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Island Park Energy Center – A Repowering of E.F. Barrett Power Station
Informational Open House

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Project Proposal and Development Schedule Table – Tripod Boards

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Project Proposal

- **National Grid, under its current contract with LIPA, is proposing development of new modern energy center – Island Park Energy Center**
  - **Installation of new, state-of-the art electric generators and the removal of all existing electric generating equipment currently on the site**
  - **National Grid is currently evaluating two potential repowering scenarios**
    - **Development of a new 560-650 MW combined cycle unit; or**
    - **Development of a new 560-650 MW combined cycle unit and up to 330 MWs of additional simple cycle (peaking) units**
  - **National Grid will submit their proposal to LIPA in the Spring of 2014.**
  - **LIPA decision based on evaluation of future and anticipated generating capacity needs and cost**
  - **LIPA can choose either redevelopment scenario or not to repower**

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Development Schedule

- **Development Schedule**
  - **Project Design and Licensing – Fall 2013 to Winter 2015**
  - **National Grid Repowering Proposal to LIPA – Spring 2014**
  - **LIPA Decision on Repowering Proposal – Fall 2014**
  - **Once All Approvals Received:**
    - **Start of Construction – Spring 2015**
    - **Proposed Simple Cycle (Peaker) Operation – Summer 2017**
    - **Proposed Combined Cycle Operation – Summer 2019**
    - **Commencement of Demolition of Existing Station – Fall 2019**

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Project Benefits

- **Environmental and Economic Benefits of Repowering**
  - **Use of Existing Generation Station Property**
  - **Generates Electricity More Efficiently and Cost-effectively**
  - **Improves Reliability of Electricity Supply**
  - **Reduces Emission Rates through use of State-of-the-Art Technology**
  - **Uses Clean-burning Natural Gas as a Primary Fuel and Ultra Low Sulfur Diesel as a Back-up Fuel**
  - **Reduces Water Requirements By Eliminating “Once-through” Cooling**
  - **Creates Hundreds of Construction Jobs**
  - **Provides Site Tax Benefits Into The Future**

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Licensing Table – Tripod Boards

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Licensing Framework

- **Review and Approval Under Article 10 of the New York State Public Service Law**
  - **Applies to proposed "major electric generating facility" capable of generating 25 megawatts or more**
  - **Requires Rigorous Review of Potential Impacts and Project Alternatives**
    - **Air, Water, Noise, Land Use, Visual, Infrastructure, Environmental Justice, etc.**
  - **Provides Opportunity for Stakeholder Input and Intervenor Funding**
  - **Requires New York State Board on Electric Generation Siting and the Environment (Siting Board) to issue a Certificate of Environmental Compatibility and Public Need (Certificate)**
- **NYSDEC Air and Water Permitting Programs**
  - **Permits required in accordance with NYSDEC Permit Programs developed under Clean Air Act and Clean Water Act.**
  - **Joint Proceeding with Article 10 Environmental Review**
  - **NYSDEC Part 487 Environmental Justice Assessment for Article 10 Projects**

