



Coal Closures: **Four Things to Consider When Decommissioning or Demolishing Power Plants**



BLACK & VEATCH

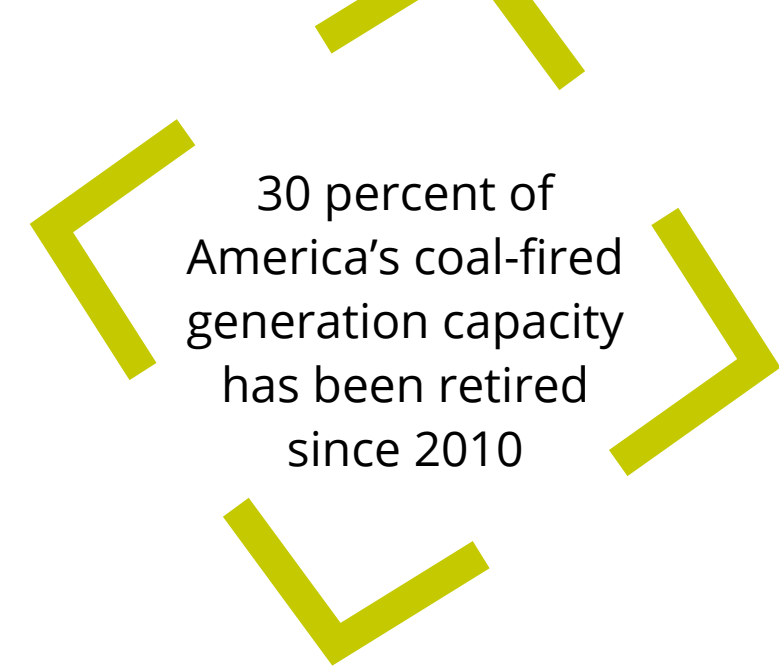
Introduction

A combination of factors – the transition towards lower- and zero-carbon energy sources, increasing regulatory pressure, a national commitment to capping greenhouse gas (GHG) emissions, and stricter pollution controls on wastewater – are driving closures or planned closures of coal-fired power plants around the world.

According to the EIA, 30 percent of America’s coal-fired generation capacity has been retired since 2010. The National Public Utilities Council reports that the U.S. will continue to see substantial retirements of coal-fired electric generating capacity over the next few decades, adding up to a total 98.3 GW of retired capacity by 2049.

But what happens to the assets and the land left behind once these coal-fired facilities are decommissioned or demolished? How can coal plant-owning utilities recoup the capital on their investment? What is the best way to preserve the land, assets and capital for repowering or redevelopment?

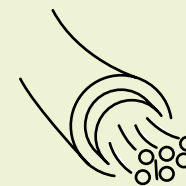
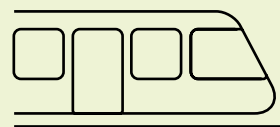
The value of utility land for development is especially important to note. Coal plants are typically located near critical infrastructure services, with access to water, railways and fiber networks, making the land prime for remediation and redevelopment for commercial and industrial manufacturing or even community development (e.g., parks and recreation).

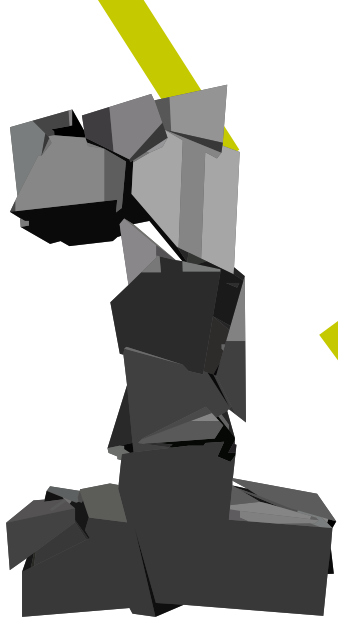


Assets could be used for scrap in a high scrap market, or the assets could be preserved for repowering or even the transition to natural gas. Thorough due diligence and planning is necessary to ensure the decommissioning and demolition process meets a utility’s goals and objectives for capitalizing on these valuable infrastructure assets.

Utilities will encounter several key decisions throughout the process; to ensure a successful demo utilities must be prepared to approach these decisions with a methodical approach. This article addresses four considerations for the successful decommissioning and demolishing of coal plants.

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Start with Purpose

Utilities should begin by considering their future plans for the land and plant assets, as this will help determine the path of decommissioning and demolition.

Cost is the biggest driver that dictates whether a coal-fired power plant is decommissioned or demolished, and owners/operators need to consider several factors – the market value of scrap, permits, regulatory requirements, remediation costs, environmental requirements, competing interests, etc., – when making their decision.

Utilities do have several options when it comes to a power plant's next life; they can redevelop the plant, abandon it as-is, or demolish everything and use the assets and land for commercial purposes.

If the owner/operator chooses to redevelop the plant, they would keep the plant operational but transition it to a different type of fuel. If this is the case, the facility may only need to surgically demolish its coal operations, e.g., the coal yard, handling equipment and coal bins, and replace anything coal-related with other generation equipment.

If it's possible, the unit will be repowered at some point in time and the plant may be "mothballed," meaning the facilities are shut down as-is, with all the mechanical systems, equipment and tools still in working order. Every system is put into hibernation and the equipment is preserved, enabling the unit to be restarted if needed.

