The Kentucky Public Service Commission
211 Sower Boulevard
P.O. Box 615
Frankfort
KY 40602-0615

Case No. 2019-00256

November 14, 2019

Follow-up comments in addition to November 12, 2019 filing

Here's a brief follow-up comment to Vice-Chair Cicero's question:

- how to deal with stranded assets.

The context was my comments pointing out that the surplus generation on coal fed power plants represents a problem, as less sale and revenue leaves them unable to pay back capital expenses.

At the same time, the needed transition to zero-carbon generation and distribution require more investments representing an additional challenge for companies with increasing debt and obsolete assets.

I'm hoping following three report excerpts dealing with this important problem might be useful.

1. **Managing the Coal Capital Transition by Rocky Mountain Institute**

The full report can be downloaded from following link.

https://rmi.org/insight/managing-coal-capital-transition/

Pages 2-4 are excerpts from the Rocky Mountain Institute's full report on 80 pages.

I have been told that, the way the laws are written now, utilities are allowed to still recover a rate of return in a stranded asset. But states are adopting new strategies that make it easier to retire earlier or replace and that is what the RMI paper is about.

In this process, really good Integrated Resource Planning (IRP) - a planning process that identifies least-cost or best-value resources to meet reliability and public policy goals - have become very important in this context. Enclose an Executive Summary (pages 5-7) from below link to:

2. **The Future of Electricity Resource Planning from Lawrence Berkeley National Laboratory.**

https://www.utilitydive.com/news/the-best-laid-plans-of-state-regulators-are-now-aimed-at-building-a-better/515715/

3. **Best Practices in Electric Utility Integrated Resource Planning (from RAP)**

