Duke Energy's Edwardsport IGCC Plant: Concept to Commercial

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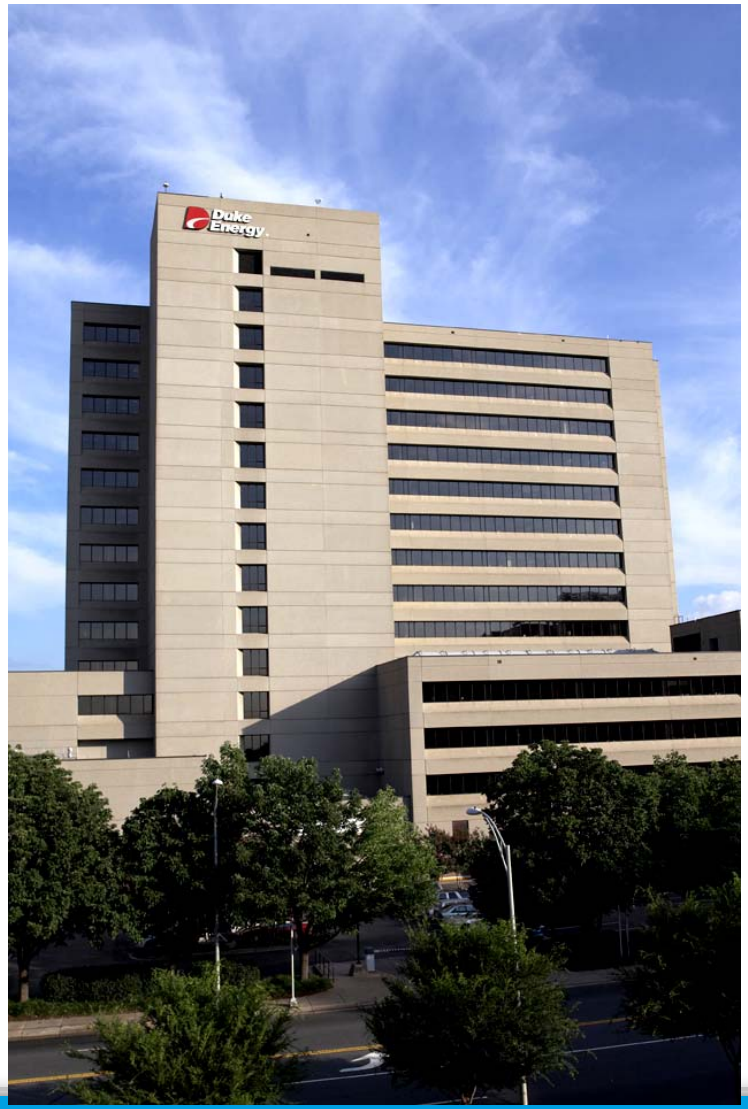
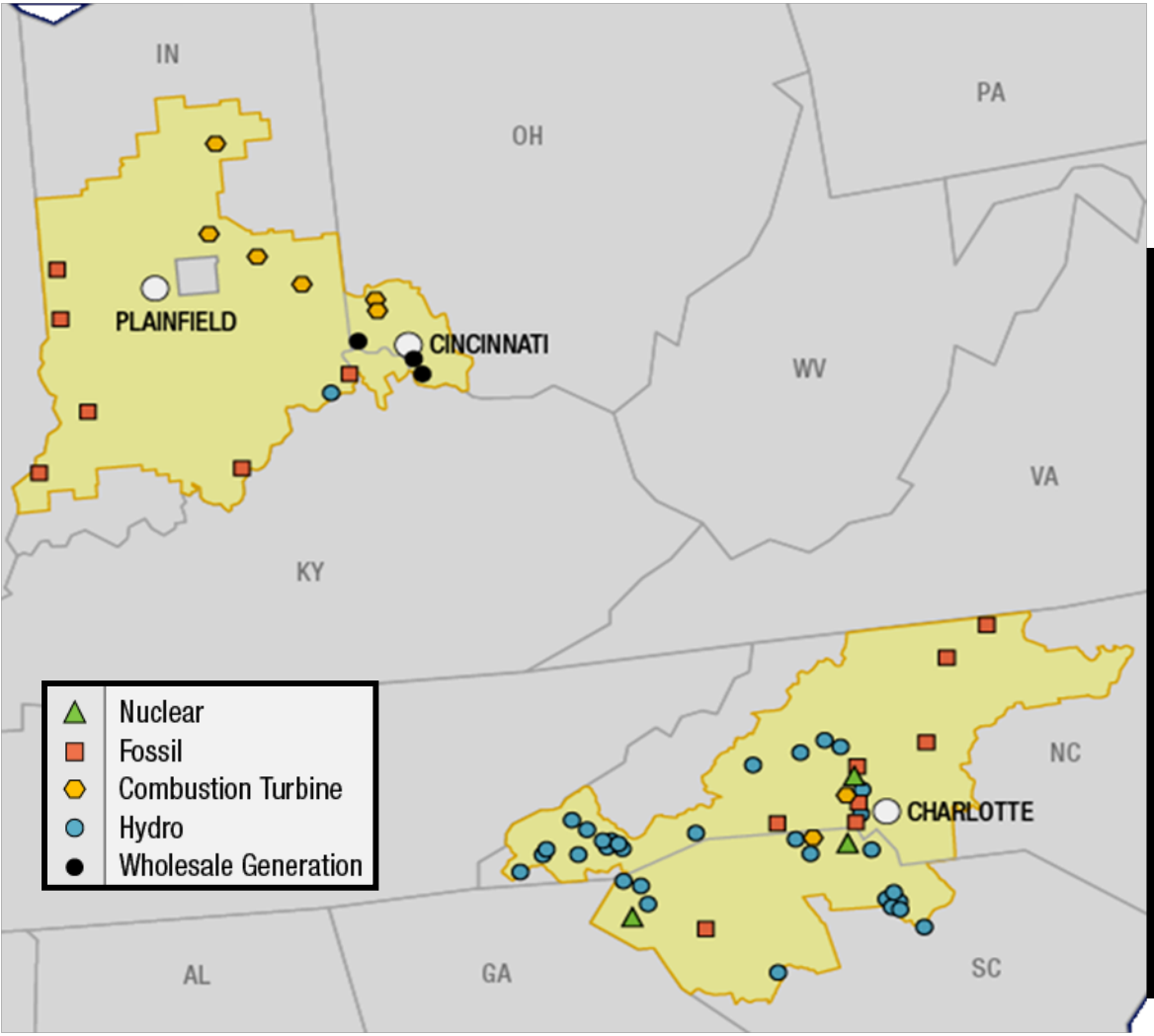
Facts about Duke Energy

