

Gainesville Regional Utilities: The Importance of Revisiting a Utility Master Plan

Chuck Heidt (GRU)
John Lee (BMcD)

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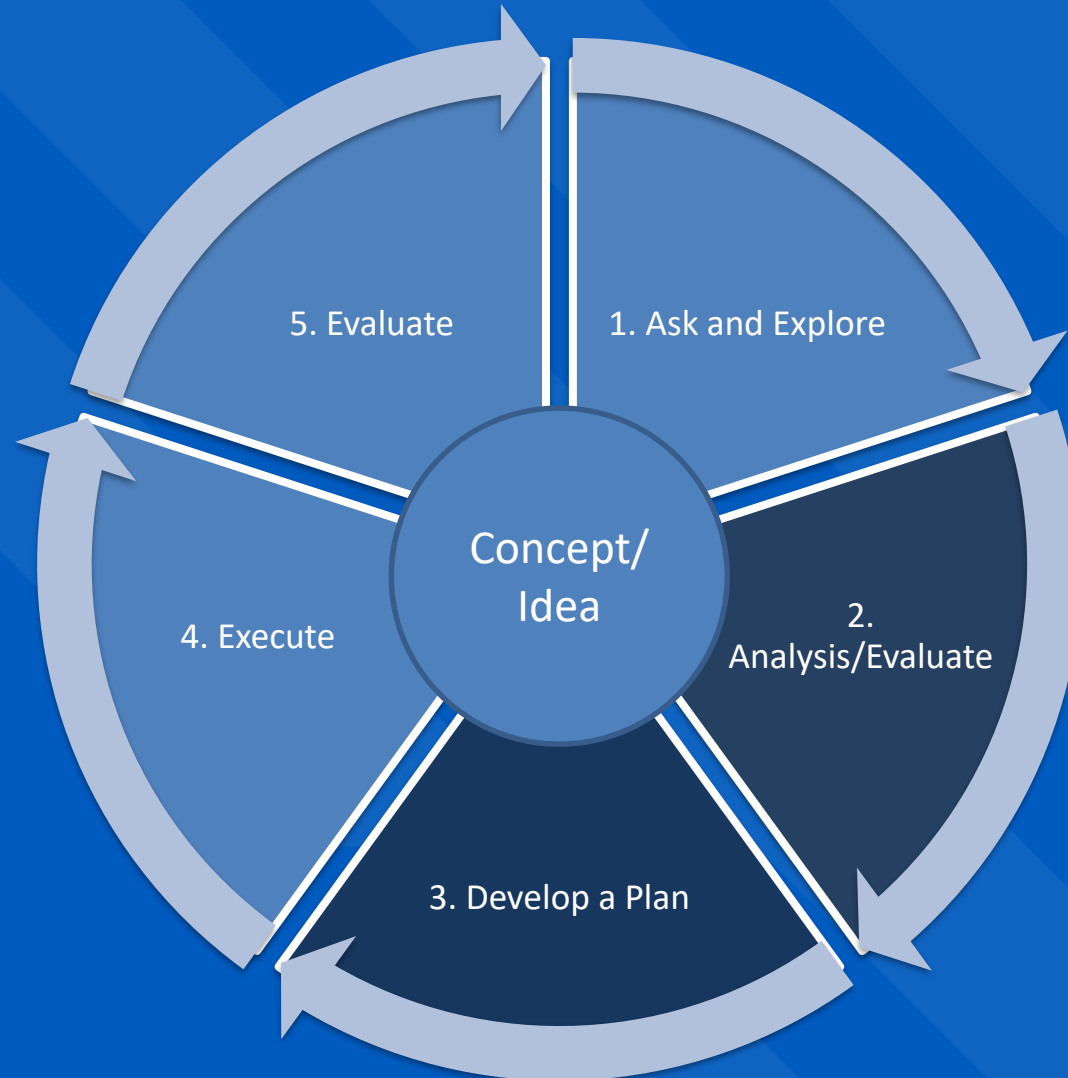
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Agenda

