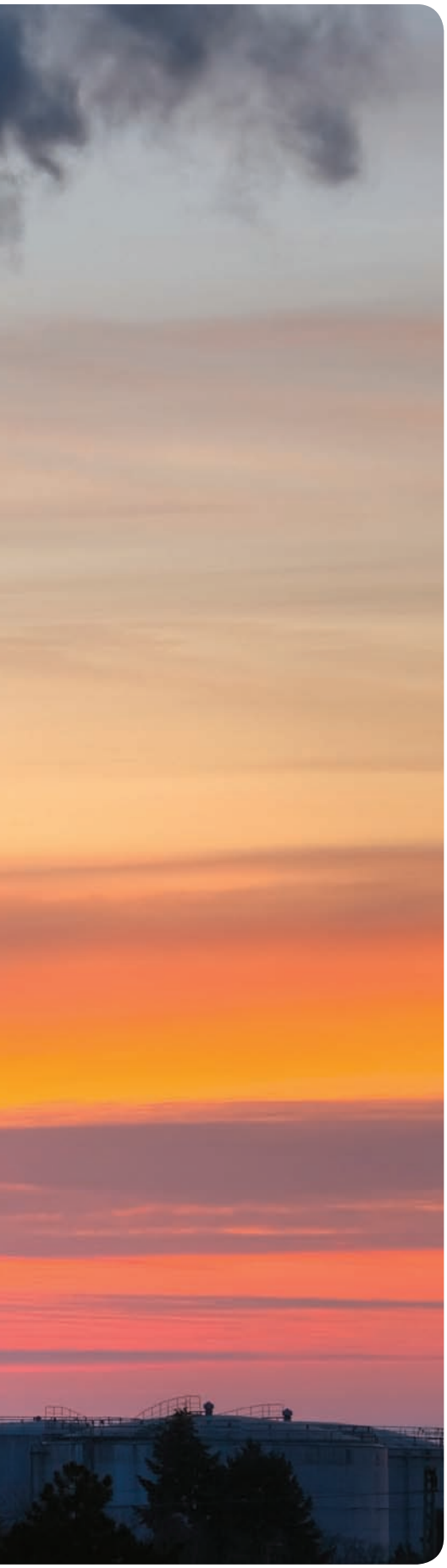


CLEAN UP

Financing the retirement and remediation of coal-fired power plants

BY NORA COLOMER

Utilities and regulators are pushing to meet evolving green energy requirements, and securitization offers a cost-effective way to finance the cleanup.

The coal-fired power plant industry is one of the most obvious candidates. The Environmental Protection Agency (EPA) has proposed or finalized four regulations affecting coal-fueled electricity generating units, which provide almost half of the electricity in the United States: the Cross-State Air Pollution Rule, the Mercury and Air Toxics Standards, the proposed Cooling Water Intake Structures Regulation and the proposed Disposal of Coal Combustion Residuals Regulation.

All are designed to measure, control or limit the effects of global warming and overall climate change. Complying will cost the industry upward of $20 billion a year.

There is also a role for securitization to play in financing the construction of more energy efficient buildings and public works projects, the production of renewable energy and the lowering of greenhouse gas emissions, although there have been fewer of these kinds of deals to date.

There are still some kinks to be worked out. Energy use is a function of many things that a structure must adjust for. Even in the deals that have had reasonably sophisticated methodologies, too much time is spent monitoring the measurement and verification. In most cases the opportunity for savings is relatively finite, and the amount of money and value being captured is quickly overwhelmed by the difficulty of documenting and finalizing a deal.

Nevertheless, climate-change legislation and regulation and renewable portfolio standards are compelling issuers to find long-term financing solutions, and the securitization market has proven adaptable in the past.

