

Financial and Economic Crisis – Service Providers

Repowering The Grid – Sustainable Legal, Regulatory And Risk Management Strategies

Edward Malley

TRC COMPANIES, INC.

The average fossil fuel-fired power plant is over 40 years old, and in 2005, power plants produced more than 2.5 billion tons of carbon dioxide. At a current market value of \$13 per ton, these baseline emissions are worth over \$30 billion in a cap and trade market. As the demand for clean, reliable power grows, energy companies are repowering their generating fleet to meet emerging needs for clean, economical power. Repowering presents an opportunity to grow the economy, to create jobs and to make our communities better places to live.

TRC's RE POWER® Program is a comprehensive approach to siting and licensing new generating capacity and decommissioning, demolition and remediation of obsolete power plants. Our goals include maximizing asset value and reducing air emissions.

Repowering requires more than just "flipping the switch." New facilities must be permitted, financed, built and operated. Old generating units must be skillfully decontaminated and dismantled within the context of the power grid and the larger community – by safely removing them from service.

Recent industry successes include:

- Con Edison wins "Greatest Improvement in Carbon Efficiency Achieved by a Large Enterprise for the Americas" for closing its NYC Waterside Station and repowering the East River Power Plant.

- Con Edison sells Waterside Station real estate for \$680,000,000.

- Public Service Electric & Gas proposes 1,600 MW of solar energy in New Jersey and a 350 MW offshore wind farm.

- American Electric Power signs power purchase agreements for 250MW of wind power and commits to install a high voltage transmission line from wind belt to load center.

- Exelon 2020 Plans to reduce, offset or displace 15,000,000 tons of carbon emissions.

- Duke Energy commits to 5,000 MW of wind power projects.

- NRG Energy, Inc. to develop up to 500 megawatts of solar thermal power.

Edward Malley is Vice President of TRC Companies, Inc., a national energy, environmental and infrastructure consulting firm. TRC's RE Power® Program provides comprehensive risk management solutions for dismantling, remediating, and optimizing asset valuation for power plant sites. The partnership between TRC and LVI Services brings together two of the finest decommissioning, asset recovery, and environmental firms in the nation. They leverage their combined expertise and know-how to make RE Power your one-stop resource.



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Permitting New Generating Capacity

New generating capacity (even green plants) are subject to permitting under federal, state and local laws. The National Environmental Policy Act and its state equivalents require environmental assessments or environmental impact statements. The Clean Air Act requires major sources to secure Title V permits for discharges of pollutants to air. The Clean Water Act requires NPDES permits for discharges of pollutants to water, and may raise wetlands and storm water issues. Public service commissions may require certificates of need prior to the closure or sale of old assets, or recovery of investment costs in the utility rate base.

Power Engineering

Reliability is a crucial goal for the power industry and taking plants off-line may require government approval in order to maintain stability of the transmission and distribution grid. Taking a plant off-line requires power engineering and construction to reinforce the grid and to assure system reliability.

Power Plant Decommissioning And Demolition

Decommissioning and demolishing a power generating facility is complex and heavily regulated. Pre-demolition tasks include hazardous material and structural surveys. Asbestos and lead must be abated in accordance with government requirements. Building materials must be classified for proper recycling or disposal. Existing utilities must be cut and capped outside of the property. Building permits must be secured for demolition.

Demolition contracts are typically fixed price agreements that transfer risk to the contractor for a fixed price payable by the owner. Power plant demolition is risky, and it is important to transfer the risk to the contractor. Payment and performance bonds are desirable to guarantee performance by the contractor, and ensure they are committed to complete work.

Green demolition goals include segregation of building materials and recycling or reuse.

Of course, hazardous and contaminated materials must be segregated and properly disposed.

Asset Optimization

Power plants contain valuable equipment, spare parts, thousands of tons of steel and non-ferrous metals and concrete or masonry. Power plants are often located on very valuable real estate located in cities on or near the waterfront. By optimizing asset values, power companies can offset the cost of demolition and remediation. In some cases during periods of rising commodity prices, the value of these assets may greatly exceed the cost of demolition and remediation.

Power plants are designed to last for many years and some components may last for forty years or longer. There is a resale market for major equipment, and sale of the entire power block (boilers, turbines and generators) for reconstruction on a different site is not unusual. More frequently, steel, non-ferrous metals and aggregate are separated and recycled. Power companies often expect contractors to quantify scrap and share in the salvage credit. Alternatively, contractors may take the risk on scrap value under fixed price contracts.

Real estate may be the biggest single asset for a power plant site. Urban power plant sites may be "super-blocks" of 10 acres or more. They are often located on the waterfront and are integrated into the infrastructure grid. Valuation is challenging because of the risk of environmental, zoning and site plan approvals. Public service commissions may require a competitive process, such as a real estate auction to determine the highest value for a parcel. Cities may desire properties for parks or municipal infrastructure. Developers may take valuation risk and write their own zoning and site plan. This is a complex and time consuming process, but it works. Power plant real estate has been sold for prices exceeding \$70,000,000 per acre in midtown Manhattan.

Environmental Remediation

Power companies have been repowering plants for over 150 years. It is not unusual for a power plant site history to include coal gasification prior to electric generation. Electric generating plants may have burned coal, petroleum and natural gas during their useful lives. Can wind and solar be far behind? Plants have had multiple owners and corporate successors. There may be ongoing obligations for environmental investigations and remedial studies.

Power companies and public service commissions typically prefer to "make before break," that is to construct and start up new generating capacity before shutting down and demolishing old plants. Remediation may be required to support new construction and to satisfy existing administrative agreements. Contingent liabilities may need to be resolved to obtain financing. Risks asso-

ciated with legacy environmental issues, such as ash landfills or gas holders, will need to be addressed and successfully mitigated before new investment is committed and the transaction can proceed.

Independent power producers may invest in or purchase existing businesses or facilities and decide to invest in new generating capacity. Performance contracting, such as fixed price remediation or environmental risk transfer, may be helpful where a real estate or corporate transaction is involved. There are few experienced contractors that are able to effectively quantify, assume and manage the challenges associated with the remediation of major urban infill power plant sites.

Community Relations

NOT IN MY BACKYARD is the standard response to a power plant siting and licensing proposal. For communities with old power plants, repowering presents economic and environmental opportunities. New plants are cleaner, quieter and more efficient, and a community may retain a great source of jobs with reduced community impacts.

Outreach is the key to good community relations. Stakeholders include elected officials within the jurisdiction, government agencies, local non-government organizations and residents. It is important to notify key stakeholders of the facts describing repowering projects, before large documents like environmental impact statements or air permit applications are published.

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Conclusion

Repowering the grid is evolutionary – coal to oil, oil to gas, gas to renewable biomass, solar and wind energy. At the same time, the regulatory risk and asset optimization opportunities facing repower projects is revolutionary. Economic impacts can be improved by green demolition – recycling equipment and commodities for value, and by selling land for its highest and best use. Environmental legacies can be remediated or transferred to third parties to facilitate transactions and financings. Reductions in carbon emissions can be sold into the upcoming cap-and-trade market for value. In the absence of a coordinated repowering plan that ties together all of these disciplines, plant owners and operators potentially face an inordinate amount of risk.

For questions about this article or the services provided by TRC contact the author at emalley@trcsolutions.com.