Can be located on www.raponline.org

Your sincerely,

Kris O'Daniel, 647 Beechland Road – Springfield, KY 40069

Excerpt

REPORT/PAPER

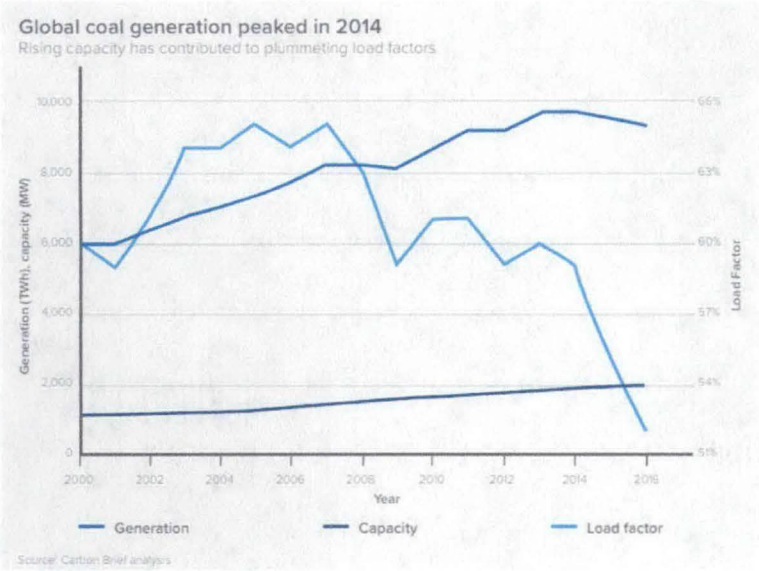
Managing the Coal Capital Transition

2018 | By Annie Benn, Paul Bodnar, James Mitchell, Jeff Waller

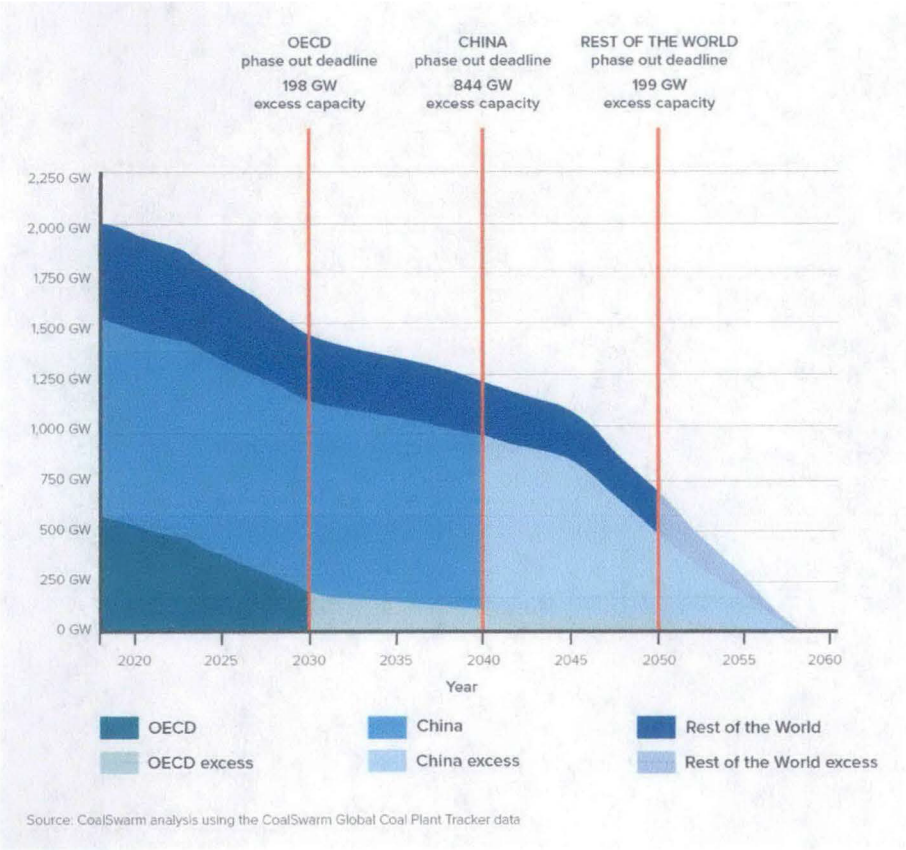
DOWNLOAD

Coal was the preeminent fuel for grid-based electricity generation around the world for the better part of a century, but its time is coming to an end. With this transition, however, workers and communities are experiencing layoffs and the owners of coal-fired power plants are bracing themselves for hundreds of billions in write-offs.

Coal-fired power generation is in structural decline, and its role the global energy mix will continue to diminish due primarily to economics. This erosion is structural, not cyclical, and is driven predominantly by cheap gas, inexpensive renewables, and the costs associated with complying with environmental regulations that seek to reduce air pollution and address climate change.



While economic trends are slowing the growth of coal capacity and leading to a significant amount of uncompetitive coal-fired capacity to shutter, these trends alone will not be sufficient to reduce global greenhouse gas emissions consistent with the Paris Agreement objective of holding warming well below 2 C°. Moreover, the specter of capital losses fuels opposition to policies aimed at accelerating the energy transition.



Source: CoalSwarm analysis using the CoalSwarm Global Coal Plant Tracker data

The early retirement of coal plants across the world has enormous financial implications for asset owners, policymakers, and environmental advocates alike. It also represents an opportunity to reallocate capital stock in the energy system from coal generation to lower-cost renewables. However, managing that exit of capital from coal-fired generating assets demands thoughtful and collaborative planning among these stakeholders.

This is the first global survey of approaches that can help ease capital destruction for asset owners and their shareholders while offering policymakers a clearer path toward transitioning the power sector onto a below-2 C° pathway.

RMI has catalogued 10 policy components for managing the capital losses associated with early retirement of coal-fired generating assets. It also identifies the factors that influence the applicability of components and the potential challenges of including them in policy design.

While these 10 policy components for managing capital losses are presented individually, in practice combining policy components provides flexibility both with the timing of policy implementation, as well as with the ability to allocate— or reallocate—losses across parties. The four in-depth case studies of coal closures included in the report (Alberta, Chile, China and Colorado) demonstrate that there are no one-size-fits-all solutions. Complete policy packages are built from the ground up using policy components fit to their specific context.

BUILDING MUTUALLY BENEFICIAL SOLUTIONS FOR COAL PLANT RETIREMENT

MANDATE CLOSURE
Regulators set a date by which some/all coal-fired power must be decommissioned

OFFSET LOSSES
Regulators allow owners to utilize non-coal-related funds to offset losses created by early closure of a plant

CREATE REGULATORY ASSET
Regulators allow owners to utilize non-coal-related funds to offset losses created by early closure of a plant

FULL OR PARTIAL DISALLOWANCE
Regulators determine that asset should be removed from the rate base and owner is no longer allowed to make a return on the asset.

