

CREDIT ANALYSIS

Bonneville Power Administration

Oregon, United States

Table of Contents:

SUMMARY	1
RATING RATIONALE	2
KEY RATING DRIVERS	5
APPENDIX 1: BPA HISTORICAL FINANCIAL PERFORMANCE	16
APPENDIX 2: DEBT LIST	18
APPENDIX 3: ENW RATING HISTORY	19
MOODY'S RELATED RESEARCH	20

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Summary

Bonneville Power Administration (BPA, Aa1/stable issuer rating) is one of four regional power marketing agencies within the US Department of Energy and is primarily responsible for federally owned generation and electric transmission assets in the Pacific Northwest. Moody's rates BPA's non-federal debt such as Energy Northwest's nuclear projects, which are referred to as BPA related ratings.

Strengths

- » Substantial government support as a U.S. Energy Department line agency
- » Strong hydro and transmission assets
- » Competitive power costs
- » Long term power supply contracts through FY 2028 with 133 participants

Challenges

- » Significant hydrology and wholesale power market exposure
- » Conflicting uses of Columbia River and environmental challenges
- » Complex and lengthy ratemaking process
- » Sizeable debt burden due to nuclear projects
- » Downward pressure on financial reserves and metrics

Outlook

The stable outlook reflects BPA's baseline expectations according to its FY 2012-13 rate case and BPA's near-term ability to withstand difficult market price and hydrology conditions.

BPA's rating could improve over the long term if BPA is able to fully mitigate hydrology and wholesale price risk, if BPA implements policies to ensure strong internal risk reserves resulting in at least 250 days cash on hand on a sustained basis, and if the US Government's rating stabilizes at Aaa. BPA related ratings could be upgraded if BPA is upgraded.

This Credit Analysis provides an in-depth discussion of credit rating(s) for Bonneville Power Administration and should be read in conjunction with Moody's most recent Credit Opinion and rating information available on [Moody's website](#).

BPA's rating could be negatively pressured if BPA's internal liquidity drops below 30 days cash on hand on a sustained basis, if US government support diminishes, federal constraints are placed on BPA or if the US government ratings are lowered below Aa1. Additionally, BPA related ratings could be downgraded if BPA is downgraded or if the underlying contracts (e.g. net billing agreements) are violated.

Rating Rationale

BPA's Aa1 issuer ratings are supported by U.S. Government support features including a \$7.7 billion borrowing authority with the US Treasury and the legal ability to defer its annual US Treasury repayment (if necessary). Other factors underpinning the rating are BPA's importance to the US Northwest region, its strong underlying hydro and transmission assets, its competitive power costs and its 17-year power supply contracts with creditworthy public power entities for a large majority of power sales.

BPA strengths are offset by significant hydrology and wholesale power market exposure, environmental burdens and conflicting demands on the Columbia River, a lengthy ratemaking process compared to typical municipal public power entities, a sizeable debt burden due to nuclear projects and pressure on financial reserves and financial metrics. Growing total debt and potential full utilization of the US treasury line by 2016 represent longer term challenges.

Hydrology conditions in the Pacific Northwest and wholesale power prices represent the biggest drivers of volatility to BPA's financial performance. In recent history, these factors outside of BPA's control have contributed heavily to an almost a \$1 billion swing in net revenues between the best (2006) and most challenging years (2001). BPA's historically strong internal liquidity was seen as a major risk mitigant and the substantial decline in internal liquidity was a major driver of the rating downgrade to Aa1 from Aaa in August 2011.

The Aa1 ratings on BPA's related ratings are based on BPA's contractual obligation to pay under long term agreements (see 'Legal Security' section below).

Legal Security: BPA Related Debt

Moody's rates eight of BPA's non-federal debt obligations, which are supported by long-term agreements that obligate BPA to pay for costs including debt service. BPA's direct debt and its related obligations are not general obligations of the United States of America and are not secured by the full faith and credit of the United States of America. Each entity's legal security pledge is described below.

Energy Northwest (Project 1, Columbia Generating Station (CGS), Project 3): Project 1, CGS, and Project 3 are nuclear projects of which only CGS was completed. Each of the nuclear projects is individually secured by a pledge of specific project revenues including amounts derived from the tri-party net billing agreements with BPA and project participants. The net billing agreements obligate the project participants, consisting of numerous public utility districts and municipal and electric cooperative utilities, to pay Energy Northwest a proportionate share of the project's annual costs, including debt service, in accordance with each participant's purchase of project capability. BPA, in turn, is obligated to pay (or credit) the participants identical amounts by reducing amounts the participants owe for power and service purchased from BPA under their power-sales agreements. Even after project termination, such as in the case of Projects 1 and 3 (the construction of the nuclear units was terminated), the obligation for debt service remains until the Energy Northwest nuclear bonds are

retired. Most importantly and a source of significant credit strength, BPA has agreed, in the event of any insufficient payment by a participant, to pay the amount due in cash, directly, and in a timely manner. While the net billing agreements may be terminated prior to the maturity on the related net billed bonds, the obligation of the participant to pay their proportionate share of the debt service continues, as does the obligation of BPA to credit these payments or make a payment if in any event there was an insufficient payment by a participant. In 2007, Energy Northwest and BPA adopted a new direct pay agreement whereby Energy Northwest participants directly pay all costs to BPA rather than through Energy Northwest.

BPA has made a clear and tested commitment to support the payment of the Energy Northwest revenue bonds through the net billing agreements between Energy Northwest participants and BPA. The agreements have withstood more than 25 years of stressful circumstances including legal challenges in the early 1980s. The US Court of Appeals for the Ninth Circuit affirmed in the City of Springfield v. WPPSS; 752 F.2d.1423, the legal authority of all participants to enter into the net billing agreements; the US Supreme Court denied a petition for a writ of certiorari. The obligation of BPA and the participants is in force whether the projects are operable or terminated.

Conservation and Renewable Energy System (CARES)-Conservation Project: CARES is a joint operating agency established to develop and acquire conservation, renewable, and high efficiency energy resources. CARES's Conservation Project bonds are backed by BPA's payments under the Conservation Project Agreement, which obligates BPA to pay debt service to the bond trustee whether or not the Conservation Project is terminated, operating, or operable. The bonds mature in 2014.

