



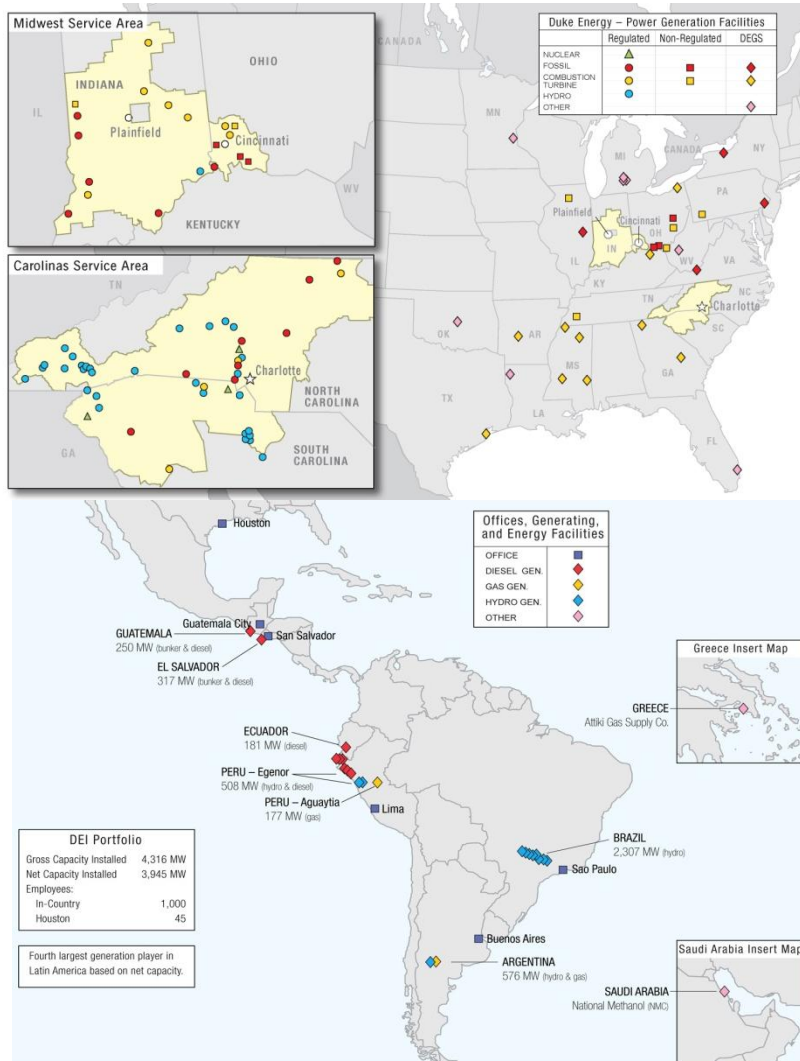
Project Overview of Edwardsport IGCC Plant and Proposed CCS Project

CSLF Financing Roundtable

Darlene Radcliffe

Director, Environmental Technology & Fuel Policy

About Duke Energy



- Operating revenues: \$15.2 billion (U.S.)
- Total Assets: \$49 billion
- Employees: 18,109
- Total U.S. Generating Capacity: 36,000 MW
- Franchised electric operations in 5 states serve 4 million electric customers
- Total Duke Energy International Generating Capacity: 4,000 MW, primarily in Latin America

Duke Energy's Aspirations

1. De-carbonize our power generation
2. Help make our communities the most energy efficient in the world

"These aspirations are grounded in our commitments to provide our customers with clean, affordable and reliable electric and gas services."

Jim Rogers

Chairman, President and CEO



Edwardsport IGCC Plant Overview

- Project Owner – Duke Energy Indiana
- Location – Edwardsport, Indiana
- IGCC Technology – GE Energy
- 630 MW base load generation
- Existing circa 1940's units (160 MW) to be retired prior to start-up
- Online 2012
- Approved Budget = \$2.35 B

Project Milestones

- Received \$133.5 million Federal Investment Tax Credit Award – November 2006
- Received CPCN from Indiana Utility Regulatory Commission (IURC) – November 2007
- Air Permit issued – February 2008
- Awarded ~ \$1 million by DOE (Midwest Regional Carbon Sequestration Partnership) for carbon sequestration assessment activities – May 2008

Environmental Benefits

- 80% reduction in criteria pollutants compared to current plant
 - Current plant emits 13,000 tons of SO₂, NO_x and particulate emissions annually and operates 30% of the time
 - New IGCC plant will emit 2,900 tons of SO₂, NO_x and particulate emissions annually while operating 100% of the time
- Less water usage (approximately 30%) compared to a conventional pulverized coal plant
- Generate less solid waste than a conventional pulverized coal plant
- Byproducts: sulphur and vitrified, non-leachable slag will be beneficially reused
- More economic to retrofit with CCS
 - Removing carbon dioxide from fuel rather than flue gas
 - Less auxiliary power needed than conventional pulverized coal plant

Key Economic Benefits

- Plant will employ an estimated 120 people
 - Majority of jobs will be high-skill/high-paying
 - Estimated annual payroll of \$7 to \$9 million
- Construction jobs will average an estimated 800 – 900 during the three year construction period
- 2,000 jobs during peak construction
- Increased tax base for local and state economies
 - Property taxes to be paid in years 1-10 are approximately \$33.3 million
 - Property taxes to be paid beginning year 11 are approximately \$5.2 million
- Ability to use local Indiana and Midwestern coal. Plant will use 1.7 to 2 million tons of coal annually

Proposed CCS Project

- The general arrangement design of the Edwardsport IGCC plant was created in anticipation of adding carbon capture equipment at a future date.
- In January 2009, the Indiana Utility Regulatory Commission approved a \$17 million FEED study for CO₂ capture at the Edwardsport IGCC plant.
- GE completed the process design phase of the study in December 2009. GE and Burns & McDonnell are currently preparing a preliminary design and cost estimate. The study will be complete in March 2011.
- Duke Energy has an application pending before the Indiana Utility Regulatory Commission to proceed with further saline storage site characterization. If approved, the \$42 million phase I study would proceed immediately.
- Duke Energy is also investigating other sequestration options in depleted oil and gas fields, as well as possible commercial opportunities for enhanced oil recovery in the Illinois Basin.

CCS Issues

LEGAL

Liability

- Identify and assess potential risks associated with long term storage of CO₂
- Define operations, pre-closure verification period, and post closure risk obligations and structure
- Determine who has long term environmental stewardship responsibilities

Property Rights

- Identify how pore space will be addressed

PERMITTING

Identify regulating entity

- A new Class V permit was created by USEPA for research projects under the Underground Injection Well program (Safe Water Drinking Act). A new Class VI has been proposed for CO₂ injection wells.

Identify requirements

- Site selection and characterization
- Monitoring, measurement and verification
- Financial assurances

EDUCATION

Stakeholder education

- Customers
- Employees
- Media
- Public
- Regulators and other federal, state and local government officials
- Shareholders

“Public acceptance and understanding of carbon storage is a critical step in establishing it as a viable greenhouse gas mitigation option.” NETL



Edwardsport IGCC Plant
www.duke-energy.com