

STEEL FOR FUEL: OPPORTUNITIES FOR INVESTORS AND CUSTOMERS

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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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“STEEL FOR FUEL” OVERVIEW

As energy costs from new wind and solar plants have declined, they have arrived at levels that can be below aging fossil generation plant operating costs.¹ Where these conditions are present, utilities face a dilemma: Retiring coal units early for economic reasons before they reach the end of their useful engineering lives would benefit consumers, but it means a lost

¹ <https://www.greentechmedia.com/articles/read/wind-could-replace-6000-gigawatt-hours-of-coal-in-colorado#gs.MZK49lc>

shareholder earning opportunity. But this transition, if managed well, creates opportunities for equity shareholders to reduce risk and increase earnings.

With regulatory approval, utilities may increase equity earnings by moving capital from uneconomic generation plants requiring very large inputs of fuels, such as coal and natural gas, to plants that employ free fuel, such as solar and wind. This financial transition model affects shareholders, consumers, utility managers, regulators, and renewable generation project suppliers. Impacted communities can also benefit if their concerns are included in transition financial arrangements.

For consumers, operating cost savings of substituting “steel” in the form of new wind and solar plants that use free fuel from sunshine and wind for expenses they bear for fossil “fuel” that powers obsolete and uneconomic power plants, can provide substantial savings. If unpaid investments in early retired plants are refinanced with securitized or ratepayer backed bonds, consumers can reap substantial savings for paying off these investments.²

For shareholders, early plant retirements where unpaid investment balances remain on utilities’ books can threaten earnings per share and share price values, unless regulators agree to allow consumers to pay unpaid investments through creation of “regulatory assets.” But these unproductive assets risk regulators changing their minds about recovery.

Turning this unproductive capital into productive, clean generating assets can simultaneously address shareholder risks while benefiting customers and the environment, creating a new cycle of opportunities. This financial transition involves careful consideration of a range of factors examined in other briefs in this series, including a description of how utility financial transition can unfold through logical steps,³ how depreciation schedules for uneconomic assets are adjusted,⁴ and whether undepreciated retired plant investment balances can be refinanced with cheaper capital from corporate debt or ratepayer-backed bonds.⁵ This brief addresses equity shareholder perspectives in trading “steel for fuel” with recommendations for creating investor-friendly solutions that preserve benefits for consumers, provide potential funding sources to mitigate impacts on communities and workers impacted by early plant retirements, and improve environmental performance.

² See, “Utility Financial Transition Impacts,” posted at: https://energyinnovation.org/wp-content/uploads/2018/11/From-Fossil-to-Clean-Brief_December-2018.pdf

³ Ibid.

⁴ 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

⁵ See, “Debt for Equity Utility Refinance” Issue Brief posted at: https://energyinnovation.org/wp-content/uploads/2018/11/Debt-for-Equity-Issue-Brief_December-2018.pdf

UTILITY INVESTMENT INCENTIVES—STEEL FOR FUEL RISKS, RETURNS, AND SCALE

Utilities create value for equity shareholders when their regulated returns on investment, which are determined administratively by utility regulators in each rate case, exceed costs of capital invested to create the returns.⁶ Investment risk, return, and scale can be analyzed to determine the extent particular utility investments create value for shareholders.⁷ Risks, such as regulators disallowing rate recovery due to asset mismanagement, can create or destroy value by impacting the returns investors require to risk their investment. In investment parlance, this means risk impacts cost of equity, a key input to the regulated rate of return regulators set for utility capital investments.

While risk and return are commonly analyzed to determine profitability, investment scale can impact investment risk, so it also needs to be considered. When determining the value of steel for fuel investments, early results appear to show the scale of renewable project investments available to utilities pursuing them can be substantial enough to maintain or improve shareholder outcomes, more than offsetting investments remaining in early retired fossil plants.⁸

Many risks of investing in new wind and solar projects are common to all generation projects, including load forecasts, site selection and development, technology selection, project financing, construction and commissioning, transmission provision, and operations. In addition, solar and wind projects are uniquely subject to risks of resource assessment, wildlife impacts, and weather and resource forecasting for system planning and operations. For utilities that engage in a steel for fuel transition, these risks will continue declining as project developers learn through ongoing resource deployment.

