BONNEVILLE POWER ADMINISTRATION

backgrounder

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The effect of risk on BPA rates

Risk is on the minds of most Americans these days, whether the risk is personal or national, caused by humans or by nature.

In the wake of Hurricane Katrina, millions of Americans are checking their insurance to see if it covers floods. Others are taking seriously the urgings of disaster planners to have a week's supply of food and water in the house and to plan for a rendezvous point with other family members.

Those are prudent and reasonable ways for a person or family to prepare for certain kinds of risks.

Similarly, the Bonneville Power Adminstration has to anticipate risks and establish ways to prepare for them if they are significant.

What has this got to do with power rates?

From January through May 2005, BPA held a public process called the Power Function Review. The purpose of the review was to have a dialogue with the region over BPA's costs and their role in the agency's power rates. The review presented a simplified representation of the technically complex process BPA uses to determine its power rates:

$$\frac{\text{costs} - \text{credits} + \text{risk}}{\text{the power customers use}} = \text{rate}$$

This formula reflects how rates are determined for the overwhelming majority of BPA's public power preference customers. One group of customers buys a product called the "Slice of the system" whose rate is calculated somewhat differently.

Because rates are set on a prospective basis, all components are BPA's best estimates of what the future will bring. The costs in the formula are the projected costs of providing the BPA's Power Business Line's products and services. Credits include anticipated revenues from the sale of surplus power as well as credits back to the agency from the federal government for payments BPA makes on behalf of other federal agencies for navigation, irrigation and recreation benefits of the Federal Columbia River Power System. These credits help BPA meet its obligation to the U.S. Treasury and make rates for the public preference customers lower than they otherwise would be.

The largest credit is for sales of surplus power. Because these sales are highly and unpredictably variable, when BPA sets its power rates, it must reflect that variability, or risk, in its rate-setting process.

It should be no surprise that one of the biggest issues in the FY 2007-2009 rate case will be the figure the agency places in the equation for risk.

Hasn't there always been risk?

Of course. BPA can't talk about rates without mentioning the three basic risks the agency faces – water supply, the availability of the generators at the federal dams and at Energy Northwest's Columbia Generating Station nuclear plant and the market price for surplus power.

The agency markets the power produced by 31 federal dams and the nuclear plant. The January-July runoff as measured above The Dalles Dam on the lower Columbia

River is a useful measure of how much water will be available to generate power in any given year. The 77-year (1929-2005) average is 102.6 million acre-feet (maf). The challenge is that average covers a lot of yearly variation. Over those years, we have seen flows approaching a low of 60 maf and a high of 160 maf – nearly a threefold difference. That variability means there is about a one-in-six chance that BPA will have a lot of extra power, about as much as the output of two nuclear plants, but an equal chance of being short the same amount – a range of about 2,000 average megawatts in either direction.

And speaking of nuclear plants, BPA relies on the output of the Columbia Generating Station. The plant is generally quite reliable but occasionally experiences unexpected shutdowns in addition to its regularly scheduled shutdowns for refueling. The point is that BPA cannot absolutely rely on the plant to produce power at all times. That is an uncertainty that creates risk.

As is the possibility that a turbine at one of the dams may fail.

The price of power in the market has a close connection with the first two risks. Remember the credits side of the rate equation. If BPA has a lot of surplus power in the spring and summer when river flows exceed the agency's customers' demand for power and the price for surplus power is high, BPA can earn significant amounts by selling that surplus power. Those earnings work to reduce the amount BPA must raise from its public power customers, which reduces rates.

On the other hand, if BPA has little power to sell or if the market price is low, BPA will earn very little on the secondary market. Worse yet, if the agency must buy power to make up for lost generation or a shortage of water, it stands to lose substantial amounts of money if the price of market power is high. Both of these scenarios have the potential to increase rates for public power customers.

What has BPA done in the past to deal with risk?

Prior to the current power rate period (FY 2002-2006), BPA primarily used two tools to compensate for its financial risks – reserves and planned net revenues for risk.

These tools are familiar to every household. Reserves are BPA's savings account. Planned net revenues for risk is that little bit put into savings each payday if a family thinks its savings are not high enough. In essence, BPA charged in advance for the risks that were likely to occur and put that extra in an account to be tapped in case of bad luck.

Until 2003, BPA also had access to something called the Fish Cost Contingency Fund. That fund provided over $300 million that BPA could call on during low-water years. The fund was mostly exhausted in the drought year of 2001 and fully extinguished in the low-water year of 2003.

During the current rate period, BPA, with the agreement of its customers, added a new wrinkle to its risk compensation toolbox – the cost recovery adjustment clauses (the Load-Based, Financial-Based and Safety Net CRACs). These allowed BPA to raise rates if financial conditions made it necessary. BPA included adjustment clauses in its rates in the past to a limited extent, but they are used far more frequently in the current rate period. Because this technique allows power rates to adjust according to financial need, it allows BPA to have lower reserve levels and to collect less in planned net revenues for risk than would otherwise be necessary. The result is that rates can be lower than if they had to collect enough ahead of time to cover the costs of future uncertainties. By using the CRACs, BPA is using a kind of pay-as-you-go system.

