

MANAGING THE COAL CAPITAL TRANSITION

COLLABORATIVE OPPORTUNITIES FOR ASSET OWNERS, POLICYMAKERS,
AND ENVIRONMENTAL ADVOCATES

BY ANNIE BENN, PAUL BODNAR, JAMES MITCHELL, AND JEFF WALLER

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Transforming global energy use to create a clean, prosperous, and secure low-carbon future.

INTRODUCTION

MANAGING THE COAL CAPITAL TRANSITION

Global coal generation peaked in 2014

Rising capacity has contributed to plummeting load factors

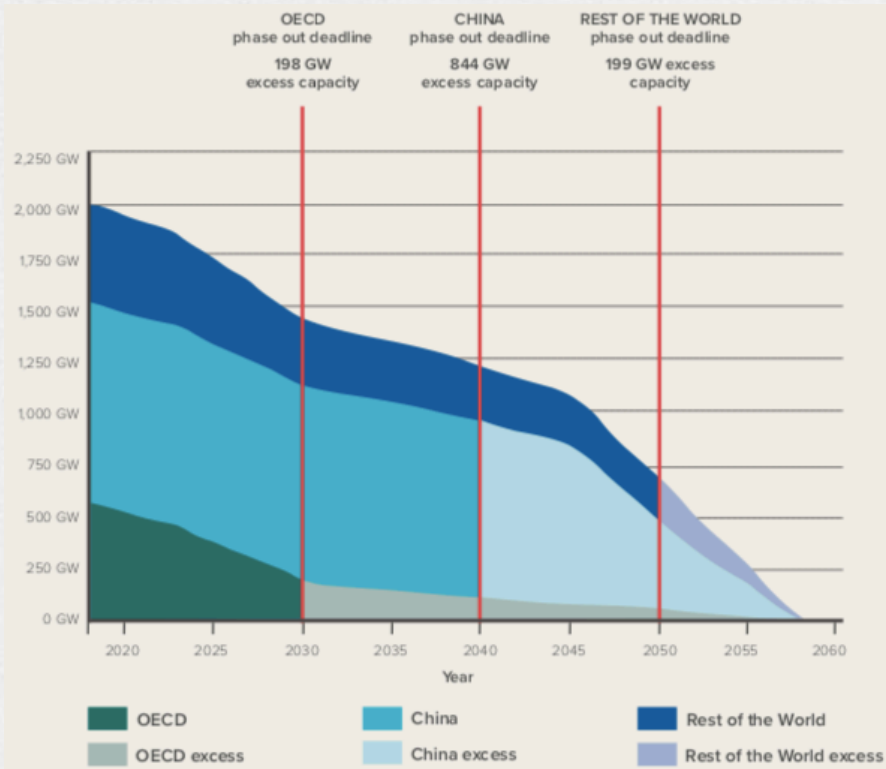


Source: Carbon Brief analysis

- Coal was once the go-to fuel for electricity needs, but **coal-fired power is now in structural decline**. Coal burned in power plants worldwide is falling, driven both by regulatory pressure to curb pollution and by stiff market competition from cheap renewables and natural gas.
- More than $\frac{1}{2}$ of European coal plants are cashflow-negative; U.S. utilities with coal assets in liberalized markets have lost $\frac{1}{2}$ their market cap. In India, $\frac{2}{3}$ of coal plants are more expensive than new renewables.
- While these trends are positive for health, environment, and climate, they **create substantial value at risk for communities, workers, and coal asset owners**.
- Complementing important work on the just transition for labor, **managing the exit of capital from coal-fired generating assets demands thoughtful and collaborative planning among asset owners, policy makers, and environmental advocates**. This is the coal capital transition.