Cowlitz Falls Hydroelectric Project: Cowlitz Falls Hydroelectric Project is a 70 MW hydroelectric dam owned by Lewis County Public Utility District (Aa3). The Cowlitz Falls Hydroelectric Project bonds are secured by take-or-pay power purchase agreement and a separate payment agreement with BPA. Both agreements at a minimum obligate BPA to pay debt service to the bond trustee whether or not the project is terminated, operating, or operable. The power purchase agreement also obligates BPA to pay operating costs. The bonds mature in 2024.

McNary Dam Fishway Hydroelectric Project: McNary Dam Fishway Hydroelectric project is a 9 MW hydro dam owned by Northern Wasco County People's Utility District (A3) and Klickitat Public Utility District (A2). The McNary Dam Fishway Hydroelectric project bonds are secured by take-or-pay power purchase agreement with BPA that was terminated in 1995 under a settlement agreement. The settlement agreement obligates BPA to pay debt service and administrative fees to the bond trustee since the power purchase agreement required BPA to pay whether or not the project is terminated, operating, or operable. The bonds mature in 2024.

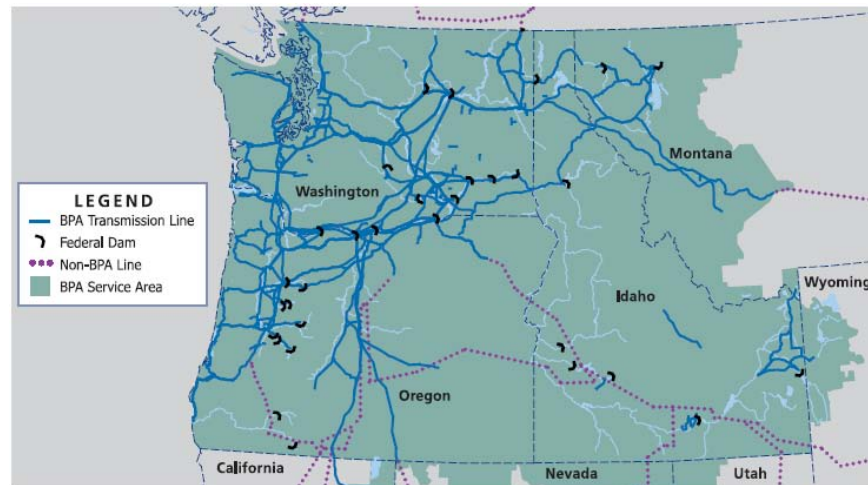
Northwest Infrastructure Financing Corporation: Northwest Infrastructure Financing Corporation primarily owns towers and 500 kV transmission lines totaling 64 miles in BPA's service area. These assets have been leased to BPA and Northwest Infrastructure Financing Corporation's bonds are secured by rent payments from BPA under the lease agreement. BPA maintains the asset and has an absolute and unconditional obligation to make the lease rental payments. The bonds mature in 2034.

Conservation System Project: Conservation System Project is owned by Tacoma Power (Aa3) and was established to provide energy conservation in Tacoma Power's service area. The Conservation System Project bonds are backed by BPA's payments under the Conservation Project Agreement, which obligates BPA to pay debt service and administrative costs to the bond trustee whether or not the Conservation System Project is terminated, operating, or operable. The bonds mature in 2014.

Background on BPA

BPA was created in 1937 by an act of the US Congress and is now one of four regional power marketing agencies within the US Department of Energy. BPA is primarily responsible for federally owned generation and electric transmission assets in the Pacific Northwest spanning all or parts of eight states: Washington, Oregon, Idaho, Montana, Wyoming, Utah, California and Nevada (see Figure 1). The Army Corps of Engineers and the Bureau of Reclamation operate the hydro projects. Many of the statutory authorities of BPA are vested with the Secretary of Energy, who appoints and acts through the BPA administrator.

FIGURE 1
BPA Service Area



Source: BPA

BPA operations are divided between Power Services and Transmission Services though all cash flows ultimately flow into one account (BPA Fund) at the US Treasury. The Power Services business is responsible for the revenue and costs of BPA's generation resources and represents the largest segment at 73% of BPA's revenues in FY 2011. Transmission Services is responsible for the revenue and costs of BPA's electric transmission system and generates the remainder of BPA's revenues. BPA's power rates are approved by the Federal Energy Regulatory Commission (FERC) to ensure full-cost recovery. Federal law requires BPA to meet specified energy requirements in the Northwest region. BPA is also required to implement conservation measures and to provide transmission services. The federal hydro projects also serve numerous purposes, including irrigation, navigation, recreation, municipal and industrial water supply, fish and wildlife protection, and power generation. The amount of power produced by the federal hydro generation units varies with annual precipitation and other weather conditions.

Credit Fundamentals

Strengths

- » BPA benefits from U.S. government support including limited direct borrowing authority with the US Treasury and the legal ability to defer its annual US Treasury repayment if necessary to meet non-Federal debt service commitments (such as Energy Northwest nuclear bonds). BPA has established the planning policy of meeting a 95% probability over the next two years of making its

U.S. Treasury payment on time, a key strategy to ensure timely revenue bond debt service payment

- » BPA's extensive hydroelectric system strongly anchors its competitive wholesale rate position relative to market based prices over the long term
- » BPA owns and operates 75% of the bulk transmission system in the US Northwest and markets low cost hydroelectric power amounting to 30% of the region's power
- » BPA sells a majority of its power under 17-year power supply contracts with creditworthy public power entities and derives roughly a quarter of revenues from a stable electric transmission business

Challenges

- » Significant exposure to hydrology risk and wholesale power markets contributes to cash flow volatility
- » Long and complex ratemaking process creates potential complications in timely rate recovery
- » Conflicting uses of Columbia River, (flood control, irrigation, navigation, recreation, municipal and industrial water supply, fish and wildlife protection and power generation), can hinder the ability of the system to meet load and contribute to substantial additional costs
- » Energy Northwest's nuclear projects are a sizeable debt burden
- » Large debt funded capital program reduces financial flexibility and diminishes US Treasury line availability over the longer term
- » Liquidity and financial metrics continue to be pressured by low wholesale prices and volatile hydrology
- » Development of wind energy is likely to exert downward pressure on power prices in the region and has presented complicated transmission and load balancing issues

Key Rating Drivers

U.S. Energy Department Line Agency

While BPA's obligations do not benefit from the full faith and credit of the United States Government, BPA benefits from significant support from the US government as outlined below. These benefits represent at least a 2-3 notch lift to BPA's standalone credit quality. In a major stress scenario, Moody's expects any US government support to BPA is likely to be provided through the established US Treasury credit lines or deferral of payments to the US Treasury.

