

# National Carbon Capture Center: Pre-Combustion

John Socha



U.S. DEPARTMENT OF  
**ENERGY**



# Project Facts



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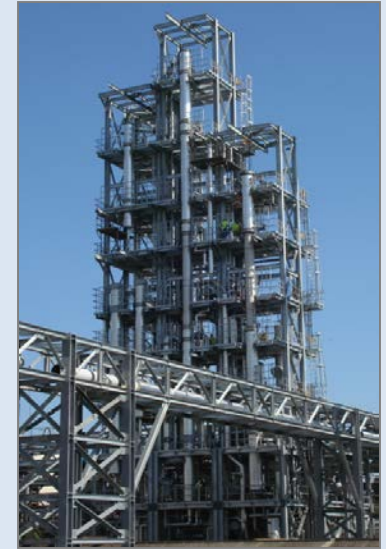


10/08 to 9/14

Project Value \$251M

6/14 to 5/19

Project Value \$188M



## Industry Partners



ELECTRIC POWER  
RESEARCH INSTITUTE

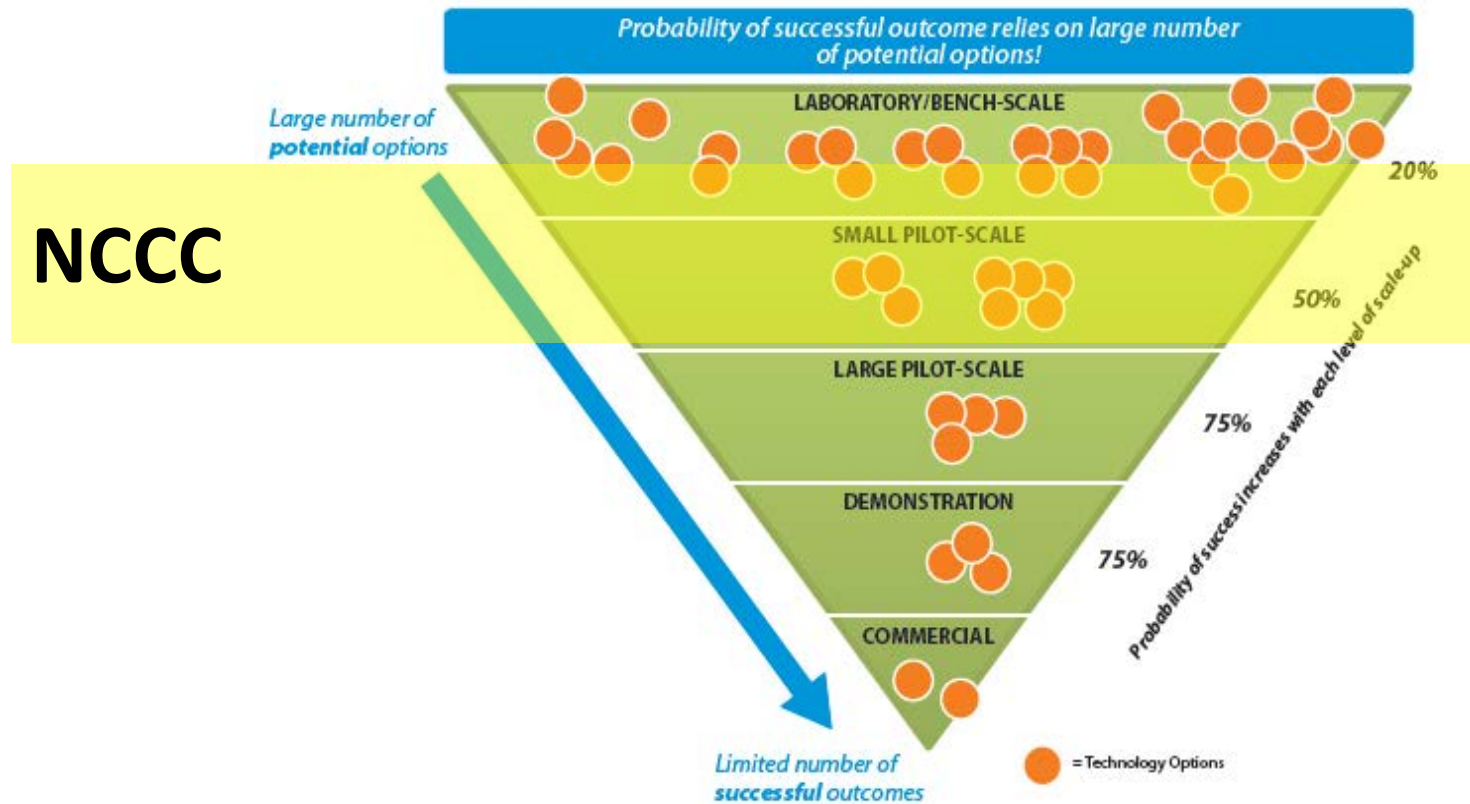


CLOUD PEAK  
ENERGY®



Luminant

Offering a world-class neutral test facility and a highly specialized staff, to accelerate the commercialization of advanced technologies and enable coal based power plants to achieve near-zero emissions (low cost CO<sub>2</sub>).



