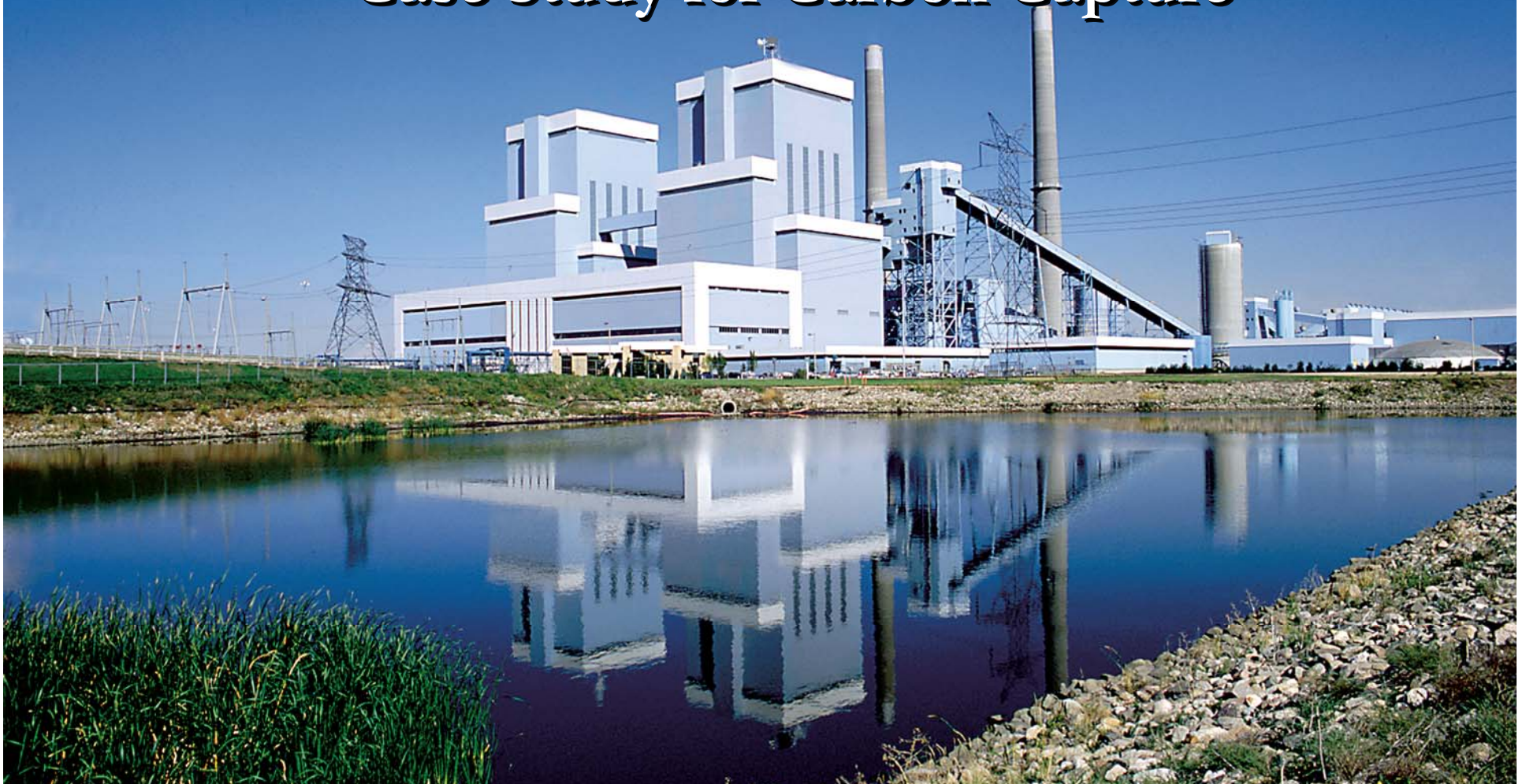