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Site Location

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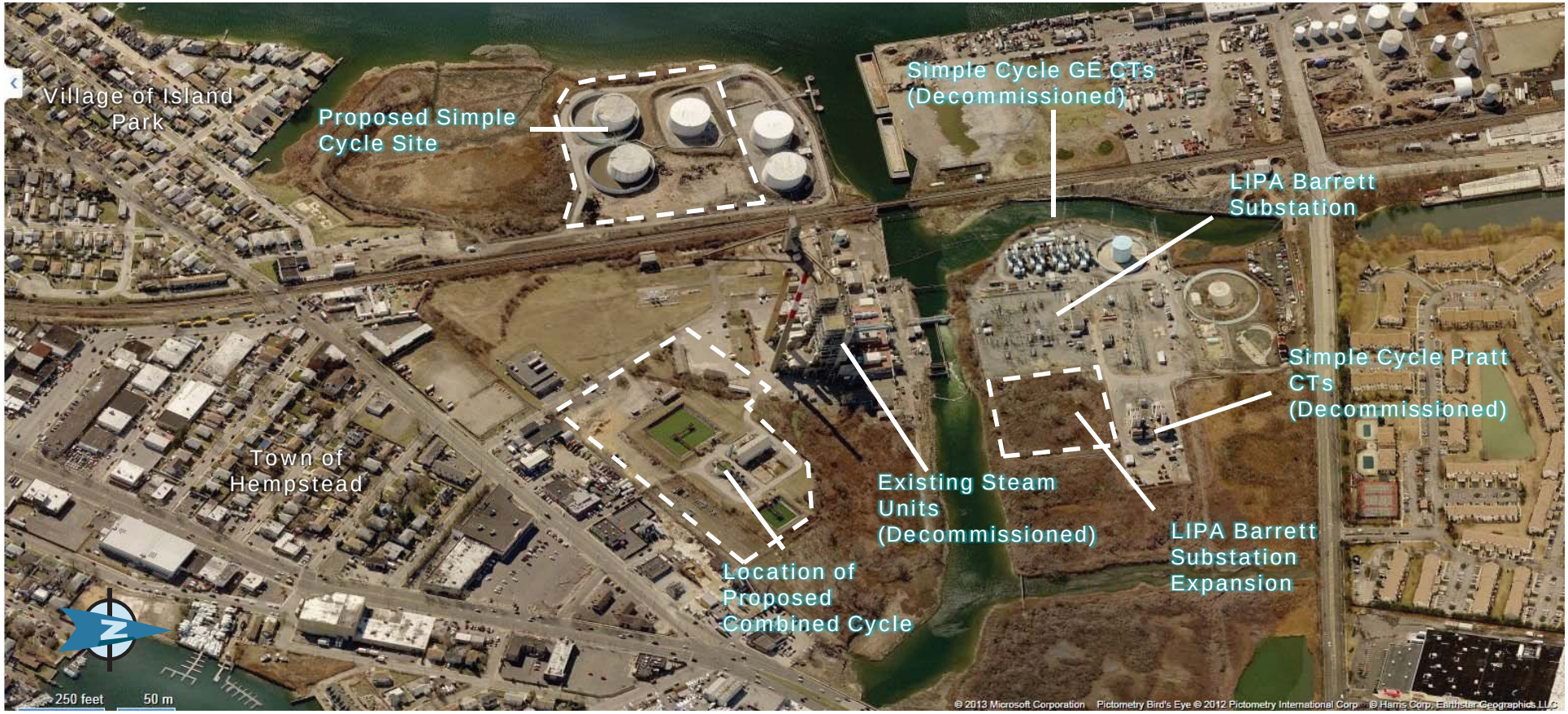
Site Aerial



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Conceptual Facility Layout – Prior to Decommissioning

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Conceptual Facility Layout – Post Decommissioning

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Licensing Next Steps

- **Upcoming Licensing Milestones**
  - Public Information Meeting
  - Project Website and Toll-Free Hotline
    - Project Website: www.islandparkenergy.com
    - Toll-Free Hotline: 1 (855) 842-7093
    - Contact E-Mail: questions@islandparkenergy.com
  - File Preliminary Scoping Statement – March 2014
    - Proposed Project and Environmental Setting
    - Initially Identifies Potential Environmental Impacts and Benefits
    - Identifies Studies to Assess Environmental Impacts and Benefits
    - Identifies Potential Measures to Avoid or Mitigate Adverse Impacts
    - Identifies Applicable State and Federal Requirements
  - Article 10 and NYSDEC Applications – Late Spring 2014
    - Project Description, Public Outreach Summary, Formal Impact/Benefit Evaluations, Alternatives Assessment

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Engineering Table – Tripod Boards

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Anticipated Design Configurations

- **Simple Cycle Combustion Turbines**
  - Fast startup times that provide operational flexibility to respond quickly to peaks in electrical demands and accommodate new renewable energy resources
  - 6 simple cycle turbines
  - Natural gas fired (distillate oil as a limited back-up)
  - 5 days on-site fuel storage
- **Combined Cycle Facility**
  - Highly efficient (uses less fuel to generate electricity - approx. 30% more efficient)
  - 2 “F” series combustion turbines and one steam generator
  - Air Cooled Condenser
  - Natural gas fired (distillate oil as a limited back-up)
  - 5 days on-site fuel storage
- **Designed to Withstand 500-year Flood Event and Category 3 Hurricane Winds**
- **Adds up to 260 MW more generating capacity with no need to increase existing natural gas fuel supply**
- **Interconnections: LIPA Barrett Substation and Existing Gas Supply (both on-site)**