For coal-fired power plants, the choice is to either retire or refurbish; each comes with its own costs that if financed through rates alone, could significantly impact the ratepayers' bill. Coal plants are very dirty, and even if they are shut down, the property has to be remediated to clean standards. "Older coal plants are often substantially contaminated and if you are going to shut them down and you want to reuse property then it's going to cost a lot of money," said **J. Paul Forrester**, a securitization partner at **Mayer Brown** based in Chicago.

Forrester noted that remediation is particularly important in places like the Windy City, where older coal-fired plants are often located on prime real estate. For example, the Midwest Independent System Operator is looking at more than 50-plus giga-watts of generating capacity from its coal-fired plants that are likely to be retired over time, and by 2016, many of these plants will be shut down.

A July 2012 report by the **U.S. Government Accountability Office** breaks down some of the costs associated with retrofitting a typical coal-fueled unit with a capacity of 700 mega watts (MW): installing a scrubber (a device used for removing impurities or pollutants) can range from $287 million to $351 million; installing a catalytic reduction unit can range from $116 million to $137 million; installing a fabric filter can range from $97 million to $114 million.

It remains to be seen exactly how many plants will be retired and how many refurbished, but the **Union of Concerned Scientists** estimates that the equivalent of 288 coal-fired generating units supplying 3.8% of the electricity used in the United States in 2009 (the most recent year for which such data are available) have been scheduled for closure.

Either way, utilities must find long-term cleanup financing that will not affect their customers, and Forrester believes securitization provides a solution. "Utility companies have a persuasive case – they are being told to retire the plants, so those retirement charges should be securitized and paid for by ratepayers to minimize the rate impact of the closure and clean-up," he said.

Ronald Borod, a securitization partner at law firm **DLA Piper**, said that some of the securitizations that have been "talked about" to provide revenues for retrofitting aging power facilities are modeled on stranded costs securitization techniques.

"You pretty much have to be able to add a line item to the utility bill to help pay for that retrofit, just like in a stranded cost. You add a line item to help pay for costs that are not going to get recovered by the utility," he said. "When the payment of that line item comes through, it is captured in a lock box and it is dedicated to the retirement of the stranded costs bond, or in this case, retrofit bonds. It would also have to be done by a statute that would allow the utility to impose that additional cost on the customer."

Saber Partners, a financial advisory firm specializing in the power industry and municipal finance, has moved away from calling the structure a stranded cost, according to chief executive **Joe Fichera**. Instead the bonds that the firm has worked on over the past decade have been rate payer obligation charges (ROC) bonds.

Beyond Stranded Costs

Traditional stranded utility cost bonds were issued by utilities in states where deregulation caused certain investments they had made while they still operated as monopolies to be "stranded," or difficult to recover, once competition was introduced.

By comparison, the new cost-recovery bonds are issued by utilities in both deregulated and regulated states and have been issued to recover costs associated with environmental clean-up, as in West Virginia where two deals issued in 2007 and 2009, worth about $500 million, paid for coal plant scrubbers for two coal-fired plants so that they would comply with EPA regulations. The special purpose entitites of **Potomac Edison** and **Monongahela Power**, both wholly owned subsidiaries of **Allegheny Energy**, issued the first two environmental control bonds to recover the construction costs of scrubbers at a 1,000 MW coal-fired power plant in West Virginia.

Stranded costs or ROC bond structuring has also been used to recover the cost of cleaning up and rebuilding after a major storm. Florida, Louisiana and Texas – gulf coast states typically affected by hurricanes – have all issued storm recovery bonds. Fichera said the structure will be promoted for use by New Jersey to pay for the damage caused in Novem-

ber by Hurricane Sandy; the state puts the storm tab at $36.8 billion.

"More and more, states are looking much more closely at so-called formula rates," said Forrester. "The stranded cost methodology is really a mini formula rate where the utility isn't spending their money and the costs are recovered, in a funded and extremely efficient, triple-A way."

Stranded cost ABS techniques would offer utilities a competitive way to finance the coming wave of retirement or refurbishment of coal-fired plants and could be cheaper than equity financing. That is because most utilities are rated below triple-A and would therefore have to borrow or issue equity at single-A or triple-B rates.