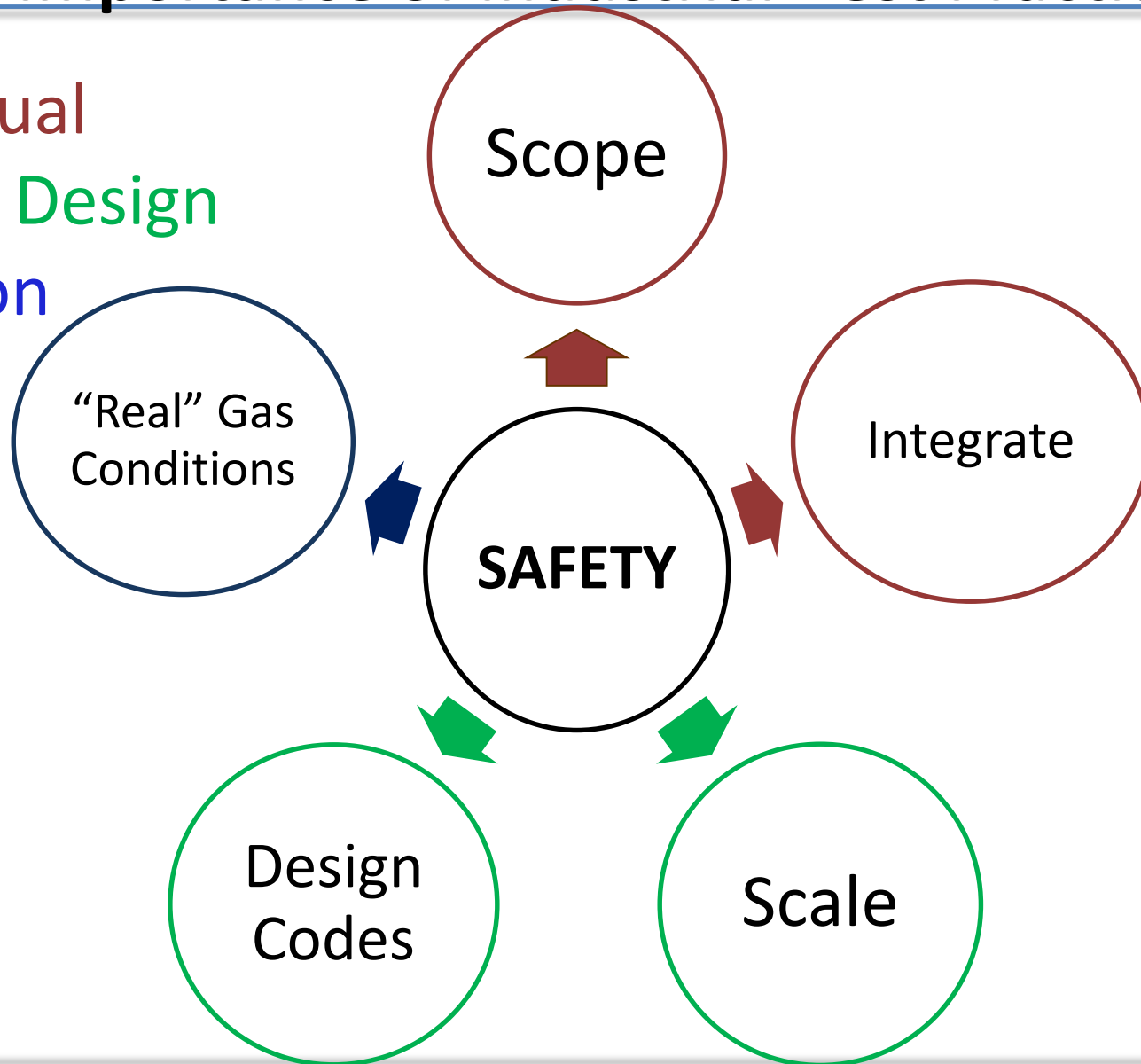
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# Lab to Pilot