What's new about risk in FY 2007-2009?

Our existing risks have become more volatile; we have some new sources of risk; the Fish Cost Contingency Fund, a major risk management tool, is now gone; and some old risks that hadn't been around for a while have come back.

Let's go back to BPA's three traditional sources of financial risk. The result of both a reduced water supply and a loss of generation is the same – BPA has to go to the market to buy the power it cannot generate. Before the West Coast power crisis of 2000-2001, buying power on the market might have cost BPA $20 per megawatt-hour. During the crisis, that price rose dramatically and was, eventually, capped at $250 per MWh. During some hot days this past summer, power purchases cost upwards of $100 per MWh.

So, prior to 2000, if BPA had to buy 1,000 MWh of power, it might have cost $20,000. During the crisis, that same power would have cost $250,000 under the price cap. Currently, it might cost $100,000. This demonstrates how the magnitude of the risk for the same loss of generation has escalated significantly.

And there are other risks, including court-ordered river operations, litigation and public residential exchange benefits.

For several years, BPA had agreements that capped what it spent on fish recovery operations. However, over the last two years, a court has ordered summer spill beyond what had been required in the 2004 NOAA Fisheries biological opinion or required by law. Spill reduces generation and, thus, reduces the amount of revenue BPA can earn from selling its surplus energy in the market. The extent of potential court-ordered summer or fall spill or flow augmentation in the next rate period is very uncertain because litigation continues. We have to have a way of preparing for the possibility of a substantial drop in our net secondary revenues in case this potential is realized.

This is, as many have pointed out, a very litigious age. BPA is still involved in litigation from the energy crisis as well as over aspects of the Slice product, the settlement the agency made regarding the investor-owned utilities' residential exchange benefits and several additional contractual disputes. This is a layer of risk that is difficult to quantify. BPA has chosen not to collect for risks related to litigation up front in an effort to keep base rates as low as possible.

And one public power utility has applied for residential exchange benefits that could amount to around $30 million in FY 2006. This is a risk the agency hasn't faced for a time, and the agency's exposure for such benefits in the FY 2007-2009 rate period is unclear.

This all adds up to significantly more risk and more expensive mitigation for risk than in the past.

What is BPA doing about these risks?

That is the multimillion-dollar question.

As described above, BPA has previously approached risk mitigation using mechanisms that build cash reserves so funds will be available when needed. BPA has called this mechanism planned net revenues for risk. It results in higher and more stable rates relative to approaches that adjust rates to collect more revenues only when additional funds are needed to pay the bills. Relying on reserves to mitigate risk can require a large infusion of cash in the form of planned net revenues for risk if our reserves are not already at an adequate level to cover our cash flow needs and meet our Treasury payment probability standard within the bounds of uncertainties the business faces. The Treasury payment probability standard is important for a host of reasons. At the most basic, meeting its annual requirement to repay the federal investment in the federal hydro and transmission systems means that BPA is financially healthy and has paid all its bills because Treasury is the last bill paid each year.

By certain standards, BPA would need $1.2 billion in reserves to be ready to cover all the risks and circumstances it might face if it relied solely on reserves for dealing with its risks. It is highly unlikely that customers or regional ratepayers would be willing to have the agency increase its rates to capture tens of millions of dollars more each year for planned net revenues for risk in order to capture the hundreds of millions of dollars it would need to reach $1.2 billion in reserves.

The approach BPA and its customers took for the current rate period provides relatively low base rates that may vary from one year to the next through cost recovery adjustment clauses that allow BPA to adjust its rates annually to respond to changing financial conditions.

The agency has already taken one action that reduces the cost of mitigating risk – shortened the next rate period to three years from the current five. The shorter the rate period, the lower the premium for risk because rates can be changed in a new rate case in the relatively near future to account for any changes in BPA's financial condition.

BPA is working with its customers to establish rate adjustment mechanisms that will allow the agency to adequately meet these risks without making rates higher than necessary or building reserves to levels that become too high later in the rate period. We are proposing three tools for the upcoming rate period.

One tool is a CRAC that combines features of the Financial-Based and Safety Net CRACs used in the current rate period. It would allow BPA to raise rates based on an accumulated modified net revenue threshold. It could collect up to $300 million a year. A second tools works on the upside. If BPA surpasses a level of accumulated modified net revenues equivalent to reserves of $800 million in the Power Business Line, a dividend distribution clause would require BPA to return money to its customers.