Borrowing Authority with US Treasury. BPA is authorized to sell to the US Treasury \$7.7 billion principal amount of bonds, which benefited from a \$3.25 billion increase in February 2009. At September 30, 2011, BPA had \$2.94 billion of outstanding borrowings with the US Treasury. The borrowed funds are to be primarily used to fund capital programs including \$1.25 billion allocated for conservation and renewable investments. As part of the \$7.7 billion, BPA has a \$750 million line of credit, which can be used to fund BPA's operating expenses. Over the next two years, BPA expects to heavily use the US Treasury borrowing line to fund capital expenditures (See 'Large Debt Funded Capital Program' section).

Ability to Defer Payments to US Treasury. BPA is required by statute to defer its annual Treasury payments if funds are needed to meet its non-federal debt obligations like the Energy Northwest revenue bonds and thus BPA's US Treasury obligations are considered subordinated to BPA's non-federal debt service obligations. The deferral ability provides BPA a major source of financial flexibility under extreme situations though BPA has not deferred such payments since 1983 and any deferral is likely to have negative political implications. Over the next two years, BPA is forecasted to make payments to the US Treasury equal to roughly \$700-800 million per year.

Line Agency of US Department of Energy. BPA is not a government corporation but a traditional line agency that is part of the US Department of Energy. The link between BPA and the federal government is further strengthened because BPA must submit annual budgets to Congress and the Department of Justice remains responsible for BPA litigation. There were no adverse proposals to BPA operations or finances contained in the FY 2012 or FY2013 budget. The Federal Energy Regulatory Commission (FERC) must confirm the rates established by BPA.

Powerful Political Constituencies. Due to the importance to the region BPA serves, there is important northwest U.S. representation on key U.S. House and Senate committees that deal with legislation related to BPA. For example, several US senators from the Pacific Northwest are on the Senate Energy and Natural Resources Committee.

BPA Serves Important Public Policy Objectives. Since the creation of BPA, numerous statutes have been enacted to address issues involving BPA and the Northwest region. Among them are the Bonneville Project Act of 1937, The Flood Control Act of 1944, the 1974 Federal Columbia River Transmission System Act, the Pacific Northwest Electric Power Planning and Conservation Act of 1980, and the 1996 BPA Appropriations Refinancing Act. Each of these federal statutes include provisions that aid BPA's financial health while meeting broader public policy obligations.

In the 2001-2003 Pacific Northwest energy crisis, BPA demonstrated it had other federal financial liquidity tools that were available should there be an adverse situation. For example, in 2001, BPA used credits under Section 4(h)(10)c of the Northwest Power Act which relate to federal payment of fish and wildlife protection costs to reduce the actual cash payment to the U. S. Treasury. Without the credits, the power rate increase on customers would have been more significant. BPA identified sources of liquidity of over \$1.5 billion to bridge any gaps due to short-term cash flow shortfalls.

Economic, Social, and Political Ramifications of A Failure of BPA. BPA is responsible for significant regional environmental protection programs as well as for coordinating river operations and certain treaty responsibilities with Canada. BPA funds approximately 70% of the fish and wildlife mitigation and recovery efforts in the Columbia Basin. A BPA failure would have a far-reaching effect on the region, which would serve as an important incentive. In addition, as the Northwest region looks to diversify and add to its power resources, BPA is playing a major role in building new transmission lines to insure new wind generation constructed in the region can efficiently get to the regional marketplace.

Sound Hydro and Transmission Assets

BPA's dominant hydroelectric generation and transmission assets in the Pacific Northwest are considered one of BPA's key fundamental strengths. BPA has roughly 75% of the Pacific Northwest's bulk transmission consisting of 15,000 miles of high voltage transmission lines and 300 substations and other facilities located in BPA's service area.

BPA also indirectly markets energy to nearly 12 million people from 31 federally owned hydroelectric facilities constructed on the Columbia River. Output of the federal hydro system is 8,885 average megawatts annually during median water conditions and 6,846 average megawatts annually under low water conditions. About 98% of hydro generating capacity is from 13 projects and all the federal hydro plants combined comprise more than 80% of BPA's average power supply (See Figure 2). Power dispatched from Energy Northwest's CGS nuclear plant represents about 10% of BPA's total energy resources.

FIGURE 2
Operating Federal System Projects for Operating Year 2012

Project	Initial Year in Service	No. of Generating Units	January Capacity (Peak MW)	Maximum Energy (aMW)	Median Energy (aMW)	Firm Energy (aMW)
United States Bureau of Reclamation (Reclamation) Hydro Projects						
Grand Coulee incl. Pump Turbine	1941	33	6,162	2,649	2,396	1,914
Hungry Horse	1952	4	366	150	103	82
Other Reclamation Projects		16	125	182	170	126
1. Total Reclamation Projects		53	6,653	2,981	2,669	2,122
United States Army Corps of Engineers (Corps) Hydro Projects						
Chief Joseph	1955	27	2,535	1,356	1,295	1,102
John Day	1968	16	2,484	1,371	1,069	811
The Dalles w/o Fishway	1957	24	2,034	979	811	607
Bonneville	1938	20	1,054	581	557	414
McNary	1953	14	1,127	718	643	494
Lower Granite	1975	6	930	405	289	191
Lower Monumental	1969	6	923	447	313	191
Little Goose	1970	6	928	422	299	193
Ice Harbor	1961	6	693	357	230	169
Libby	1975	5	579	273	214	177
Dworshak	1974	3	445	286	218	148
Other Corps Projects		20	210	313	278	227
2. Total Corps Projects		153	13,942	7,508	6,216	4,724
3. Total Reclamation and Corps Projects (line 1 + line 2)		206	20,595	10,489	8,885	6,846
Non-Federally-Owned Projects						
Columbia Generating Station	1984	1	1,130	1,030	1,030	1,030
Other Non-Federal Hydro Projects		7	23	61	46	39
Other Non-Federal Projects		11	28	89	89	89
4. Total Non-Federally-Owned Projects		19	1,181	1,180	1,165	1,158
Federal Contract Purchases						
5. Total Bonneville Contract Purchases		0	1,195	772	763	753
Total Federal System Resources						
6. Total Federal System Resources (line 3 + line 4 + line 5)		225	22,971	12,441	10,813	8,757

Source: BPA

Over the long-term, the hydroelectric generation support competitive costs though BPA's competitiveness has decreased over the last three years. In FY 2012, BPA's Full Requirement Power Rate is around \$29/MWh, which increased on average 7.8% compared to the prior year. Historical regional market prices in the region were around the \$50/MWh range from 2004 to 2008 though prices in 2009 -2011 averaged around \$30/MWh due to the recession and low natural gas prices. Moody's believes that the long-term fundamental strength of BPA's hydroelectric and transmission assets remains strong and BPA remains well positioned against potentially tougher emissions regulations including CO₂.

