

DEBT FOR EQUITY UTILITY REFINANCING

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The rapid cost decline of renewable energy means the cost of running coal generation now exceeds the all-in cost of replacing it with wind and solar in many parts of the United States. This cost crossover is causing rapid reconsideration of the prudence of allowing existing coal generation to continue operating, particularly for regulated investor-owned utilities that recover plant costs through regulation. Untangling potentially stranded assets and transitioning this unproductive capital into new clean energy resources requires balancing consumer, environmental, investor, and local interests through complicated regulatory proceedings.

This series of briefs can help regulators and utility stakeholders navigate these complex proceedings and achieve a fair balance of interests to accelerate the clean energy transition. This four-part series addresses the [implications of financial transition](#), the ["steel for fuel" investment strategy](#), [debt for equity swaps to refinance uneconomic assets](#), and [depreciation options and policies](#).

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PROBLEMS OR OPPORTUNITIES

In electric utility financial transitions from fossil fuels to clean power, fossil plants that retire early leave utilities with unrecovered investment balances on their books that must be addressed. While early fossil plant retirements can produce consumer savings by avoiding fuel purchases and reducing other operating costs, paying down the remaining value of investments

tends to increase consumer rates. In particular, accelerated depreciation schedules,¹ which move investment collection up in time to match recovery to earlier retirement dates, tend to offset near-term savings related to early retirement by raising consumer rates.

But accelerating depreciation and paying utilities a rate of return on their remaining investment balance for retiring power plants is not the only solution to this challenge. Other financial mechanisms achieve balance among consumers' financial interests, impacted communities and workers, and utility shareholders, while recognizing public interest values at stake in early plant retirements.

These financial strategies can reduce consumers' costs and support fair financial outcomes likely to garner support from diverse electricity stakeholders, improving the likelihood that regulators approve early retirement of fossil fueled power plants.

To address this problem of increased consumer rates, utilities can refinance unrecovered plant investment balances to take advantage of lower investment capital available through securitized bonds. Replacing some, or all, of the equity portion of unrecovered early-retired plant investments, also known as "regulatory assets," with utility corporate debt (particularly where securitization legislation is not in place) is another means to rebalance financial impacts. Replacing higher cost equity investment with lower cost debt results in lower costs of carrying these assets.

UTILITY CAPITAL STRUCTURE – EQUITY AND DEBT

Utility financing includes both equity, where investors buy shares of ownership, and debt, where investors make loans by purchasing corporate bonds. Equity owners share risks for owning and operating the business.

In exchange for bearing these risks, equity owners expect to be proportionally rewarded through potential for growth in share prices and dividends awarded on a per-share basis. Investors value the ratio of debt to equity because it reveals the balance of loans to ownership.

Utility debt is comprised of corporate or commercial bonds that investors buy with the promise that their loans will be repaid in a fixed amount of time, with interest determined when bonds are issued. Bonds carry security – promises of repayment secured with pledges that assets will be available to back this promise.

If the utility enters bankruptcy, debt holders are more likely to be repaid, while equity holders could face no or only very partial repayment. As a result, debt investors require returns associated with lower risk than equity

Increasing debt leverage tips utility debt to equity ratios slightly in favor of more debt. While utility investors may view more debt as a negative investment factor, there are many additional

¹ See: "Depreciation and Early Plant Retirements" Issue Brief posted at: https://energyinnovation.org/wp-content/uploads/2018/11/Depreciation-and-Early-Plant-Retirements-Brief_December-2018.pdf

considerations when evaluating utility stocks. By itself, a higher debt margin might be a concern, but on balance and when considered with other factors, it might not be too important.

RISKS THAT IMPACT COST OF CAPITAL

Cost and availability of capital for utility investment are important, since the sector requires large-scale investment, and costs of capital are passed through to consumers. When considering whether additional debt leverage might be useful, keeping electric utility sector risks in mind can inform decisions about debt refinancing. Because investor-owned electric utilities are regulated in the public interest, regulatory risks are important for both equity and debt investors.

Cost of capital is directly related to perceived risks of getting paid back; the more certain the payback, the lower the rate of return a creditor or investor will be willing to accept in exchange for their capital investment. For long-term bonds, rating agencies quantify and categorize these risks and give businesses, state and national governments, municipalities, and other large debtors “credit ratings.”

Excellent credit ratings mean companies and governments, such as the United States federal government, can borrow at a very low cost of capital, sometimes as low as two to three percent annually. As credit ratings get worse, borrowing money becomes more expensive, until finally banks and other investors may be unwilling to take on the risks at all.