Large-scale investments can carry more risk than smaller ones. Once a fossil fuel plant is constructed, operating it requires continuously obtaining and delivering fuel. Fuel is commonly a large portion of consumers' bills, treated for regulatory recovery as an expense and usually assigned to consumers through line items on bills known as energy or fuel cost adjustments. These bill riders collect fuel costs from consumers on a current basis without waiting for periodic rate cases to adjust them on the theory that they are highly variable, too risky for utility companies to bear, and outside utility control. **Fuel is a “pass through” expense that consumers**

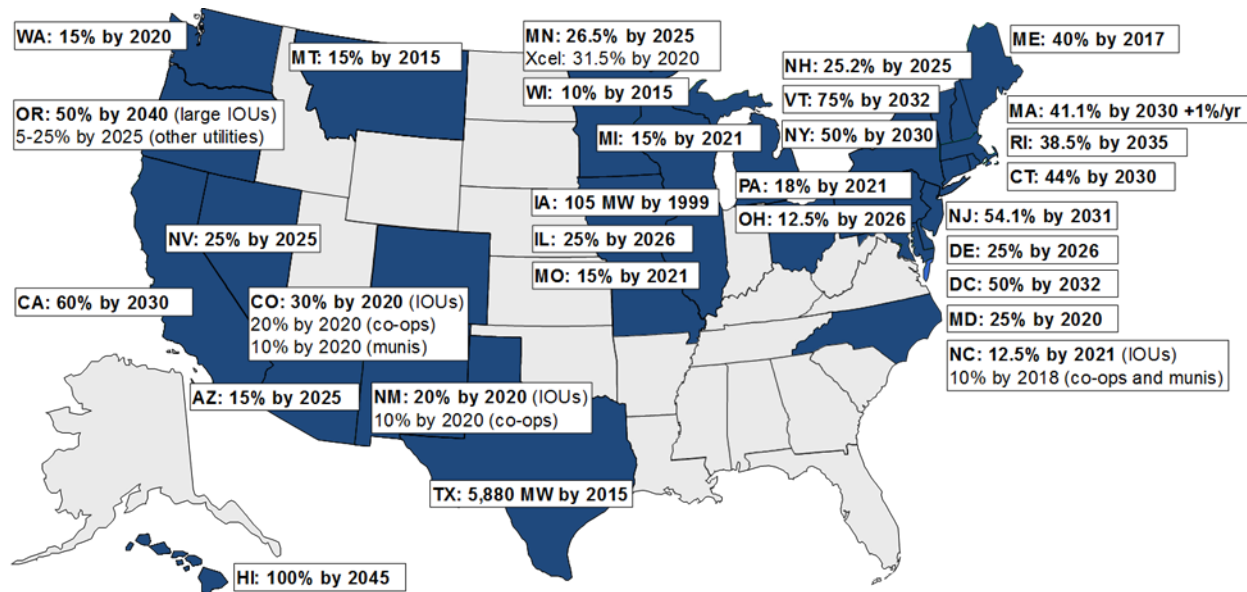
⁶ Kihm, S., Aggarwal, S., Lehr, R., and Burgess, E., “Moving Toward Value in Utility Compensation,” June, 2015 <http://americaspowerplan.com/wp-content/uploads/2016/07/CostValue-Part1-Revenue.pdf>

⁷ Kihm, S., Kappers, P., Satchwell, A., “Considering Risk and Investor Value in Energy Efficiency Business Models,” Seventhwave, 2016. <http://www.seventhwave.org/sites/default/files/skihm2016.pdf>

⁸ Xcel's investment in its Rush Creek Wind Farm, and related transmission will total about \$1.2 billion, larger than undepreciated investments remaining in its retired coal plants. Their approved plan to retire two coal plants at Pueblo included new clean energy investments of about \$2.5 billion. <https://www.denverpost.com/2018/08/27/xcel-plan-boosting-renewables-greenlighted/>

usually pay on a current basis, so reducing this portion of consumers' bills also helps insulate them from fuel costs, risks, and potential liabilities.⁹

Large, centralized generation plants depending on considerable fuel inputs – coal, natural gas, nuclear – have characterized the utility sector for decades, and have represented the most common investment strategy for investor-owned utilities to minimize risk while maximizing returns and scale. But this is shifting with new economic and policy realities of renewable power. 29 states, Washington D.C., and three U.S. territories have adopted minimum renewable energy standards, many of which have increased over time.