"These costs all affect the utilities' cost to deliver service; and that affects all rate payers in the rate paying area that the utility services," said **Michael McDermitt**, vice president and senior credit officer at **Moody's Investors Service**. "It's a socialized cost, so it makes sense to finance it socially and in the cheapest possible way."

One reason utilities haven't use securitization more is that their shareholders expect a return on their investments. They expect that half the cost of anything a utility builds or any expense it takes on will be financed with debt, according to Fichera. By comparison, when a utility funds something exclusively through securitization, shareholders do not have to worry about the costs, but they also give up the earnings associated with the investments.

"They [shareholders] don't want to necessarily have projects financed 100% with debt, even if it's off the balance sheet, at lower rates, they still want to get earning assets into the rate base," Fichera said. The rate base is the valuation, by regulators, of a utility's assets for the purpose of determining the rates that the utility is permitted to charge its customers. "Now when it's a stranded cost, where the shareholders won't get anything, they are in favor of it, but it's usually a rifle shot sort of thing," he said. It works for storm recovery costs, which put the shareholder out of pocket, and requiring them to wait for recovery over time.

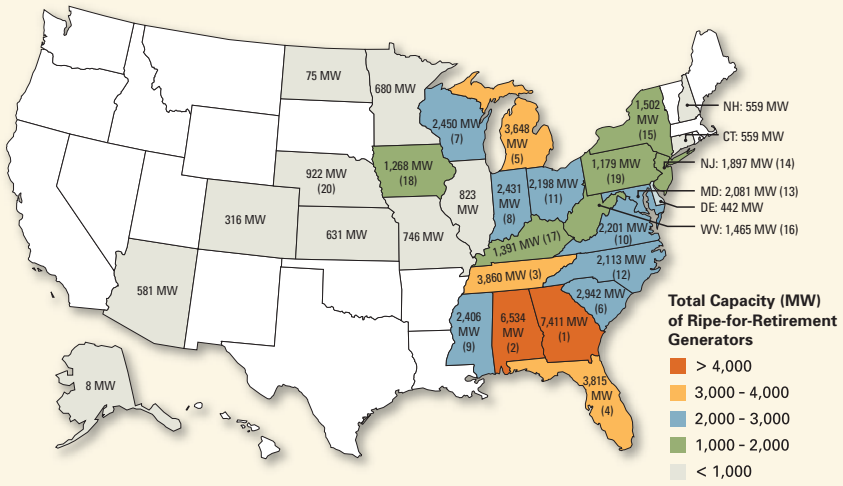
So, although utilities may prefer to finance their capital investments through a mix of debt and equity in order to increase the rate base, it may become more difficult to meet rising needs for capital this way, particularly if they want to maintain their current credit ratings.

"It's not initially in the utilities interest to give up opportunities to earn rate return on equity because their stockholders want that," Forrester said. But the reality is that utilities have been able to affordably fund projects with equity because of lower fuel prices. Forrester said that the price of natural gas is about to go back up, and as prices rebound, it will become increasingly difficult for utilities to fund projects with equity while maintaining affordable costs for the ratepayer.

And Forrester believes that the significant cost of either cleaning up coal plants, repowering them or doing renewables, combined with the steady

RIPE FOR RETIREMENT

GENERATING CAPACITY IS CONCENTRATED IN EASTERN STATES



UCS identified up to 353 coal-fired generators nationwide that are uneconomic compared with cleaner alternatives and are therefore ripe for retirement. These units are in addition to 288 coal generators that utilities have already announced will be retired. Under the high estimate, there are 19 states with more than 1,000 MW of ripe-for-retirement coal-fired generating capacity, all in the eastern half of the United States. Georgia leads all states with more than 7,400 MW of ripe-for-retirement capacity; several other Southeast states also top the list. However, if previously announced retirements were added to the high estimate, the state rankings would shift. For example, several Midwest states would move up in rank as a result of significant recent coal retirement announcements. As a result of nearly 6,800 MW in announced retirements—more than any other state—Ohio tops the rankings in total coal-fired generating capacity both scheduled for retirement and ripe for retirement.

