U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Summer Units 2 and 3 COL Application Review
Environmental Impact Statement Panel 1

OVERVIEW OF THE ENVIRONMENTAL IMPACT STATEMENT

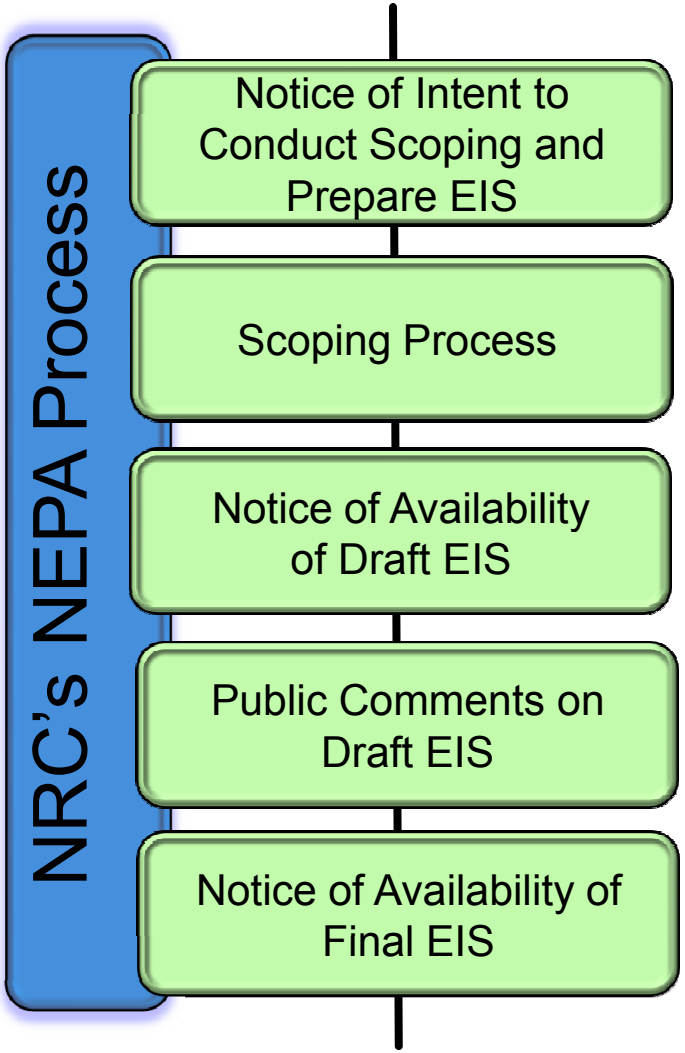
Regulations and Guidance

- National Environmental Policy Act (NEPA)
- NRC framework for implementing NEPA includes:
  - 10 CFR Part 51
  - Environmental Standard Review Plan (NUREG-1555)
  - Supplemental ESRP Guidance

Environmental Review Process

- Staff follows a systematic approach to evaluate impacts
  - Solicit and reconcile scoping comments
  - Conduct technical review
  - Issue draft EIS for comment
  - Consider and disposition comments in preparing final EIS
- Stakeholder involvement is a key aspect of the process