GENESIS AND OBJECTIVES OF THE PROJECT

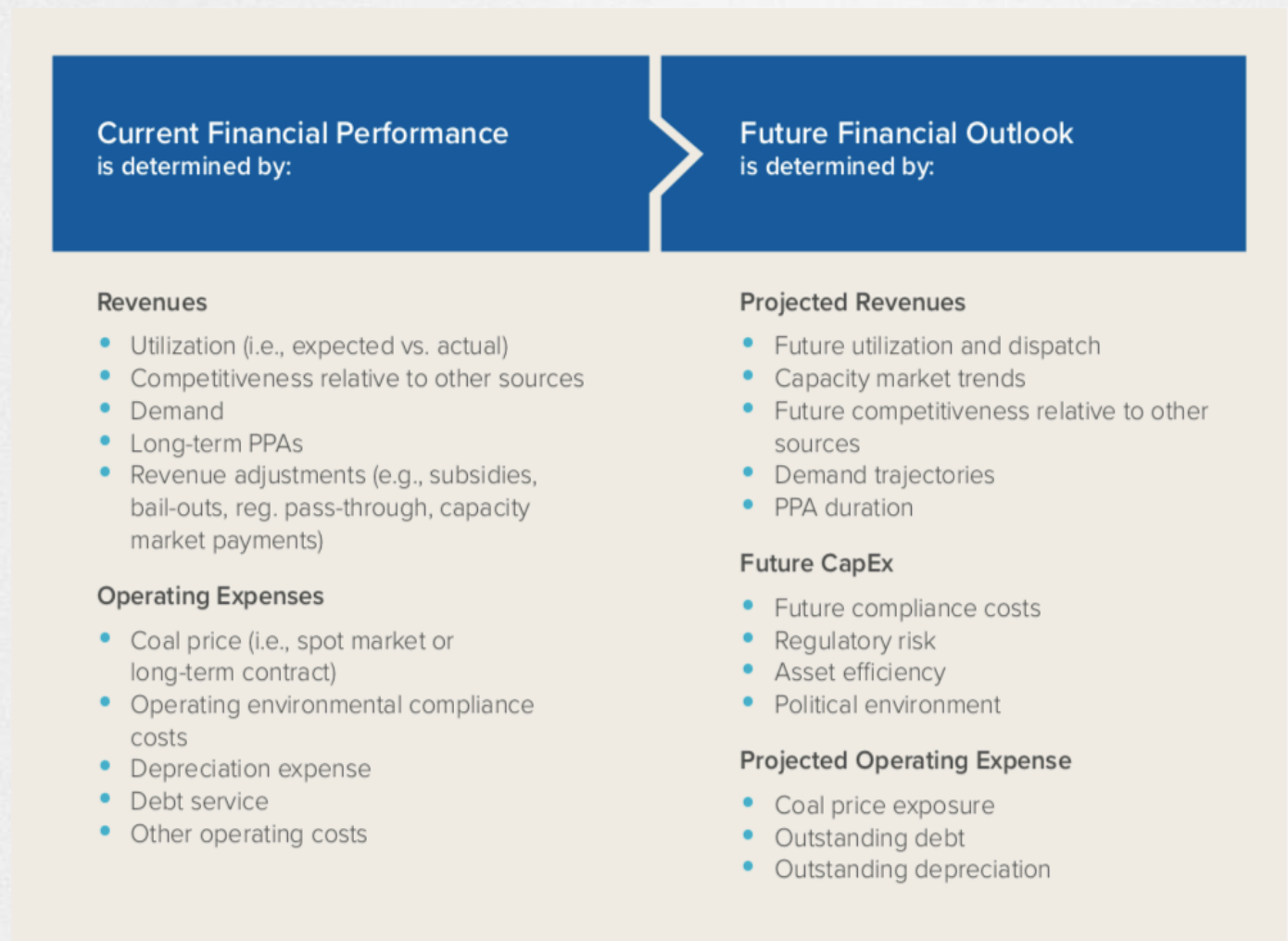
NATURAL RETIREMENT OF CURRENT COAL CAPACITY ON STATED RETIREMENT DATE VS. LEAST-COST PHASE OUT BY REGION



- The prospect of capital destruction for coal asset owners drives vigorous but rational lobbying against climate policy – creating the “lose-lose” of eroding asset value and a slower global energy transition.
- It is time to move past notions of the war on coal and the war to save it. Faster capital stock turnover in the energy system - retiring coal early and replacing it with clean energy - is both economically rational and to some extent inevitable. The loss of value associated with stranded assets is an undesirable consequence which can be actively mitigated to ensure that all stakeholders are on board with the direction of the energy transition.
- RMI’s report 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 towards accelerating the energy transition. It is based on 50 interviews with expert practitioners representing asset owners, policymakers, and environmental advocates.
- Our report focuses on **solutions** that move beyond adversarial approaches and reframe coal phase-out as a rational option for preserving shareholder value and achieving environmental goals through minimizing stranded value.