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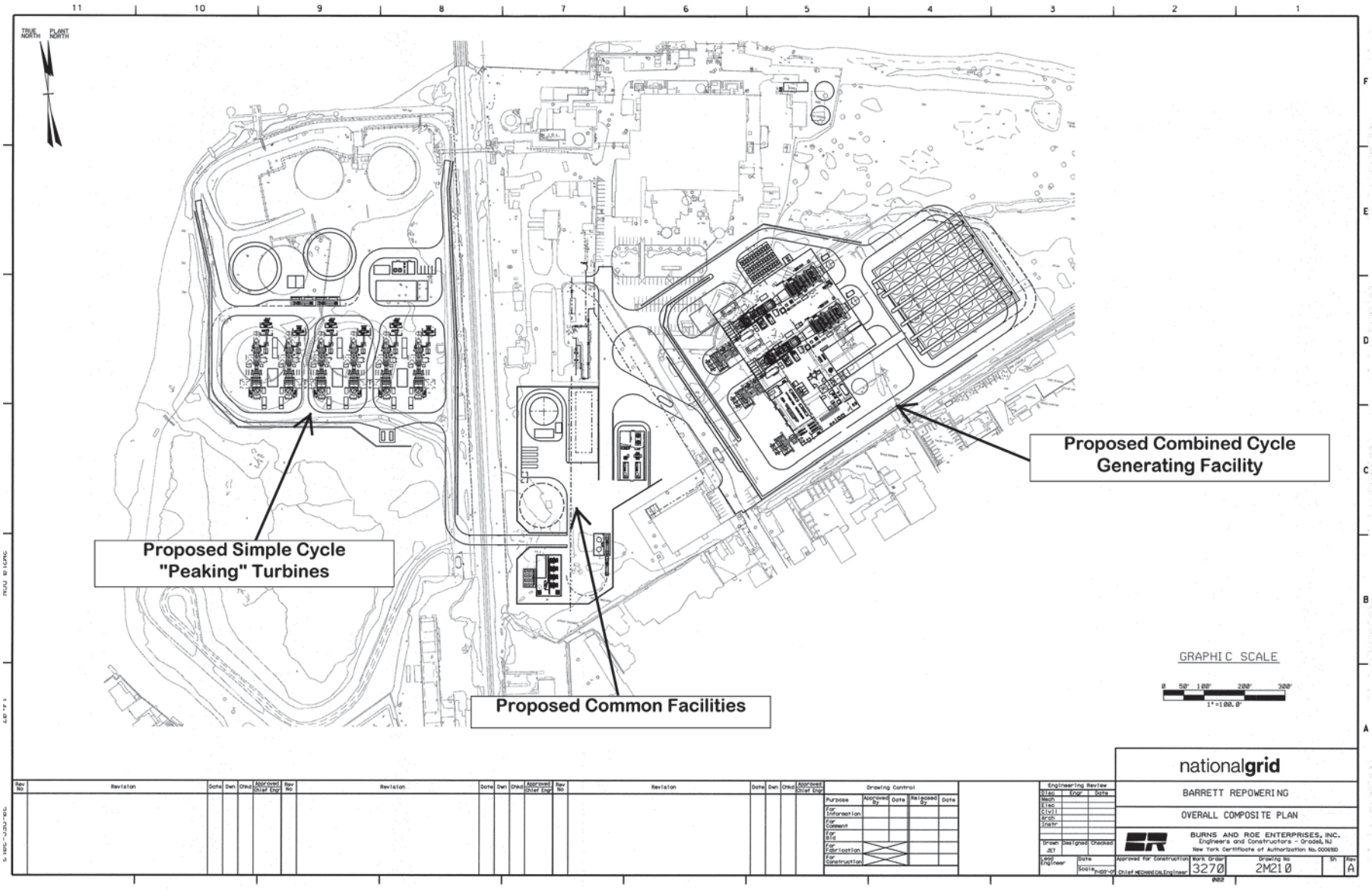
Preliminary Site Development Plan