Long Term Power Sale Contracts

New long-term power sales contracts with its 133 municipally owned and cooperatively owned utilities and federal agencies (Preference Customers) support the majority of Power Services cash flow and BPA's long-term credit quality. The 17-year power sales contracts started in Fiscal Year 2012. Sales to the Preference Customers totaled nearly \$1.8 billion in FY 2011 and represents BPA's largest revenue segment at nearly 55% of total revenues. Snohomish PUD (Aa3/stable) is BPA's largest preference customer at 11% of sales and the top ten customers represent approximately 50% of sales assuming conservative water flows (see Figure 3). Eight of the top ten customers are highly rated in the 'A' to 'Aa' category and seven are located in Washington State.

FIGURE 3
Top Ten Preference Customers

Preference Customer	Rating	State	Contract type	Estimated Sales* (aMW)	% of Sales to Preference Customers
Snohomish PUD	Aa3	WA	Slice/Block	786	11%
Cowlitz PUD	A1	WA	Slice/Block	540	8%
Seattle City Light	Aa2	WA	Slice/Block	532	8%
Tacoma Power	Aa3	WA	Slice/Block	393	6%
Clark PUD	A2	WA	Slice/Block	323	5%
Eugene Water & Electric Board	Aa2	OR	Slice/Block	249	4%
Benton PUD	Aa3	WA	Slice/Block	191	3%
Flathead Electric Cooperative	NR	MT	Load Following	160	2%
Central Lincoln PUD	NR	OR	Load Following	154	2%
Grays Harbor PUD	A1	WA	Slice/Block	133	2%

*Estimated for FY 2012 assuming critical water levels for slice portion of sales

Source: BPA

Under the new agreements with its Preference Customers, BPA will provide two services; Load Following and Slice/Block. The Load Following service will be the new equivalent to the Full and Partial Requirement services. Load Following customers will make payment commitments based on net load requirements, which will be reduced if net requirements were to decline. BPA expects the 116 load following customers to account for roughly 46% of 2012 total sales (MWh) to Preference Customers. Slice/Block customers similarly will make payment commitments subject to net load declines. In the case of a decline in load for a Slice/Block customer, the Block portion will be reduced first. BPA expects the 17 regional Slice/Block contracts to account for roughly 54% of 2012 sales. The new power sales contracts will restrict the amount of incremental power customers are able to

purchase under Tier 1 PF rates to better position BPA to recover costs of sourcing additional capacity outside of the federal system.

The next largest revenue segment is transmission sales totaling \$776 million representing nearly 24% of revenue. BPA also receives revenue from secondary (surplus) market sales outside of the Northwest, direct sales to industrial customers, sales to investor owned utilities, and other revenues.

The rates for power supply and transmission services paid by BPA Preference Customers follows an extensive process as laid out in the Northwest Power Act (see 'Extensive Ratemaking Process' section).

Cost Burden of Nuclear Projects

Of the original five planned nuclear units, CGS is the only one in operation with all the power economically dispatched by BPA. Consequently, BPA only benefits from power generated at CGS but remains responsible for debt at Project No 1, CGS and Project No 3 that increases BPA's debt burden while reducing BPA's competitiveness. Project 4 and 5 defaulted since they did not have net billing agreements. The debt at all three projects totaled \$5.6 billion at FY 2011 and represented 89% of BPA's non-federal debt and 41% of BPA's total debt. Non-federal debt service associated with the three projects totaled \$608 million in FY 2011 and remains a major cost burden on BPA.

While the Energy Northwest's nuclear related debt is a substantial burden on BPA, Moody's recognizes that the 1,150 MW CGS nuclear plant operates and provides 9.4% of BPA's energy resources based on median water flows. In FY 2011, the nuclear facility generated 7,247 GWhs of energy, which was below the recent historical 8-year average of 8,433 GWhs due to a planned 78-day outage that grew to 174 days (see Figure 4). CGS returned to commercial operation in September 2011. The extended outage was caused by contractor delays tied to a condenser replacement that resulted in cost overruns. Energy Northwest and the contractor are currently in dispute on this matter.

FIGURE 4

Historical CGS Generation

	2004	2005	2006	2007	2008	2009	2010	2011
GWh	9,520	7,599	9,636	8,017	9,594	7,726	8,124	7,247

Source: Energy Northwest

The plant has had a relatively good safety-performance record with satisfactory ratings from both the Nuclear Regulatory Commission (NRC) and the Institute of Nuclear Power Operations. Energy Northwest's operating license extends to 2023. The facility has sufficient spent fuel storage including capacity expansion through 2024. In January 2010, Energy Northwest filed an application with the NRC for a 20-year license renewal to 2043. That said, CGS's Mark II design is similar to the Fukushima reactors' Mark I design, which suffered a major nuclear accident in 2011 due to an earthquake and tsunami. In March 2012, the NRC issued several orders based on NRC's findings of the Fukushima accident and Energy Northwest expects to make various capital improvements to CGS. Preliminary cost estimates by CGS range from \$30 million to \$50 million over the next five years.

Lengthy Ratemaking Process

BPA's ratemaking procedure involves an extensive process as laid out in the Northwest Power Act and could create complications and delays in timely recovery of BPA's costs. The Northwest Power Act contains specific ratemaking procedures, mandates justification and reasons in support of such rates and requires a hearing. The hearing provides an opportunity for third parties to refute or rebut

material submitted by BPA or other parties and provides an opportunity for cross-examination. The BPA Administrator ultimately decides the rate based on the hearing record including all information submitted. Rates established by BPA may become effective only upon confirmation and approval by FERC. Furthermore, the US Ninth Circuit Court reviews all of BPA's ratemaking for conformance with all Northwest Power Act standards. BPA plans rate cases every two years. In a stress situation, BPA could file an expedited rate with FERC and the whole process could take several months for an interim rate approval.

Moody's notes that BPA is required by law to propose rates to meet all its costs and that BPA proposes rates at levels whereby it can meet its US Treasury payments at a 95% confidence level based on its cash flows and reserves. While BPA's approach should ensure a high probability of near-term payment to the US Treasury and an extremely high probability of near-term payment on non-federal debt service, the 95% confidence level does not ensure the sustaining of strong reserves and thus exposes BPA to longer-term credit deterioration. The exposure was highlighted during FY 2009-2011 when the combination of low wholesale price and/or low water flows lead to steep drop in reserves totaling around \$521 million since FY 2008.