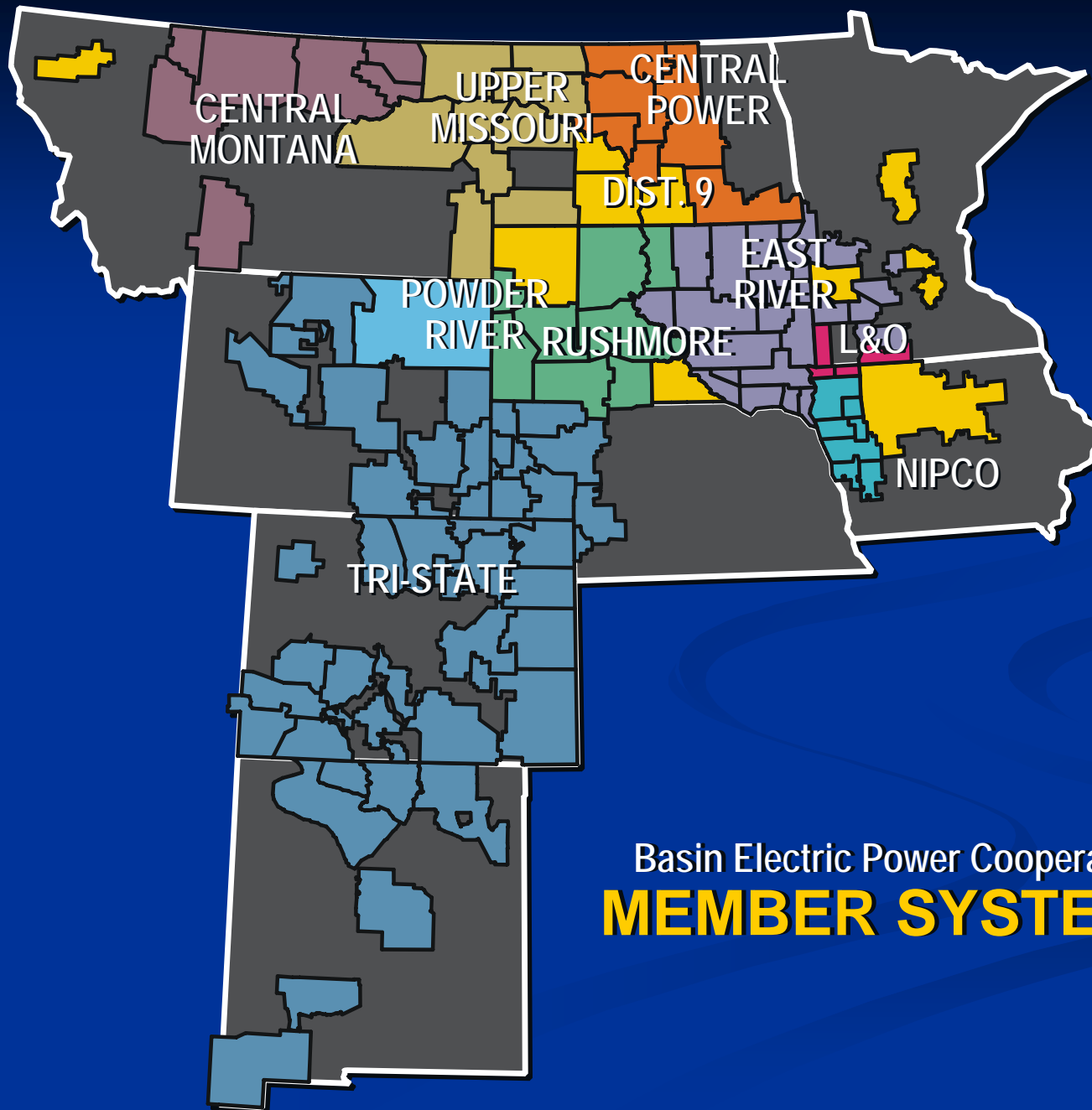