Moody's		S&P		Fitch			
Long term	Short term	Long term	Short term	Long term	Short term		
Aaa	P-1	AAA	A-1+	AAA	A1+	Prime	
Aa1		AA+		AA+		High Grade	
Aa2		AA		AA			
Aa3		AA-	AA-				
A1		A+	A-1	A+	A1	Upper Medium Grade	
A2		A	A				
A3	P-2	A-	A-2	A-	A2	Lower Medium Grade	
Baa1		BBB+		BBB+			
Baa2	P-3	BBB	A-3	BBB	A3	Lower Medium Grade	
Baa3		BBB-		BBB-			
Ba1	Not Prime	BB+	B	BB+	B	Non Investment Grade Speculative	
Ba2		BB		BB			
Ba3		BB-		BB-			
B1		B+	B+	Highly speculative			
B2		B	B				
B3		B-	B-				
Caa		C	CCC+	C	CCC	C	Substantial risks
Ca			CCC				Extremely speculative
C			CCC-				In default, with little prospect for recovery
/	D	D	/	DDD	/	In default	
/				DD			
/				D			

The three credit rating agencies in the U.S. rate bonds based on their perceived risk. Only the most financially secure entities, such as the U.S. government, receive AAA ratings, and can thereby borrow interest at very low rates. As risk increases, the ratings deteriorate, resulting in higher financing costs.

For equities, the relationship between risk and cost is similar. However, the “cost” of capital for equity cannot be directly observed in the same way. Equity investors have their own risk tolerance and perceived rate of return when making investments, but there is no formal agreement or contract between equity shareholders and corporations like utilities.

Financial transition away from fossil fuel assets poses risks over and above a wide range of factors that may impact cost of capital for utility shareholders, such as regulatory risk, environmental risks, political interventions, fuel price and commodity risks, aging workforces, technological risks, and economic risks.

Type of Risk	Definition	Examples
Regulatory risk	Regulatory risks are the central form of risk for investor-owned electric utility companies, whose ability to charge customers and recover costs and earn returns for debt- and equity holders depends largely on regulatory approvals. Legal guardrails prevent arbitrary regulatory decisions from unduly burdening utility finances, however, regulators have significant discretion in most cases to adjust utility rates and cost recovery in the public interest.	Disapproval to include investments in rates; faulty assumptions about economic conditions, interest rates, required rates of return; lack of innovation in rate forms; unexpected environmental compliance expenditures; inattention to infrastructure security; disputes about grid modernization; contested consumer data and privacy issues.
Political intervention	Political intervention is contrasted with regulatory risk as a change in policy imposed from outside factors, particularly legislative, consumer, and gubernatorial pressures.	Gas pipeline disputes; legislative project or planning approvals; renewable energy standards; net energy metering laws; subsidies for new or existing technologies; environmental laws.
Environmental threats	Extreme weather events and climate change can severely impact customers' quality of service, subjecting utilities to recovery costs as well as potential penalties and liabilities.	Changing climate; extreme weather events
Fuel price and commodity price volatility	Fuel price and commodity price volatility can present utilities with complex planning and investment challenges, as well as fluctuating expense levels that are difficult to comprehend and budget effectively.	Gas and other commodity price spikes; gas and electricity supply disruptions; wholesale electricity price spikes.
Aging workforce	Competition for expertise can challenge utilities' staffing requirements. Computers and information technologies attract more bright young engineers than power systems. The age structure of utilities' employees tends toward older workers.	Shallow labor pool; lack of positions that attract top-talent software, electrical, and mechanical engineers.
Technology risks	New technologies transforming generation resources have different operating characteristics than fossil fuel based generation that can be viewed as carrying risks to reliable operations, rates of innovation and change, and employee training and skills levels. Utilities, which may not be rewarded to innovate, may also see increased competition if new technologies emerge that challenge their market control, monopolistic structure, or business model.	Challenges implementing unfamiliar new technologies; failure of new technologies to produce as expected; safety hazards resulting in liabilities; reliability disruptions; potential for uneconomic or stranded assets; failure to innovate; technological obsolescence; competition from new technologies.
Economic risks	Economic cycles can impact cost of capital and demand levels, as recession cuts use and utility revenues while expansion requires investment to meet higher demand levels. Timing utility investment to match demand changes requires risk identification and management.	Increasing customer defaults; reduced sales and revenues; major forecast errors; stranded assets.

Characterizing the many various risks facing utility bond holders and shareholders.