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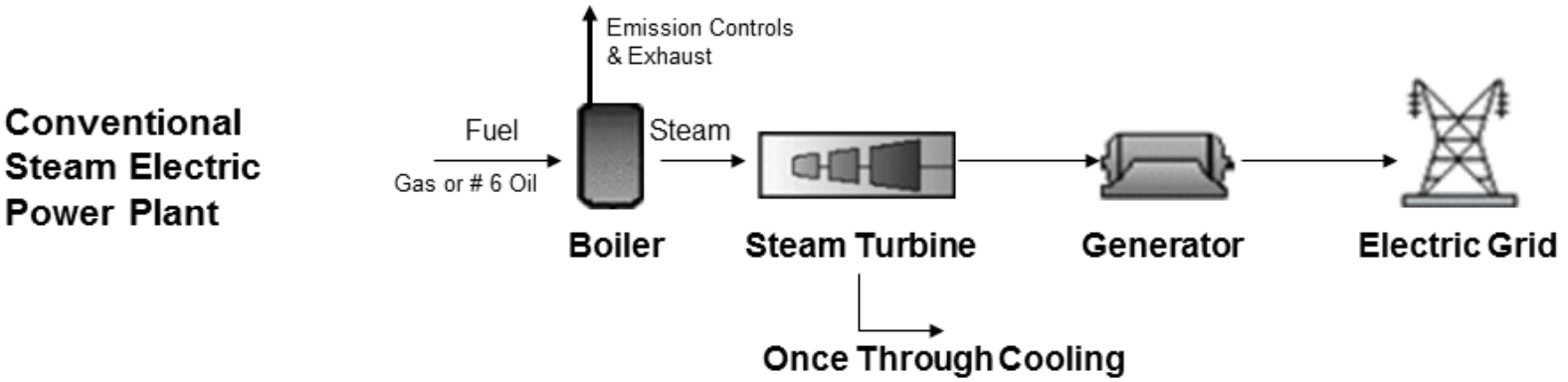
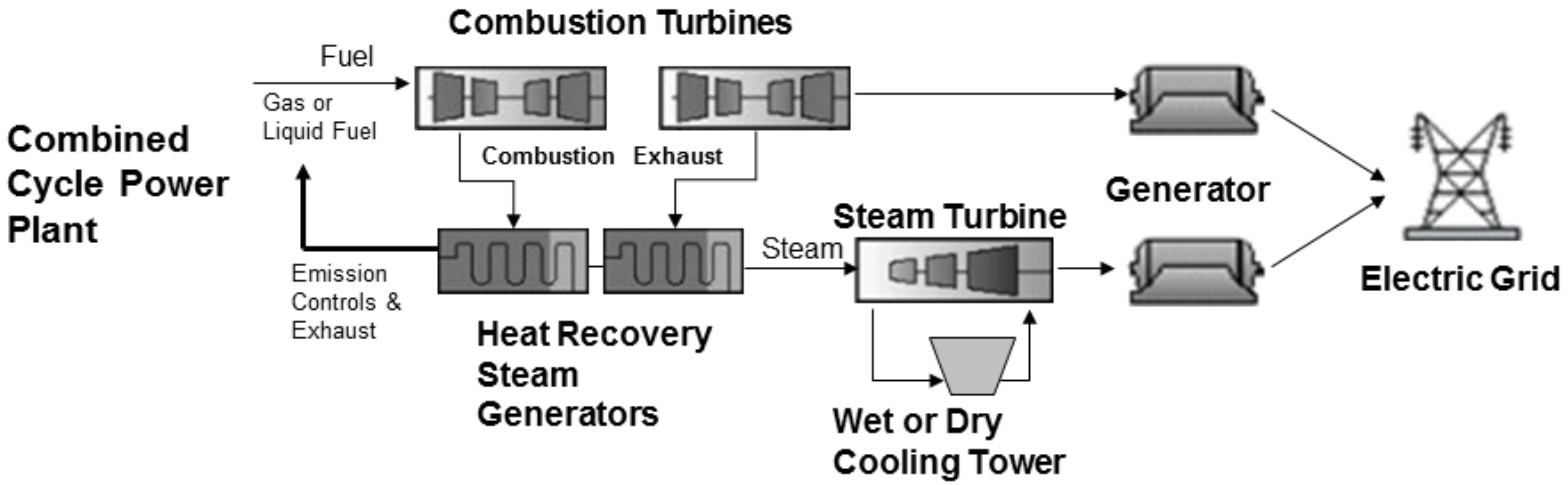
Repowering Primer

