## **ADA Environmental Solutions**





**NASDAQ:ADES** 

A Leader in Clean Coal Technology

December 2007 - Bismarck, North Dakota



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### Coal: a Key Energy Resource

- ➤ Coal powers 50%+ of U.S. electricity generation
- ➤ 1,100+ coal-fueled boilers
- > Lowest cost energy source
- ➤ Secure energy source 250-year U.S. reserve

#### but

Clean coal technologies are critical to long-term viability and future acceptance



#### **R&D Support for Technology Development**

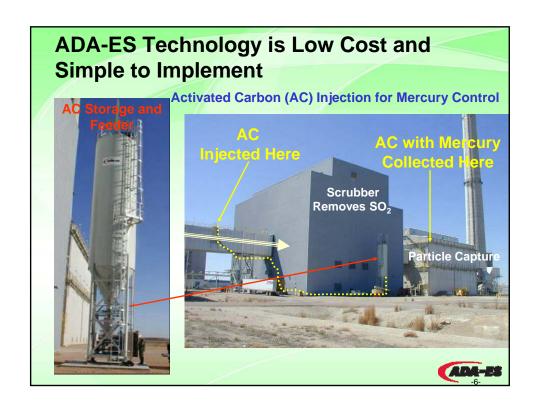
- ➤ 1985-1996: Awarded 50+ R&D contracts exceeding \$40 million
- > 2000: Won \$1.7 million DOE flue gas conditioning program
- 2001: Won \$6.8 million DOE mercury control program
- ➤ 2002: Won \$2.4 million DOE follow-on mercury control program
- ➤ 2003: Won \$8.8 million DOE full-scale reury control program
- 2004: Won \$9 million contract with We Energies under \$53 million mercury control region (50% funded by the DOE)
- 2004: Wire prox. \$5 million contract for 4 additional sites
- Won \$7.5 million DOE mercury control project for 2 plants
- > 2006: NexGen JV may provide up to \$5 million over next three years
- ➤ 2006: DOE award for development of ADESORB<sup>TM</sup>, a proprietary process to produce activated carbon
- ➤ 2006: \$4 million DOE subcontract for sorbent-based CO₂ control

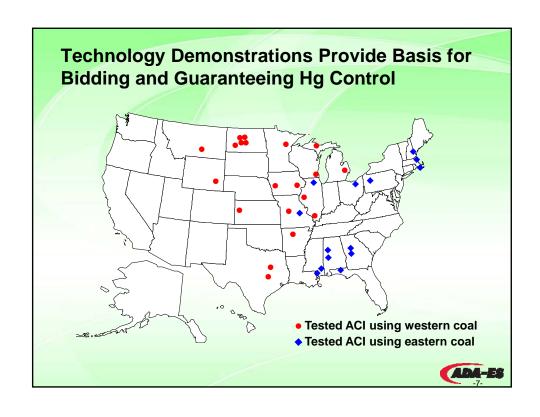


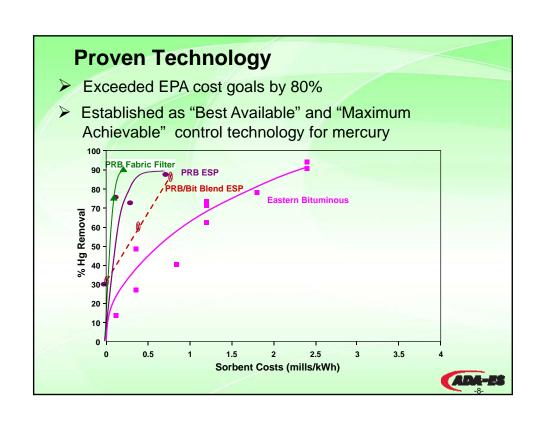
#### Mercury control in coal-fired power plants