Allowing utilities to recover costs of uneconomic assets such as aging coal-fired power plants through refinancing reduces several relevant risks. Early retirement followed by refinancing outstanding investment balances can reduce technological risks by insulating utility shareholders from competitive power producers able to provide cleaner power at a discount to existing coal-fired power. It also reduces regulatory risks by dealing proactively with potentially stranded assets upfront.

With reinvestment in new clean replacement power, investors can benefit from earning on new capital investments with safer rates of return. Moving capital from underperforming old assets to new, better performing investments reduces political intervention risks if voters or consumers

act on their preferences for cleaner power. And it can reduce commodity and fuel risks by reducing exposure to fluctuating fossil fuel prices.

STATUS QUO ISSUES

LOW RISK INVESTMENTS: ELECTRIC UTILITY DEBT AND EQUITY

Utility investments are commonly considered appropriate for conservative or defensive investment portfolios because they are relatively more secure and less impacted by economic downturns and recoveries. High utility sector dividends provide a partial substitute for low performance of equity stock price growth and limits on profits. Grants of state franchise monopoly protect the business from competitive entry, but state (and federal) regulation limits profit potential to protect monopolized consumers.

Typically, regulators set electricity rates after utilities establish their capital structure and investors make choices in financial markets. Regulators rarely, if ever, intervene in utility managers' capital choices. However, in particular circumstances, management may propose adjustments to financial structure or regulators might insist adjustments be made as part of a financial transition from fossil to renewable generation.

When growth in consumer numbers or electric use drives up demand for utility services, utilities can add debt to support capital investment, thereby providing more service. However, because regulators only allow utility earnings on equity investment, debt carries no earnings for shareholders. Therefore, utility managers have an incentive to sell shares to raise investment capital or allocate profits toward investment capital that increases the business value.

But managers also limit raising investment capital through equity offerings. Managers may be concerned about investor scrutiny of debt to equity ratios, commonly preferring a roughly 50-50 split between debt and equity in regulated utility capital structures. Too much debt increases bankruptcy risk, since debt holders have contract rights to their investment repayment and interest, which allows creditors to force repayments through bankruptcy in case of default. No such guarantees accompany equity ownership, so too much debt carries severe risks to equity investors. More equity than debt also tends to dilute shareholder ownership and spread ownership risks, resulting in reductions to equity owners' profit potential if equity capital expands at the expense of debt.

UTILITY FINANCIAL TRANSITION ISSUES

When utilities retire fossil plants early to take advantage of lower costs and superior environmental performance of clean energy resources like wind and solar, they must resolve uncollected capital investment that remains on their books. Early retirements implicate both costs and benefits. Transition costs include investments and the associated expected profits investors want to recoup. Other transition costs include resolving fuel contract issues and addressing plant demolition and site remediation, ash pit stabilization, and money to handle worker and community impacts.

Transition savings include avoided fuel purchases, avoided operations and maintenance expenses, elimination of pollution from combustion, plant pollution upgrades not required for environmental compliance, and interest rate savings if refinancing includes securitization and refinance, or the equity-to-debt refinancing discussed here. Corporate debt creates savings when compared to equity, and such savings increase as risk of borrowing falls. Refinancing can create consumer savings by issuing securitized or “rate-payer backed” bonds, where state legislation allows this form of refinance.²

DISALLOWANCES AND STRANDED ASSETS

It can be argued that utilities retiring plants early should not collect unrecovered investments they would have gained over plants’ prior, longer lifetimes. In this argument, approval to retire plants early represents changed circumstances that managers should have anticipated. A final decision on early plant retirement proves that prior decisions to hold onto plants longer were incorrect. If management made faulty decisions about plant lives, now corrected, shareholders, not consumers, should bear financial burdens of faulty management decision making.

In addition, shareholders’ equity risk premiums, that portion of their equity return covering ongoing business risks such as early plant retirements, has already compensated shareholders for taking early plant retirement risks. If shareholders also gain returns covering plants’ prior, longer lifespans, they would be paid twice for taking these risks. Finally, this poses a moral hazard problem. If management decision making has been faulty and managers face no penalties in the form of foregone equity returns, this discrepancy arguably incents management to take unnecessary risks in the future.

All of these considerations must be balanced with the reality that investors whose investments are compromised by regulatory disallowances, in whole or in part, will assign additional risk to utilities and commissions involved. Those additional risks will result in increased investment requirements—including higher costs for new money. Therefore, the system has internal checks and balances that mitigate bad decisions by careful consideration and equitable outcomes.