- **Repowering refers to the modernization or retirement of a conventional generating technology resource and its replacement or upgrade to a more efficient, low emitting combined cycle generating resource.**





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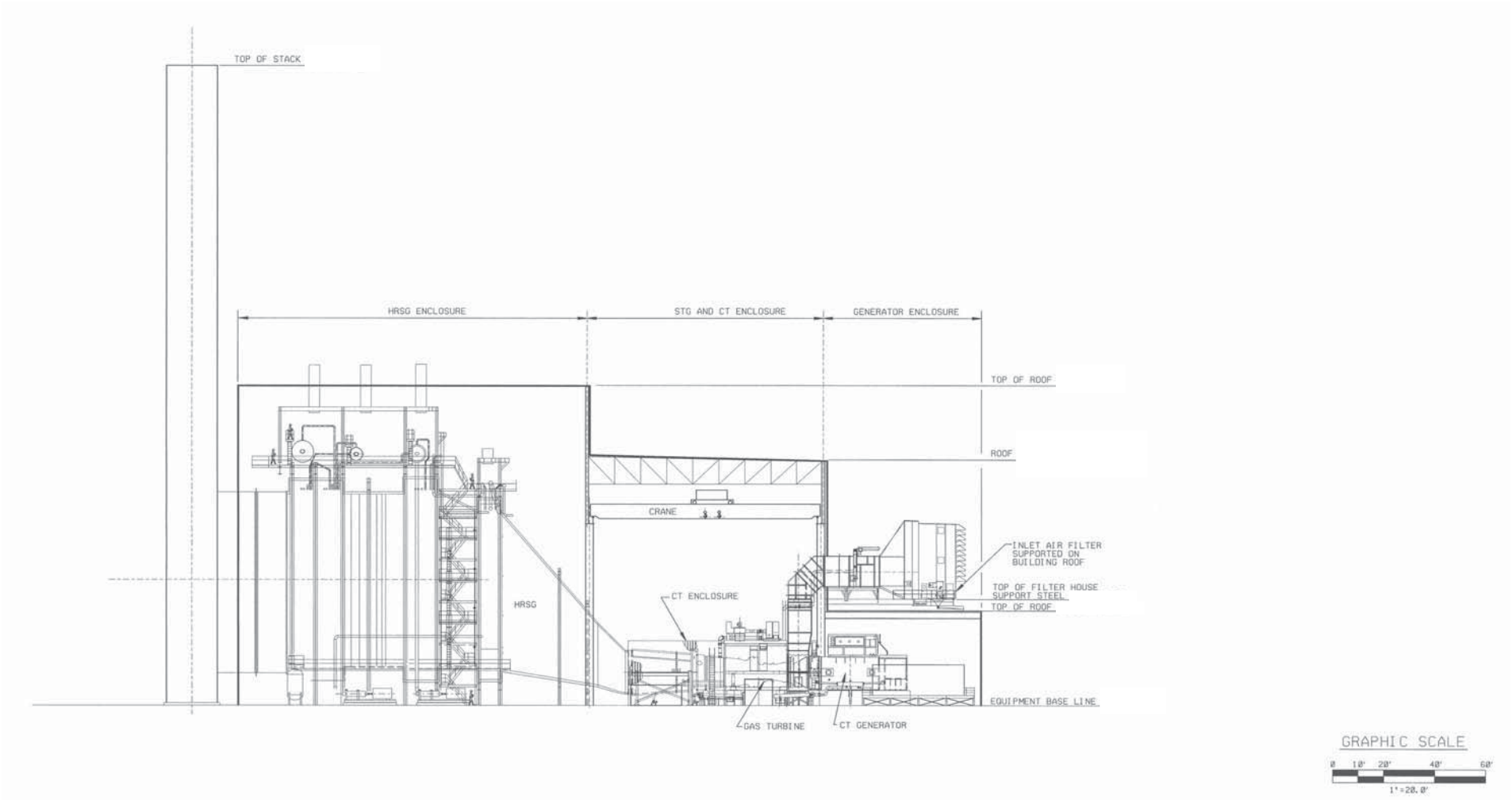
Combined Cycle Facility – Elevation Drawing