BPA has historically demonstrated willingness to raise rates in a very difficult situation such as the power crisis of 2000-2001. Wholesale power rates were raised by more than 40% to manage the combination of the impact of drought conditions on hydro production and BPA's need to purchase power during a high power price environment. Subsequently wholesale rates have fallen and BPA remains competitive within the region though currently market prices are below BPA's rates. For FY 2012-2013, BPA implemented a 7.8% average rate increase.

BPA is also able to make rate adjustments at the beginning of the first year of the rate period and one time in the middle of the two-year rate period under the Cost Recovery Adjustment Clause (CRAC). CRAC permits a one-year increase in rates up to \$300 million if accumulated net revenues are at or below a pre-determined threshold. The CRAC feature serves as an additional tool to reduce BPA's exposure to hydrology and wholesale price volatility though the annual basis of the test and low trigger point limit the benefit of the CRAC mechanism. For the FY 2007-2009, the CRAC trigger points equated to roughly \$750 million in projected remaining reserves in the Bonneville Fund available to BPA's Power Services operations. The CRAC trigger points in the FY 2010-2011 Rate Period equate to roughly zero projected remaining reserves in the Bonneville Fund available for risk attributable to Power Services operations. At Fiscal Year 2011, reserves tied to Power Services represented approximately \$215 million. For the FY 2012-2013, BPA has continued to set the CRAC mechanism at a similar level and the continuation of the low threshold in the face of declining reserves was a contributor for the rating downgrade to Aa1 in August 2011.

For FY 2012-2013, BPA also has a NFB Adjustment, which would increase the CRAC adjustment cap if costs rise due to adverse events related to the litigation over the 2010 Columbia River System Biological Opinion (Biological Opinion). Additionally, BPA has a related NFB Emergency Surcharge that would allow BPA to increase power rate levels at any time in FY 2012-2013 in order to recover certain costs tied to the Biological Opinion if the probability for payment to the US Treasury falls below 80% (see 'Environmental Challenges' section).

Hydrology and Wholesale Price Risks

BPA's financial results can be materially impacted by hydrology in the Columbia River Basin and wholesale power prices in the region since wholesale power sales represent roughly 10-20% of total revenues in a typical year and contributed significant, but volatile cash flows to BPA (Figure 5 for

historical regional prices and water flows). In recent history, these factors outside of BPA's control have contributed heavily to nearly a \$1 billion swing in net revenues (Moody's estimate) between the best (2006) and most challenging years (2001). According to its January 2012 report, BPA expects water flows at around 88% of the historical long-term average resulting in BPA likely performing below the FY 2012-2013 rate case. Based on more recent data, regional water flows is estimated to be higher around 91% of the long-term average. This contrasts with FY 2011 when BPA experienced hydrology at 133% above average, which resulted in better than expected performance.

FIGURE 5
Regional Market Prices and Water Flows

	Mid Columbia On Peak (\$/MWh)	Mid Columbia Off Peak (\$/MWh)	Columbia River Runoff at Dalles, OR
2004	45	39	85%
2005	63	50	82%
2006	51	38	106%
2007	56	44	92%
2008	65	52	95%
2009	36	28	88%
2010	36	28	83%
2011	31	19	131%
2012*	27	21	88%

*Estimated 2012

Source: Bloomberg \ SNL \ BPA

Over the medium term, BPA faces a challenging wholesale market environment whereby the recession has contributed to electricity demand in the Northwest region falling by an estimated 9.4% from 2008 to 2010 according to the North American Reliability Council's (NERC) 2010 long term reliability assessment. Based on NERC's forecasted 0.88% demand growth in the 2011 long-term reliability assessment, total annual energy consumption in the region is not expected to exceed 2008 levels of demand until roughly 2019/2020 timeframe. The lower demand levels will likely contribute to lower energy prices compared to the 2004 to 2008 time period.

Moody's also recognizes that forward prices at Mid Columbia reference price remain low at around \$24/MWh in 2012 and average around \$30/MWh from 2012-2014, which is well below the 2006-2008 average of around \$53/MWh and forward prices have decreased over the last year. Actual realized prices by BPA could be lower given the large amounts of new wind in the region and the correlation between peak wind energy production and BPA's peak surplus energy sales. Approximately 3,800 MW of wind generation is connected to BPA's transmission system and BPA expects another 1,300 MW could be built by September 2013. The peak wind generation occurs during the spring months, which approximately matches BPA's main seasonal surplus power generation and could result in negative energy prices especially since wind projects receive other non-energy related payments like renewable energy credits (REC) and federal production tax credits (PTC).

The growth in wind energy production has presented other challenges resulting in BPA implementing an 'environmental redispatch' policy to curtail wind energy production. In December 2011, FERC held that BPA's 'environmental redispatch' policy was not in accordance with the Federal Power Act. BPA has proposed a new policy of compensating wind generators, which BPA estimates will cost \$12

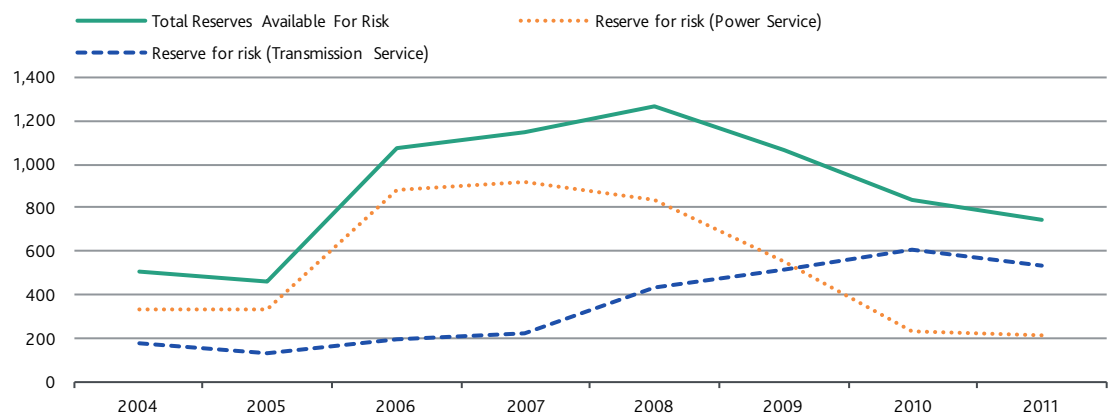
million per year on average and up to \$50 million in extreme conditions. BPA expects these costs will be funded from the Transmission Services reserves until it can be incorporated in rates.