TRANSITION COSTS AND SAVINGS

Where early retirement savings involving a debt-for-equity swap exceed costs, they can accelerate plant retirements and reinvestment in clean sources that can improve the public good while protecting investors. A solution that replaces the equity portion of a regulatory fossil asset

² Securitized bonds are lower risk because state legislation, and a regulatory commission financing order, provide guarantees that rates to consumers will include repayment of the bonds. With this added security, these bonds can receive AAA ratings and produce very attractive, low interest rates, lowering the cost of refinancing utility equity represented in regulatory assets and their depreciation schedules even more than refinancing by replacing equity with corporate debt. Saber Partners, LLC, “Lowering Environmental and Capital Costs with Ratepayer Backed Bonds.” <https://saberpartners.com/op-ed/lowering-environmental-and-capital-costs-with-ratepayer-backed-bonds/>. See also Uday Varadarajan, et al., *Harnessing Financial Tools to Transform the Electric Sector*, Sierra Club, November 2018. Available at: <https://www.sierraclub.org/sites/www.sierraclub.org/files/sierra-club-harnessing-financial-tools-electric-sector.pdf>.

with lower-cost debt can address undepreciated plant investments along with regulatory and stranded assets; while providing fair apportionment of costs and benefits among shareholders, consumers, and important public interest outcomes. By striking the right balance among interests and outcomes and fairly distributing transition savings, plant retirements and reinvestments can be accelerated so transition savings can be enjoyed sooner.

DEBT LEVERAGE IMPACTS “ALL ELSE EQUAL”

If a commission agrees to a proposal to replace equity with debt, it might concern investors. Equity holders may object to replacing equity on which their share earnings depend with debt, as it represents a lost earnings opportunity. They might also be troubled over impacts to their share prices. Likewise, debt holders may question whether additional debt issued to replace equity in utility financial structures would result in more competition for dollars to cover their debt payments, thereby reducing the likelihood that they would receive their interest payments on time and in full. Debt holders could also share equity owners’ apprehension that more debt would threaten overall utility financial viability and challenge both interest on and repayment of their loans.

While these investor concerns and challenges generally make sense, the only way to make good judgments about them is in the context of the larger financial setting for utilities that might replace some equity with more debt. Many factors play into utility financial analysis, in addition to debt-to-equity ratios that must be kept in mind when more debt leverage is undertaken.

Different risk factors impact both kinds of investors, though some are relatively more important for one kind of investor than the other. Business risks like planning, service area growth, and economic conditions, as well as regulatory risks, might be more important for equity investors. Economy-wide risks, like interest rate changes and inflation, may be of more concern to debt investors. The Appendix to this report contains a more robust discussion of general risks that equity and bond holders must consider when evaluating their investments.

OPTIONS AND RECOMMENDATIONS FOR DECISION MAKERS

- Where plants retire early, utilities can adjust their capital structures to manage consumer costs by refinancing more expensive equity finance with less costly corporate debt.
- Regulators can contemplate partial or full disallowances of stranded assets, based on investor compensation for risks in their received equity risk premiums, but investors may then recognize additional risks and demand higher returns for future investments.
- Securitized or “ratepayer backed” bonds could refinance regulatory assets at lower investment costs than corporate debt, if state legislation allows this option.

- Subsequent utility investment in new clean energy resources could offset part or all of returns foregone in refinancing equity with debt.³
- If the utility proposes to increase debt leverage, stakeholders should consider what conditions define the overall context in which increased leverage will exist.
- Ensure that added debt leverage does not put undue risk onto either debt or equity holders.
- Compare utilities' debt and equity relationships to other utilities in similar circumstances to discern whether debt-to-equity ratios present undue levels of risk.
- Consider financial indicators such as credit ratings before requiring utilities to absorb additional debt leverage, avoiding adverse financial impacts.
- Consider potential consumer savings from avoided fuel and other variable operating costs as potential justification for early retirement, especially where cheaper, clean resources are available.
- Consider potential consumer savings from avoiding accelerated depreciation as a justification for a debt for equity swap.
- Consider allowing utilities, who want to protect shareholder interests in a debt for equity swap, to recycle their investment capital into ownership of new clean resources if consumers are protected from undue early retirement costs.

Strike a fair balance between consumer and shareholder benefits by combining elements of depreciation, debt for equity swaps, and reinvestment in more cost-effective resources

APPENDIX – UNDERSTANDING THE CONTEXT OF RISK FOR EQUITY AND DEBT

RISKS TO EQUITY

Due to the positive relationship between utility sales growth and utility capital asset base growth (a key driver of profits) to deliver more electricity, customer and sales growth are key predicates for utility profitability. Many jurisdictions break this link with decoupling policies, and these policies appear to be spreading,⁴ so economic conditions and trends that impact utility service areas and consumer demand are important risk factors.