- Fortune 500
- 3.9 million customers
- Top-tier electric utility
- Top 5 for U.S. generating capacity
- 150+ years of service
- Traded on NYSE as DUK
- Stock dividends for 80+ years



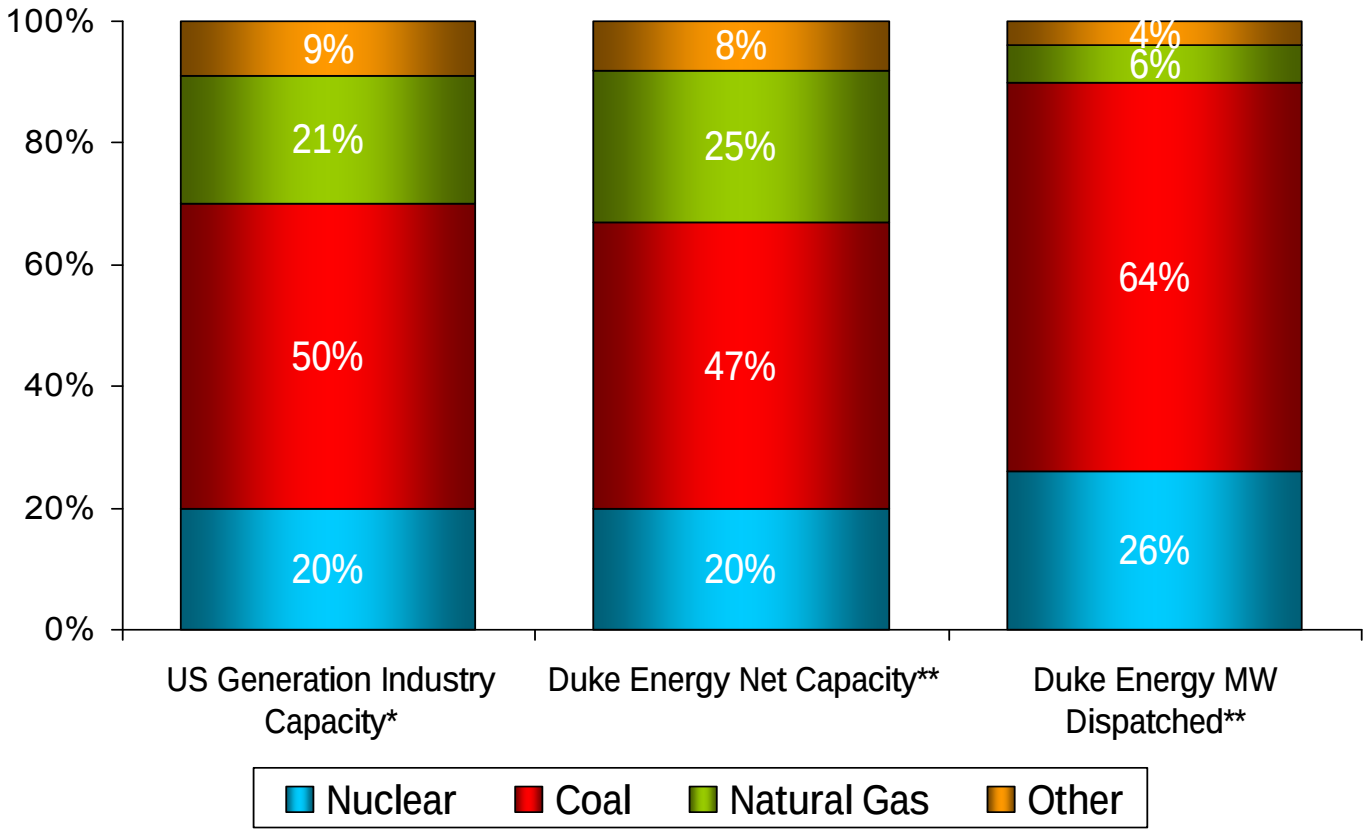
US Franchised Electric & Gas



- 5 states: North Carolina, South Carolina, Indiana, Ohio and Kentucky
- 47,000 square miles of service area
- ~28,000 MW
- 3.8 million retail electric customers
- 500,000 retail gas customers