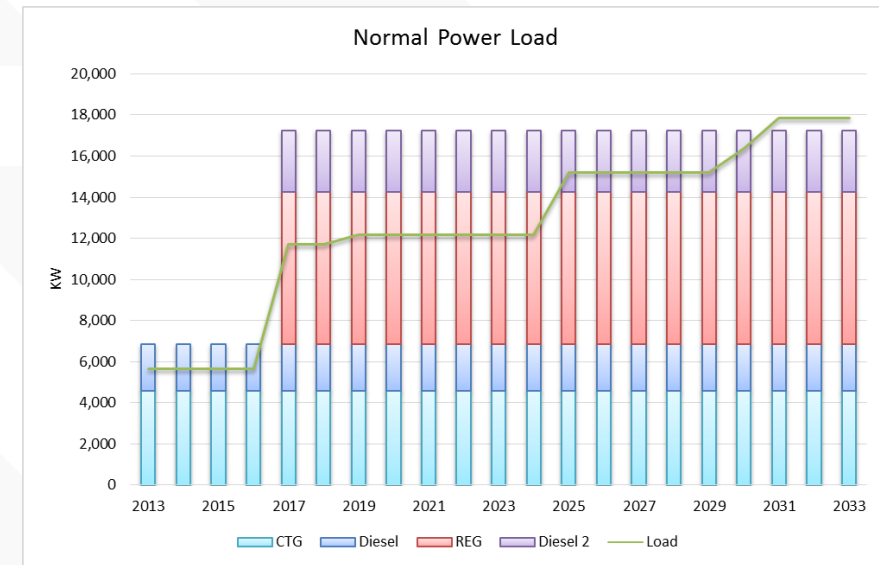
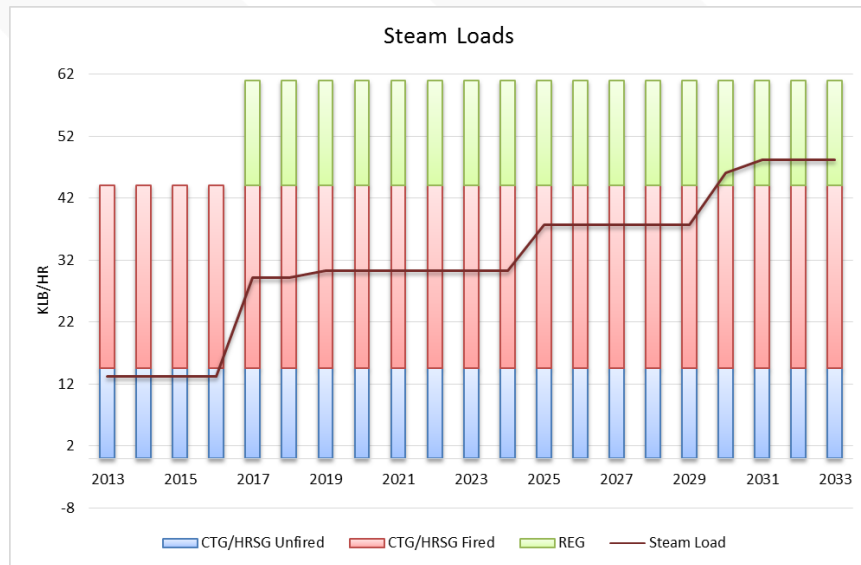
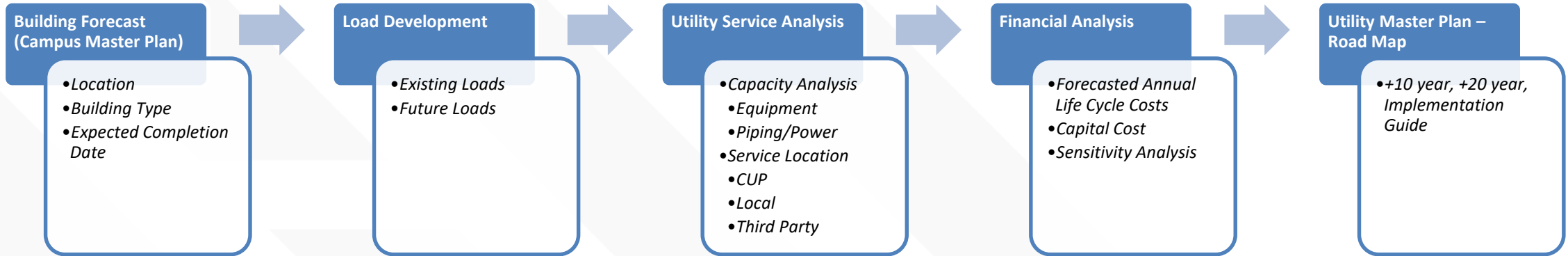
- ▶ To identify the importance of a Utility Master Plan and the need to revisit it over time.
 - Utility Master Plan
 - Evolution of a Plan
 - Execution of a Plan
 - (Re)Evaluation of a Plan
 - GRU/South Energy Center – Case Study

