Public Information Meetings
Proposed SCA Amendment for GHEC Expansion

July 2010
Overview

- Introductions
- Invenergy
- Project
- Combined Cycle plant
- Benefits – Project/Expansion
- December public meeting & MDNS
- Conclusion

Invenergy
Introduction – Brett Oakleaf

- Background
  - 20 year energy/electric utility industry experience
  - Various roles
    - Marketing, Resource Planning, Consulting, Operations
  - Invenergy - Director of Business Development
    - Natural Gas focus for Western US
    - Project Manager for GHE Expansion

Invenergy
Introduction – Todd Gatewood

- Background
  - 29 years experience in the energy/power industry
  - Various roles
    - Construction, commissioning, maintenance, and operations
  - Over 10 years experience with Combined Cycle plants
  - Directly involved in the commissioning, operation, and/or management of 9 combined cycle plants (~ 7,000 MW)

Invenergy
Invenergy North America

Introduction

- Developer, owner and operator of power generation projects.
- Focused on the development of natural gas and renewable energy projects.
- Invenergy management team is headquartered in Chicago with regional offices in Austin, Denver, Washington D.C. and international offices in Toronto and Warsaw.
- More than 5,000 MW of thermal and 18,000 MW of wind under development and in operation.
Invenergy North America
Wind and Thermal Operating Facilities - Map

Key:
- Natural Gas (Thermal)
- Wind Energy

Invenergy
Grays Harbor Energy Center - Existing

- 650 MW (2x1 Combined Cycle)
- Project History
  - Acquired – Feb 2005
  - COD – June 2008
- Invenergy values GHE ownership and expansion
- Community

Invenergy
Grays Harbor Energy Center - Proposed

- Adding additional 650 MW (2x1 Combined Cycle)

- Expansion utilizes existing infrastructure
  - Electrical
  - Natural Gas
  - Water
  - Land Use

- Mitigated Determination of Non-Significance (MDNS) granted Feb 2010
What is a Combined Cycle power plant?

- **2x1 Combined Cycle**
  - 2 Combustion Turbines
  - 1 Steam Turbine

- **Combustion Turbine**
  - Similar to Jet Engine
  - Fuel – Natural Gas

- Captures “waste” heat to be used in steam turbine
  - Highly efficient

- Typical run time or annual capacity factor = 40 – 60%

- State of Art/Low Emission/BACT facility

*Invenergy*
Project Benefits

- More Efficient, Dispatchable Generation
  - Added electrical generating capacity
  - Highly efficient design
  - On-demand power helps integrate renewable resources

- Clean, Environmentally Beneficial Energy
  - Low Emission Natural Gas
  - Low Carbon Fuel

- Taking Advantage of Developed Site
  - Use of Existing Site and Infrastructure
  - Avoids environmental impact from new development
Expansion Benefits

- **Construction**
  - Direct - Workers (up to 500 jobs for ~ 22 months)
  - Approximately $22 Million in wages
  - Approximately $28 Million in local material, supplies, and subcontractors
  - Secondary Business Effects

- **Taxes**
  - Sales
  - Property

Invenergy
December Public Meetings & MDNS

Heard public comments => MDNS mitigation measures

- Land
- Traffic
- Noise
- Odor
- Light/Glare
- Need for plant
Forested Land

- 10 acres east of site
- GHE agreed to not develop acreage, as part of MDNS
- Developed property will be used for laydown and construction
Construction Traffic

- Prior to construction of existing facility, improvements to SR 12 & Keys Rd were made
  - Dedicated turn lanes and flared approach

- Traffic mitigation plan implemented for existing facility

- Key point - encouraged Wakefield/Lambert route instead of SR 12 & Keys Rd.
  - Utilized for expansion
Noise

- New call process
- Neighbor meetings/Tour of facility

Proposed MDNS Mitigations
- Confirm compliance for all units after expansion
- Design features silencers, enclosures, and sound walls
- Improve noise compliant system – call logs & responses
- Studies to show if additional mitigation measures needed
- With construction of Units 3&4, identify reasonable, cost-effective measures to further reduce noise levels

- Expert Panel on Noise

Invenergy
Odor

- Expert Panel on Air Quality
- Public expressed chlorine odor
- Plant investigated
  - Review of use of materials
  - Property
- Identified cooling tower as source
- Changed chemistry to alleviate odor
- Expansion utilize these changes

Invenergy
Light and Glare

- After December public meetings, GHE investigated light reduction opportunities

- GHE implemented light reduction plan
  - Turn off all lighting that is not needed for safety/security
  - Install light shielding to redirect light downward

- Expansion will use light reduction and shielding plan

- Mitigation measures part of MDNS
Need for Project

- Demand in the Pacific Northwest
  - Future growing demand for energy in NW and US
  - Natural gas will serve majority need versus coal, nuclear

- Integration of renewables
  - Higher levels of wind/solar
  - Variable/Intermittent
Summary

- Clean, Efficient Power
- Significant Local Economic Benefits
- Mitigated Impacts

=> Request SCA Amendment
Questions?