Summer Review Schedule



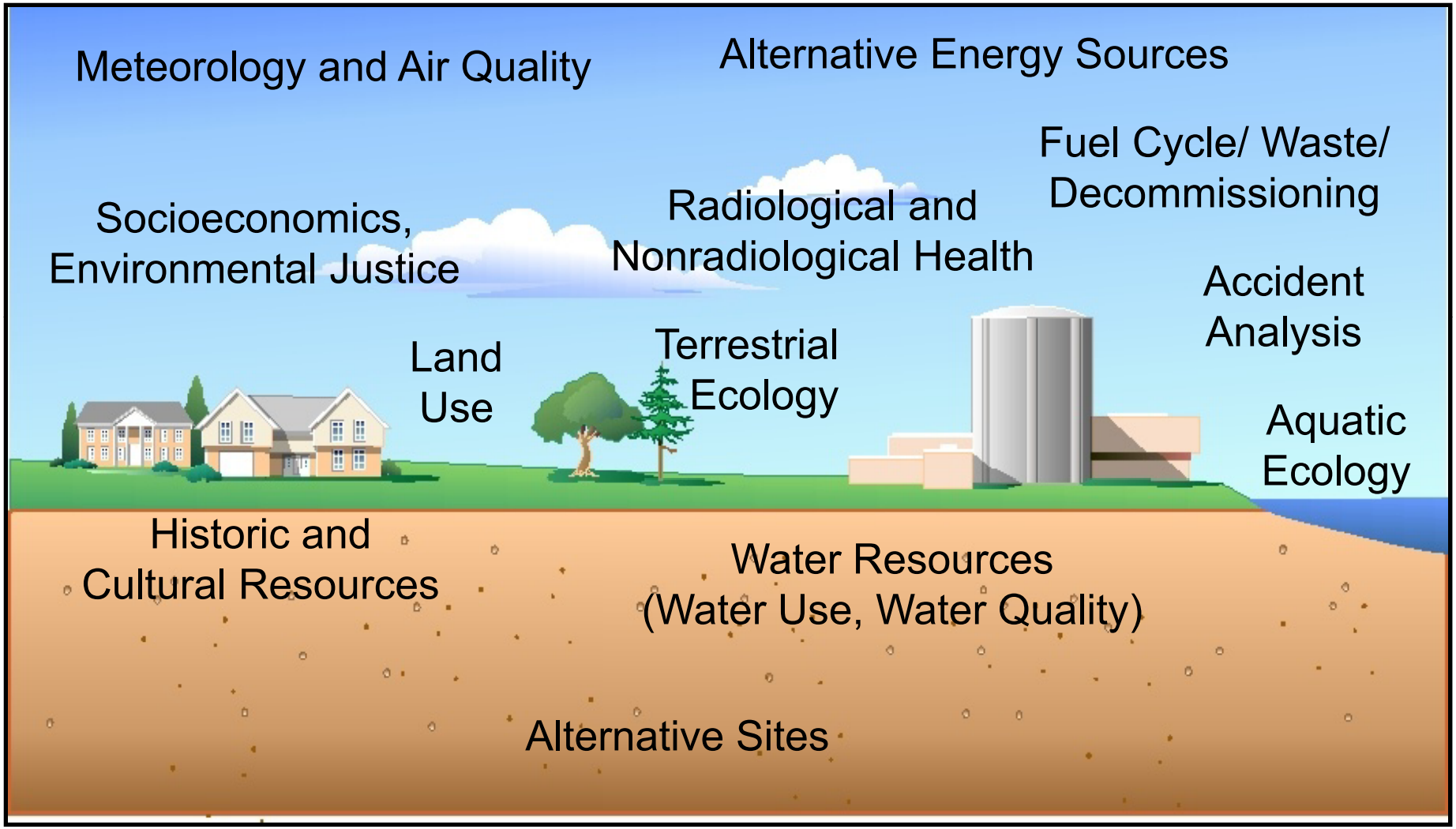
- Published *Federal Register* notice in January 2009.
- Scoping period from Jan 2009 to Apr 2009; scoping meetings held in Jan 2009 (Winnsboro and Blair).
- Published *Federal Register* notice on April 26, 2010.
- Comment period on Draft EIS was April 26 to July 09, 2010.
- Published *Federal Register* notice on April 22, 2011.

How Impacts are Quantified

Table B-1 of 10 C.F.R. 51, Subpart A, Appendix B defines three impact levels for evaluating environmental effects

SMALL:	Effect is not detectable, or so minor it will neither destabilize nor noticeably alter any important attribute of the resource.
MODERATE:	Effect is sufficient to alter noticeably, but not destabilize, important attributes of the resource.
LARGE:	Effect is clearly noticeable and sufficient to destabilize important attributes of the resource.

