$)	970	2,494	3,939	3,939	3,939
5. Interest Expense Computed at Benchmark Rate (\$) [(1) x (2)]	1,058	2,889	4,528	4,706	4,900
6. Estimated Interest Support at Benchmark Interest Rate (\$) [(5)-(4)]	89	395	589	767	961

**NOTE:** NA indicates that some of the cost of outstanding debt exceeds the benchmark interest rate. There is no support when benchmark rates are less than the weighted cost of capital.