UNDERSTANDING THE ASSET OWNER PERSPECTIVE

- In the report, we develop an Asset Position Framework, which identifies the likely business positions, political positions, and amenable exit options.
- It considers a coal plant's current and future financial performance (see figure to right)
- Owners and policymakers can use this framework to help identify which policies might make asset owners indifferent to, or even supportive of, asset retirement.



UNDERSTANDING THE ASSET OWNER PERSPECTIVE

BUSINESS STRATEGY AND EXIT OPTIONS

DECOMMISSION

Fully cease plant operations and tear down to brownfield; write off any outstanding balance or negotiate with regulators for some level of continued recovery

IDLE /
MOTHBALL

Cease plant operations but maintain equipment to potentially restore service in the future; keep asset on balance sheet but forego operating revenues

CONVERT

Redeploy existing equipment as feasible and convert facility to natural gas- or biomass-fired generation; write off equipment that cannot be reused and change asset on balance sheet

SELL

Make minimal changes to plant and equipment; remove asset from balance sheet; inflows from sale

CONTINUE
OPERATIONS
WITHOUT
CAPEX

Continue operation of plant but avoid large capital requirements; asset stays on balance sheet, profit and expenses per normal operation

CONTINUE
OPERATIONS
WITH CAPEX

Continue operation of plant and make capital expenditures as they are necessary; asset stays on balance sheet, profit and expenses per normal operation

Financial and Business Impacts

BUILDING POLICIES TO MANAGE THE COAL CAPITAL TRANSITION

Coal phase-out policies are typically comprised of multiple strategies. We break this process into its component pieces to enable policymakers to construct their own policy packages:

- We identify **six factors that determine the applicability of policy interventions** as well as the challenges they may represent.
- **10 policy components** for managing the capital losses associated with early retirement of coal-fired generating assets.
- **How these components are used and combined in reality** to create individualized policy packages that fit the specific context of technical, economic, and political demands.



BUILDING POLICIES TO MANAGE THE COAL CAPITAL TRANSITION

SIX FACTORS TO CONSIDER IN SELECTING POLICY COMPONENTS

Power market type. Some policy options apply only to regulated markets.

Policymaker capacity. Some policies require significant decision-making authority and technical know-how on the part of policymakers.

Bearer of losses. In every approach, capital losses are borne by some combination of government and/or asset owners. The political feasibility of this dimension must be considered in relation to policies implemented individually, or in combination.

Ratepayer impact. Some approaches impose costs on asset owners, some of which may be passed through to ratepayers.











Investment climate. If policy actions are perceived as capricious or unwarranted, they can erode trust between regulators and business.

Moral hazard. Approaches where the government bears the losses—in the form of providing compensation—typically carry a risk of moral hazard. This is a risk that should be mitigated with careful timing and scoping, particularly because asset owners are rarely entitled to even partial compulsory compensation.



TEN POLICY APPROACHES

- RMI's global market survey yielded these ten approaches to accelerating early retirement of coal plants while managing the capital destruction consequences.