Resource Areas



Source U.S. NRC

Impacts from Construction and Operation were SMALL for Most Resource Areas

SMALL: Effect is not detectable, or so minor it will neither destabilize nor noticeably alter any important attribute of the resource

- Water Use and Water Quality
- Aquatic Ecology
- Meteorology and Air Quality
- Radiological Health
- Nonradiological Health
- Postulated Accidents
- Fuel Cycle, Transportation, and Decommissioning

Land Use Impacts

- Review addresses the impacts of land clearing and changes in land use on the Summer site and offsite areas such as where new transmission lines would be built.
  - Spatial analysis of proposed facilities on existing land uses and land cover types
  - Six new 230 kV transmission lines proposed, mostly within existing rights of way
- Impacts of construction on land use would be SMALL on the Summer site and MODERATE where new transmission lines would be built; impacts of operations would be SMALL.

Terrestrial Ecology Impacts

- Impacts on terrestrial and wetland species and habitats include
  - Displacement, disturbance, habitat loss, avian collisions
  - Effects of noise, dust, cooling tower drift
- Impacts of construction on terrestrial resources would be SMALL on the Summer site and MODERATE along transmission line corridors. Impacts during operation would be SMALL.
- Endangered Species Act Consultation with U.S. Fish and Wildlife Service
  - Twelve listed species; critical habitat for one species
  - USFWS concurred with “may affect, not likely to adversely affect” determination

Socioeconomics and Environmental Justice

- Socioeconomic review includes impacts on tax revenue, housing, education, transportation and community services.
  - Review data on local economy, taxes, infrastructure, education
  - Meet with government and community stakeholders
- Beneficial impacts would be SMALL during construction and SMALL to LARGE during operations.
- Adverse impacts range from SMALL to MODERATE for construction and SMALL for operations.

Cultural and Historic Resource Impacts

- Potential impacts on cultural or historic resources include visual impacts and damage through inadvertent discovery.
- Impacts from construction would be MODERATE because of visual impacts. Impacts from operation would be SMALL.
- Formal management agreements ensure continued protection of historic and cultural resources.

Source: Dan Strom, PNNL

Cumulative Impacts

Cumulative impacts include the impacts from

- The proposed action (Units 2 & 3) and
- Other past, present, and reasonably foreseeable future actions.

Examples include:

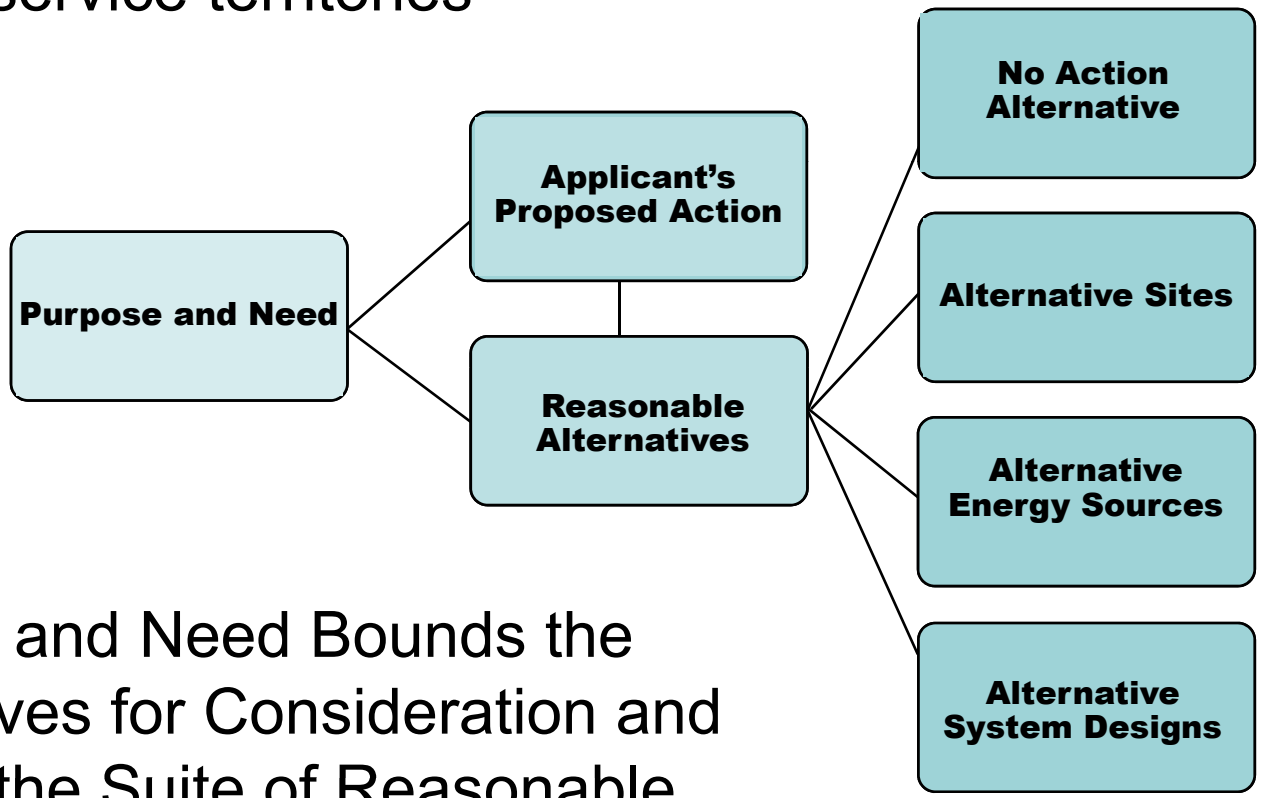
- Summer Nuclear Station Unit 1
- Fairfield Pumped Storage Facility