Downward Pressure on Liquidity and Metrics

The weakening of BPA's internal financial reserves and a sustained decline in coverage ratios were major drivers of the rating downgrade in August 2011.

From 2006 to 2008, BPA benefited from above average water levels or high power prices that contributed to total financial reserves of \$1.646 billion at FY 2008 consisting of \$1.27 billion in reserves available for risk and \$378 million in encumbered reserves. Moody's focuses primarily on the reserves available for risk since the encumbered reserves consist of customer deposits for transmission interconnection, deposits for energy efficiency and other funds meant for specific purposes. For the three-year period ending FY 2011, BPA experienced a cumulative decline in reserves available for risk of \$521 million to \$747 million mostly due to low wholesale prices and/or hydrology in FY2009-2011 in addition to higher operating costs (see Figure 6). This demonstrates the material impact that hydrology and the regional wholesale power prices can have on BPA's financial performance.

FIGURE 6
BPA's Reserves Available for Risk
(in \$ millions)



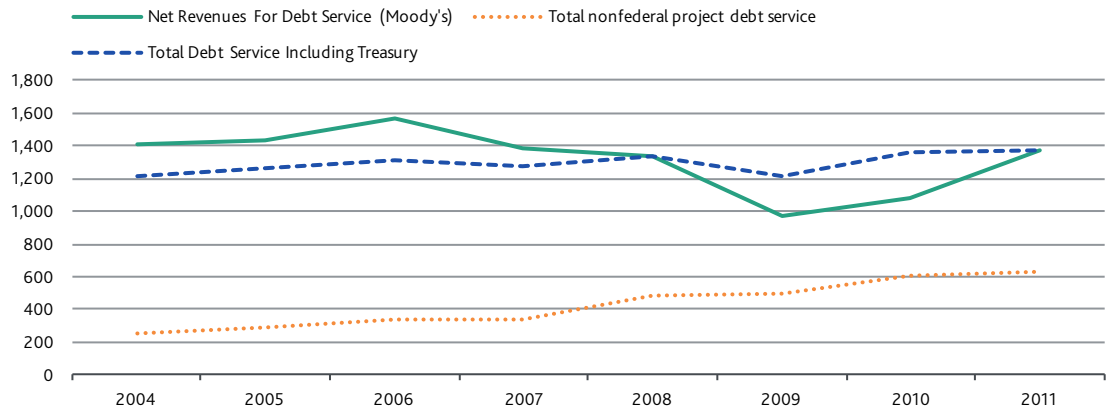
Source: BPA

For FY 2012, BPA expects total reserves available for risk to decline further to \$624 million based on lower than anticipated market prices and below average water conditions though this estimate could be conservative based on recent improvement in water flows. Power Services' reserves available for risk is expected to decline to \$129 million (\$215 million in FY 2011). Transmission Services' reserves available for risk is also expected to decline to \$495 million in FY 2012 (\$532 million in FY 2011) due to a planned use of reserves to fund capital expenditures and transmission operating expenses over the FY 2012-2013 period. Power Services can utilize the Transmission Services's reserves; however, Power Services will have to 'repay' with interest any reserves it utilizes from Transmission Services. BPA could utilize the forecasted \$220 million of encumbered reserves in FY 2012 though BPA would have to replenish any utilized amount.

BPA separately has an aggregate availability totaling \$750 million under multiple lines of credit with the US Treasury to fund BPA's operating costs. The last line of credit expires in September 30, 2013 and any draw needs to be repaid by September 30, 2014. Given the decline in BPA's internal reserves, BPA is increasing its reliance on the US Treasury line as a source of liquidity for operations.

Low hydrology and low wholesale prices and increases in non-federal debt service have also contributed to pressure on net revenues for debt service and non-federal debt service coverage ratios (see Figure 7 and 8).

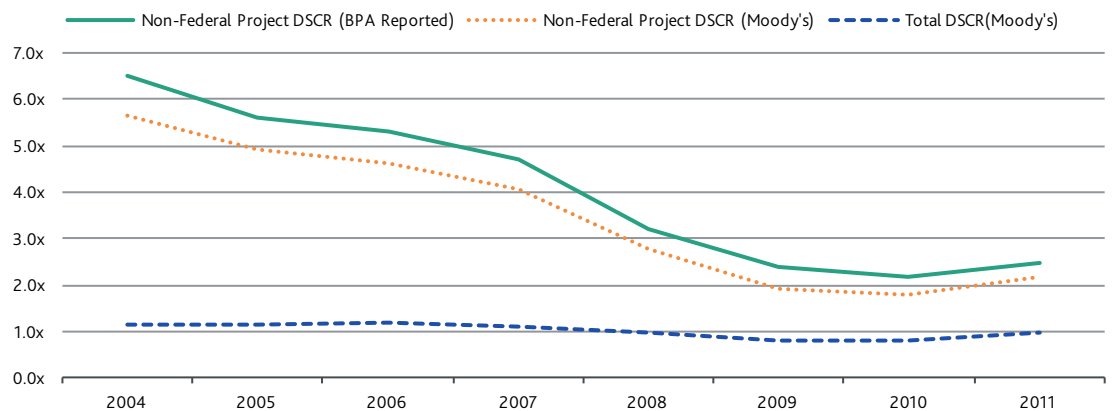
FIGURE 7
Net Revenues and Debt Service
(in \$ millions)



Source: BPA/Moody's

From FY 2004-2008, non-federal debt service averaged 4.4 times compared to an average of 1.9 times for 2009/2010 while total debt service coverage ratio (including US Treasury payments) decreased to 0.80 times from an average of 1.1 times according to Moody's calculations. During FY 2011, non-federal and total debt service coverage improved to 2.2 times and 1.0 times, respectively, due to extraordinary high water flows. For the FY 2012 and 2013 rate case, BPA forecasted non-federal debt service moderately higher than 2 times and total debt service around 1.0 times. BPA's most recent FY 2012 forecast dated January 31, 2012 estimates net revenues about \$80 MM lower and is likely to put downward pressure on financial reserves and metrics relative to the rate case.