The third tool is an extension of the CRAC specifically linked to the financial impacts BPA might incur as a result of additional fish recovery costs based on recent litigation over the NOAA Fisheries' Federal Columbia River Power System 2004 biological opinion. It gives BPA the ability to recover exactly the additional costs or lost revenues incurred based on a court-ordered injunction that changes river operations, a new NOAA Fisheries biological opinion, a regional agreement submitted to the court and a recovery plan established under the Endangered Species Act.

At this point, any such financial impacts are highly uncertain but potentially quite large. In the interest of keeping its rates as low as possible, BPA has chosen not to estimate them and incorporate the estimate into its rates at this time. Instead, this mechanism, if triggered by one or all of four very specific events, would increase the $300 million limit on the CRAC by an amount equal to the estimated impact of the actions BPA would have to take. BPA would not necessarily collect the additional money, however. If, for example, the agency earned more than expected on the secondary market and, as a result, the financial CRAC didn't trigger, BPA would not need to recover the additional financial impacts of additional fish measures through firm power rates.

The advantage of this approach is that rates increase and BPA collects the additional revenue only if the risk translates into financial problems. Because of this approach, BPA can collect less in planned net revenues for risk than it would otherwise have to.

When will the risk issues be resolved?

During the formal power rate case proceeding that will begin with publication of a notice in the Federal Register on Nov. 8, 2005. The rate case is a very formal process that takes place before a hearing officer. The decisions

about the final rates must be determined on the basis of the information presented in the case.

Risk is just one part of the rate case, but it is a significant one. BPA's initial proposal for FY 2007-2009 rates will contain the risk mitigation measures outlined above. During the months-long rate proceeding, those measures will be analyzed and critiqued by all the rate case parties. These parties, in turn, may offer their ideas on how to best mitigate BPA's risk in its power rates.

Liquidity tools

Liquidity tools present a significant opportunity to bring the level of FY 2007-2009 rates down relative to BPA's initial rate proposal. Because of the way BPA purchases the output of the Energy Northwest nuclear plant, most of the revenues for power sales go to Energy Northwest instead of BPA starting in July of each year. This effect tapers off starting in September and, for the most part, ends by December. This cash flow shape means that BPA is perilously short of cash in the fall, particularly around the time it needs to make its Treasury payment. BPA either has to collect enough money earlier in the calendar year to carry it through this lean period or, in the interests of keeping rates low, turn to sources of liquidity other than cash receipts from customers.

Liquidity is all about when cash is available. Liquidity tools help ensure that cash is available at the time it is needed to meet financial obligations, but they don't generate additional cash. For any particular level or rates, liquidity tools available in the fall thus strengthen BPA's ability to make its annual Treasury payment and meet its other financial obligations. For that reason, it can have a powerful rate benefit. A liquidity improvement of $300 million, if fully flexible, potentially could result in a $2 to $3 decrease in the need for CRACs and, thus, a $2 to $3 decrease in the expected rate level for the FY 2007-2009 period. Liquidity tools can reduce the cost of risk mitigation, but they cannot help pay for basic expenses.

Several liquidity tools were discussed at an Oct. 13, 2005, policy-level meeting on risk alternatives. Explanations of the tools are available at *www.bpa.gov/power/rates/meetings*.

Some of the tools don't involve customers directly – arranging a line of credit with the U.S. Treasury and holding certain cash prepayments of federal debt through December, for instance. One option, that of changing the way BPA pays the costs of energy Northwest, is not strictly speaking a liquidity tool but would dramatically change BPA's basic cash flow pattern, thus potentially reducing rates and the need for CRACs and other liquidity tools.

Some tools do require customer participation and this is where customers can have a significant role in lowering rates for the FY 2007-2009 period.

The tools that require customer participation include customers prepaying their power or CRAC bills, investor-owned utilities reshaping their benefit payments, and participants and Energy Northwest agreeing to change Energy Northwest's contract year.

If they agree to these tools, customers have the ability to reduce BPA's power rates in the FY 2007-2009 rate period.

BPA did not include these liquidity tools in its initial proposal because they are still a work in progress. By working together on liquidity tools as the rate case progresses, customers and BPA have the ability to reduce the expected level of the FY 2007-2009 power rate. BPA has committed to include these tools in its final rate proposal next year if they are sufficiently secure to be relied on in the next rate period.

At the same time, other factors that affect BPA's power rates will also be thoroughly examined. One of the more important is called liquidity tools – see box for more on these tools.

The official schedule for the rate-setting process was established at the scheduling conference in Portland on Nov. 10. Six field hearings will be held throughout the region and comment from nonparties will be taken in many forms. All citizens in the region who want to comment on aspects of the rate case will be free to do so at the field hearings or in writing prior to the comment deadline of Feb. 13, 2006.

BPA expects to issue a draft record of decision in late May 2006. After public comment on the draft, the final record of decision will be issued in early July. The rates will go into effect on Oct. 1, 2006.