Evolution of Plan

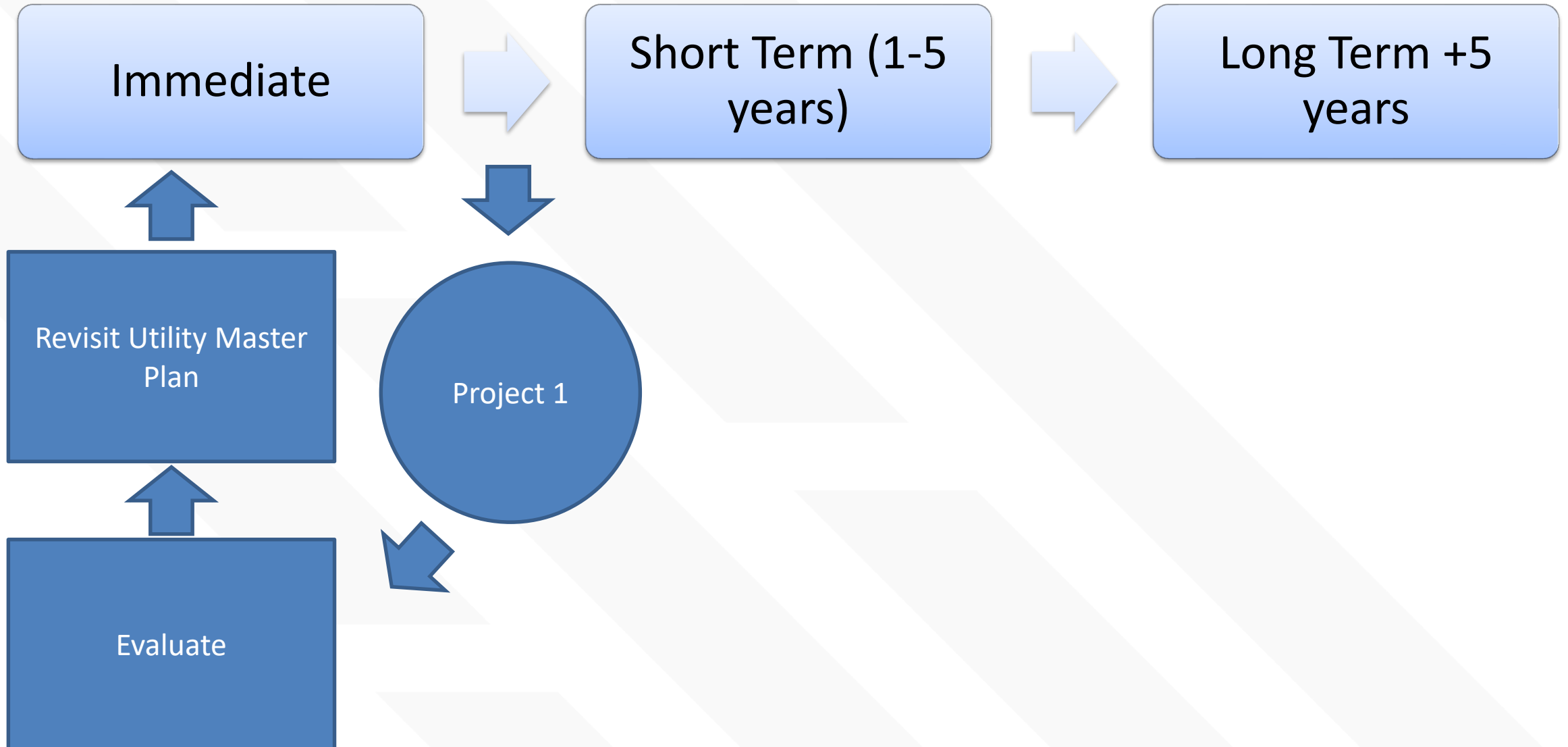
We must start somewhere.