## The Importance of Industrial Best Practices

Conceptual  
Detailed Design  
Operation

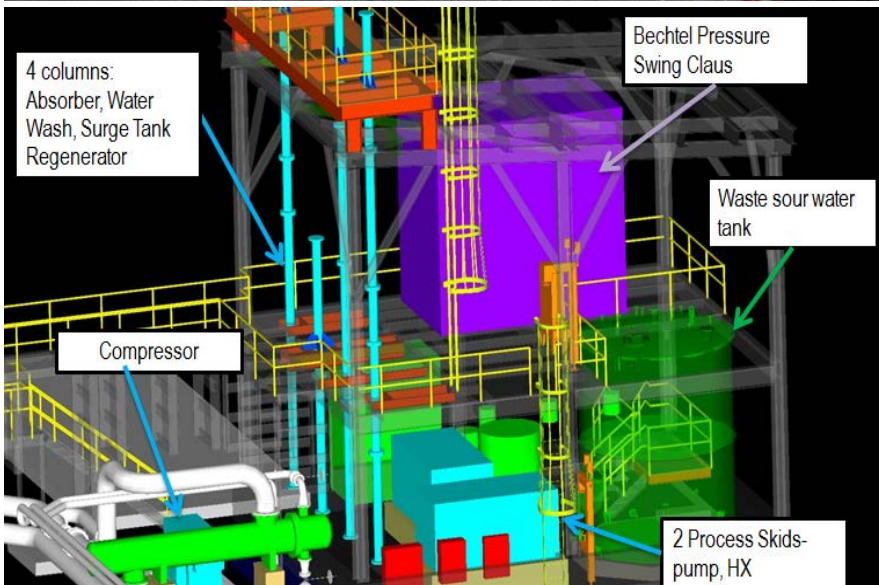


# Process Safety Management

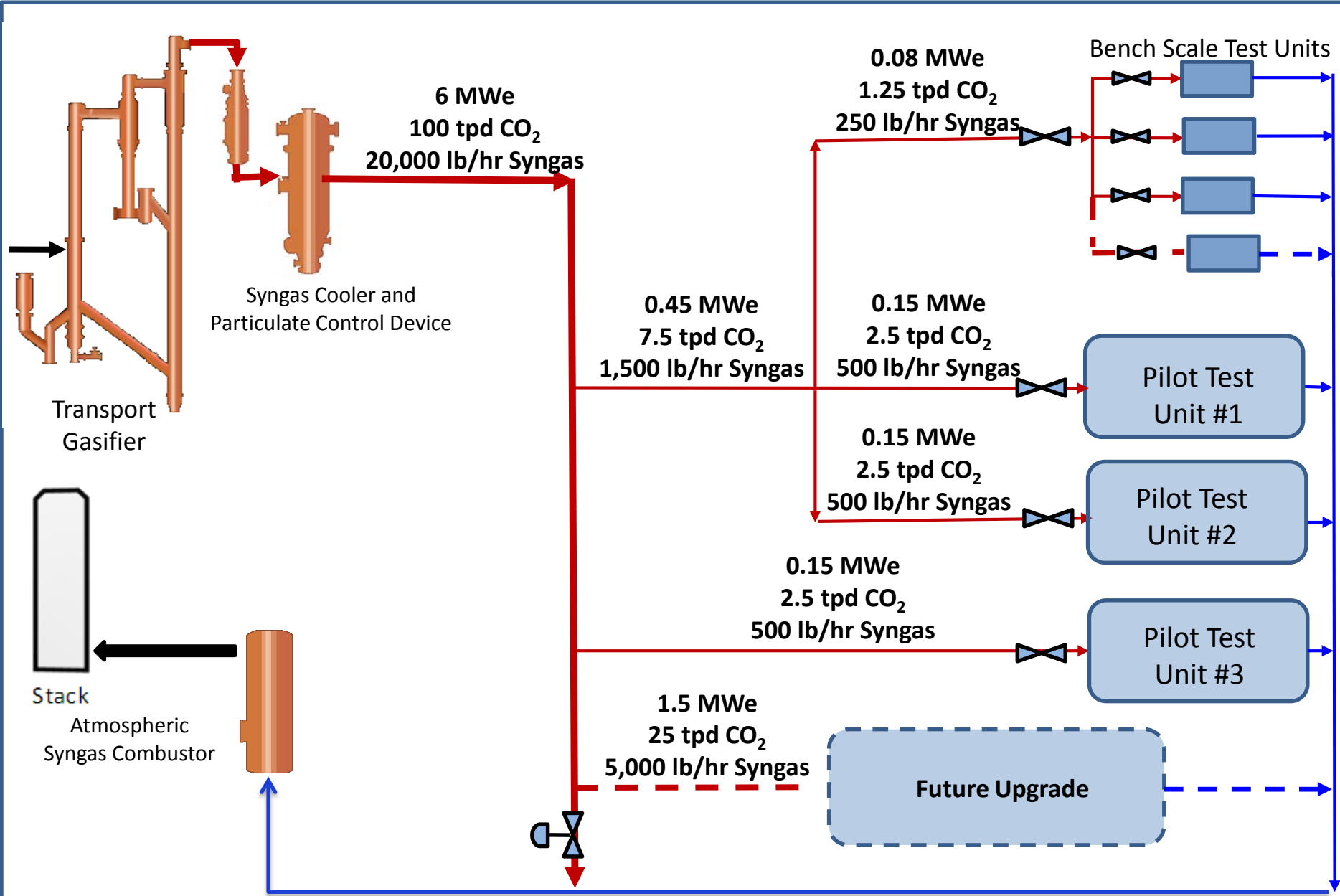
- Process Safety Information
- **Process Hazard Analysis**
- Operating Procedures
- Training
- Contractors
- **Mechanical Integrity**
- Hot Work
- Management of Change
- Incident Investigation
- Compliance Audits
- Trade Secrets
- Pre-startup Safety Review
- **Emergency Planning and Response**