Adverse cumulative impacts would range from SMALL to MODERATE.

Beneficial cumulative economic impacts would range from SMALL to LARGE.

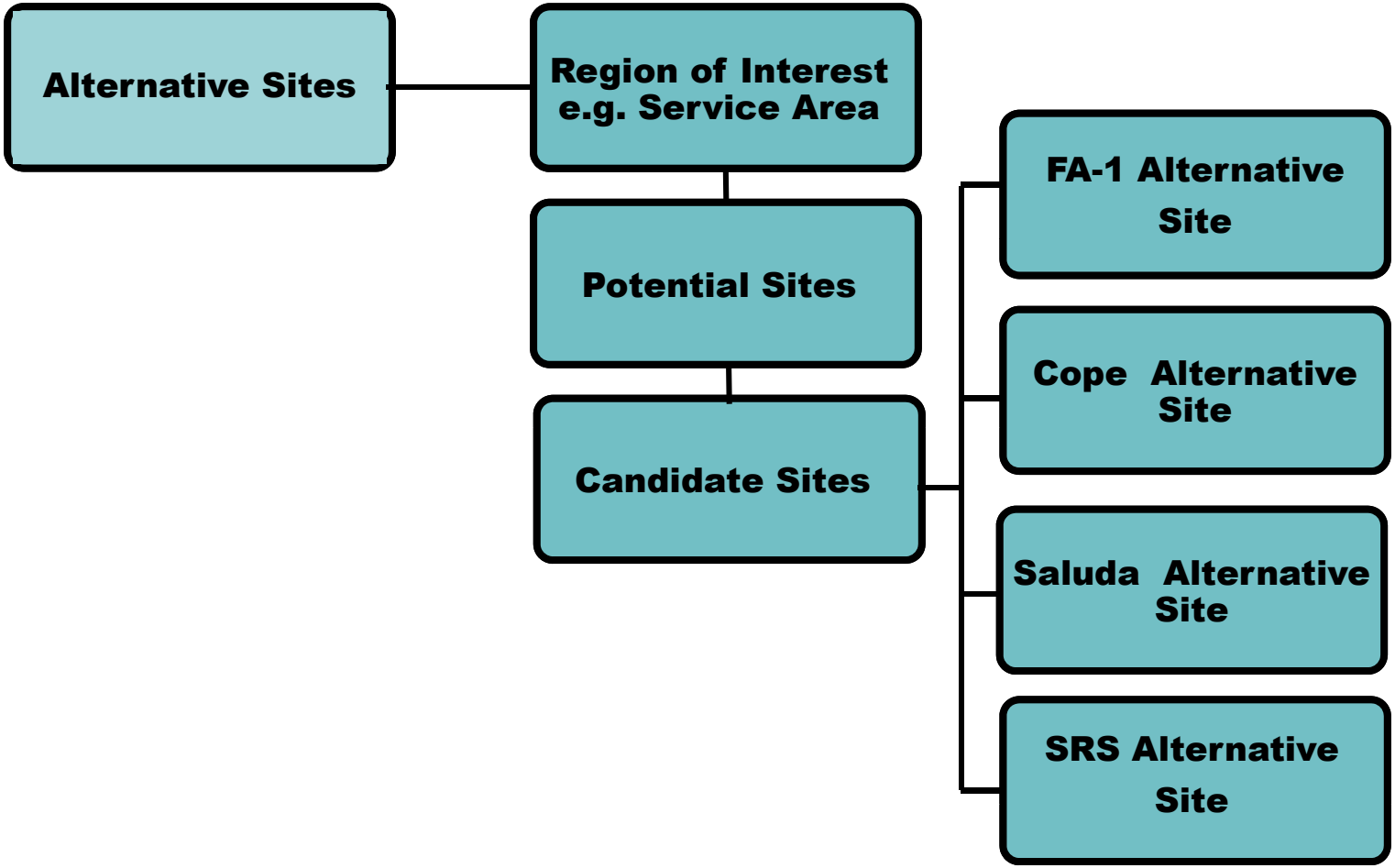
Alternatives

Purpose and Need is “to provide additional baseload electricity by 2016/2019 within SCE&G and Santee Cooper service territories”