Utility Master Planning – Typical Results



Utility Master Planning



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

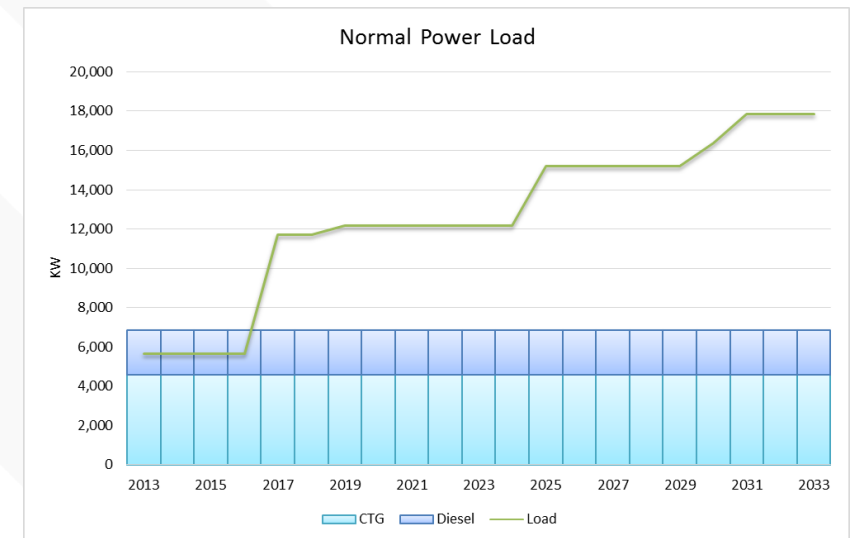
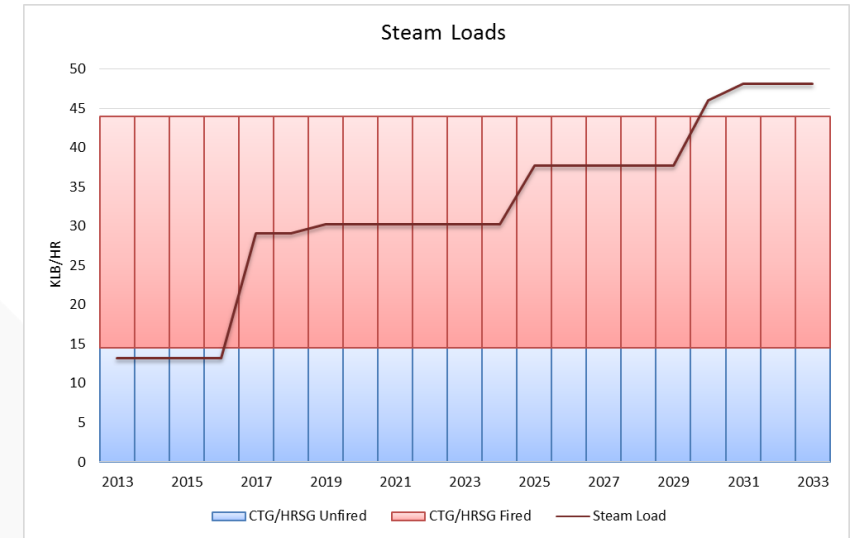
► 2008 – South Energy Center Phase 1 Complete

- 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



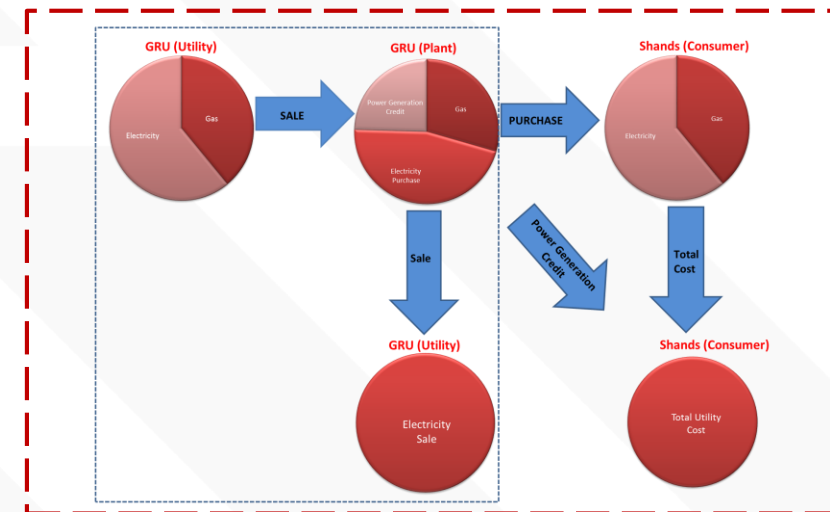
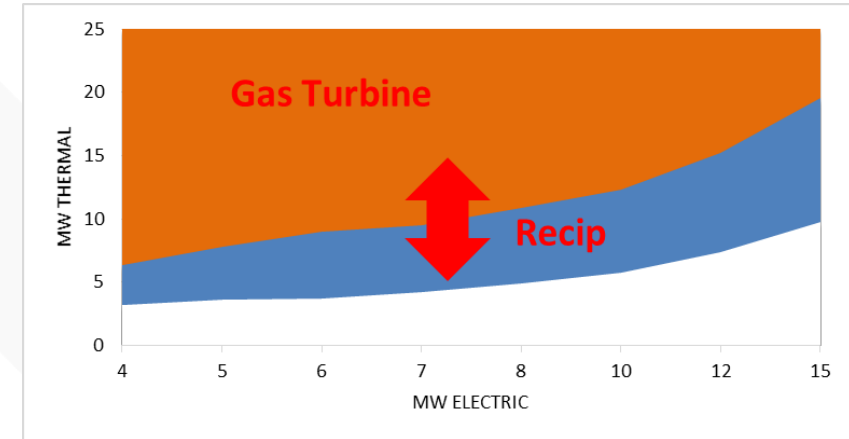
South Energy Center - Timeline