POLICY COMPONENT	BEST APPLICABILITY	BEARER OF LOSSES (PROXIMATE)	DESCRIPTION	POTENTIAL CHALLENGES
 Mandate Closure	Liberalized and state-managed markets	Asset Owner	Regulators set a date by which some/all coal-fired power must be decommissioned.	Impact investment climate
 Full or Partial Disallowance	Regulated markets		Regulators determine that asset should be removed from the rate base and owner is no longer allowed to make a return on the asset.	Impact investment climate
 Impose Costs	Liberalized and state-managed markets		Regulators change operating economics by increasing costs via carbon pricing or mandated pollution standards.	<ul style="list-style-type: none"> Impact investment climate Ratepayer pass-through
 Remove Alternative Revenue Sources	Liberalized markets		Regulators change coal operating economics by removing ancillary revenues such as subsidies, capacity payments, or reserve payments.	Impact investment climate
 Offset Losses	<ul style="list-style-type: none"> All markets Funds available High policymaker capacity 		Regulators allow owners to utilize non-coal-related funds to offset losses created by early closure of a plant, e.g., selling unused emissions allowances or monetizing carried-over tax credits.	Moral hazard
 Create Regulatory Asset	<ul style="list-style-type: none"> Regulated markets Funds available High policymaker capacity 		Regulators allow cost recovery from rate base after asset retirement by utilities in regulated markets.	<ul style="list-style-type: none"> Ratepayer pass-through Moral hazard
 "Soften the landing"	<ul style="list-style-type: none"> All markets Funds available 		In combination with an approach that will force closure by a certain date, offer alternative revenue streams in the interim to maximize cost recovery before early closure.	<ul style="list-style-type: none"> Ratepayer pass-through Moral hazard
 Accelerate Depreciation Schedule	All markets		Minimize write-offs at closure by accelerating depreciation before closure. Amount and type of recovery of incremental depreciation expense varies.	<ul style="list-style-type: none"> Ratepayer pass-through (regulated markets) Moral hazard
 Take-over and Write-off	<ul style="list-style-type: none"> Regulated or state-managed Funds available 		In state-managed markets, the government purchases the asset and writes off the debt. This requires that the government decommission, not mothball, the asset. Otherwise, a risk remains that the asset could be resold to a third party who then continues operation.	Moral hazard
 Pay to Close	<ul style="list-style-type: none"> All markets Funds available 	Government	Government offers direct compensation payments for closure, negotiated based on valuation of plant and whether full compensation will be paid.	Moral hazard

CASE STUDIES

POLICY COMPONENT	BEARER OF LOSSES (PROXIMATE)
 Mandate Closure	Asset Owner
 Full or Partial Disallowance	
 Impose Costs	
 Remove Alternative Revenue Sources	
 Offset Losses	
 Create Regulatory Asset	
 "Soften the landing"	
 Accelerate Depreciation Schedule	
 Take-over and Write-off	
 Pay to Close	Government

Alberta

Mandate Closure
Pay to Close

Pay-to-close payments made to 6 coal plants in order to maintain investor confidence and ensure small pool of power companies remain in the province to invest in new sources of generation.

Chile

Impose Costs

Carbon tax goes into effect; government and coal plant owners announce coal phaseout plan, with details to follow.

China

Mandate Closure
Offset Losses

Mandate to close inefficient and small (<300MW) coal plants, with the option to replace the capacity with more efficient coal plants or other forms of compensation.

Colorado

Accelerated Depreciation
Regulatory Asset
Offset Losses

Utility-led "grand bargain" to accelerate depreciation of two coal plants and replace them with new renewable and existing gas-fired capacity.

CONCLUSIONS AND KEY TAKEAWAYS

Policymakers

- **Understand the context:** Understand and consider the financial position of assets and owners
- **Shift the conversation:** The challenge is to present a sufficiently interesting alternative economic equation
- **Know your options:** The ten strategies presented here are grounded in a global survey of approaches
- **Tailor-made:** There is no one-size-fits-all policy solution.
- **Build support:** Key to productive dialogue is ensuring that outcomes are viewed as equitable by all stakeholders
- **Balance risk:** Carefully balance maintaining the credibility of the local investment climate with moral hazard

Asset Owners

- **Acknowledge trends:** coal-fired power generation is in structural decline worldwide.
- **Risk of stranded value is real:** Some capital destruction associated with early closure is inevitable.
- **Benefits of planning:** Proactive planning for the end of the coal era can preserve shareholder value and avoid financial shocks to equity and debt holders alike.
- **Understanding what's feasible:** Asset owners should acknowledge that from a policymaker's perspective, they rarely have claim to compulsory compensation and that moral hazard is real and legitimate concern. Still, policymakers also have a strong incentive for pragmatic dialogue.
- **Build on existing dialogues:** Coal asset owners should build on the principles for a just transition of labor.

Environmental Advocates

- **Understand the owner's perspective:** From an asset owner's perspective, opposing policies that cause financial hardship is economically rational.
- **Link to 'just transition':** An integrated approach to addressing lay-offs and write-offs associated with early coal plant retirement is essential.
- **Managing trade-offs:** Many of the solutions presented here come with **difficult tradeoffs** using funds that will undoubtedly be limited. Advocates must work alongside policymakers and asset owners ensure that these tradeoffs are being weighed appropriately. Once agreed, advocates must enforce those agreements in the public sphere.

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