Advanced Nuclear R&D

Winter NIC Meeting –
February 8, 2016
Southern Company

- Approximately 44,000 MW of generating capacity
- Nearly 200,000 miles of power lines
- More than 80,000 miles of natural gas pipelines
- 190 Bcf of natural gas storage capacity
- Operations in 18 states
  - 11 electric & natural gas utilities
  - 32,500 total employees
  - 9 million utility customers
  - More than 1 million retail customers
Multiple, economically competitive, advanced reactor options demonstrated by 2035

Strategy

• Enable the creation of public/private partnerships to appropriately manage the risk of technology development

• Pursue designs with the potential to reduce cost by 50% from current estimates

• Enhance product diversity through sales of process heat and high value by-products

• Modernized regulatory framework to support advanced reactors
Nuclear Reactor Design

Fast Breeder Liquid Fuel Uranium vs Thermal Burner Solid Fuel Thorium

Coolant Choice
Salt, Water, Gas, Metal
DOE ARC Program

SCS Selected for $40M DOE Award
- Molten Chloride Fast Reactor (MCFR)
Project will answer key technical questions related to the development of MCFR
  Demonstrate the relevant phenomena and operations (electrically heated ~2MW)
  Prepare license application ~30MW Test Reactor
MCFR meets Southern’s goals of Clean, Safe, Reliable, and Affordable energy for the foreseeable future
# Molten Salt Reactor TWG

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<td>Fast</td>
<td>Thermal Burner</td>
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<td>Salt Cooled Uranium</td>
<td>Thermal Burner</td>
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**Sponsors:**

- Southern Company
- EPRI
- Exelon
- NEI
"Individual commitment to a group effort--that is what makes a team work, a company work, a society work, a civilization work."

--Vince Lombardi