Savannah River Site (SRS) Solar Power Update

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September 23, 2019
ACRONYMS

AC – Alternating Current
AEC – Aiken Electric Co-op
DC - Direct Current
ESPC – Energy Savings Performance Contract
FEMP – Federal Energy Management Program
kW – Kilo Watts
MTU – Michigan Technological University
MW - Mega Watts (1000 kW)
NREL – National Renewable Energy Laboratory
PPA – Purchase Power Agreement
SRNL - Savannah River National Laboratory
RFI – Request for Information
W - Watts
PURPOSE

- Update CAB on Recommendation 360 – Solar Generation Power Use at SRS
CAB Recommends:

1) Investigate / consider the feasibility of using solar panels on roof tops, or common grounds of buildings(s) to supply renewable energy

2) Perform a study to determine current and projected costs vs benefits of solar generated power across the range of facilities within SRS. The study should project a minimum of five years out.
Solar Power Facts

- Classified as Renewable Energy
- Can provide heat and/or electric current
- Produces energy when sunlight reaches the media/panel
- Electric current produced is DC
Solar Power History at SRS

- Used to generate light/power for small sources in remote areas
- SRNL Research Center
- SRNL research programs in solar since 2009
- To date larger systems have not been economical, but economics have changed drastically in the last 5 years
Projects Under Development in Aiken County

- 250kW Community Solar for AEC
- 1 MW by MTU
- 23.1 MW in Beech Island by ESA Renewables
  - Enough power for ~2500 homes
- 25 MW in Jackson by Southern Current
- 74 MW off Edgefield highway by Adger Solar
  - Enough power for ~8200 homes

MTU Solar Field at Exit #11 HWY I-20
Solar Installation Cost Analysis

- Utility scale solar installation cost per kWh
- SRS total cost per kWh

Graph shows a downward trend in cost from 2009 to 2019.
SRS Solar Power Generation Approach

- Viable approach favorable to pursue a utility scale solar field
- Energy Cost Savings Factors
  - No increase on Site utility consumption cost
- Battery Storage should be included, as well as energy efficiency measures
- Utility Scale Alternatives
  - Third party Energy Savings Performance Contract
  - or utility provided facility
• Initiated SRS Solar Power Working Group
• Consulted with FEMP/NREL
• Discussed with DOE Sustainability Program Office
• Issued RFI on Energy Savings Integrating Solar Energy
• Entered into discussion with Dominion Energy of South Carolina
• Site Visit at Department of Defense Facility constructing solar field with battery storage
• Determined potential site locations
• Evaluated energy storage concepts
SRS Solar Utility Requirements

- Sized to support current site energy demands and can demonstrate future costs savings
- Integrated into SRS electrical grid
- Ability to support Site’s peak demand
- Located within site boundary
- Meet all required environmental siting and permit requirements
Path Forward

• Complete Site Selection Process
• Develop Contractual Vehicle
  – RFP if site pursues ESPC
  – Dominion Energy PPA
  – Other
• Weigh Benefits and Costs
  – Other Considerations
• Decision
Questions ???