Agenda

To identify the importance of a Utility Master Plan and the need to revisit it over time.

- Utility Master Plan
  - Evolution of a Plan
  - Execution of a Plan
  - (Re)Evaluation of a Plan

- GRU/South Energy Center – Case Study
Evolution of Plan

We must start somewhere.

1. Ask and Explore
2. Analysis/Evaluate
3. Develop a Plan
4. Execute
5. Evaluate
Utility Master Planning – Typical Results

Building Forecast (Campus Master Plan)
- Location
- Building Type
- Expected Completion Date

Load Development
- Existing Loads
- Future Loads

Utility Service Analysis
- Capacity Analysis
- Equipment
- Piping/Power
- Service Location
  - CUP
  - Local
  - Third Party

Financial Analysis
- Forecasted Annual Life Cycle Costs
- Capital Cost
- Sensitivity Analysis

Utility Master Plan – Road Map
- +10 year, +20 year, Implementation Guide

Graphs:
- Steam Loads
- Normal Power Load
Utility Master Planning

Immediate

Short Term (1-5 years)

Long Term +5 years

Revisit Utility Master Plan

Evaluate

Project 1
Gainesville Regional Utilities
South Energy Center
South Energy Center - Timeline

► 2006 - UF Health Shands Cancer Hospital Campus Master Plan Completed
  • Phase 1 – Cancer Hospital; 500,000 SF, Level 1 Trauma
  • 35 Year Plan – 3,000,000 SF, 1200 bed

► GRU/Shands Partnership
  • Partnership between hospital and municipal utility
  • Combined heat & power for efficient generation of utilities
  • Multiple levels of redundancy
  • Capable to fully island
  • Capable of providing all critical loads
  • Fully load diesel generators during testing
  • CHP yields 80% efficient operation
  • Hospital achieved LEED Gold certification thanks to Energy Center
  • Concentrate on core business
South Energy Center - Timeline

2008 – South Energy Center Phase 1 Complete

- South Energy Center
  - 4.6 MW recuperated CTG
  - 45,000 lb/hr Fired HRSG
  - 30,000 lb/hr back-up boiler
  - 4,200 Tons of chilled water
  - 500 kW black start diesel
  - 2,250 kW emergency diesel
- Future Expansion Plans
  - 4.6 MW CTG w/ HRSG
  - 2,250 kW emergency diesel
  - 1,500 ton chiller
South Energy Center - Timeline

► 2013 – Shands Expansion
  • Evaluation of existing assets
    ▪ Business Model Evaluation
    ▪ Capacity Evaluation
  • Change in Plans?
    ▪ Forecasted Loads vs. Real Loads
      – Thermal loads <30%
    ▪ Campus/Building implementation plan changed

► 2014 – GRU completes Expansion Feasibility Study
South Energy Center - Timeline

► Results of Feasibility Study
  • Installation of Reciprocating Engine
  • Addition of hot water generation capacity
  • Larger chillers (3,000 ton chillers)
  • Additional cooling tower capacity

► Economic Analysis
  • Prime Mover Options:
    ▪ CTG (~4.6 MW)
    ▪ REG (4-9 MW)
  • Chilled Water Options:
    ▪ Replace Existing Steam Chiller
    ▪ Add Electrical Chiller
    ▪ Add Steam Chiller
South Energy Center – Phase 2 Expansion

- 7.4 MW Power Generation
- 8,775 lb/hr 110 psig steam
- 8,500 MBH of 140°F-160°F Hot Water
South Energy Center – Phase 2 Expansion

Installation Complexities:
South Energy Center – Phase 2 Expansion

Installation Complexities:
South Energy Center – Phase 2 Expansion

► Installation Complexities:
South Energy Center – Phase 2 Expansion

Installation Complexities:
South Energy Center – Phase 2 Expansion
The Importance of Revisiting a Utility Master Plan

Summary:
Questions/Answers?