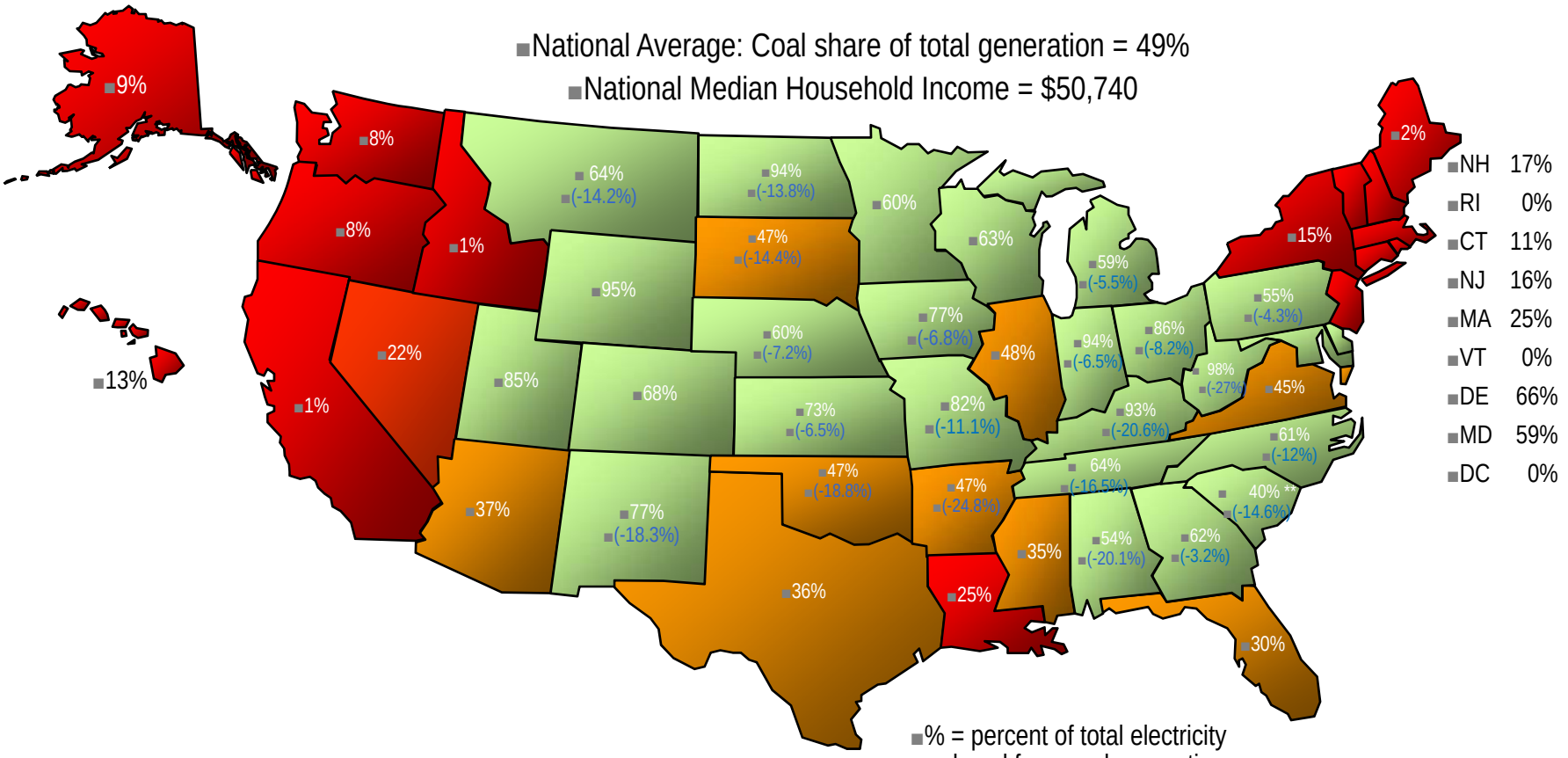
Comparison of Generation Fuel Mix

Duke Energy's diverse fuel mix mirrors the overall industry mix



- *Source: EIA
- **Includes DENA Midwest assets, does not include DiscOps assets

Many States that Depend on Coal for Electricity Have Household Income Below the National Median



** 61% of the electricity used in the state of South Carolina was generated from coal-fired facilities (2007)

Sources:

- Energy Information Administration, March 2008.
- *An analysis of South Carolina's current electric usage conditions with recommendations for a responsible future* – Office of Regulatory Staff South Carolina (Dec. 2008)
- Fastfactscensus.gov – Estimated Median Household Income (2007)