Source: Berkeley Lab (November 2018)

Overview of the 30 state-level renewable energy mandates in the U.S. from Lawrence Berkeley National Laboratory

Numerous utilities have voluntarily announced they will rapidly adopt a clean energy portfolio, often accelerating coal-fired retirements at significant savings to customers. **Steel for fuel is an increasingly appealing method for hitting the sweet spot on risk, return, and scale for investors.**

UTILITY OPTIONS—MOVING FROM “FUEL TO STEEL”

Some utilities are providing options for addressing fuel risks to their consumers by moving from fuel to steel as a business and investment strategy. By acquiring and owning new wind and solar plants, utilities can provide advantages to both their consumers and shareholders.

⁹ Some states make an exception to this approach, sharing fuel costs and risks between consumers and shareholders by allowing fuel expenses to be collected only after a rate case, or only in part from consumers on a current basis, or requiring a variety of forms of financial or commodity fuel risk hedging.

POWER PURCHASE AGREEMENTS

Most utility acquisitions of wind and solar generation plants have been accomplished through power purchase agreements (PPAs). When they sign PPAs, utilities agree to pay for power produced from generation that is built, owned, and operated by third parties, often denominated as “independent power producers” (IPPs). These firms provide utilities with facility siting, equipment acquisition, construction, or operations and maintenance services that may be new or considered risky and outside of normal utility business endeavors. IPPs promote themselves as having superior access to new technology, faster and more accurate decision making, ability to monetize tax advantages, and knowledge of emerging techniques that provide competitive advantages.

Power produced and bought by utilities under PPAs result in utility expenses, not investments, so regulators may allow cost recovery of the contract expenses, but do not typically allow utilities to earn returns in excess of costs. Some debt ratings agencies attribute debt equivalence to these PPA payments, arguing that PPA payment streams are like promises to pay back loans embodied in utility bonds. Treating PPA payments like debt raises the debt portion of utility capital structure and changes the debt to equity ratio, commonly used by financial analysts to assess utility financial health.¹⁰

STEEL FOR FUEL--A CLEANER WAY TO BOOST GROWTH

Xcel Energy, a major U.S. electric and natural gas company with annual revenues of \$11.4 billion, has pioneered a “growth and environmental” benefits strategy by adding wind farms and solar projects to their utility-owned generation portfolios, while retiring aging coal plants. These plants are obtained through the utility’s integrated planning process, with state regulator approval, and result from bidding that produces plants owned by Xcel’s operating utilities and by third parties under PPAs.

Xcel touts customer and stakeholder support for executing this business strategy, due to cost savings from substituting non-fuel for fossil fuel generation, and shareholder benefits as their operating utilities own a portion of new renewable projects that replace old fossil investments.¹¹ In a recent earnings call with investment analysts, Xcel CEO Ben Fowke noted the utility could “. . . invest in renewable generation in which the capital cost could be more than offset by fuel savings.”¹²

¹⁰ Ghadessi, M., and Zafar, M., “An Introduction to Debt Equivalency” California PUC, August, 2017. [http://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/About_Us/Organization/Divisions/Policy_and_Planning/PPD_Work/PPD_Work_Products_\(2014_forward\)/PPD%20-%20Intro%20to%20Debt%20Equivalency\(1\).pdf](http://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/About_Us/Organization/Divisions/Policy_and_Planning/PPD_Work/PPD_Work_Products_(2014_forward)/PPD%20-%20Intro%20to%20Debt%20Equivalency(1).pdf)

¹¹ Xcel Energy 2017 Annual Report, “Leading the Energy Future,” Ben Fowke CEO letter to “fellow shareholders.” And see: https://www.xcelenergy.com/company/corporate_responsibility_report/a_message_from_the_ceo

¹² <https://seekingalpha.com/article/4166527-xcel-energy-xel-q1-2018-results-earnings-call-transcript> On the same conference call, Xcel Chief Financial Officer Robert Frenzel characterized wind farm investments as “. . . as a deeply in the money hedge against fuel prices. . .”

BEST PRACTICES FOR PROCUREMENT

When utilities undertake an effective planning and bidding approach to reinvesting in new clean energy, recent competitive bids have revealed very low wind, solar, and storage costs, reinforcing favorable consumer economics of steel for fuel.¹³ Competitive bidding can reveal the lowest-cost projects available in markets for new generation resources, if undertaken in a positive and fair manner. If utilities are allowed to substitute ownership of some portion of the replacement power for early retired fossil units, then a well-structured competitive bidding process can also provide competitive market discipline for the new plants under utility ownership. A mix of IPP and utility ownership is vital, so both bidding IPPs and potential utility-owned assets are subject to competitive pressures.

