Biomass Cogeneration Facility
Savannah River Site
Aiken, SC

August 2015
Future City Project
Savannah River Site
Project Overview

• Project Background & Drivers
• Project Scope
• Project Benefits
• Program Status
• Construction & Start of Operation
• Summary of Operation
The existing D-Area Powerhouse was built in 1953 and provides steam to nuclear and industrial activities in F-, H-, and S-Areas. It is a co-generation facility and provides approximately one half (20 MW) of the Site’s electrical demand.
Project Benefits

• Greenhouse Gas (GHG) emissions reduced by 100,000 tons a year significantly decreasing the carbon footprint of the SR Site

• Overall annual air emissions rates will decrease
  – Particulate Matter > 400 tons a year,
  – NOx > 2,500 tons a year
  – SOx > 3,500 tons a year

• The amount of river water currently drawn from the Savannah River will decrease by over 2.8B gal per year

• Sustainable design methods are being used and energy efficient technologies incorporated
September 14, 2009 to January 2012
Integrated Project Team

- IPT formed in September 2009
- Included CO, FPM, representatives of FRs, Permits, SRNS, technical representatives as required
- Held meetings every week for the two-year construction period
- Provided input to the IMRT which has met every quarter
Truck Off Loading Pad

- First footer poured in June 2010
- Three off-loading pads
- Dump time is 6-10 minutes
- The hopper holds two loads (80T wood chips)
- 50 trucks per day is about 1 truck load every 15 minutes
Stacker Reclaimer

- First footer poured in May 2010
- Receives chips from the transfer tower
- Holds about 800 truck of wood chips (32K Tons)
- About a 30 day supply at 1KT per day
Steam Line Interconnection

• Major Effort & Coordination with Ameresco, DOE, & SRNS
• Coordinate interconnection during planned site steam outage
• Successfully completed April 12, 2011
13.8 kV Line Tie In

- Worked with SCEG, MOX, DOE SR
- 18 months of effort
- Ameresco to provide 30% of the SRS power and 100% steam from renewable fuel by February 2012
Burma Road Construction (from 3K Feet)
Steps of Commissioning & Startup

- Steps of Commissioning & Startup
- Ameresco System Commissioning of 30 systems
- Ameresco Equipment Performance Testing
- DOE–SR Team Readiness Assessment
Summary of First 3 Years of Operation

• After the first three years of operation
  – the main facility has provided 5.2 billion pounds of steam
  – 1.3 billion pounds of steam exported to SRS
  – 299,400 megawatts of green energy generated to the site electrical grid ($23.9M)

• This program is a great example of private industry and the federal government forming a partnership and working together for success
The Challenge for the “Future City Project”

• To design and construct a biomass cogeneration facility to meet the requirements for providing 100% of the heating requirements and 40% of the electrical requirements using “green energy.” (review other options for providing the energy - natural gas for example)

• Develop and implement a safety program; Establish your IPT

• To work with banking institutions to obtain a construction loan for the plant (this is not a federally funded project)
The Challenge for the “Future City Project”

- Establish a contract with the local utility to allow you to “interconnect” with their 115Kv line to provide power to the city.
- Establish contracts with the wood industry to supply “off spec” wood.
- Negotiate an air permit with the SC Department of Health and Environmental Control (DHEC) to burn a % of other fuel (like tire derived fuel).
- Look at other additions to electrical security like a 25 MW solar array.
Thank you for your time!

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