Duke Energy®

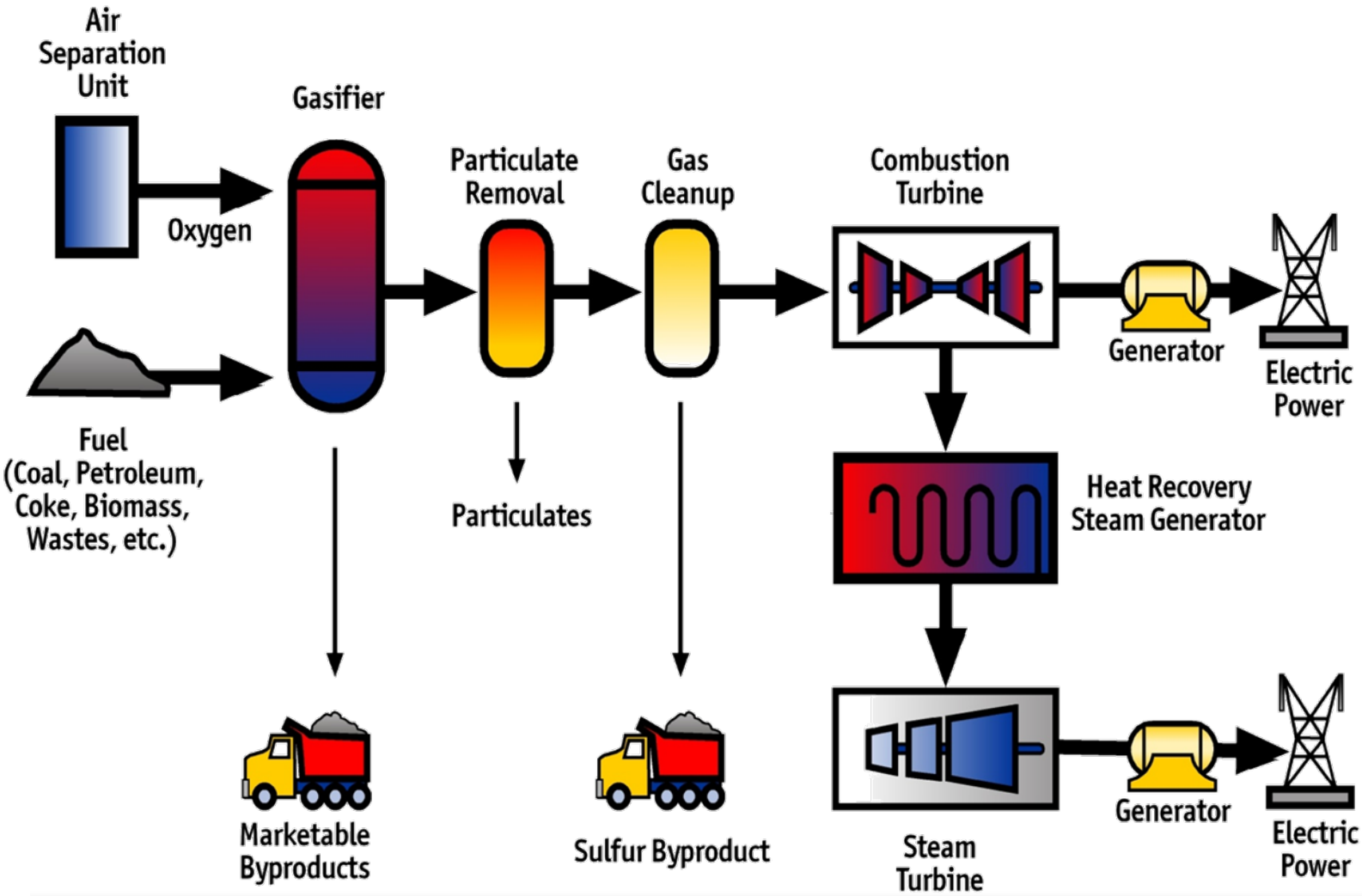
Need for Baseload Power in Indiana

- The Indiana State Utility Forecasting Group's December 2005 forecast shows a growing gap between future demand for electricity and existing resources to meet that demand in the state
- Between 2012-14, the State of Indiana needs an estimated 1,800 – 2,500 MW of additional baseload generating capacity
- Duke Energy Indiana (DEI) between 2012-2014 needs additional baseload capacity of 300-600 MW
  - Ability to use abundant and relatively low-cost local Midwest coal resources in a more environmentally benign manner
  - Need to plan for and comply with increasingly stringent environmental emission limits
  - Not just a matter of "compliance" but also include CO2 costs in decisions when selecting technology

5 Major Benefits of IGCC

- Ability to continue to use an abundant, relatively low cost, local resource (coal) to provide baseload power
- Potential to control emissions in a cost effective manner as environmental regulations become increasingly stringent
- Ability to utilize Duke Energy Indiana's prior experience with coal gasification technologies
  - 1995: Wabash River Coal Gasification/Repowering Project
- Potential to tap into future poly-generation capabilities – including production of fertilizer and transportation fuels
- Potential for future capture of CO_2

