

GLE Commercial Facility Mandatory Hearing

ASLB Presentation Topic #'s 5B, 5C, 5E, 5F & 5G Alternatives Analysis, Cost-Benefit Analysis, Construction Schedule, Electrical Infrastructure, and Implementation of Mitigation Measures

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Overview

- Alternatives analysis (5.B.)
- Cost-benefit analysis (5.C.)
- Effect of delayed construction (5.E.)
- GLE Facility electrical requirements (5.F.)
- Implementation of mitigation measures (5.G.)

Alternatives Analysis (5.B.)

- Types of alternatives (technology, design, site and facility location)
- The No-Action Alternative
- Benefits of the Proposed Action
- Environmental costs of the Proposed Action
- Proposed Action vs. No-Action Alternative

No-Action Alternative

- GLE does not construct the proposed facility.
- Enrichment services continue to be provided by current suppliers.
- No further alterations to the Wilmington Site occur.
- No further benefits or costs to the region of influence or Nation accrue.

Benefits of the Proposed Action

- Positive socioeconomic impacts
- Increase in tax revenue
- Another domestic source of enrichment services provides greater diversity and security of supply for U.S. power reactors
- Deployment of next-generation enrichment technology that is exclusive to the U.S.
- Advancement of important U.S. national energy security policy objectives

Environmental Costs of the Proposed Action as Determined by GLE

| RESOURCE AREA | IMPACT |
|------------------------------------|--|
| Ecological Resources | SMALL to MODERATE |
| Noise | SMALL to MODERATE |
| Transportation | SMALL (regionally) to MODERATE (locally) |
| Waste Management | SMALL to MODERATE |
| Water Resources | SMALL |
| Land Use | SMALL |
| Air Quality | SMALL |
| Soils and Geological Resources | SMALL |
| Human Health & Occupational Safety | SMALL |
| Visual/Scenic Resources | SMALL |
| Historic and Cultural Resources | SMALL |
| Environmental Justice | SMALL |
| Socioeconomics | SMALL |

Comparison of the Proposed Action and the No-Action Alternative

- GLE and the NRC Staff found the Proposed Action to be **preferable** to the No-Action Alternative, because the GLE Facility would:
 - Help meet future demand for enrichment services from domestic nuclear power reactors.
 - Advance national energy security policy objectives.
 - Introduce a next-generation enrichment technology that is expected to have smaller resource requirements and smaller environmental impacts.
 - Yield positive socioeconomic impacts in the region of influence and on state and federal income taxes.

Site Selection - Qualitative Cost-Benefit Analysis

- The Wilmington Site had slightly higher net benefits than the Morris Site.
- Key factors included:
 - Existing nuclear infrastructure
 - Greater cost savings to GE
 - Smaller adverse impacts to water, air, ecology
 - Slightly higher positive socioeconomic impacts.
- No obviously superior site was identified.

Cost-Benefit Analysis (5.C.)

- Cost-benefit analysis (CBA) catalogues, quantifies, and values in monetary terms, to the extent possible, the effects of a project or program on society's well-being.
- CBA compares the environmental costs of a project against its economic, technical, or other public benefits.

CBA – GLE Environmental Report

- The overall CBA assessment, which treats many of the **external** costs and benefits in a qualitative manner, is presented in Chapter 7 of the ER.
- The **private** benefits and costs of the proposed GLE Facility are assessed quantitatively in proprietary Appendix U of the ER.

CBA – Summary of Estimated Benefits

- Appendix U contains proprietary estimates of GLE specific costs and revenues for the project.
- In qualitative terms, both the **private** benefits (revenues) and costs to GLE (annual start-up, operating, and decommissioning costs) are estimated to be MODERATE.
- The **external** (public) benefits are described qualitatively and range from SMALL to LARGE. They are summarized in Table 5 of GLE’s testimony, the relevant portion of which is shown on the next slide.

CBA – Summary of External Benefits

| Cost-Benefit Category | Description | Scale of Impacts |
|---------------------------|--|------------------|
| Benefits | | |
| Energy Security | Increases availability of domestically-produced nuclear fuel, reducing reliance on foreign sources of enriched uranium; establishes an advanced uranium-enrichment technology in the United States. | LARGE |
| Enriched Uranium Produced | Estimated 6 million Separative Work Units (SWU), helps address projected SWU shortfall in United States after 2014. | LARGE |
| Reduced Emissions | By allowing increased nuclear power generation, may encourage reduced emissions of criteria pollutants and greenhouse gases by fossil-fuel fired electric utility power plants. | MODERATE |
| Energy Efficiency | SILEX (Separation of Isotopes by Laser Excitation) technology produces enriched uranium using less electric power than existing uranium enrichment technologies. | MODERATE |
| Economic Impacts | Employment of up to 1040 during construction and start-up and 350 during operation; increases in regional income due to employee payroll and local GE-Hitachi Global Laser Enrichment LLC (GLE) purchases of goods and services. | MODERATE |
| Tax Receipts | Sales and income taxes due to GLE and employee spending; corporate income tax on GLE profits. | SMALL |

CBA – Summary of Environmental Costs

- Environmental impacts were estimated to be generally SMALL. SMALL to MODERATE impacts were estimated for the Transportation, Noise, Ecological, and Waste Management resource areas (see slide 6).
- The Proposed Action was identified as preferable to the No-Action Alternative (see slide 7).

Overall CBA Conclusions

- Overall growth in demand for enrichment requirements is now projected to be somewhat lower than prior to the Fukushima event and global economic downturn.
- Nonetheless, the demand is still projected to grow substantially over the next two decades.
- ERI and other forecasts (e.g., WNA) indicate that new enrichment facilities, including the GLE Facility, are needed to avoid an enrichment services shortfall at some point during the period 2016 through 2035.
- The national policy and commercial benefits of having diverse, reliable, and advanced U.S. enrichment capabilities further reinforce the need for the GLE Facility.

Impact of Delay in Preconstruction Activities (5.E.)

- GLE does not intend to compress the construction schedule to offset potential project delays.
- Therefore, environmental impacts of construction activities will not increase on an annual basis.

GLE Facility Electrical Requirements (5.F)

- Progress Energy has sufficient capacity to meet the GLE Facility's expected electricity needs.
- Progress Energy will provide upgrades to existing feeder line and terminals to meet GLE's needs.
- GLE and Progress Energy entered into a preliminary written agreement in February 2009 to perform related planning and preliminary design work.
- Discussions between GLE and Progress Energy continue as the GLE Facility project progresses.

Mitigation Measures (5.G.)

- GLE will implement the mitigation measures listed in Table 5G-1 of the testimony that are required by federal, state, and local regulations.
- GLE will implement those mitigation measures that were factored into the ER's analysis of environmental impacts (e.g., water spraying for dust suppression).
- To the extent practicable, GLE will implement additional mitigation measures listed in Tables 5G-1 and 5G-2 of the testimony based on consideration of specific factors.

Key Conclusions

- GLE appropriately evaluated alternatives to the Proposed Action as required by NEPA.
- GLE's cost-benefit analysis weighed private and public benefits against environmental and private costs.
- The cost-benefit analysis indicates that the Proposed Action is preferable to the No-Action Alternative.
- The GLE Facility will serve to meet private and public needs for diverse, reliable, and advanced sources of U.S. enrichment services.
- The Fukushima event and current economic conditions do not alter these conclusions, particularly given the current uncertainties associated with other proposed U.S. enrichment facilities.