► 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



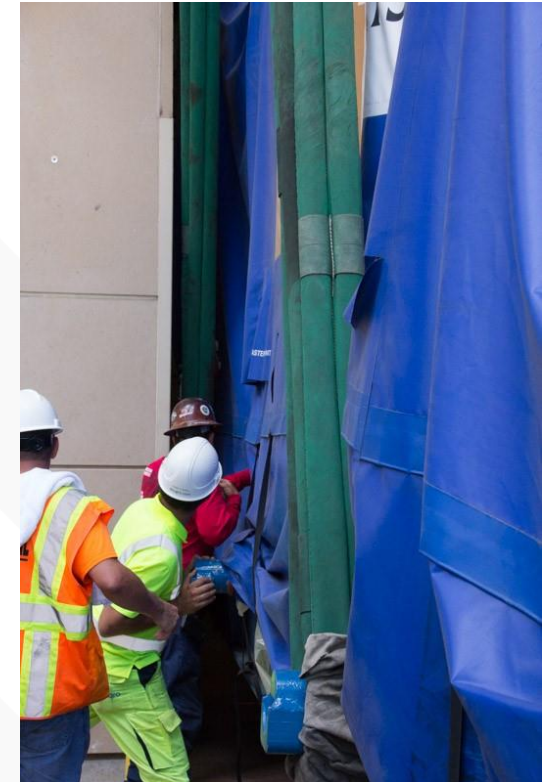
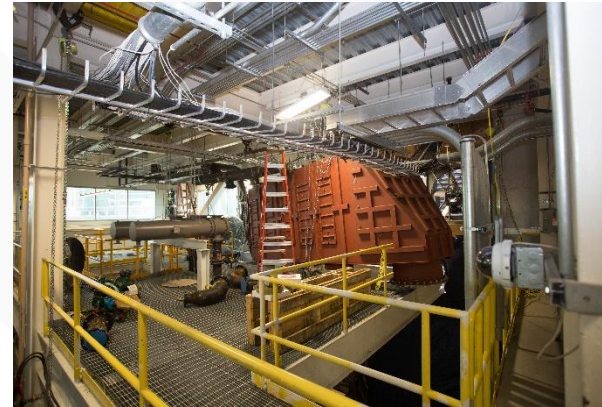
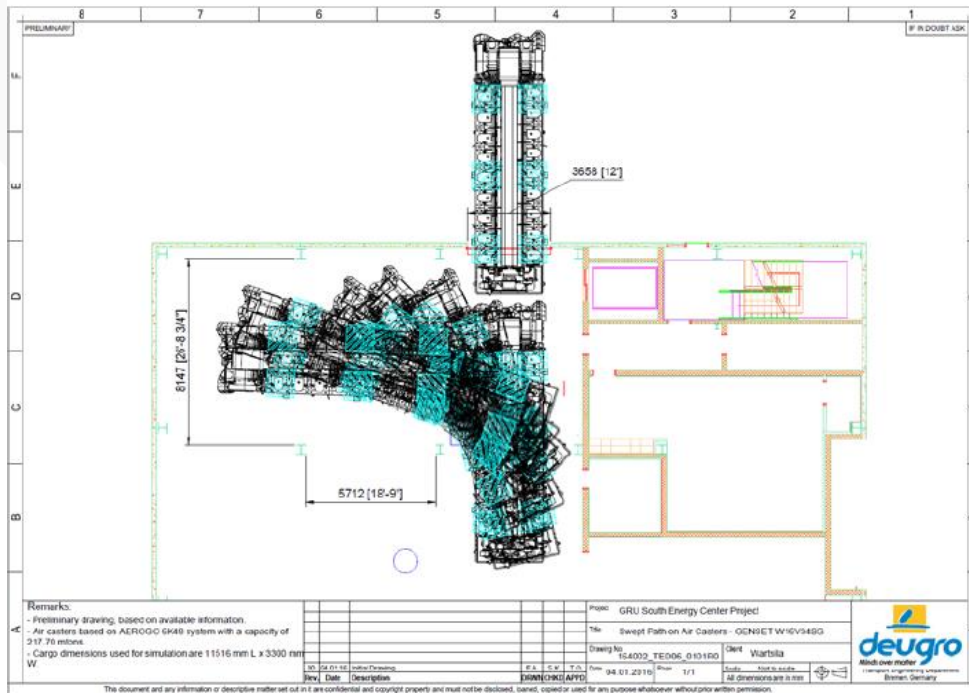
South Energy Center – Phase 2 Expansion

