Scale-Up Challenges to Current Capture Technologies

Cost

Energy Penalty

Water

4,000 TPD
**CCT Program Success Stories**

**Advanced Pollution Controls**
- Installed on 75% of U.S. coal plants
- 1/2 to 1/10 cost of older systems

**HAPS & Hg Data**
- Quantified HAPS Levels
- Basis for Hg Regulations

**Advanced Coal Power Systems**
- World’s largest CFBC power plant
- Two “super-clean” coal-based IGCC

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**Images:**
- FGD Scrubbers
- Low-NO\textsubscript{x} Burners
- JEA CFBC
- Tampa IGCC
- Wabash IGCC

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**Graph:**
- Time (x-axis) vs. Cost ($y$-axis) with a downward trend line.
Actual Trend of FGD Capital Cost

Modeling can help to avoid such cost increases

Changing Scale-up Paradigm: Answering Scale-up Questions

- 10 simulations to analyze the commercial-scale design
- Identified potential problem with coal injection

Computational Studies
- Length/Diameter
- Coal feed rate
- Solids circulation rate
- Recycled syngas
- Coal jet penetration

13 MW PSDF gasifier, Wilsonville, Al

285 MW Commercial gasifier