IGCC Power Plant Basics



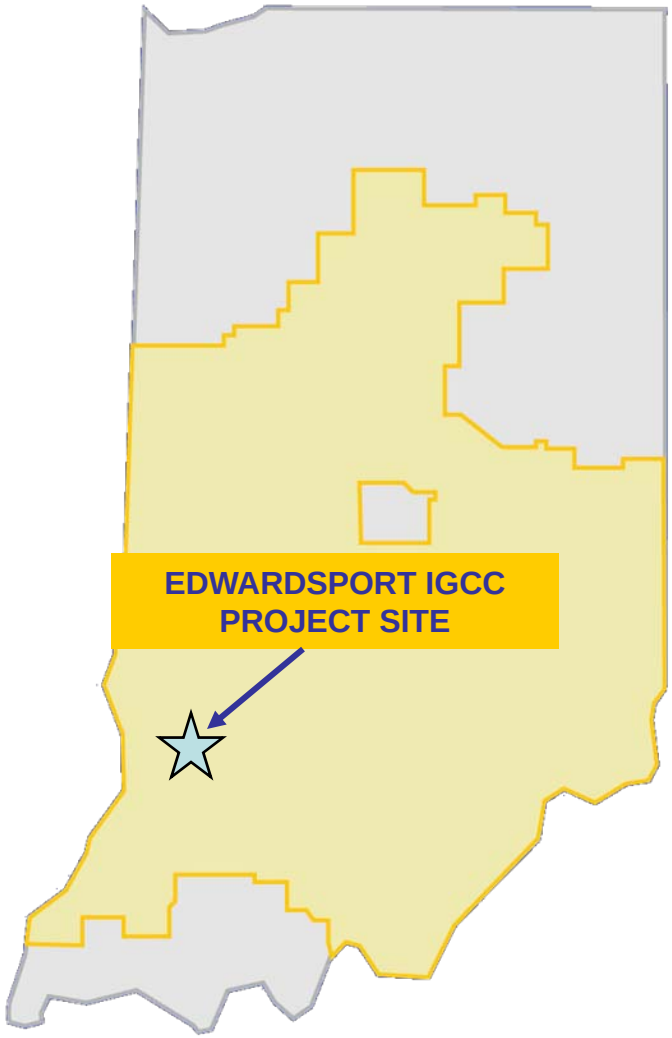
Gasification is a Reliable Technology

- Proven technology used by the chemical, refining, and fertilizer industries worldwide for > 50 years
- Used >35 years in the power industry
- >150 plants use >450 gasifiers worldwide
- Multiple gasification vendors

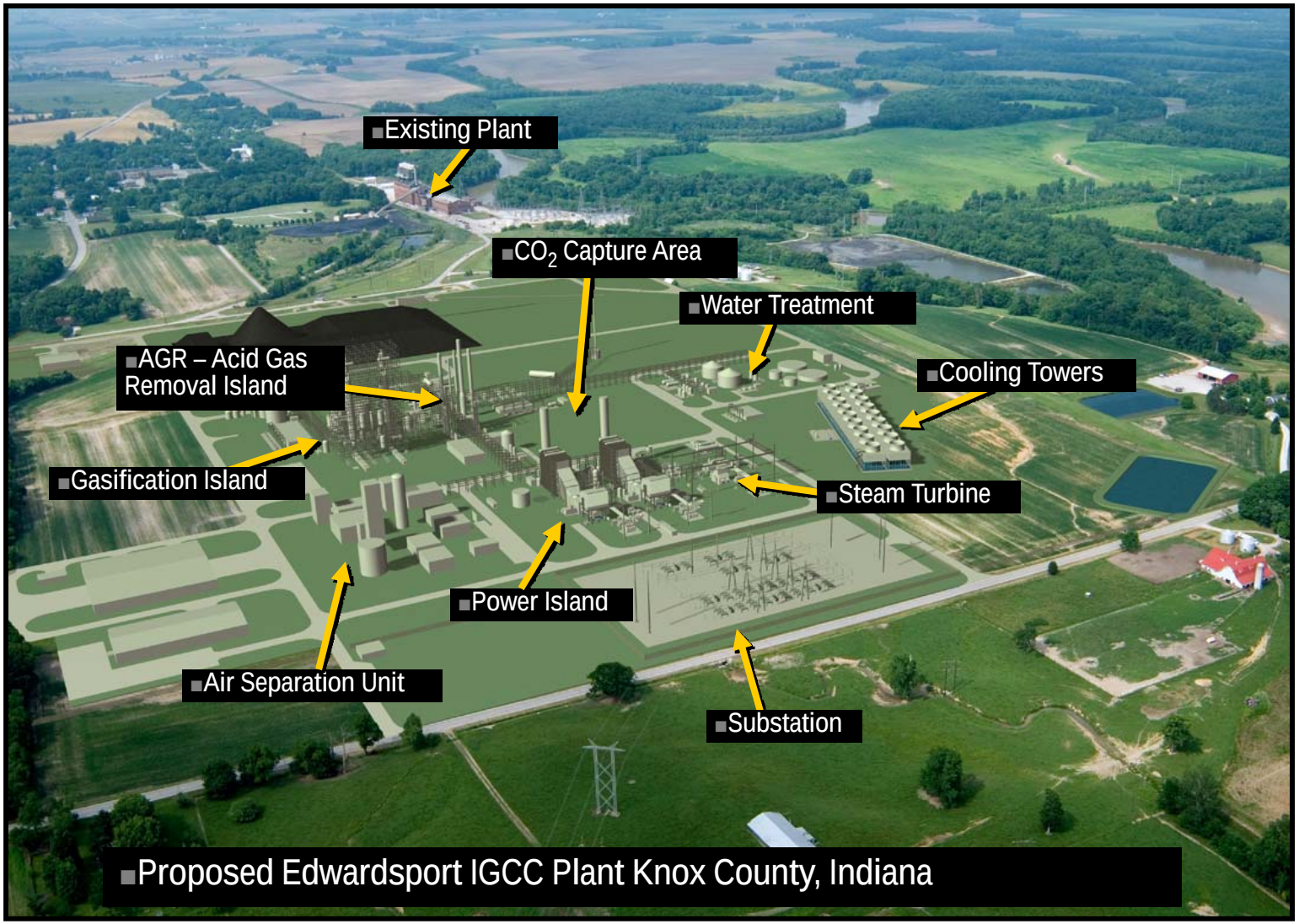
- Source: Gasification Technologies Council at www.gasification.org