SOURCE: UNION OF CONCERNED SCIENTISTS

drop in the credit quality of utilities over the past decade, means that that they must come up with a better financing option than just increasing rates to the customers.

"I think they are getting to the point where they are more surgical and they will say things like, EPA is shutting my coal plants down and the best deal I can get is X to retire that plant and clean it up, so the ratepayers should pay X," he said. "I am not investing equity so I won't earn a return."

Is it Legal?

Not everyone sees a case for using securitization to fund clean energy. **Melissa McHenry**, a spokesperson for **American Electric Power** (AEP), told *ASR* that the utility provider did not really see "the upside for securitization." AEP operates in 11 states and only three of those states allow for securitization. That means that AEP would have to convince lawmakers of the need for legislation to make this possible.

Another concern for the utility, according to McHenry, is that it is unclear how rating agencies would look at generating assets such as power plants, or renewable generation and whether they would view securitizing the cost of cleaning them up as possibly impacting a utility's capital ratios.

Du Trieu, a senior director at **Fitch Ratings** said that one of the biggest factors Fitch takes into consideration in rating stranded costs ABS deals is the legal framework. "I am not sure if it can be employed in the renewable energy sector," he said. "There is a lot of legal risk with utility tariff type transactions. The tariff has to be irrevocable, there has to be legislation passed and the PUC or the utility commission has agreed they won't do anything to impair the charges. The ultimate goal of that is to recoup costs but without severely increasing the monthly tariff charges to its customer base."

Trieu believes that these costs would be better suited for financing via project finance-type transactions, not stranded costs ABS structures.

But it might not be such a big step to authorize this type of securitization to fund a power plant clean-up; many states already have securitization legislation in place and even in some that do not, there have been stranded costs ABS deals.

The securitization market has already proved that it can pick up the tab for retirement costs. In 2011, the Louisiana based energy company **Entergy** cancelled plans initiated in 2007 to convert its Little Gypsy gas plant to a petroleum coke plant, when it ran into environmental opposition. The company encountered over $300 million in stranded costs related to the cancellation of the repowering project at its 538 MW Little Gypsy plant and the **Louisiana Public Service Commission**, the state's regulator, said that those costs could be recovered through a stranded cost deal.

A year earlier, in 2010, the state legislature had enacted the Louisiana Electric Investment Recovery Securitization Act, which, among other things, allows utilities to issue securitization bonds to recover costs related to cancellation of construction of generating plants or transmission lines; the purchase of long-term fuel supplies and prepaid forward purchases of fuel; the

TOP 10 POWER COMPANIES WITH MOST RIPE-FOR-RETIREMENT GENERATORS

Rank	Power Company	Ripe-for-Retirement Generators			Capacity of Announced Retirements (MW)
		Capacity (MW)	Number of Generators	Location (State)	
1	Southern Company	15,648	48	Alabama, Florida, Georgia, Mississippi	1,350
2	Tennessee Valley Authority	5,385	28	Alabama, Kentucky, Tennessee	969
3	Duke Energy Corp.	2,760	17	Indiana, North Carolina	3,230
4	American Electric Power Company, Inc.	2,355	4	Indiana, Virginia, West Virginia	5,846
5	FirstEnergy Corp.	2,075	7	Ohio, Pennsylvania	3,721
6	Public Service Enterprise Group Inc.	1,713	4	Connecticut, New Jersey	0
7	Progress Energy, Inc.	1,685	3	Florida, South Carolina	2,532
8	Wisconsin Energy Corp.	1,653	10	Michigan, Wisconsin	384
9	SCANA Corp.	1,405	3	South Carolina	883
10	GenOn Energy, Inc.	1,385	6	Maryland, West Virginia	3,882

SOURCE: UNION OF CONCERNED SCIENTISTS

production, delivery, and storage of fuel, including storage of nuclear fuel; and any other type of capital investment in excess of $350 million approved by the public utility commission.