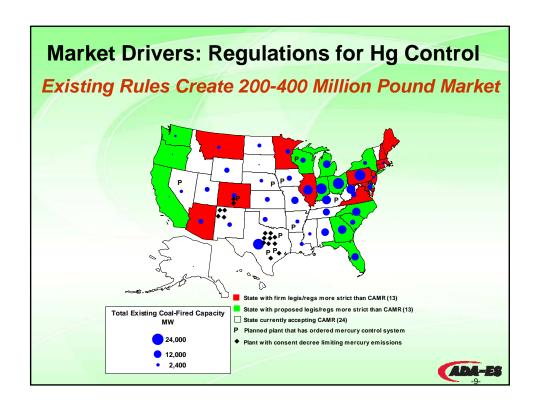
- Powdered activated carbon (PAC) used to clean flue gas
- > Hg molecules bond to surface area of PAC
- ➤ Demonstrated 90%+ Hg removal
- ➤ 13 States have new rules on Hg control with rules pending in another 13 States
- Industry believes a likely case is that a strict Federal rule will be enacted











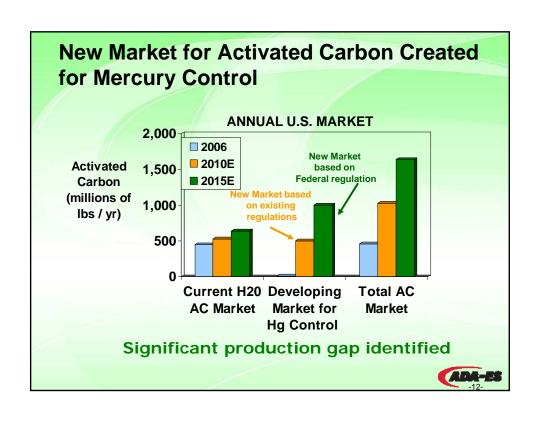
### Prospects for New Federal Legislation Expected to Create 1 Billion Pound Market

for AC by 2012-2015

- ➤ EPA sued by multiple states and environmental groups re: CAMR
- ➤ Ruling from the DC District Court expected this year
- ➤ Two multi-pollutant (SO<sub>2</sub>, NO<sub>x</sub>, Hg, CO<sub>2</sub>) bills introduced to the Senate in April
  - Bipartisan support
- ➤ Tighter Hg, NO<sub>x</sub> and SO<sub>2</sub> controls are not controversial with focus on CO<sub>2</sub>







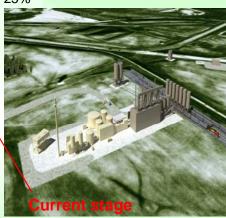
#### **Recent Activated Carbon Market Activity**

- ➤ AC pricing in water treatment has risen 80% compared to last year
- Four utilities have issued RFPs for AC in past 4 months
  - 200 million pounds per year requested
  - 3, 5, and 10 year terms requested
  - All requests for higher-priced Treated Carbon (TAC) for Western coals
  - TAC quoted by AC suppliers at \$1.00/lb and above
    - Current spot \$0.85+



#### **ADA-ES New Activated Carbon Production**

- Largest AC plant(s) in North America
- Capital cost: approx. \$260mm per production line
- ➤ Would produce approx. \$100mm in product per year at current prices
- > IRR expected to be greater than 25%
- ➤ 4-6 year process:
  - Test products
  - Secure lignite feedstock
  - Design plant
  - Select sites
  - Permits filed and pending
  - Purchase equipment
  - Permits issued/Construction
- Permitting multiple sites: goal of AC production by 2010





# Permitting AC Plants at Three Lignite Mine-Mouth Sites (Two Lines per Site)

- 1. Adjacent to Red River Mine in NW Louisiana
- 2. Adjacent to Falkirk Mine near Bismarck, ND
- 3. Alternate ND site to be announced



## **Summary**

- ADA-ES has been instrumental in creating a new mercury control market
  - Existing rules: 150 ACI systems, 400 mm lbs/yr AC
  - New Federal Rule: 600-700 ACI systems, 1 B lbs/yr AC
- ➤ ADA is already a leading provider of engineering services and equipment for the mercury control market
- ➤ Building new AC plants for this market
  - Operating permits for 6 production lines expected Q1-2 2008
  - Well positioned to respond to AC demand by Federal rule
- > Developing control technology for Greenhouse gases
  - The next big opportunity in Emission Control

