



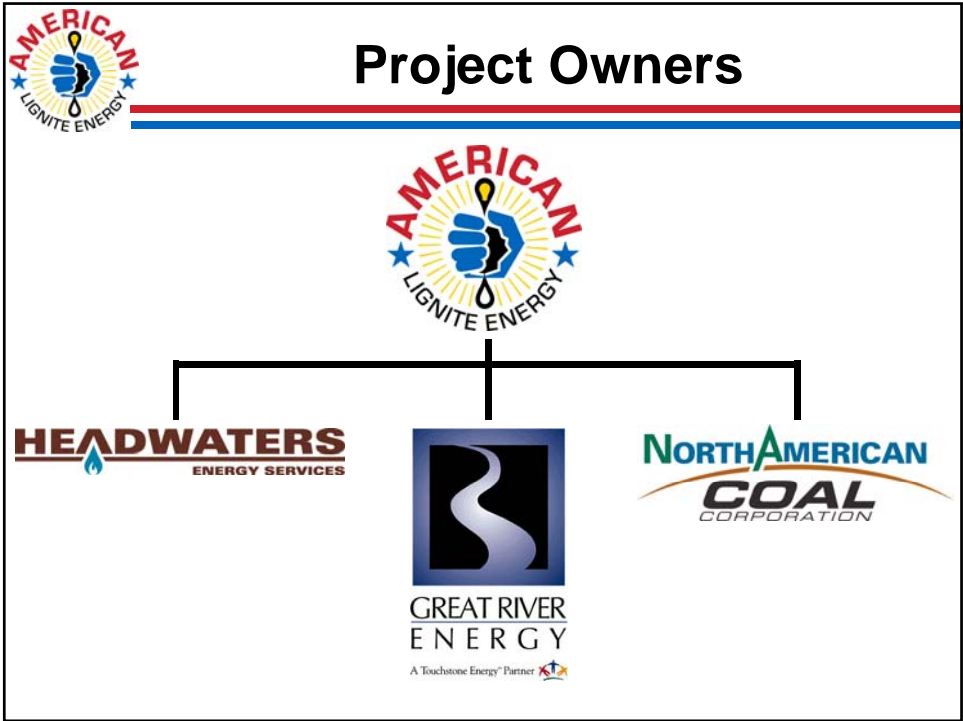
Coal-to-Liquids (CTL) Project In North Dakota


America's Strategic Resource for Energy Security



Overview

- Partners in ALE, LLC
- Goals of ALE, LLC
- Why Coal-to-Liquid Fuels and Why ND?
 - Strategic Resources
 - National Security
 - Economic Impacts
 - Environmentally Responsible
 - CTL Technology
- Proceeding forward



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- ## Goal
- To permit, construct, and operate an environmentally responsible coal-to-liquid transportation fuel project in North Dakota supplied with North Dakota lignite
 - All products and transportation fuels made from petroleum can also be made from coal
 - Gasoline, diesel fuel, plastics, etc...



Strategic Resources

- Coal is the most abundant, affordable, and secure source of energy
 - United States
 - Contains 27% of the world's supply of coal
 - Contains 4 times the energy of Saudi Arabia oil
 - North Dakota
 - Largest deposit of lignite in the world (25 billion tons)
 - 800 year supply at current production levels
- The US needs to develop and use all Strategic Resources



National Security

- A secure America requires energy security
- The United States currently depends on imports for 60 percent of our demand of liquid transportation fuels
 - The world consumption of liquid fuels is 85 million barrels per day
 - The US consumption of liquid fuels is 21 million barrels per day (~25%)
 - The US spent \$300 billion in 2006 on foreign sources of oil



Economic Impacts

- The CTL Project in ND
 - \$3-4 billion investment in ND
 - 3,000 construction jobs (3-4 years)
 - 700 full-time, high paying, permanent jobs
 - Gasoline production of 30,000 barrels/day
 - Net electricity export of 100-150 MW
 - Capture 8 million tons/year of CO₂ (EOR)
 - 30% increase in ND lignite production



Environmentally Responsible

- ALE incorporates carbon (CO₂) capture into its design that is expected to capture and sequester 70% of the total CO₂ produced in the process
- The carbon footprint for ALE fuels will be equal to the domestic fuels it replaces and **better than** fuels derived from imported petroleum it replaces
- Electricity from ALE's power block will have a CO₂ intensity equal to or better than that of a natural-gas-fired combined cycle plant
- Carbon capture and sequestration requirements in any legislation must be commercially **available, affordable and deployable**



Technology

- CTL technology exists today
 - Germany-1940's
 - South Africa-1980's
 - China—currently under development
 - Approximately 20 projects currently in early development stages in the US



Proceeding Forward

- The ALE project has 2-1/2 years of efforts to date
 - Pre-FEED study
- Intentions of going forward toward full-FEED in April, 2008
- Construction decision in 2010
- Plant producing gasoline and other products in 2013/2014



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