

Sustainability at Detroit Edison: Using Natural Gas as a Transition Fuel

Bill Cole, engineering manager for Detroit Edison's Trenton, Michigan, power plant, sat in his office looking at the process schematics tacked to the walls. It was early morning, so the midwinter sun wouldn't rise for another few hours, and the office building adjacent to the power plant was still quiet. Bill liked to come in early. It was a time to get work done and catch up on things outside of the day-to-day operations of the plant.

But today he was lost in his thoughts. The day before, he had been at headquarters all day for his corporate quarterly update on the utility sector's business climate. It was not good; the local economy was in decline, the U.S. Environmental Protection Agency (EPA) was tightening emissions restrictions, and fuel prices were expected to rise. But through his thirty years in the electrical utility business, he had seen all of this before. None of this was new, none of this was insurmountable, and the company's plants would find a way to continue serving customers.

One of the sessions that day had included something that was new to him – a price on carbon emissions. The market intelligence and investment planning groups had put together some preliminary numbers on which generating units would be viable and which ones wouldn't under a potential pricing scenario. The results were startling. Nearly half of the coal units in the fleet would be retired under this scenario, including one of his. Detroit Edison was heavily coal-based, with 80% of its generation source being coal; so this kind of retirement plan would be nearly catastrophic. It would be cheaper for the company to just go to the wholesale electricity market and purchase electricity rather than produce it from its existing fleet of plants. This would send local rates through the roof, further crippling the economy of an area already badly suffering from industrial decline.

The discussion with the utility's sustainable strategy team highlighted a few things that the company was looking at. Detroit Edison's parent company, DTE Energy, was studying the possibility of another nuclear plant (it already had one); but the time and capital required meant that it wouldn't come online until at least 2025. Detroit Edison needed some kind of plan to carry it from the present to at least that time. The strategies could be divided into two groups – displacement and transition. Displacement strategies involved shutting down plants and replacing them with either new plants or purchased electricity. Transition strategies involved retrofitting existing coal plants, either to reduce emissions or to utilize a cleaner fuel type. Given its dependence on coal, Detroit Edison was overexposed to the risk of rising carbon prices. All options were on the table.



Published by GloboLens, a division of the William Davidson Institute at the University of Michigan.

© 2010 Professor Owen Q. Wu and Nathan D. Bennett. Professor Owen Q. Wu of the Ross School of Business at the University of Michigan, and Nathan D. Bennett, Master's candidate in Energy Systems Engineering at the University of Michigan, prepared this case as a basis for class discussion. The case is not intended to serve as endorsement or illustrations of effective or ineffective management.