Since utilities soliciting proposals for new wind and solar generation represent the sole market for responsive bids, the market structure is a monopsony, defined as a market with a single buyer. While regulators are accustomed to responding to utility monopoly – a single seller in a market – many are less aware of or equipped to deal with utility monopsony incentives. These incentives surface in myriad examples challenging public and consumer interests, but they can be regulated effectively to create competitive pressure - an important task for competitive bidding to be part of a utility reinvestment stage of financial transition from fossil to clean energy.¹⁴

FINANCIAL ANALYSTS' ASSESSMENT OF STEEL FOR FUEL

Credit Suisse Equity Research is among the financial analytic firms taking notice of Xcel's fuel to steel switch:

*With fuel costs as a pass-through expense (no return earned) for regulated utilities, utilities have a built-in incentive to build more renewables. Replacing fossil fuel generation with wind resources reduces the fuel portion of a customer's bill and substitutes it with recovery of and on capital investment in wind turbines (and solar panels). This strategy, which was pioneered by [Xcel Energy] under its "steel for fuel" program, is under consideration by [CMS Energy Corporation] and others. **Win-win situation for regulators, consumers, and environmental groups, striking a balance between supporting state RPS goals and stabilizing customer rates.**¹⁵ (emphasis added)*

¹³ <https://www.denverpost.com/2018/01/16/xcel-energy-low-bids-for-colorado-electricity/>. See also, <https://www.utilitydive.com/news/xcel-solicitation-returns-incredible-renewable-energy-storage-bids/514287/>. And <https://www.documentcloud.org/documents/4340162-Xcel-Solicitation-Report.html>

¹⁴ <https://www.theguardian.com/environment/2018/jun/04/carbon-bubble-could-spark-global-financial-crisis-study-warns>

¹⁵ Sources: NextEra Energy, Tennessee Valley Authority, <http://www.yokogawa.com>, Credit Suisse estimates. Credit Suisse Equity Research, Americas/United States, Power & Utilities Primer. April 9, 2018. RESEARCH TEAM: Michael Weinstein, ERP Research Analyst (212) 325-0897, w.weinstein@credit-suisse.com. Khanh Nguyen, CFA (212) 538-

Other analysts note that steel for fuel provides investment opportunity that is equal or better than maintaining investment in old equipment. The strategy substitutes capital investment on which utilities can earn equity returns for fuel expenses which are passed through to consumers' rates without earnings potential. One popular investment advisory firm touts Xcel as a renewable energy stock to consider adding to investment portfolios.¹⁶

From an equity investor perspective, that substitution is a positive earnings indicator. Regulatory risks, due to holding old assets or flowing from requirements to gain regulatory permission for investment in new assets, are considered about equal. Approached with advance consultation with stakeholders, including communities and workers impacted by early plant retirements, these regulatory risks can be managed successfully as proven by Xcel's experiences in Minnesota and Colorado.¹⁷ Xcel attributes positive earnings to its steel for fuel investment strategy.¹⁸

New wind and solar plants are challenging continued operation of aging fossil units.¹⁹ This financial transition creates opportunities for utility equity shareholders to reduce their investment risks and increase potential earnings. By substituting steel for fuel, utilities can substitute investment with earnings potential for fuel expenses on which no earnings are allowed by regulators. This model of financial transition implicates shareholders, consumers, utility managers, regulators, and renewable generation project suppliers. **Regulators have a key role in striking a correct balance of these interests that can unlock streams of savings and benefits that can be shared.**

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¹⁶ <https://www.fool.com/investing/2018/05/10/the-best-renewable-energy-stock-youve-never-heard.aspx>

¹⁷ Dan Ford, Managing Director and Head of North America Utilities Equity Research, UBS 5/22/18 telephone conversation. See also, <http://ieefa.org/xcel-hewing-to-steel-for-fuel-strategy-presses-ahead-with-wind-farms-in-texas-and-new-mexico/>

¹⁸ <https://www.rtoinsider.com/xcel-steel-for-fuel-33521/>

¹⁹ <https://www.greentechmedia.com/articles/read/wind-could-replace-6000-gigawatt-hours-of-coal-in-colorado#gs.MZK49lc>