



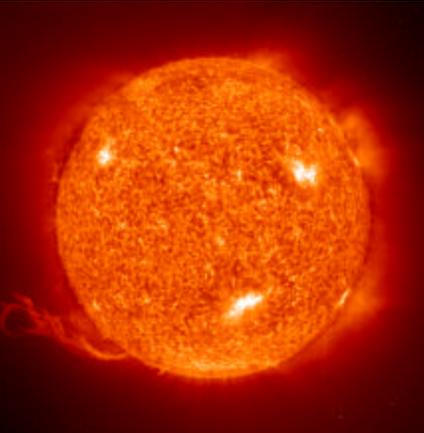
Washington Gas



Co-generation & Refrigeration Plant Modernization



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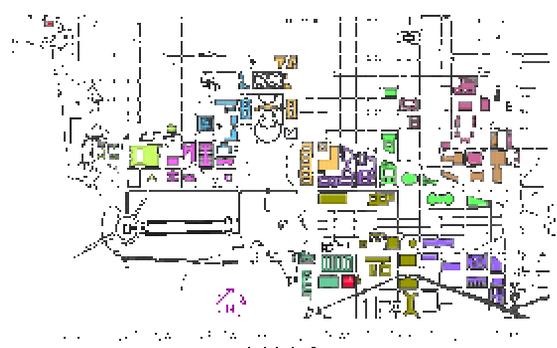




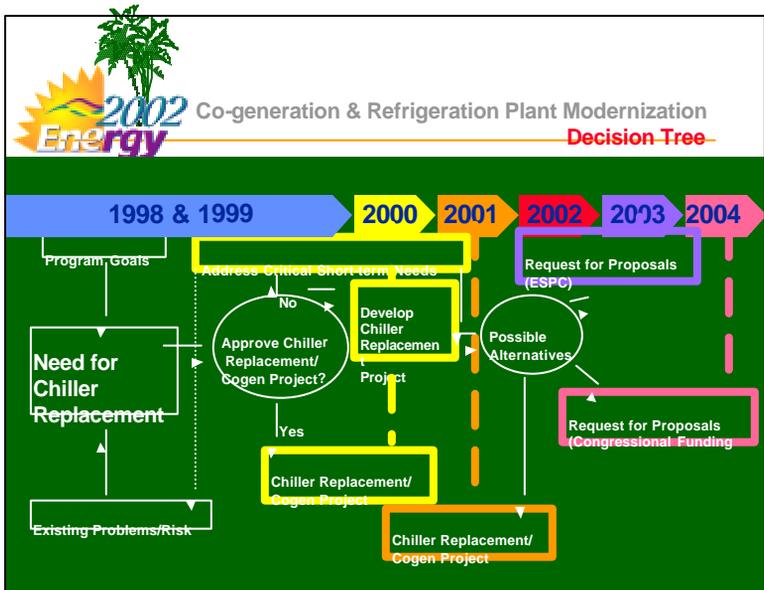


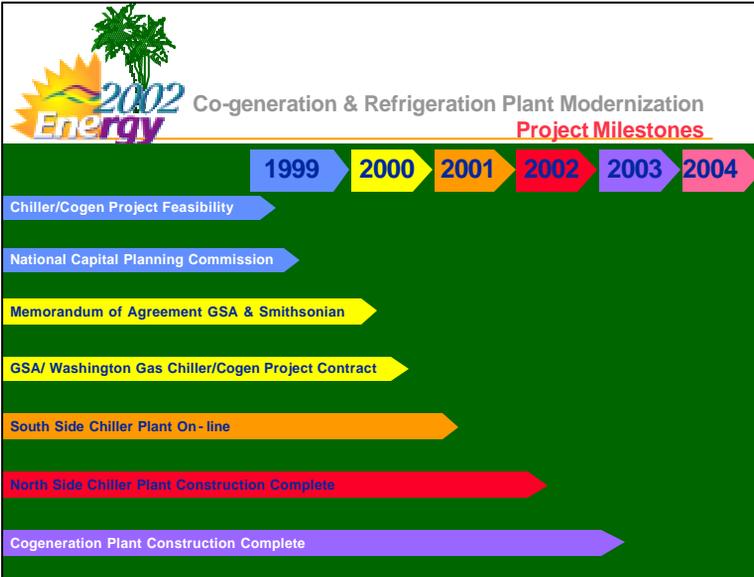
Energy 2002 Co-generation & Refrigeration Plant Modernization

GSA, Heating Operation & Transmission District - Energy since 1933




June 2 -5, 2002 www.energy2002.ee.doe.gov





An Energy Efficiency Workshop & Exposition
Palm Springs, California

***Chiller Plant and Co-Generation
Project for the General Services
Administration (GSA)***

Planting the Project Seed

Presented by
Robert E. Carlson
Chief Development Officer, Washington Gas



Objectives

- To present WGs' approach for marketing and managing large Federal energy projects
- To communicate the Lessons Learned from the GSA Chiller/Co-Generation Project



Washington
Gas

- Founded in 1848
- One of the oldest gas utilities in US, serving nearly 1,000,000 customers in Washington DC, Maryland, and Virginia
- Performing mechanical design-build projects since 1984



Doing Business with the Federal Government: Benefits

- Federal projects are typically larger, longer duration, more interesting, and high visibility
- The Federal Government is a good credit risk
- Federal Government work allows the development of relationships that may foster more opportunities in the future.