Edwardsport IGCC Plant

- Net Output: 632 MW
- Heat Rate: < 9,000 Btu/kWH
- Target Availability: 85%
- Low Emissions Profile
- Total Installed Cost: $2.35 billion
- Projected Commercial Operation: 2012



IGCC Project Layout



Project Milestones

- Initiated Project Development – June 2004
- Initiated Front End Engineering and Design (FEED) Study with GE – February 2006
- Received Federal Investment Tax Credit Award ($133.5 Million) – November 2006
- Received Duke Energy Board of Directors Approval – October 2007
- Received CPCN Order from IURC– November 2007
  - Included condition regarding study of CO2 capture & sequestration
- Air Permit Issued – February 2008

Milestones (cont.)

- Celebration of Construction Start – July 2008
- Submitted Petition to IURC to update cost estimates to total installed cost of $2.35 billion and requested cost recovery for study of carbon capture (CPCN Order requires 6 month updates) – May 2008
- Awarded $1 million funding as "optional" Phase III project by DOE Regional Carbon Sequestration Partnership initiative as part of the Midwest Regional Carbon Sequestration Partnership led by the Battelle Institute– May 2008
  - "Piggyback testing" on wastewater well
- IURC Approved May 2008 Petition January 2009

Financial Incentives Vital for Early Mover Projects

- State and Local Incentives
  - IN SB 29 provides for timely recovery of IGCC construction and operating costs
  - IN SB 378 provides an investment tax credit of 10% of project cost for the first $500 million and 5% or the remaining cost paid over a 10 year period with some restrictions.
- Federal Incentives
  - Received federal investment tax credit award from EPACT 2005
- Total Incentives received over $460 million

Projected Economic Impact of New Plant

- Plant is expected to employ an estimated 80-100 people
- Majority of jobs high-skill/high-paying with an estimated annual payroll of $7 to $9 million
- Estimated 800 – 900 average number of construction jobs during 3 year construction period with a peak number of approximately 2,000
- Increased tax base for local and state economies
- Positions Indiana as a leader in clean coal technology
  - IGCC
  - Carbon Capture and Sequestration (CCS)

CCS at Edwardsport

- Potential for geologic sequestration of carbon was included as one of the siting criteria for the project
- Preliminary feasibility study completed by the Indiana Geological Survey in conjunction with the Midwest Geological Sequestration Consortium indicated sequestration potential in the area
- Equipment space was included in plant design to accommodate addition of carbon capture and sequestration equipment
- Additional work needs to be done to assess the technical capability of potential injection formations and cost associated with sequestration – step by step process

Potential Benefits of CCS

- Potential near term/least cost carbon mitigation technology for coal plants in a carbon constrained world.
- Potential deployment could be massive and there are benefits to being a first mover.
  - Next 5-10 years is critical to gain real-world operational experience with storage systems.
- Some regions will be able to use carbon storage for a long time with fairly constant and possibly declining costs.
- In other regions, storage appears to be more of a transition technology.
- Continue to provide reliable, least cost, baseload generation for our customers.

Key CCS Implementation Challenges and Opportunities

- Technical and financial
  - Initial capital cost premium
  - Capture technology / integration with plant
  - Power & efficiency loss
  - Monitoring, measurement and verification protocol
  - Transportation (pipelines) issues
- Regulatory and legal
  - Climate change legislation
  - Site characterization/qualification
  - Underground injection well permitting
  - Property rights
  - Risk management
- Public education and acceptance

Expected Commercial Operation in 2012