► Installation Complexities:



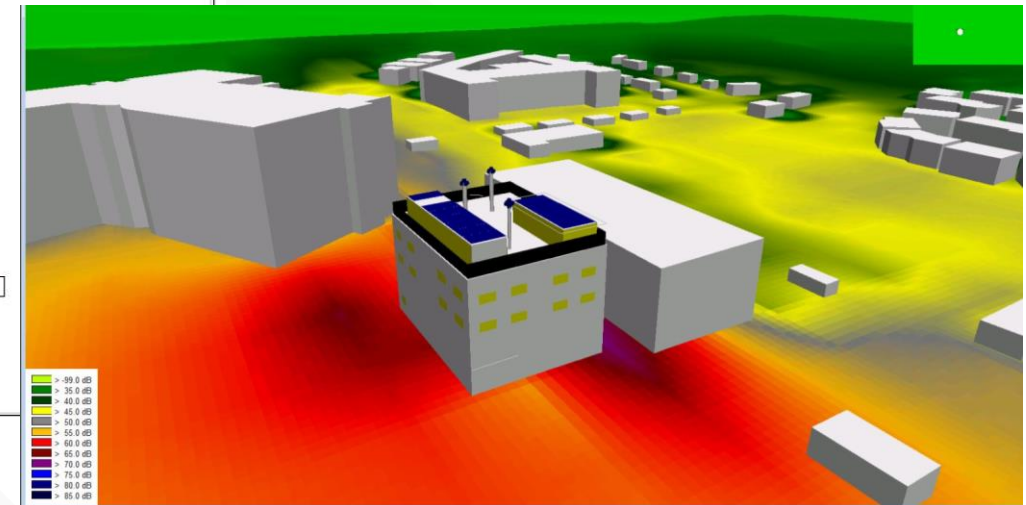
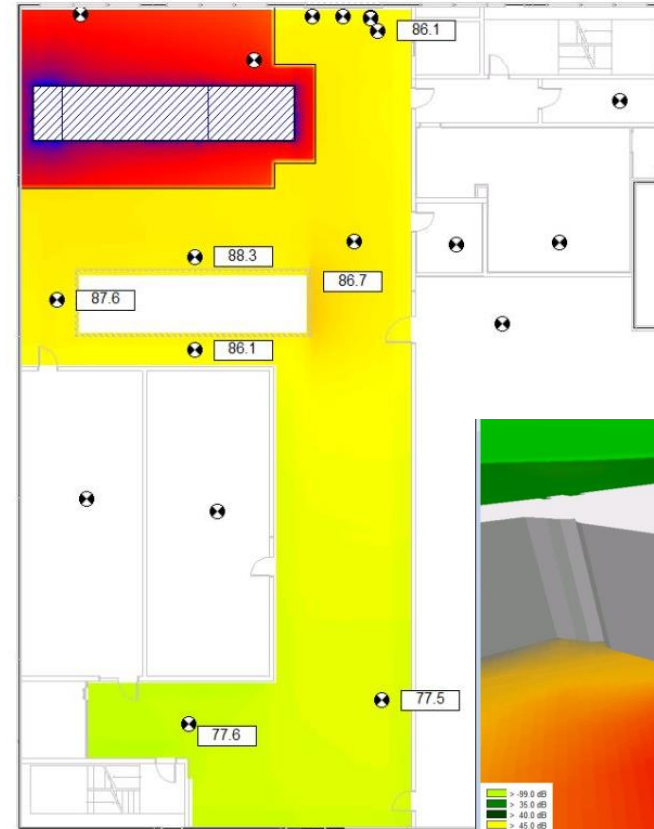
South Energy Center – Phase 2 Expansion