"SOFTEN THE LANDING"
Offer alternative revenue streams to maximize cost recovery before mandated closure.

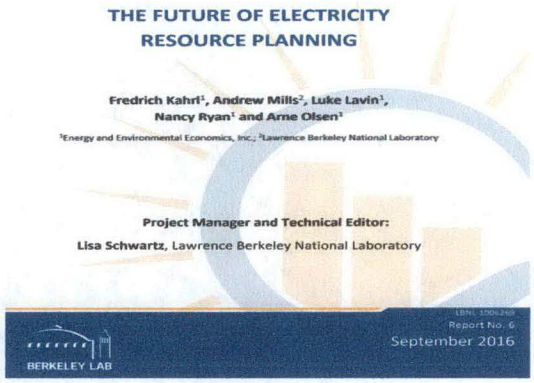
IMPOSE COSTS
Regulators change operating economics by increasing costs via carbon pricing or mandated pollution standards

ACCELERATE DEPRECIATION SCHEDULE
Minimize write-offs at closure by accelerating depreciation before closure

REMOVE ALTERNATIVE REVENUE SOURCES
Regulators change coal operating economics by removing ancillary revenues

TAKE-OVER AND WRITE-OFF
In state managed markets, the government purchases the asset and writes off the debt

PAY TO CLOSE
Government offers direct compensation payments for closure



Executive Summary

Electricity resource planning is the process of identifying longer-term investments to meet electricity reliability requirements and public policy goals at a reasonable cost. Resource planning processes provide a forum for regulators, electric utilities, and electricity industry stakeholders to evaluate the economic, environmental, and social benefits and costs of different investment options. By facilitating a discussion on future goals, challenges and strategies, resource planning processes often play an important role in shaping utility business decisions.

Resource planning emerged more than three decades ago in an era of transition, where declining electricity demand and rising costs spurred fundamental changes in electricity industry regulation and structure. Despite significant changes in the industry, resource planning continues to play an important role in supporting investment decision making.

Over the next two decades, the electricity industry will again undergo a period of transition, driven by technological change, shifting customer preferences and public policy goals. This transition will bring about a gradual paradigm shift in resource planning, requiring changes in scope, approaches and methods. Even as it changes, resource planning will continue to be a central feature of the electricity industry. Its functions — ensuring the reliability of high voltage ("bulk") power systems, enabling oversight of regulated utilities and facilitating low-cost compliance with public policy goals — are likely to grow in importance as the electricity industry enters a new period of technological, economic and regulatory change.

This report examines the future of electricity resource planning in the context of a changing electricity industry. The report examines emerging issues and evolving practices in five key areas that will shape the future of resource planning: (1) central-scale generation, (2) distributed generation, (3) demand-side resources, (4) transmission and (5) uncertainty and risk management. The analysis draws on a review of recent resource plans for 10 utilities that reflect some of the U.S. electricity industry's extensive diversity.

Across these five key areas, the report highlights 10 emerging resource planning needs for state utility regulators to consider. Although the relevance of these needs varies across states and industry contexts, many of the underlying issues and themes have broader relevance. The 10 emerging considerations for resource planning include the following:

1) ***More integrated approaches to resource evaluation and acquisition***. With utilities facing significant uncertainty in electricity demand, resource costs and environmental compliance needs, there is a renewed need to better integrate the evaluation and acquisition of different kinds of resources: conventional thermal generation, large-scale renewable energy generation, nuclear generation, distributed generation, energy efficiency, demand response, energy storage and transmission. In non-restructured jurisdictions, regulators can encourage more integrated evaluation through integrated resource planning (IRP) rules and guidelines. In restructured jurisdictions, regulators can encourage more integrated evaluation through closer coordination between wholesale

markets and state targets and programs for demand-side resources, renewable energy and distributed generation.

2) ***More comprehensive consideration of investment drivers***. Although utility resource acquisition has historically been driven by load growth and resource adequacy, resource acquisition will increasingly be driven by energy costs, risk management, environmental regulations and customer behavior. To accommodate this shift, regulators can encourage utilities to take a more integrated portfolio approach to resource acquisition, where investment and procurement decisions are evaluated by their impact on portfolio costs and risks.

3) ***More accurate representation of solar and wind generation in resource planning models***. Resource planning models are still limited in their ability to capture the unique operating characteristics and economics of solar and wind generation. Improving these models will require an industry-wide effort, though regulators can support modeling improvements by encouraging utilities to use best available modeling practices.