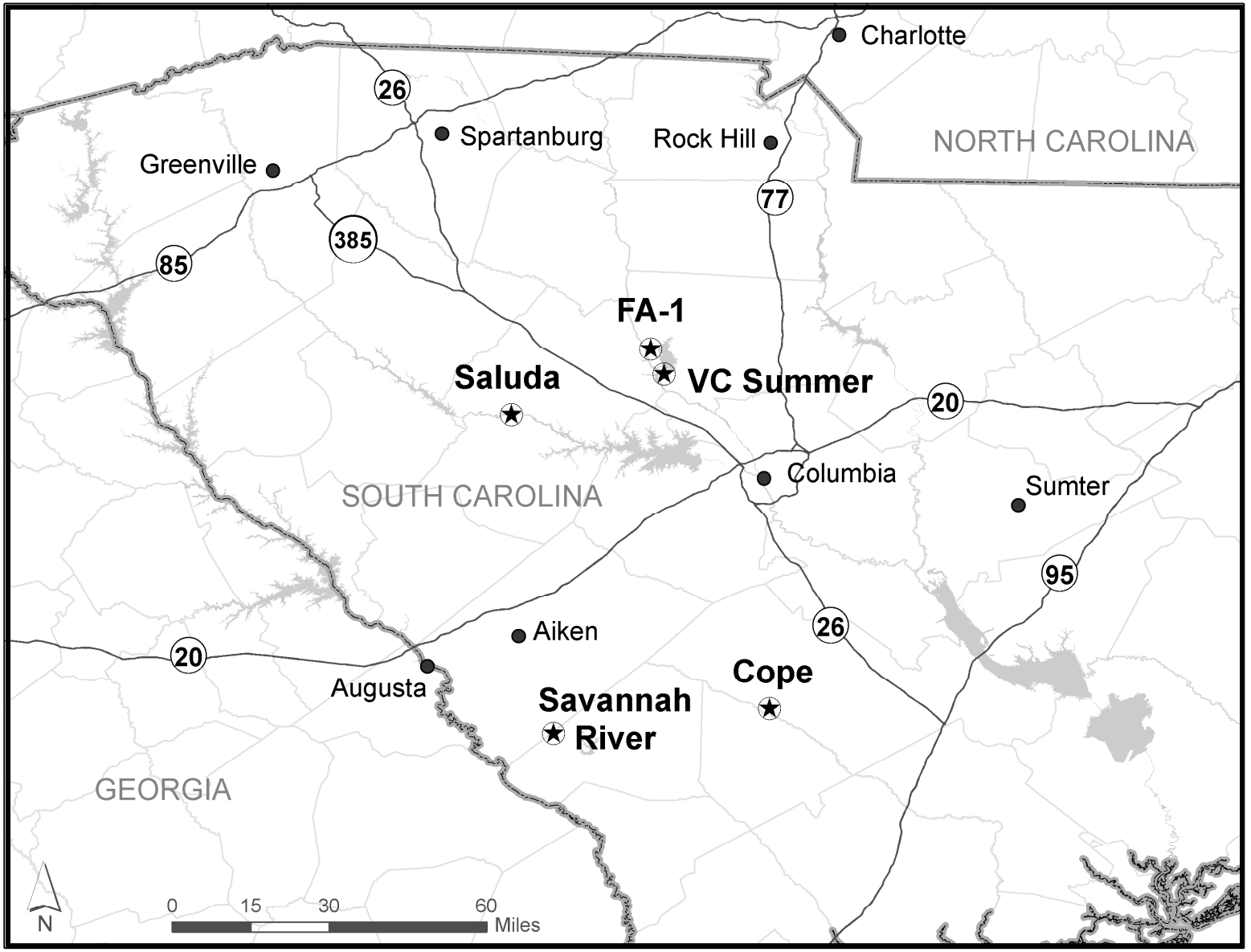


Purpose and Need Bounds the Alternatives for Consideration and Shapes the Suite of Reasonable Alternatives

Alternative Sites



Location of Alternative Sites



Comparison of Alternative Sites

- Impacts at alternative sites were compared to the VC Summer site.
- No alternative sites were environmentally preferable to proposed site.

Energy Alternatives

- Alternatives not requiring new generation
  - Restart retired units, extend plant life, conservation/demand-side management, purchase power
- Alternatives requiring new generation
  - Coal, natural gas, wind, solar, hydroelectric, geothermal, wood waste, municipal solid waste, other biomass, fuel cells
  - Combination of alternatives
- No reasonable alternative energy source is environmentally preferable to nuclear.

Results of Alternatives Analysis

- No action alternative does not meet need for baseload power.
- No reasonable alternative energy source was environmentally preferable to the proposed project.
- No alternative site was environmentally preferable to the proposed site.
- No alternative system design was preferable to the proposed design.

Unavoidable Adverse Impacts

- Commitment of land for project
- Increased water use
- Ecological impacts to wetlands
- Traffic impacts affecting local environmental justice communities
- Cultural and Historic Resources

Irreversible and Irretrievable Commitment of Resources