Doing Business with the Federal Government: Limitations

- Federal Government bureaucracy slows decision-making
- It is often difficult to identify and access the final decision-makers
- Federal Government is bound by strict acquisition requirements



Doing Business with the Federal Government: Limitations

- Upfront investment often required to effectively market the Federal Government with no guarantee of returns
- Politics can compete with merit
- Overcoming the culture of contractor-mistrust

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Genesis of Project

- December 97- Thermal Engineering provided GSA a Chilled Water Operational Survey
- January 98- WG meets with GSA to better understand central plant needs. GSA needed new cooling equipment and had no capital budget
- March 98- Thermal Engineering & WG developed a concept which allowed GSA to pay for the new cooling plant through generation of their own electricity

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Genesis of Project

- July 98-GSA contracted with WG to perform a concept design study
- GSA issued an RFI
- November 98 - June 99- series of engineering studies to refine design and establish project costs
- December 99- GSA proposed to sell cooling capacity to the Smithsonian Institution

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Genesis of Project

- December 99- WG performed an engineering study to incorporate the Smithsonian's cooling needs into the existing design plan
- GSA requested a method of performance guarantee for the project
- GSA and Smithsonian signed an agreement for GSA to provide chilled water services

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Genesis of Project

- GSA and WG negotiated contract language, and allowances, and identified first tier sub-contractors and large equipment vendors
- October 00-The contract was signed
- Conception to award: 35 months



Contract Parameters

- Allowances
 - Estimated costs for specific services
 - Unused allowances could be reallocated
- Financing
 - No payments until project completion
 - Construction interest included in project cost
- Managing “Guarantees”
 - Based on performance of major components
 - Performance and maintenance services annually for 10-years



Project Parameters

- Design-Build offered greater flexibility and more rapid completion of project
- Project demanded continuity of cooling services for existing customers
- Project broken into Phases to enhance manageability of schedule and resources

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What was Installed?

- 17,000 tons of cooling equipment including two steam-driven chillers
- New cooling towers & auxiliary equipment
- Re-engineered an existing boiler into a waste-heat boiler
- Automated plant control system
- New electrical switch gear
- Two 5MW gas turbines & gas compressors
- 1 mile of underground distribution piping serving 8 Smithsonian buildings

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Phases of Implementation

- South side Chiller Plant
- North side Chiller Plant
- Cooling Tower
- Cogeneration System
- Chilled Water Distribution System
- New Customer Connections
- Chiller Plant Control System

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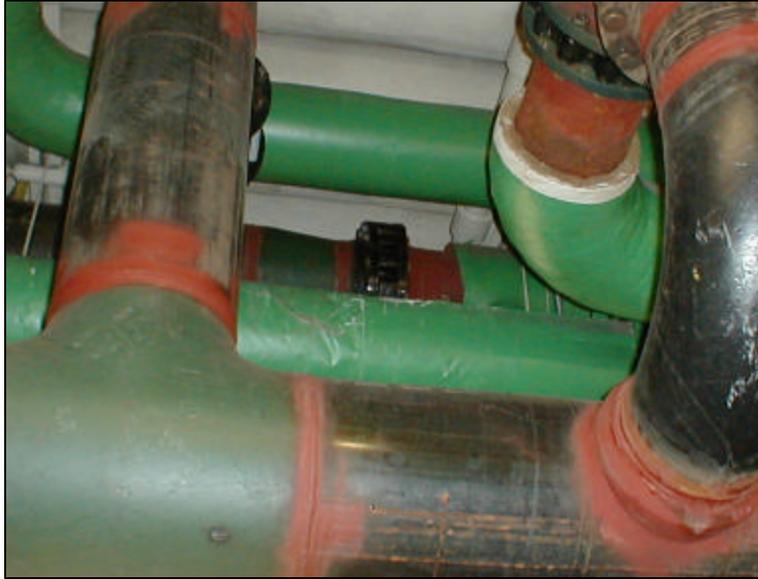












Benefits of the Project

- Full utilization of existing plant personnel
- Greater redundancy & operational flexibility
- Project pays for itself within 8 years through energy savings



Benefits of the Project

- Updated cooling equipment with a estimated 30 year life expectancy
- Migration to a cleaner burning fuel to generate electricity
- Full self-generating power capability
- Re-use of existing facility



Lessons Learned

- Develop an early understanding of who the stakeholders are and their unique requirements

- Understand who the real decision-makers are



Lessons Learned

- Perform independent cost estimates yourself, prior to submitting proposal to the government.
- Be prepared to back up your cost estimated with detailed technical and financial data.

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Lessons Learned

- Permits and Lead-times required – both on the Government and contractor side
- Do not underestimate the time or energy required to get this or the importance of doing so. Be knowledgeable, helpful, and proactive

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Lessons Learned

- Choose your business partners carefully
- Consider client's recommendations when selecting sub-contractors
- Verify references and financial health of every prospective business partner
- Expect to manage every partner closely



Lessons Learned

- Partnerships with clients to build long term relationships and trust was critical to the project success.



Lessons Learned

- Sustained involvement from Project conception to contract ratification is critical to ensure continuity and adherence to original vision



Thank You