FIGURE 8
Non-federal and Total DSCR



Source: BPA/Moody's

Large Debt Funded Capital Program

A longer-term negative pressure on BPA's credit quality is the large, heavily debt funded capital expenditure program that is likely to pressure long-term competitiveness and deplete availability under the US Treasury line. For FY 2012-2013, BPA anticipates spending on average \$1.15 billion per year on capital expenditures, which is around 2.6 times the \$440 million expenditure level for FY 2008 (see Figure 9). The capital expenditure program is roughly split equally between the Power and Transmission Services businesses and consists generally of improvement and maintenance of the federal hydro system, fish and wildlife mitigation measures, conservation measures, and transmission system improvements.

Funding for the capital expenditure is mostly funded through borrowings under the \$7.7 billion US Treasury line and federal appropriations. Over the longer term, BPA anticipates that it could utilize its US Treasury line by around 2016 net of \$750 million reserved for liquidity if alternative financing such as non-federal debt is not utilized. Substantial or full utilization of the US Treasury line would be viewed as a credit negative since it represents a key US government support mechanism.

At FY 2013, total expected debt is estimated at \$14.1 billion from \$13.6 billion compared to relatively steady total debt from FY 2007-2010. Moody's recognizes that BPA's total debt ratio remains high at 129% at FY 2011 and is comparable to the last several years. That said, the non-federal debt's position in the overall capital structure is expected to improve on a relative basis since total non-federal debt is expected to be roughly 40% of total debt compared to roughly 50% from 2007-2010. However, this trend could reverse if BPA starts to utilize non-federal financing to fund capital expenditures and thus increase total non-federal debt.

FIGURE 9

Total Capital Expenditures and Debt

Capital Expenditures	Actual					Rate Case*	
	2007	2008	2009	2010	2011	2012	2013
Total Capital Expenditures	465	439	575	684	787	1,091	1,192
Federal Borrowings							
Federal Appropriations	126	71	177	87	130	127	177
US Treasury	265	350	338	638	800	950	999
Total	391	421	515	725	930	1,076	1,177
Non Federal Debt							
US Treasury Borrowings	2,241	2,186	2,130	2,513	2,943	3,687	4,398
Federal Appropriations	4,338	4,258	4,396	4,259	4,350	4,249	4,369
Total Debt	13,129	12,911	13,092	13,095	13,566	14,008	14,382
US Treasury Borrowing Line							
	4,450	4,450	7,700	7,700	7,700	7,700	7,700

*Moody's estimate for per FY2012-2013 rate case. Rate case is accrued basis for capex

Source: BPA / Moody's

Environmental Challenges

BPA faces conflicting uses of the Columbia River and environmental issues contribute significantly to BPA's costs and weighs heavily on BPA's cash flows and competitiveness. BPA is subject to the Endangered Species Act (ESA) and approximately fifteen fish species are affected by the operation of the federal dam system. For FY2011, BPA's fish and wildlife costs to meet ESA and non-ESA requirements is estimated at approximately \$650 million and represents another major cost burden to BPA. Included in the \$650 million are \$422 million of direct costs including such items as fish hatcheries and \$228 million of operational impacts such as replacement power purchase costs and forgone revenues. These costs equal to nearly 50% of BPA's net revenues available for debt service (Moody's estimate). For reference, Moody's notes that BPA's fish and wildlife mitigations costs in FY 1981 was \$20 million (roughly \$50 million on a 2011 inflation adjusted basis).

On August 2, 2011, the federal district court for the district of Oregon upheld through 2013 the Biological Opinion. The federal court also ordered a new biological opinion to cover 2014 through 2018. The Biological Opinion mandates actions to protect fish species such as fish hatcheries and hydro dam operational changes. BPA estimates increased costs around \$100 million per year due to the Biological Opinion and the higher cost was incorporated in the FY 2012-2013 rate case. While an extreme scenario such as breaching of one or more of the Snake River hydro dams remains possible, Moody's view this as highly unlikely. Moody's understands any breaching of the Snake River hydro dams will require approval by the US Congress and extensive studies that will likely take multiple years.

Moody's notes that BPA was able to recover a portion of the Fish and Wildlife costs borne by the BPA from the US Treasury since a portion of the costs are allocated to non-power related federal purposes such as irrigation and flood control. For FY 2011, BPA recovered \$85 million, which was credited against payments owed to the US Treasury.

Appendix 1: BPA Historical Financial Performance

Bonneville Power Administration

Financial Performance (fiscal years ended 9/30 in \$millions)

	2004	2005	2006	2007	2008	2009	2010	2011
Sales (aMW)	9,772	10,288	10,226	9,374	8,803	8,748	8,936	11,042
Sales to NW public utilities	1,738	1,717	1,712	1,837	1,505	1,673	1,776	1,763
Direct Service Industrial Customers	92	82	80	0	0	0	81	103
Investor-owned utilities in NW	363	391	503	281	214	144	134	155
Sales outside NW	489	601	692	461	604	274	243	466
Transmission	727	716	641	689	722	714	771	776
Book outs	-404	-428	-221	-95	-110	-37	-121	-92
Fish Credits and Other Revenues	192	189	13	95	102	103	172	114
Total Net operating revenues	3,198	3,268	3,419	3,269	3,037	2,870	3,055	3,285
O & M (including Corps/Reclamation O&M)	1,668	1,693	1,700	1,539	1,707	1,691	1,790	1,727
Residential exchange	126	144	157	340	-1	205	180	185
Operating Costs	1,794	1,837	1,857	1,880	1,706	1,896	1,971	1,912
Net Revenues For Debt Service (Moody's)	1,404	1,431	1,562	1,389	1,330	974	1,084	1,373
Reported Net Revenues	504	497	611	457	265	-101	-128	82
Non-Federal and US Treasury Debt Service								
Net-billed debt service	223	267	315	319	458	462	547	608
Non-net billed debt service	26	24	23	24	22	39	53	17
Total nonfederal project debt service	248	292	338	343	479	501	600	625
U.S. Treasury (net of Corp/Reclamation O&M)	970	972	977	928	851	710	763	748
Total Debt Service Including Treasury	1,218	1,264	1,315	1,272	1,330	1,211	1,364	1,373
Financial Reserves, Cash Days on Hand & DSC								
Reserve for risk (Power Service)	330	333	885	917	834	553	233	215
Reserve for risk (Transmission Service)	179	131	193	229	434	516	606	532
Total Reserves Available For Risk	510	463	1,078	1,147	1,268	1,068	840	747
Total Financial Reserves	638	554	1,193	1,463	1,646	1,363	1,114	1,006
Non Federal Debt	6,454	6,494	6,515	6,551	6,467	6,565	6,322	6,273
US Treasury Borrowings	2,900	2,777	2,482	2,241	2,186	2,130	2,513	2,943