Depending on market conditions, the utility may select to "abandon in place" until market value improves, and they can receive a fair market price for the assets and land. This means the facility is shut down entirely, all the mechanical systems are removed, and the unit can never again be restarted.

Once the plant is completely shut down, it is up to the owner/operator to decide whether to abandon or completely demolish and redevelop the site. If it's the latter, the utility can recoup investment by selling the assets on the scrap market for fair market value.

If they choose demolition, the utility will have to choose between developing it into a brownfield or greenfield site. Either option requires the removal of all hazardous material, full demolition, and site remediation/restoration.



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Don't Overlook Permitting

Owners/operators must consider regulatory restrictions and work with state, county and local permitting agencies and the U.S. Environmental Protection Agency (EPA) early in the process to understand all the requirements around decommissioning, abatement demolition, redevelopment and hazardous materials abatement.

While a permit is not required to remove asbestos, plant owners/operators do need to submit a notification to the EPA to trigger a National Emission Standards for Hazardous Air Pollutants (NESHAP), which enforces compliance monitoring.

Whenever the material removed exceeds a certain limit, plant owners/operators must give the EPA (local EPA or environmental services for a local county or a state) 10 days' notice that they are going to begin an abatement. This enables the EPA to inspect the site while the abatement is going on.

TIP:

It can be beneficial to partner with local engineering companies who have requisite knowledge and relationships with these regulatory agencies to help ensure a smooth process, as this will also help ensure an accurate schedule and budget.

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Hazardous Abatement and Remediation

Conducting an accurate site assessment is critical to ensure that plant owners/operators identify all the environmental conditions and hazards upfront, e.g., asbestos, lead PCBs, etc., to avoid underestimating hazardous abatement and remediation needs and their impact on schedules and budgets.

To that point, owners/operators should include schedule and budget contingencies to cover any unknown hazards that may crop up during the pre-demolition prep.

A mothballed unit just remains in place, able to one day be restarted. An abandoned unit, however, will require the removal of hazardous material. If the unit is to be demolished, then all that hazardous material must be removed.

When addressing the presence of asbestos and other hazardous materials, plant owners/operators need to undertake a high-level survey to get a handle on exactly what materials need to be abated. Then, they must write the specs and engage in the bid process to determine the best strategic partner.

Prepare for Demolition



For a greenfield site, the owner/operator would be required to remove the top 3-4' of dirt around the entire site and replace it with clean fill dirt, clean topsoil, seed and straw to bring it back to its preexisting state before the plant was built.

For a brownfield site, the owner/operator would be required to take the facility down to the slab and only focus on remediating the “hot spots” that might be severely contaminated.

Once the site is remediated, the owner/operator can monetize the greenfield site by building housing, commercial structures, data centers, etc. Brownfield sites can be more challenging to try to sell or redevelop.

No matter the result, demolition requires an upfront engineering site assessment. These assessments are critical to determine the systems involved and identify the risks. A structural engineering and local permitting agency must also review and approve the site prior to demo.

Demolition is the more complex and demanding option. When a coal-fired power plant is demolished, the utility will have to choose between developing it into a brownfield or greenfield site. Either option requires the removal of all hazardous material, full demolition of the facilities, and site remediation/restoration. Some material could be sold for scrap – e.g., the steel, copper, anything salvageable – and the site could be sold and/or used for redevelopment.

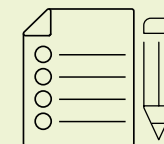
The demolition process also requires a safety plan to determine the necessary levels of safety and security. For example, when determining who is on-site, safety protocols dictate that only key people should be present during the demo. These key people include project managers, project engineers, and key plant personnel, including plant managers and plant engineering staff. It is also wise to have a media spokesperson on-site who can keep tabs on media coverage and requests.



Greenfield site



Brownfield site



Engineering Assessment



Safety

Conclusion

With Coal plant closure dates on the horizon, it pays to be aware that the timeframe for demolition or decommissioning is dependent on several factors, from the size of the unit to the workforce. Sometimes it can take up to a year just to decommission a unit and prepare it for demo, and then another year to perform the environmental abatement and demolition.

Coal-fired power plants will only continue to accelerate towards closure, and to maximize return on investment, plant owners/operators need to carefully consider all the variables that impact demolition decisions

With this in mind, plant owners/operators should consider partnering with a qualified, experienced team of engineers and decommissioning/demolition experts to ensure the project completes safely, on-time and within budget.

Considering decommissioning? Learn more on the benefits of applying nature-based solutions (NbS) when decommissioning your plant.



Decommissioning and Demolition

Whether your goal is accurately forecasting future decommissioning or demolition expenses, minimizing retirement costs, or repurposing a site, Black & Veatch's services are flexible to meet your planning needs and comprehensive to achieve your project goals.

We have the tools and experience to ensure you are making the most economically beneficial choices for your company.

How Black & Veatch Can Help



Provide you with accurate costs for your facility using our proprietary tools and experienced construction personnel.



Tailor the approach around site-specific assessments to characterize critical factors that can significantly impact cost and schedule.



Screen different types of new generation alternatives for resource planning.



Guide you through the entire process with environmental and regulatory services in-house.



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