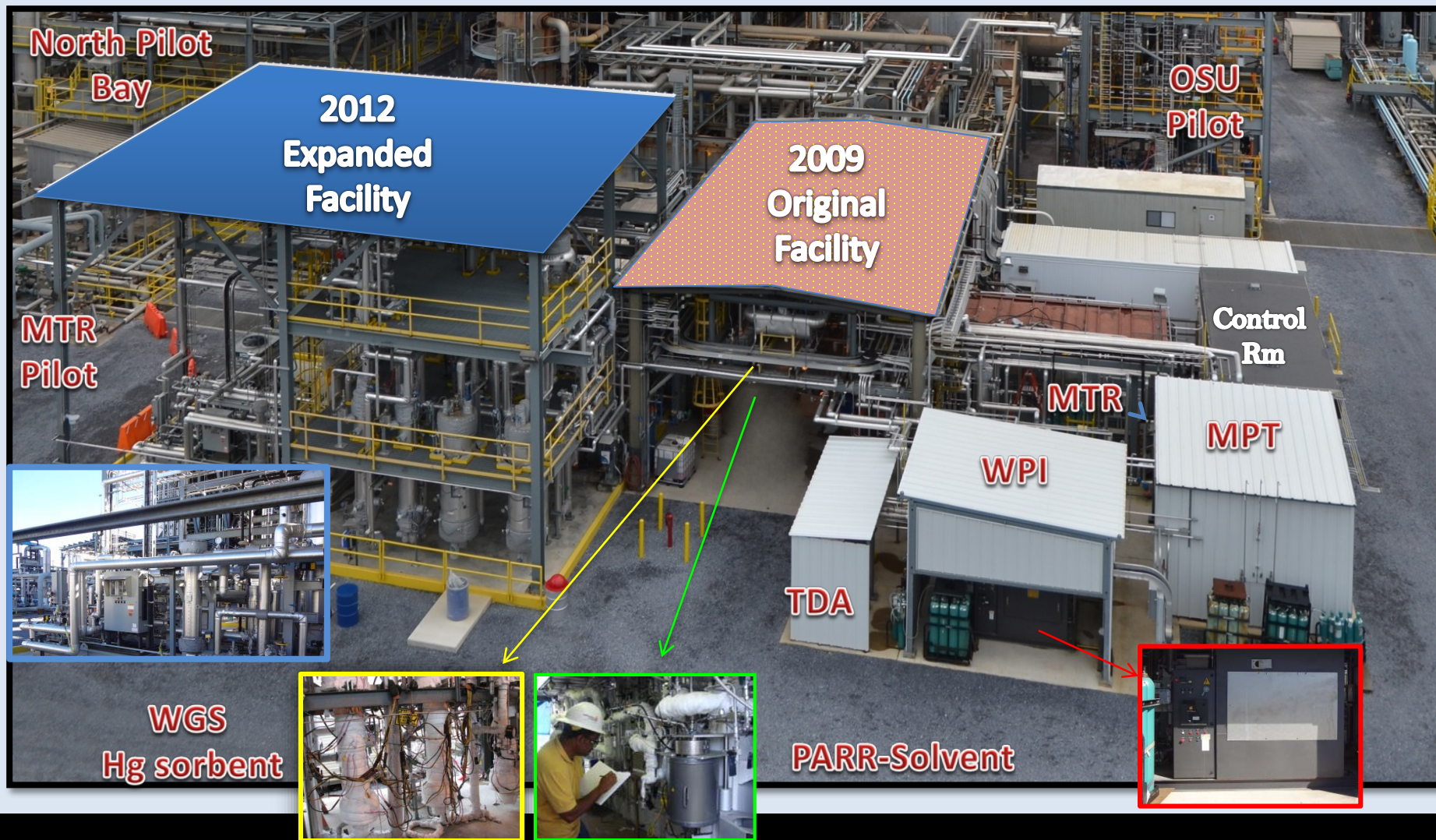
# Example



# Facilities Expansion



# Pre Combustion Carbon Capture





# Pre Combustion/Gasification Results

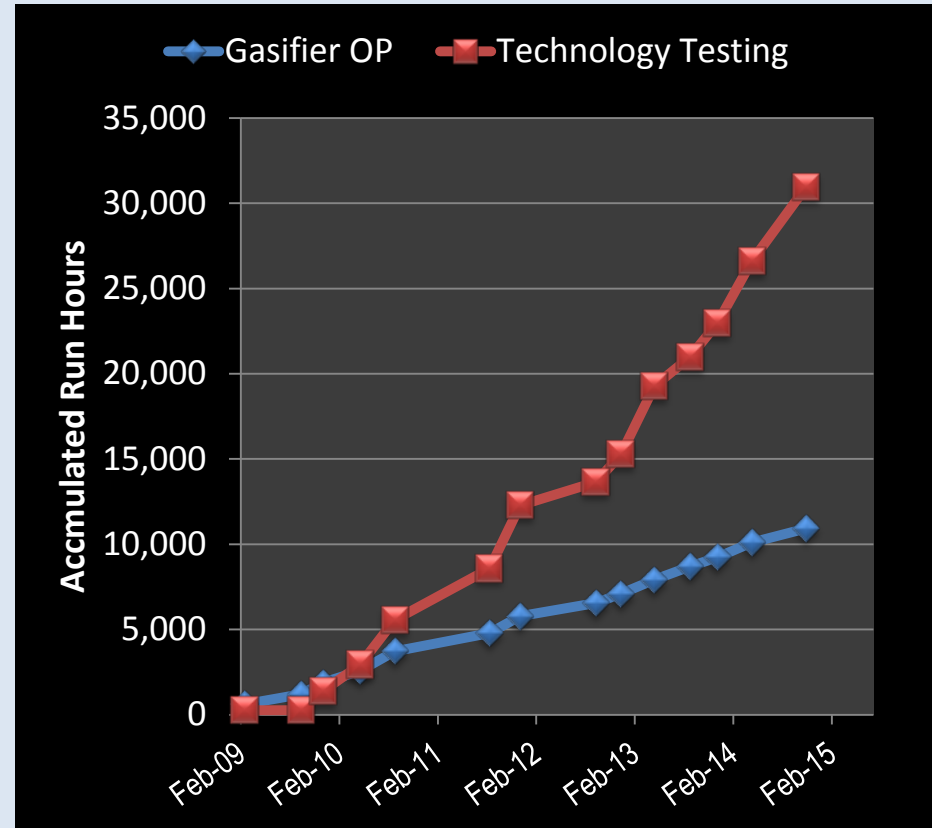
14 gasification runs – 10,920 hours

More than 30,000 hours combined testing of technologies

## Technologies Tested

	Solvent (4)	Sorbents Catalyst (9)	Membrane (4)	Chemical Looping (1)
<b>Bench (Component)</b>	NETL UPitt UA	WGS COS SR F-T JM Hg TDA AP	H <sub>2</sub> /CO <sub>2</sub> WPI MTR MPT Eltron	
<b>Pilot (System)</b>	SRI Int.		MTR CO <sub>2</sub>	OSU SCL

## Accumulated Hours



# Tests Planned: Pre Combustion

## Solvents:



## Sorbents/Catalysts:



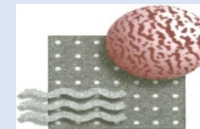
MHPS GROUP



## Membranes:



## Chemical Looping:



**Media and Process Tech Inc.**

**SRI International**



= Presenter at this conf.

# Acknowledgements



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