Energy Efficiency

Energy efficiency is another potential area for securitization; it may be the most direct way to deal with energy independence, because the less energy used and the lower emissions created, the lower the impact on the atmosphere. But harnessing the actual economic benefits of energy efficiency is a very complicated proposition, according to Borod. "It's easy to talk about it but much more difficult to build the infrastructure and the financial structure you would need to translate that into a securitization program," he said.

Unlike stranded costs, where a stream of revenue is created in the form of an additional fee that utility customers pay, using less energy does not generate income. Instead, a gain is captured as a reduction on the expense side of the budget. The challenge, Borod said, is how to translate that reduction into revenue that can be used as collateral for bonds.

Borod believes that a prerequisite to securitizing energy efficiency is the creation of an infrastructure that gets building owners to analyze which retrofits are necessary to make buildings more energy efficient. Once this is determined, a system to monitor the energy savings resulting from retrofits and a financial system to capture this savings and turn it into revenue would need to be put in place.

"There are a lot of moving parts, which is why we haven't seen a deal yet," he said. "You have to be able to do all those three things or you can't have a program that works."

J. Paul Forrester

Another area in which people have tried to develop financing for renewable energy is the Property Assessed Clean Energy (PACE) program. PACE is essentially a financing structure that enables local governments to raise money through the issuance of bonds or other sources of capital to fund energy efficiency and renewable energy projects. Those costs are financed through the issuance of a micro bond at the municipal level and the bond is repaid by billings on the borrower's property tax bill over a 10- to 20-year period. In a typical assessment district, a municipality issues bonds to fund projects with a public purpose, such as street lights, sewer systems or underground utility lines.

"Obligations to repay those amounts go with the property tax and it essentially becomes as prime as your first mortgage," McDermitt said. The process can make mortgage lenders uncomfortable because they may no longer be the first payment priority, but it also confers value to the property, he said. **Fannie Mae** and **Freddie Mac**, for instance, along with their regulator, the **Federal Housing Finance Agency** have all said that they won't recognize a PACE lien on any residential homes that they finance.

McDermitt said that, since commercial mortgage loans aren't regulated by a government agency, commercial mortgage lenders can use the PACE program. From a securitization point of view, PACE essentially creates a revenue stream out of energy efficiency.

Borod said that DLA Piper has helped a client develop a proprietary structure for securitization of these energy-efficient savings with the goal of issuing a deal sometime in 2013. "What our client has done is develop a structure to figure out a way to capture the energy efficiency in a totally private building and dedicate some of those energy saving costs to the retirement of a securitization bond," he said.

PPAs

One of the significant impediments to building renewable resources, despite the Renewable Portfolio Standard (RPS) regulation in 40 U.S. states, which stipulates increased production of energy from renewable energy resources such as wind, solar, biomass, and geothermal; is the lack of on-site Power Purchase Agreements (PPAs).

PPAs are contracts between electricity producers in which one party sells energy and/or generating capacity to another party, which generally serves end-use retail customers. Instead of building a new power plant, for example, an electric company can opt for a power purchase agreement.

In Oct. 2012, the Public Utilities Commission of Ohio (PUCO) approved an application by FirstEnergy to securitize approximately $555 million in pre-

viously approved deferred costs, such as those associated with PPAs. This is the first use of the recently enacted Securitization Act created by House Bill 364, an Ohio state law. HB 364 allows Ohio's electric distribution utilities to issue low-interest; long-term bonds to replace certain types of deferred costs that otherwise would have higher carrying costs, resulting in savings for ratepayers.