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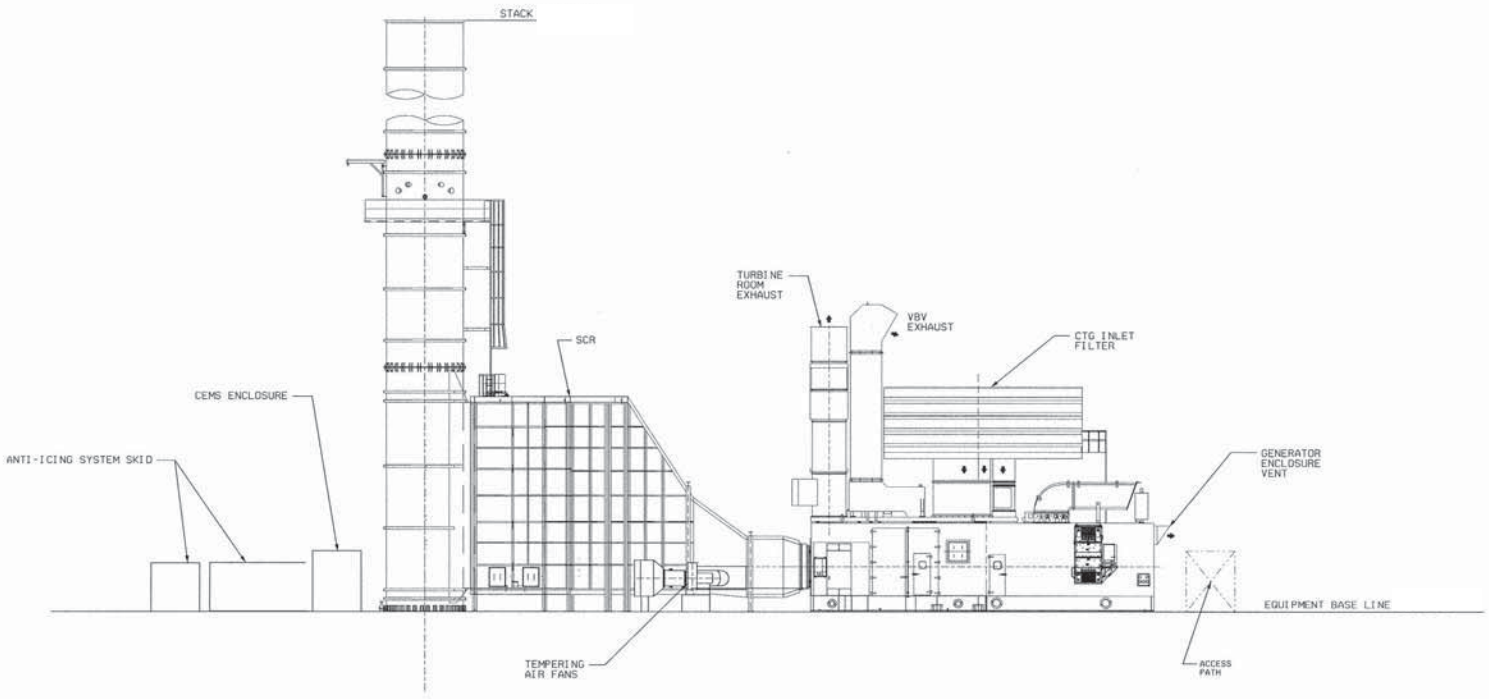
Simple Cycle Facility – Elevation Drawing



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Environmental Table – Tripod Boards