Trends in utility capital expenditures and regulatory approvals for utility capital expenditures – “capex” – are key indicators of risk and reward for equity investors. Low capex reduces the likelihood that earnings per share (EPS) will improve to reward share owners through dividends

³ See “Steel for Fuel” brief: <https://energyinnovation.org/wp-content/uploads/2018/11/Depreciation-and-Early-Plant-Retirements-Brief-December-2018.pdf>

⁴ In some jurisdictions, utility revenues are “decoupled” from sales volumes. In these cases, the utility is more or less guaranteed to recover its revenue requirement to cover all of its costs, rather than relying on an uncertain amount of sales at a fixed price to recover its costs. Because utilities recover their costs even if sales decrease, revenue decoupling effectively removes a key disincentive for utilities to pursue efficiency measures for their customers.

or increased share values. Similarly low capex may concern owners that depreciation and lack of new capital replacing investment has “hollowed out” the rate base. From this perspective, abatement requirements for natural disasters and pollution are good for shareholders—they require utility investment with attendant anticipation of returns, and regulators are likely to approve recovery through consumer rate increases.

Increased utility capex, which can lead directly to increased consumer rates, can be at odds with consumers’ willingness to pay, lead to rate shock, and result in consumer opposition to increased utility investments in rate cases. Accelerated depreciation of a retired power plant can have a similar effect. Utility capex that improves utility value propositions for consumer services could help manage consumer acceptance of higher rates, if consumers agree that new services are worth it.

With changes sweeping the industry, consumers and third-party service providers such as solar installers are meaningfully impacting equity risks for investors. Access to more consumer-scale technologies to produce their own electricity, manage it for more efficiency assisted by information technology, or electrify adjacent uses like transport or building space conditioning to address their own climate goals, empower consumers to exercise their own judgment but present a range of impacts on equity risks. Not all of them are negative, such as increased end-use electrification, but most of them challenge utility business as usual. Therefore, equity investors now must pay attention to how their managements are responding as the pace of consumer-driven change increases.

Cost crossover between newly maturing and cleaner technologies such as wind, storage, and solar, and older, more expensive technologies like coal, gas peakers, and nuclear is a key risk to shareholder recovery of existing power plants in rate base. This technological shift can create concerns about stranded assets — assets that have undepreciated balances on utility books, are no longer economic, and are not included in consumers’ rates.

This shift is already apparent in markets where power plants compete on a wholesale spot market. Coal is rapidly retiring as wind, solar, and natural gas flood markets and reduce revenues. In a monopoly utility context, failure to adapt to more economic generation portfolios creates regulatory risks, particularly as the cost crossover trend strengthens. Consumer and environmental advocates, as well as regulators, will be more likely to support the recovery of reinvestments to keep legacy assets running, as well as contest recovery of remaining undepreciated balances on utility books. Of course, political interventions such as renewable portfolio standards and carbon pricing potentially exacerbate these trends.

Because the utility business is capital intensive, with large asset values that must be financed, utilities are sensitive to interest rate changes. So as interest rates rise, cost of capital increases. Low interest rates support utilities with active capex programs. Thus, the state of interest rate cycles, whether rising or falling, is an additional consideration.

RISKS TO DEBT

Since utility debt holders are not at risk for business operations and own security for their bonds, they face fewer and lesser risks in principle than equity owners. Their most important concern is whether the utility can produce adequate cash flows to support their debt payments. This concern relates to all business risks facing equity owners, but is more focused for debt investors because they enjoy the security that accompanies debt holding. At the end of the day, debt holders have precedence over equity holders in case of bankruptcy. Any current management missteps in addressing industry transformation can be arguments for security impairment, that promises to pay debt service and repayment will not be kept, resulting in diminished asset values. Debt ratings agencies closely observe these calculations and can issue ratings decreases when any aspect of security impairment becomes observable.

If utilities replace equity held as regulatory assets with debt to address consumer concerns about high costs for retiring plants early, adding debt leverage will concern both debt holders and shareholders. But utility investors must consider the ratio of debt to equity in context with other factors determining the overall relationship between risks and rewards. In isolation, modest increases in debt levels are unlikely to cause undue investor concern. But if they are consistent with other factors that increase investment risk and reduce rewards, they might present a tipping point leading to adverse investor reactions. Each situation must be addressed on its own merits.