

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

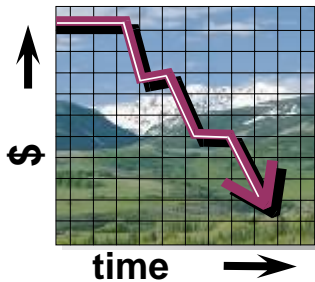
FGD Scrubbers



Low-NO_x Burners

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



JEA CFBC

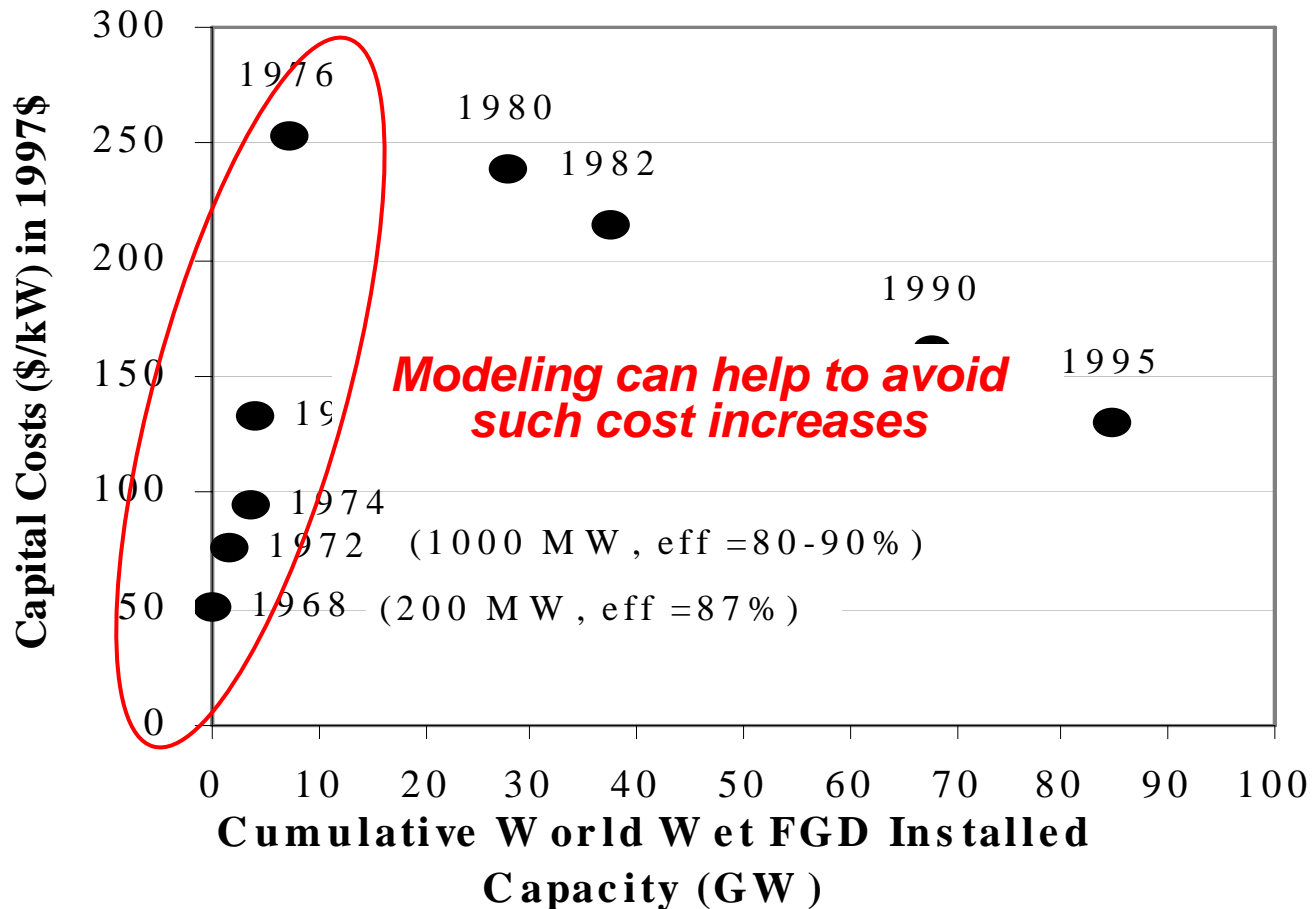


Wabash IGCC



Tampa IGCC

Actual Trend of FGD Capital Cost



Rubin et al, "Use of Experience Curves to Estimate the Future Cost of Power Plants with CO₂ Capture" International Journal of Greenhouse Gas Control I (2007) 188-197.

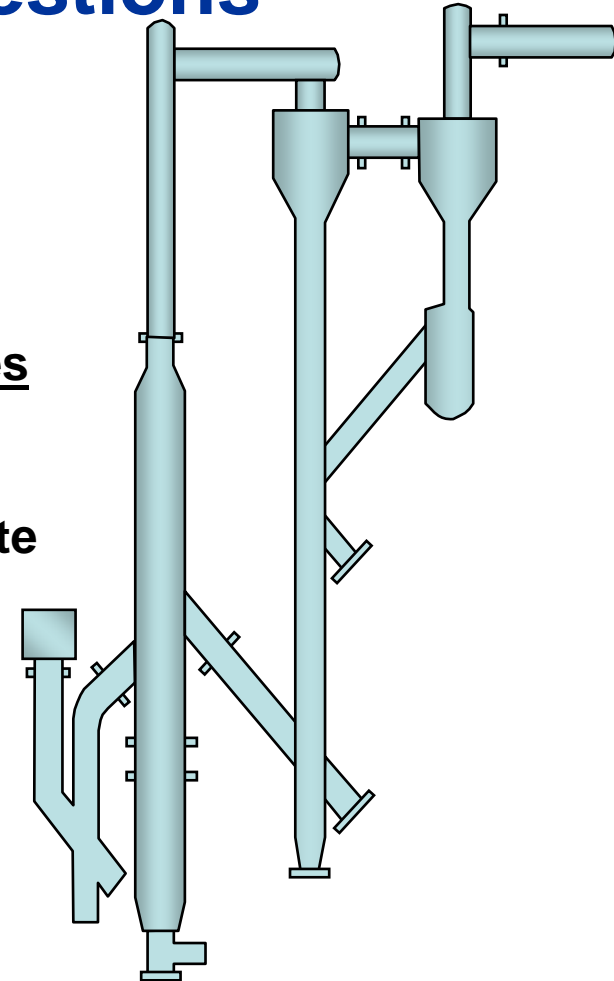
Changing Scale-up Paradigm: Answering Scale-up Questions



13 MW PSDF
gasifier,
Wilsonville, AL

Computational Studies

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



285 MW Commercial gasifier

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