Developing an Optimal Solution at the University of Florida

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The University of Florida
Where They Are Today

Aging Infrastructure  |  Duke Energy Agreement Termination  |  Path Forward
The Campus
The Road to Rehabilitation

1 Utility Master Planning
Project Objectives

- Prepare for new campus energy source
- Renew campus infrastructure
- Optimize life cycle cost performance
- Boost resiliency of systems
- Improve energy efficiency
- Reduce carbon emissions
# Electrical Interconnect Study

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<tr>
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<th>Archer Road</th>
<th>Gale Lemerand Commuter Lot</th>
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<tr>
<td>Capital Cost</td>
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<td>Life Cycle Cost</td>
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<td>Campus Impact</td>
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<td>Environmental Impact</td>
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Electrical Interconnect Study: Archer Road

23 kV Service

- Higher life cycle cost
- Rate structure doesn’t provide attractive payback for 23 kV

69 kV Service

+ Lowest life cycle cost with/without cogen, using current or predicted future rates
+ Cost of service advantages with 69 kV rate structure
Thermal Plant Evaluation
Recommendations – Chilled Water Production

- Consolidate plants
- Improve efficiency
- Lower life cycle cost
CHP Evaluation

Gainesville Substation kW Demand vs Generated (Future Loads)
CHP Evaluation

Total Steam Demand vs Generated (Current Loads)
Thermal Distribution
Thermal Distribution
Thermal Distribution
Thermal Distribution
The Road to Rehabilitation

2 Establishing a New Vision
Establishing A New Vision

Bond vs Third Party Finance
Establishing A New Vision

Leadership team with a vision to bring UF into the future
The Road to Rehabilitation

An Ongoing Process
An Ongoing Process
Mowry Substation

Three University owned transformers (transmission credit)

Fed from a new Duke Energy 69kV ring bus

Cables route underground to three switchgear by the new central plant for campus distribution
Thermal Distribution Improvements
Central Energy Plant

36MW combined cycle power plant

25,000 tons CHW with N+1

31,425 SF office space
The Road to Rehabilitation

4 UF’s Energy Future
UF’s Energy Future

Sustainability  Resiliency  Reliability
UF’s Energy Future

Combined cycle plant **optimized** to campus loads

**Heat recovery** to provide campus steam

$8M+ annual utility savings

83,000 tons CO$_2$ avoided annually

25% total campus GHG reduction
UF’s Energy Future

$250M in capital improvements to be completed in 2026

Sustainability | Resiliency | Reliability
Questions?

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