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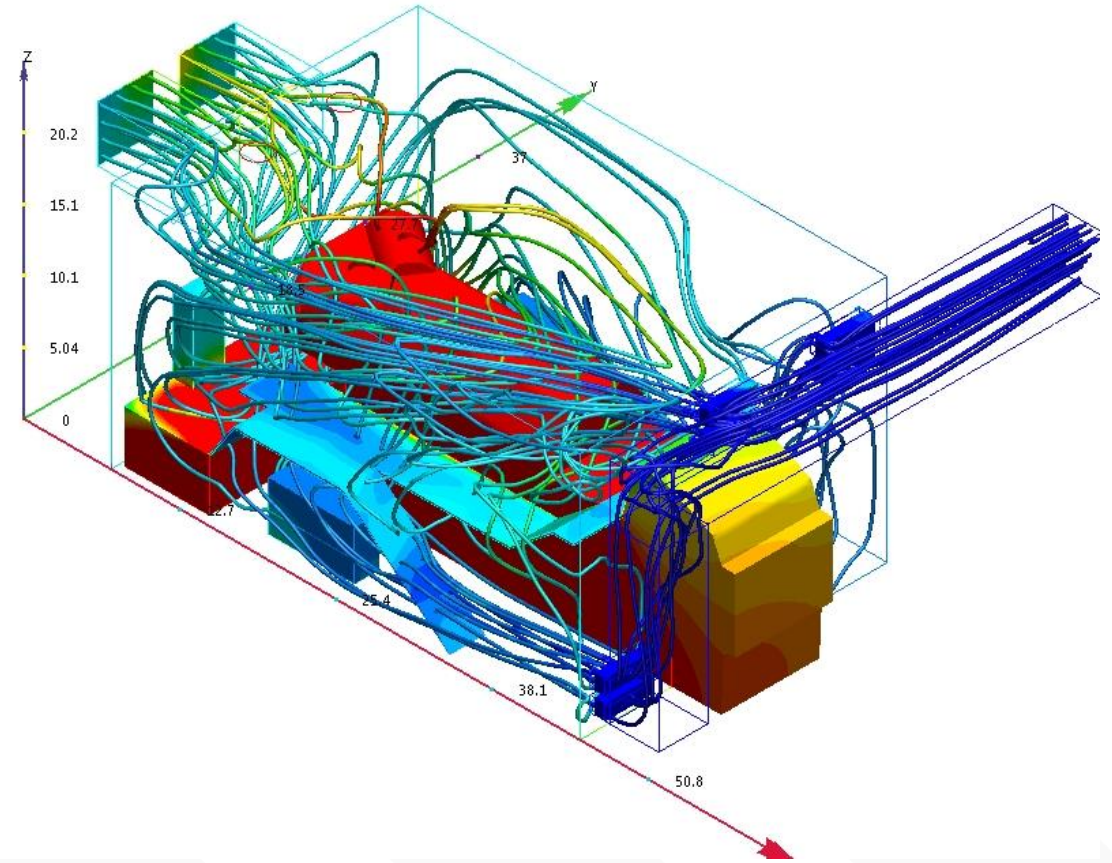
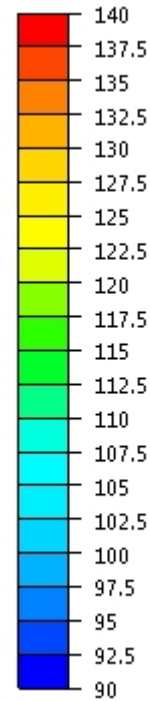
South Energy Center – Phase 2 Expansion

► Installation Complexities:

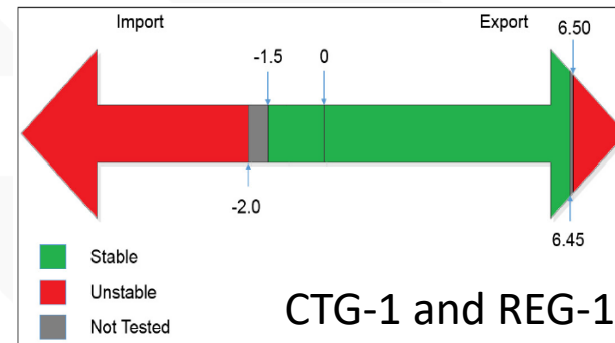
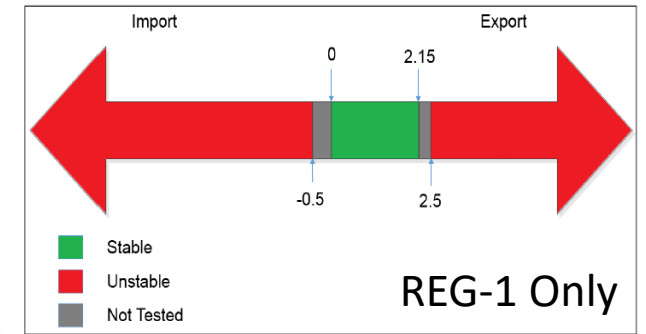
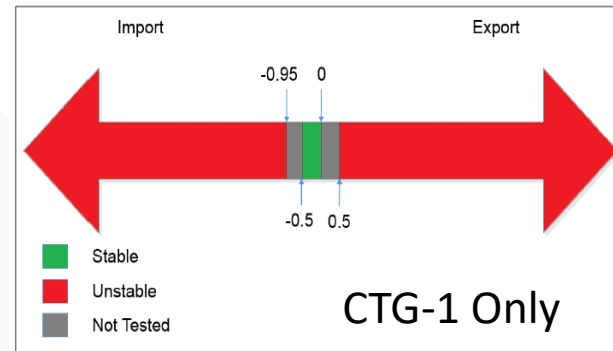
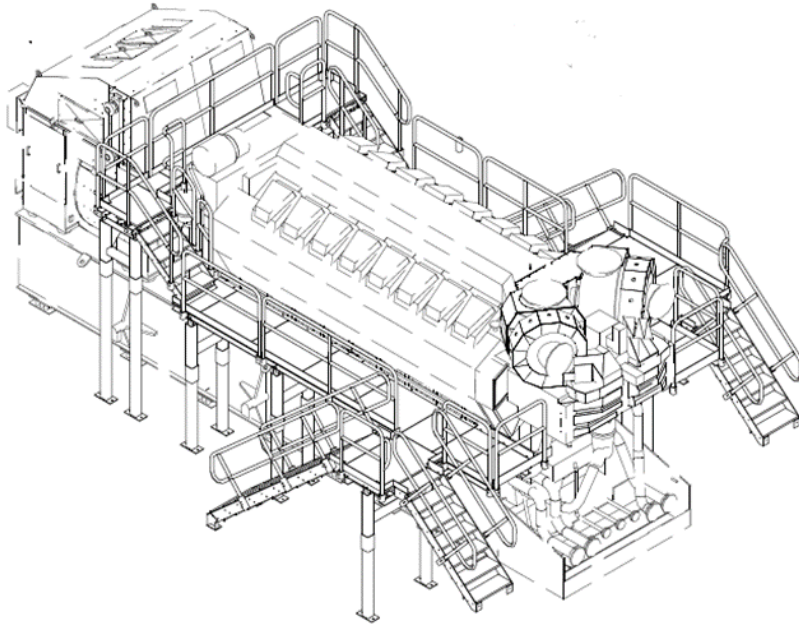


South Energy Center – Phase 2 Expansion

► Installation Complexities:



South Energy Center – Phase 2 Expansion



The Importance of Revisiting a Utility Master Plan

Summary:



Plan

Implement

Evaluate

Adjust
Plan

Questions/Answers?



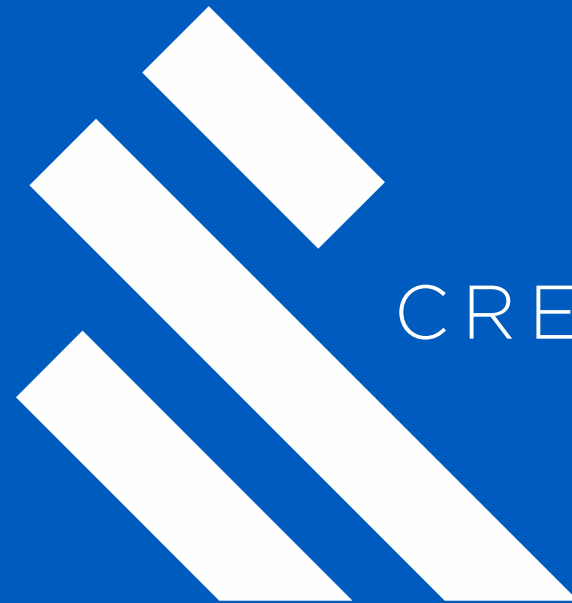
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John Lee, PE \ Burns & McDonnell
Associate | Project Manager
O 919-900-1865 \ **M** 919-609- 7786
jrlee@burnsmcd.com \ burnsmcd.com

Chuck Heidt, PE \ Gainesville Regional Utilities
Project Manager
O 352-393-1735 \ **M** 352-213- 1735
heidtcs@gru.com



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