Bonneville Power Administration

Financial Performance (fiscal years ended 9/30 in \$millions)

	2004	2005	2006	2007	2008	2009	2010	2011
Federal Appropriations	4,444	4,342	4,324	4,338	4,258	4,396	4,259	4,350
Total Debt	13,798	13,612	13,321	13,129	12,911	13,092	13,095	13,566
Unencumbered liquidity days on hand	104	92	212	223	271	206	156	143
Non-Federal Project DSCR (BPA Reported)	6.5x	5.6x	5.3x	4.7x	3.2x	2.4x	2.2x	2.5x
Non-Federal Project DSCR (Moody's)	5.7x	4.9x	4.6x	4.0x	2.8x	1.9x	1.8x	2.2x
Total DSCR(Moody's)	1.2x	1.1x	1.2x	1.1x	1.0x	0.8x	0.8x	1.0x

Source: BPA

Appendix 2: Debt List

Bonneville Power Administration Non-Federal Project Debt

Outstanding As Of Fiscal Year 2010

		Amount Outstanding	Final Maturity
Energy Northwest Revenue Bonds(1)			
Nuclear Project No.1	Aa1	\$1,573,805,000	7/1/2017
Columbia (Nuclear Project No.2)	Aa1	\$2,487,355,000	7/1/2024
Nuclear Project No.3	Aa1	\$1,495,480,000	7/1/2018
		\$5,556,640,000	
Lewis County PUD 1-Cowlitz Falls Project	Aa1	\$116,780,000	10/1/2024
Tacoma Conservation System Project Rev.	Aa1	\$6,675,000	12/1/2014
Northern Wasco County-McNary Dam	Aa1	\$21,740,000	12/1/2014
Northwest Infrastructure Financing Corp.	Aa1	\$119,585,000	1/1/2034
NIFC II	NR	\$93,790,708	7/1/2014
NIFC III	NR	\$200,000,000	1/1/2015
NIFC IV	NR	\$76,878,730	1/1/2016
NIFC V	NR	\$69,296,655	7/1/2016
Conservation and Energy Renewable System	Aa1	\$11,200,000	10/1/2014
		\$6,272,586,093	

(1) Excluding Energy Northwest Nine Canyon Wind Project which does not receive payments from BPA

Appendix 3: ENW Rating History

Energy Northwest

Rating History

Nuclear Project No. 1 (1):

August 2011:	Aa1
March 2004:	Aaa
August 1996:	Aa1
May 1990:	Aa
August 1989:	A
February 1985:	Withdrawn
June 1983:	Suspended
April 1983:	Baa
May 1982:	A1
February 1982:	A1
September 1975:	Aaa

Nuclear Project No. 3 (3)

August 2011:	Aa1
March 2004:	Aaa
August 1996:	Aa1
May 1990:	Aa
August 1989:	A
February 1985:	Withdrawn
June 1983:	Suspended
May 1983:	Baa
May 1982:	A1
February 1982:	Aa
November 1975:	Aaa

Nuclear Project No. 2 (2)

August 2011:	Aa1
March 2004:	Aaa
August 1996:	Aa1
May 1990:	Aa
August 1989:	A
February 1985:	Withdrawn
June 1983:	Suspended
June 1983:	Baa
May 1983:	A1
February 1982:	A1
February 1975:	Aaa

Nuclear Projects Nos. 4 and 5 (4):

June 1983:	Withdrawn
June 1983:	Caa
January 1982:	Suspended
June 1981:	Baa1
February 1977:	A1
(1) Not a BPA-backed obligation.	

(1) Washington Public Power Supply System Project 1 was a partially constructed nuclear unit that Energy Northwest terminated. Energy Northwest has plans for demolition of the project and restoration of the site. Outstanding revenue bonds secured by net billing agreements with BPA.

(2) Columbia Generating Station (formerly Project 2) is an operating 1157 MW nuclear generation facility.

(3) Washington Public Power Supply System Project 3 was a partially constructed nuclear unit that was terminated by Energy Northwest. The site was transferred to the Grays Harbor PUD 1 and developed into a combustion turbine site. Outstanding revenue bonds secured by net billing agreements with BPA.

(4) Projects 4 and 5 terminated in 1982 and projects 4 and 5 bonds went into default on July 22, 1983. Revenue bonds were not backed by net billing agreements.

Moody's Related Research

Global Risk Perspectives:

- » [Global Macro-Risk Outlook 2012-2013, Further Slowdown in Growth and Increase in Uncertainty, February 2012 \(139852\)](#)

Industry Outlooks:

- » [Outlook for U.S. Local Governments Remains Negative in 2012, February 2012 \(139418\)](#)
- » [US Power Projects: Increased Strategic Activity Expected, February 2012 \(139912\)](#)
- » [US Regulated Electric and Gas Utilities: Stable Despite Rising Headline Rhetoric, January 2012 \(137878\)](#)
- » [US Unregulated Power Companies: Hunkering Down in Hope for Better Prices, January 2012 \(138140\)](#)
- » [Outlook Update: Global Integrated Oil & Gas Industry: Moderation in Oil Prices and Pressure on Downstream Activities are Likely to Dampen Earnings Growth in 2012, September 2011 \(136270\)](#)

Rating Methodologies:

- » [U.S. Public Power Electric Utilities with Generation Ownership Exposure, November 2011 \(135299\)](#)
- » [U.S. Municipal Joint Power Agencies, September 2006 \(99024\)](#)

Special Comments:

- » [High Prices to Keep Oil Production Brisk in 2012, Helping Midstream and OFS Sectors, January 2012 \(138669\)](#)
- » [Increasingly Stringent Environmental Mandates Lurch Forward, January 2012 \(139096\)](#)
- » [Credit Implications Associated with Increasingly Stringent Environmental Regulations, November 2011 \(136831\)](#)
- » [Southern Montana Electric Bankruptcy Is Credit Negative for US Generation and Transmission Cooperative Sector, October 2011 \(137017\)](#)
- » [Re-evaluating Creditworthiness for Global Nuclear Generators, April 2011 \(131818\)](#)

Request For Comment:

- » [Moody's Considers Use Of New Financial Metrics In U.S. Public Power Electric Utility Rating Methodology, June 2011 \(133787\)](#)

Press Release:

- » [Moody's Lowers Price Assumptions for North American Natural Gas Amid Persistent Glut, January 2012](#)

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