In West Virginia, AEP has a pending deal that will securitize the cost of power purchases and the proceeds will be used to accelerate reimbursements of this cost.

But Fichera said that much of the talk of securitization for PPAs has been around the securitization of the PPA contract, which offers no real savings to the ratepayer. "Some of us think it would be better to create a fund using the entire rate payer base, and through a stranded cost model, raise capital at a triple-A level and then fund these projects," he said. "In return you lower the per-kilowatt-hour charge of the power you are selling."

Forrester believes that it would be relatively easy to use securitization to fund PPAs. "Again the argument would be that the utilities aren't choosing to do this, it's being required under so-called renewable portfolio standards," he said. "Equally they aren't really risking equity capital so why not just eliminate the middle man and go straight to the consumer and make them pay a transparent and hopefully very efficient cost for funding."

Securitization would also be an important financing mechanism because it would offer better credit than the credit of the utility, he said. Secondly, you take the utility, which may be reluctant to sign 10- to 20-year PPAs, out of the equation. "Instead an intermediary could agree to file PPAs with the assurance that this PPA will now be paid by ratepayers," said Forrester. "This by itself would increase the likelihood that people put their renewable projects on the ground."

THE FOUR KEY EPA REGULATIONS

Four recent key EPA regulations address air pollution from electricity generating units, disposal of coal combustion residuals from certain generating units, and death of aquatic life as a result of water withdrawal for use for cooling at certain electricity generating units. As outlined in table 1, these regulations are at different stages of development, have different compliance deadlines, and EPA estimates that they will generate significant monetized benefits and costs.

Major Milestones, Benefits and Costs

Regulation	Date proposed	Date finalized	Compliance deadline	EPA estimate of annualized benefits and costs (in billions 2011 dollars)
CSAPR	August 2010	August 2011	First phase was to begin in 2012 but is uncertain because of a court stay.	$128-$299 in benefits and $0.9 in costs
MATS	May 2011	February 2012	April 2015 1-year extension (to April 2016) through permitting authorities possible 1 additional year possible through Clean Air Act Administrative Order (to April 2017)	$39-$96 in benefits and $10.2 in costs
CCR	June 2010	No schedule for finalization	Depends on which option is finalized	$0.09-$1.3 in benefits and $0.6-$1.5 in costs, depending on which option is finalized
316(b)	April 2011	Scheduled July 2012	As proposed, would be established on a case-by-case basis by permitting authorities up to 8 years for impingement controls and entrainment controls anticipated to take longer	$0.02 in benefits and $0.4 in costs

Source: GAO analysis of EPA information.

For both ratings and regulatory purposes, PPAs are treated as "imputed debt," so they increase a utility's leverage. Forrester said that one of the benefits of stranded costs securitization is that, while it is a nominal debt of the utility, it is ignored by the regulator and the ratings agency. So you take the imputed leverage of the utilities back.

"If it's a one-time cost that hits the whole ratepayer base, then maybe it's something that you would want to spread long term through the stranded asset model," McDermitt said.

Greenhouse Gas

Greenhouse gas emissions are another area of potential growth for securitization, but doing so will require federal legislation compelling utilities to lower carbon dioxide emissions.

Right now, it is a matter of speculation how securitization could be used to finance the process of lowering greenhouse gas emissions because the area is so new. For example, the **U.S. Department of Energy** recently funded work at **Ohio State University** that created a breakthrough membrane to separate carbon dioxide from the gas exhaust of coal-fired power plants. The science behind this accomplishment means that the technology for the extraction of CO2 is expanding and it is also likely bring some cost-effective measures for utilities.

"That stuff is still happening and if you are utility and you have been told to clean up your outside emissions and you are looking at a capital cost today of X, and someone shows up with a lab invention that is half X, your sensible decision might well be to buy carbon credits from California or somewhere else; retire those rather than spending money today on something that is less efficient than what it will be down the line," Forrester said. ASR