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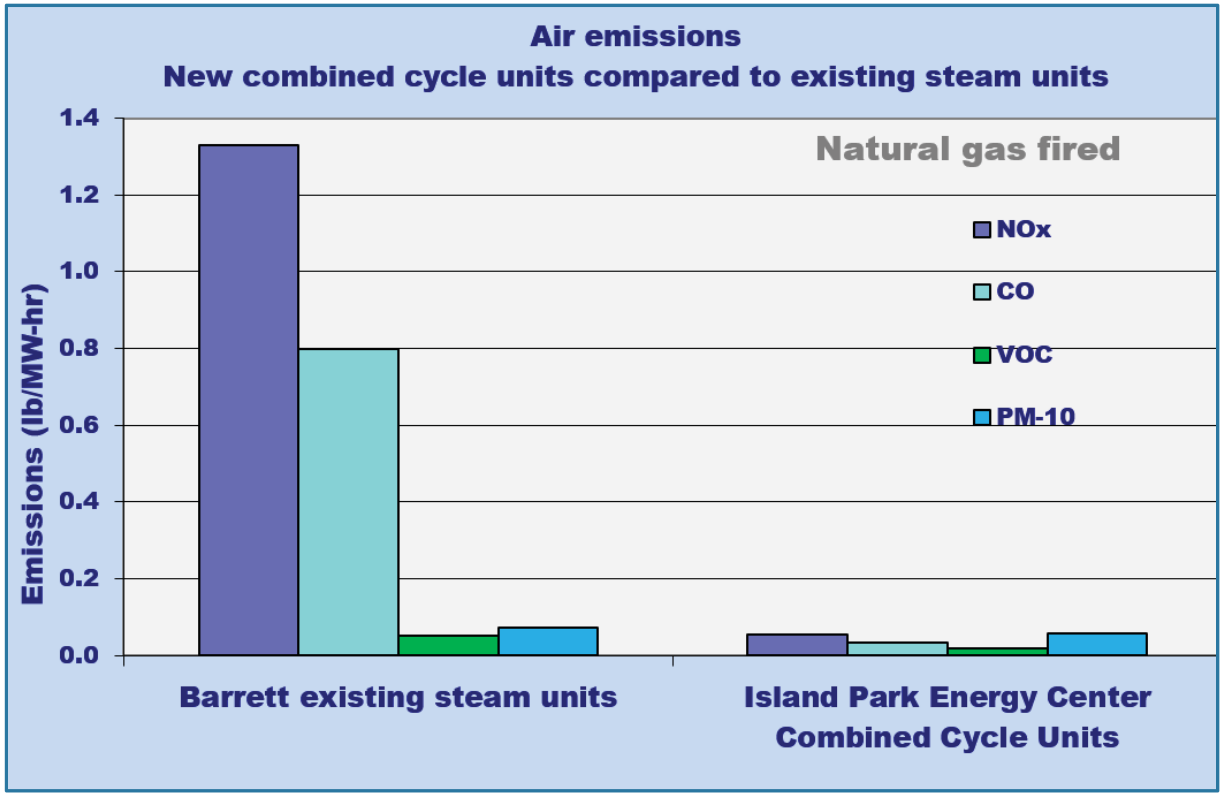
Air Emissions Profile – Combined Cycle



- A new combined cycle plant will reduce overall pollutant emission rates by 95% compared to older steam units:
  - 96% reduction in NOX and CO
  - 93% reduction in total criteria pollutant emissions
  - Reduction in CO_{2e} for ~750 MW combined cycle plant at 925 lbs/MW-hr compared to existing 370 MW steam plant at 1,160 lbs/MW-hr

(a) Both old steam units and new combined cycle units burn natural gas
(b) New combined cycle plant emissions based on "F" series combustion turbines with heat recovery
(c) Emissions based on anticipated NYSDEC permit limits