4) ***Greater attention in resource planning to customer behavior, retail rate designs and the distribution system***. The emergence of lower-cost distributed generation, customer-sited energy storage, electric vehicles, and other price-responsive loads will likely strengthen the interactive relationships among utility resource acquisition decisions, retail rates, and adoption of distributed energy technologies. Regulators can encourage utilities to proactively respond to the challenges posed by distributed energy resources in their resource plans. Methods for doing so can be enhanced through information sharing and collaboration among states and utilities.

5) ***Risk analysis and use of risk-adjusted metrics***. Despite increased uncertainty and risk facing the electricity industry — stemming from changing demand patterns, technological change, fuel price uncertainty and new environmental regulations — many utilities do not conduct rigorous risk analysis in their resource plans. To respond to growing uncertainty and risk, regulators can encourage more widespread use of risk analysis and the use of risk-adjusted metrics in resource planning, give critical consideration to how risks can be managed by incorporating risk-adjusted metrics into the selection of preferred resource plans, and make more explicit use of risk management frameworks and tools in their oversight of resource planning processes.

6) ***Balancing precision and transparency in planning models***. The ability to collect more data through advanced metering infrastructure and continued improvements in computing power will enable the development of more sophisticated resource planning models. Regulators will need to ensure that improvements in modeling capability are balanced with the continued need for transparency in model assumptions and intuition about model results.

7) ***Coherence between planning and long-term policies and regulations***. The multi-decadal nature of many federal and state environmental goals and the long-lived nature of most electricity infrastructure suggest the need for greater coherence between resource planning and the longer-term transitions required to ensure regulatory compliance. Drawing on recent innovations, including those described in this report, regulators can support greater attention to transition strategies in resource planning.

8) ***Deeper expertise at state regulatory commissions and energy agencies***. As resource planning problems become more complex, from renewable energy integration to the role and treatment of distributed energy resources — state regulatory commissions and energy offices will need to expand and deepen their expertise to inform their decision making. Developing this expertise should be a near-term priority for states.

9) ***Exploring new opportunities for information sharing and collaboration***. Information sharing and collaboration among states can promote greater convergence in resource planning assumptions and adoption of best practices. These efforts can be supported through the development of informational sites, such as Berkeley Lab's Resource Planning Portal,[1] or through research collaboration facilitated by organizations such as the Electric Power Research Institute.

10) ***Regional coordination in resource planning***. A number of drivers, including the benefits of regional coordination for integrating renewable energy resources, are strengthening the rationale for greater regional coordination in resource planning. Existing regional entities, such as regional transmission organizations, the North American Electric Reliability Corporation's regional entities, and regional committees of states,[2] can play a role in facilitating coordination and cooperation among states and utilities, though in some regions this will require new institutions and processes.

RAP Energy solutions for a changing world

Best Practices in Electric Utility Integrated Resource Planning

Examples of State Regulations and Recent Utility Plans

Authors
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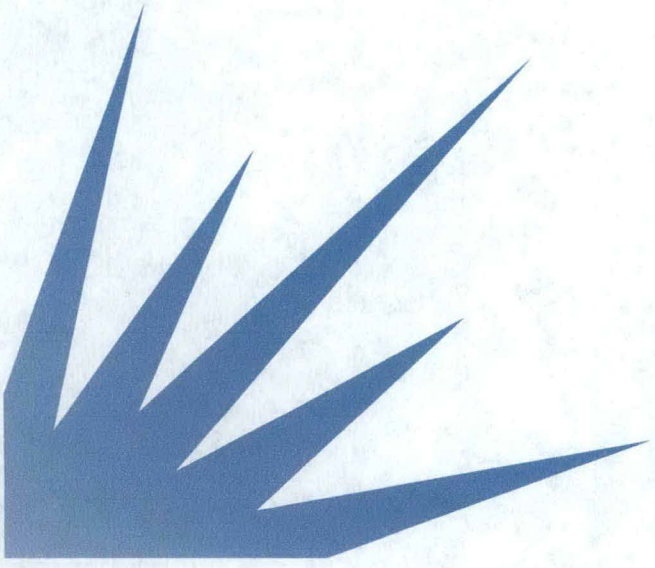

Synapse Energy Economics, Inc.

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