
How public funders can help take coal offline ahead of schedule: Three financial options

To achieve net-zero emissions by mid-century, the International Energy Agency projects a need to phase out all unabated coal-fired power plants by 2040.¹ This has significant potential implications for emerging markets, since an estimated 70% of existing coal-fired capacity (and over 90% of planned capacity) is in China, India, and about 20 other countries including Bangladesh, Indonesia, Malaysia, Philippines, Pakistan, South Africa, Turkey, Ukraine, and Vietnam.² Public and private funders are exploring various market-based options to accelerate the decommissioning of coal generation assets.

Potential financing structures to accelerate decommissioning

Options include the following three public-private mechanisms, each of which requires some form of concessionary public capital or guarantee:

1. Carbon avoidance bonus for early retirement: Government and/or public financiers establish a fund to pay electricity providers for every ton of verifiable, permanent, and additional emissions abated. Bonus payments are typically cash, but can also take the form of tax credits, debt forgiveness, or concessional interest rates on new debt to finance replacement renewable energy. Payments can be allocated competitively, for example by reverse auction, where asset owners would submit bids for the cost to phase-out their coal plants and replace those services with renewable generation.

- **Example - Inter-American Development Bank (IDB) Invest Pilot in Chile:** Lenders provided a \$125m financial package to ENGIE Energia Chile, comprising a \$74m senior loan from IDB Invest, \$15m of blended finance from the Clean Technology Fund (CTF), and \$36m from the Chinese Fund for Co-financing in Latin America and the Caribbean. The instrument monetizes the displacement of GHG emissions by establishing a cost for abated emissions from the early retirement of coal plants, and then providing that benefit to ENGIE Energia Chile by lowering the financing cost of the CTF's tranche to build, operate, and maintain the 151MW Calama wind farm.³

2. Carbon Retirement Portfolio (CRP): The CRP purchases coal generation assets, with the mandate to retire them ahead of schedule.⁴ The previous owner is absolved of responsibilities associated with decommissioning and remediation, and the CRP investors benefit from government-provided financial support or other incentives (e.g. a carbon avoidance bonus of a fixed dollar amount for ton of avoided CO₂ or guarantees to lower the cost of borrowing) to help offset the lost present value of retiring the plant early and fund Just Transition support for affected communities.

- **Example - Asian Development Bank (ADB) and private financiers:** The ADB and financial firms (inc. Prudential, Citi, and Blackrock Real Assets) are developing a plan to buy out fossil fuel plants in Asia and retire them within 15 years. The group would raise

low-cost blended capital for a carbon reduction facility that would buy and operate coal-fired plants at a lower cost of capital than is available commercially, enabling them to generate similar returns over a shorter period. A separate parallel fund would drive investment in replacement renewable generation and community support. The ADB has allocated \$1.7m for feasibility studies, and would like to acquire the first plant in 2022. Prudential's Donald Kanak estimates retiring 50% of Indonesia's coal capacity would require \$16-29b, and another \$5-9b for the Philippines and \$9-17b for Vietnam.⁵

3. Ratepayer-Backed Securitization (RBS): Where RBS is legislated, ratepayers, through a Special Purpose Vehicle, raise low-cost debt based on their government-backed pledge to repay it *via* a dedicated surcharge on their bills. That debt can then be used for dismantling, remediation, development of replacement renewable generation, and/or support for impacted communities. Because the new debt carries an interest rate well below the general cost of capital for the utility owner, the refinancing of older debt at the lower rate plus the lower operating costs of renewable energy provides savings to ratepayers.⁶

- **Example - Consumers Energy Company (Michigan), 2014:** The Michigan utility recovered the remaining (or unrecovered) book value of seven coal-fired and three gas-fueled generation units designated for early retirement through a utility securitization. This is only viable in specific regulatory and financial frameworks.

Repurposing brownfield sites

Once a coal plant is decommissioned, the brownfield site can be repurposed to generate renewable power and stabilize the grid. In a 'RE + FLEX Center', the land that previously housed the ash pond and coal stockpiles can be used to develop new renewable generation, while the old generator can be retained to provide flexibility services (e.g. a synchronous condenser for reactive power and inertia and/or pumped hydro storage).⁷ This ensures the site can continue to provide both the electricity and grid ancillary services previously provided by the coal plant, also helping to enable greater shares of variable renewable energy to come online elsewhere.

- **Example - The Drax Power Station** in the UK converted its coal generation to run on biomass, and Germany is considering conversion of old coal mines into pumped storage hydro and energy storage systems.

Key considerations for public funders

- **Target locations where coal plants are only marginally profitable.** Public funds and incentives will go farther where coal plants are already uncompetitive.
- **Link finance directly to replacement renewable power and Just Transition support.** Financing the decommissioning of coal-fired power plants is not enough. Any mechanism should prioritize channeling funds into new renewable capacity and support to help communities impacted by the coal plant's closure, recognizing the often very specific local (including informal) economic contexts in coal communities.⁸ This could include combining financing from DFIs with grant-based support and technical assistance for impacted communities from other development institutions.⁹

- **Be ready to address counterparty risk.** The financial structures mentioned above use lower borrowing rates to improve financial returns and/or offer savings to power consumers. Tools such as credit guarantees and concessional finance contributions can help lay the groundwork for such lower cost financing.
- **Consider carbon markets.** Financiers can provide the funding for carbon avoidance bonuses. With adequate verification methods in place, this can be done on a one-off basis (for example, corporations can commit to purchasing such carbon offsets for a period of time). Liquidity would be enhanced, however, by including such avoidance bonuses in established carbon markets.

Endnotes

1. International Energy Agency (IEA), [Net Zero by 2050: A Roadmap for the Global Energy Sector](#), May 2021.
2. Donald Kanak, [How to replace coal power with renewables in developing countries](#), *World Economic Forum*, 29 May 2020.
3. [IDB Invest and ENGIE Chile debut the world's first pilot project to monetize the cost of decarbonization](#), *IDB Invest*, February 3, 2021.
4. Brad Handler and Morgan Bazilian, [Exploring Carbon Retirement Portfolios](#), *Payne Institute*, July 2021.
5. Clara Denina and Melanie Burton, [ADB, Citi, HSBC, Prudential hatch plan for Asian coal-fired closures](#), *Reuters*, August 3 2021; Brian Murray, [A Plan for Accelerating the Exit of Coal Power Globally](#), *Forbes*, June 9, 2020.
6. Brad Handler and Morgan Bazilian, [Securitization a Useful Financing Tool for Transition From Coal](#), *Power*, November 23, 2020.
7. Deb Chattopadhyay, Morgan Bazilian, Brad Handler, Chandrasekhar Govindarajalu, "Accelerating the coal transition", *The Electricity Journal*, 2021.
8. Morgan Bazilian, Sanya Carley, David Konisky, Hisham Zerriffi, Sandeep Pai, and Brad Handler, [Expanding the scope of just transitions: Towards localized solutions and community-level dynamics](#), *Energy Research & Social Science*, October 2021.
9. Joshua Busby, Sarang Shidore, Johannes Urpelainen, and Morgan Bazilian, [The case for US cooperation with India on a just transition away from coal](#), *Brookings*, April 20, 2021.