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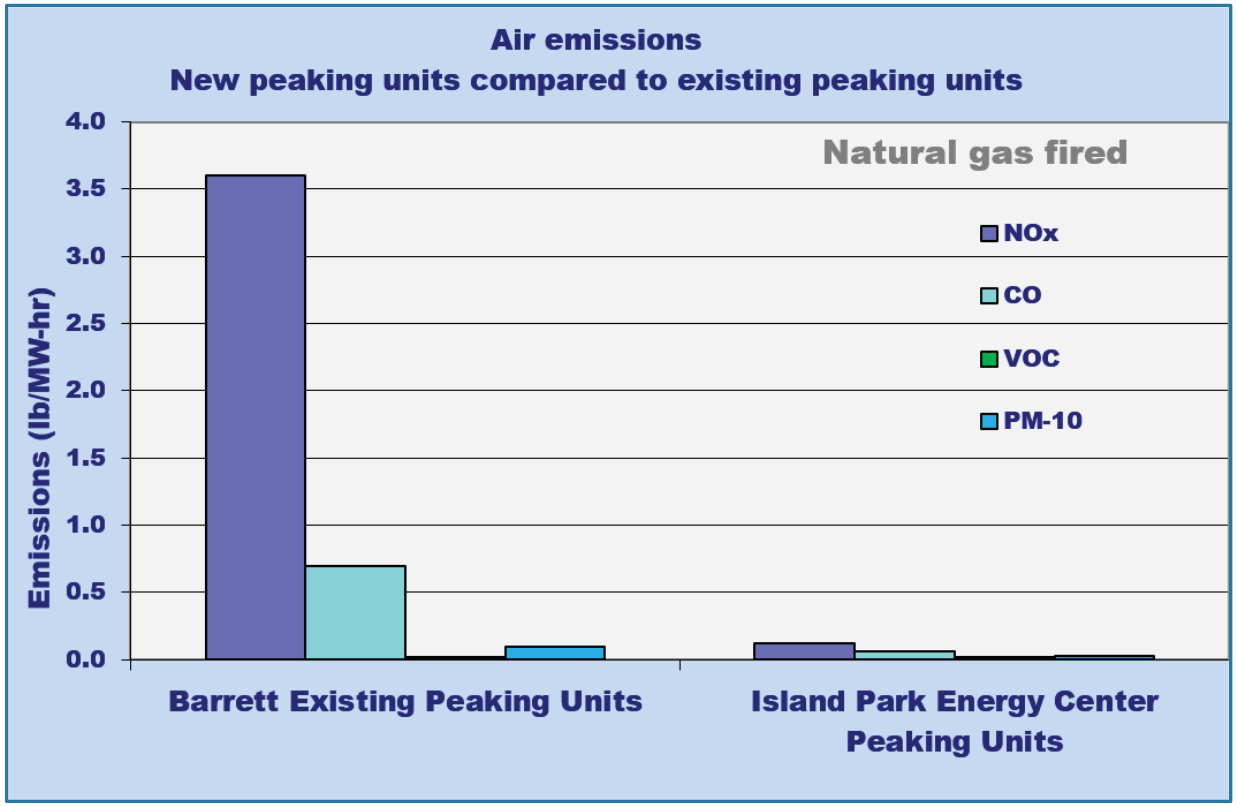
Air Emissions Profile – Simple Cycle



- A new simple cycle plant will reduce overall peaking unit pollutant emissions by 95% compared to existing peaking units:
  - 97% reduction in NOX
  - 91% reduction in CO (reflecting addition of CO catalysts to the units)
  - 95% reduction in total criteria pollutant emissions

(a) Both existing peaking units and new peaking units burn natural gas
(b) Emissions based on anticipated NYSDEC permit limits

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Proposed Water Use and Cooling Systems

- **Elimination of "Once-through" Cooling**
  - **Existing facility uses surface water for cooling**
  - **New unit will use an Air Cooled Condenser (ACC) which requires no water to cool steam**
    - **ACC operates like a car radiator where excess heat is rejected to the atmosphere**
    - **Eliminates the need for surface water withdrawal**
    - **Eliminates impacts to aquatic organisms**
  - **Results in significantly less water usage overall**

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Other Environmental Impacts/Benefits

- New Generating Facilities designed to minimize impacts to on-site wetlands
- Plant designed to minimize noise
- Natural Gas and Electric Interconnection Points located on site; minimizes impacts related to development of off-site improvements
- No need for new natural gas fuel supply
- Re-use of existing industrial property

- Tidal Wetlands - Freshwater Wetlands