- Land used for disposal of radioactive and nonradioactive waste
- Consumptive water use
- Ecological impacts to wetlands
- Visual impacts to cultural resources
- Uranium for fuel

Principal Benefits

- 16-18 million MWh of electricity annually
- $860 million in property tax revenue to Fairfield County over the license period
- 3600 direct construction jobs with a peak impact of 3800 additional indirect jobs in the Columbia economy
- 800 direct operations jobs with an impact of 1700 additional indirect jobs in the Columbia economy
- $200 million annual total income impact to Columbia economy during operations
- Electric system reliability and fuel diversity

Principal Costs

- $7 Billion capital cost
- $576 Million transmission system upgrades
- $37-$42 per MWh levelized operation and maintenance costs
- SMALL environmental impacts to most resources
- MODERATE land use impacts for transmission line corridor development
- MODERATE traffic impacts
- MODERATE environmental justice impacts
- MODERATE cultural resource impacts

Environmental Conclusions and Recommendation

- Most of the environmental impacts would be SMALL.
- None of the reasonable alternative energy sources, alternative sites or system designs would be environmentally preferable.
- Short term use of the environment enhances long term productivity.
- Expected benefits would outweigh the economic, environmental, and social costs.

The staff's recommendation to the Commission is to issue the combined licenses.