District Energy System – Turnaround Strategy

Situation

The largest district heating and cooling system in North America was experiencing declining financial performance with increasing losses and an uncertain future. The system's owner operator was considering shutting down the system and was interested in identifying a more favorable direction for the system.

Solution

Mr. Bradshaw led a project team that performed a detailed investigation and assessment of the district energy systems' energy and financial circumstance. All sources of revenues and costs were investigated, including looking in detail at the performance and efficiency of individual energy systems, and conducted a detailed review of natural gas and electricity purchase agreements, and cooling energy and thermal energy sales agreements with customers.

The assessment included a detailed review of the historical and future energy and financial flows of the system, looking at customer counts, cooling energy sales and thermal energy sales. Evaluated strategic options to expand financial performance including fuel sourcing strategies, generation system modifications, renegotiation of electricity sales contracts, and system expansion.

Result

Based on the detailed assessment, several findings were developed:

- Reverse Network Effect - With fixed costs being allocated to increasingly smaller number of customers, would result in a death spiral for the system.
- Upside-Down Commodity Contract Pricing – The contractual prices throughout the energy sourcing and customer contracts were skewed, resulting in unfavorable financial flows.
- Inefficient Energy Conversion Systems – A legacy combined heat power system was inefficient, reducing system economic performance.

Changes were made to contract pricing, new buildings to add new loads were targeted, and the inefficient legacy CHP system was shut down, resulting in reversing the system's financial performance.

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