# Basin Electric Power Cooperative

## Case Study for Carbon Capture

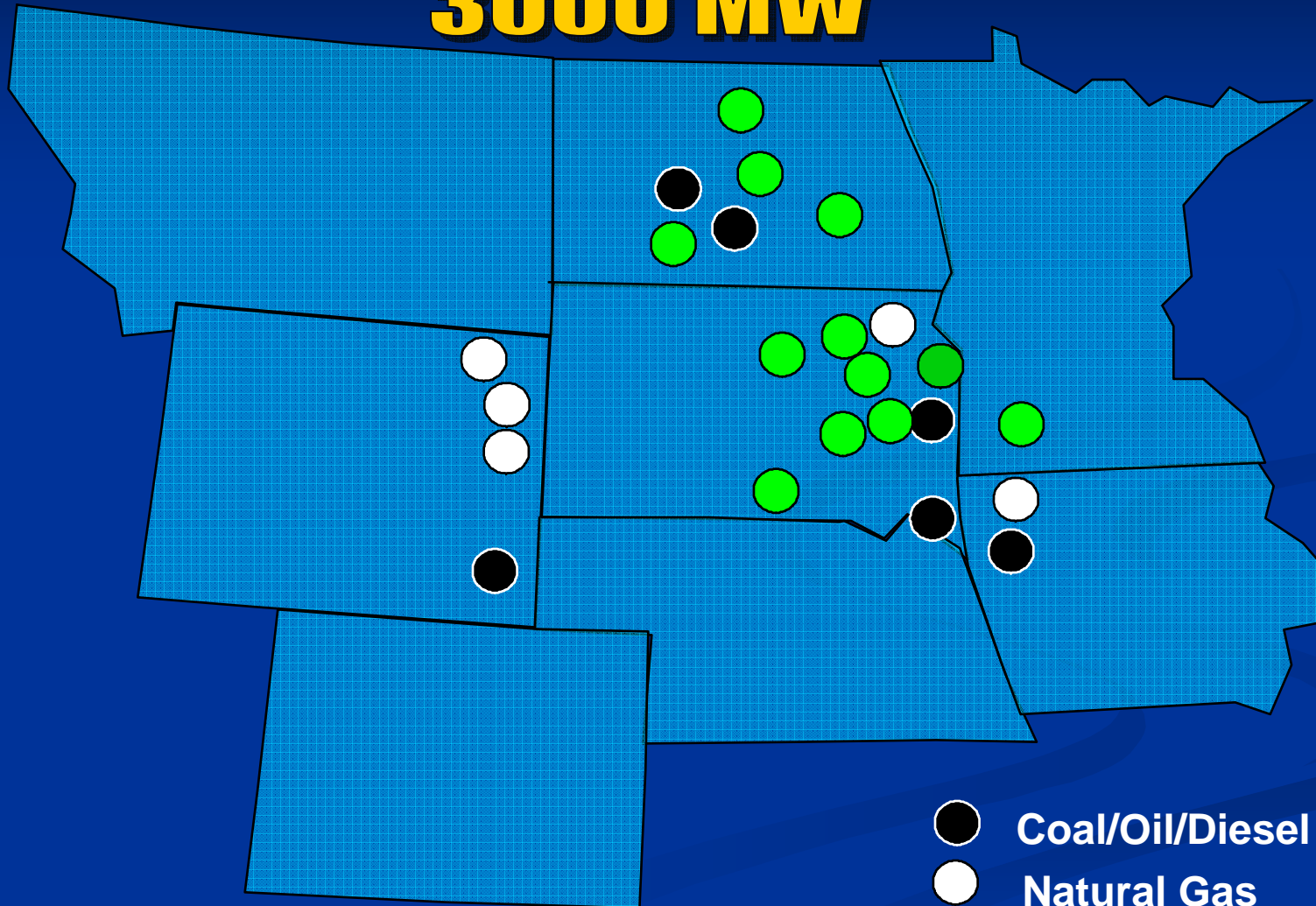




Basin Electric Power Cooperative  
**MEMBER SYSTEMS**

# Power Supply Facilities

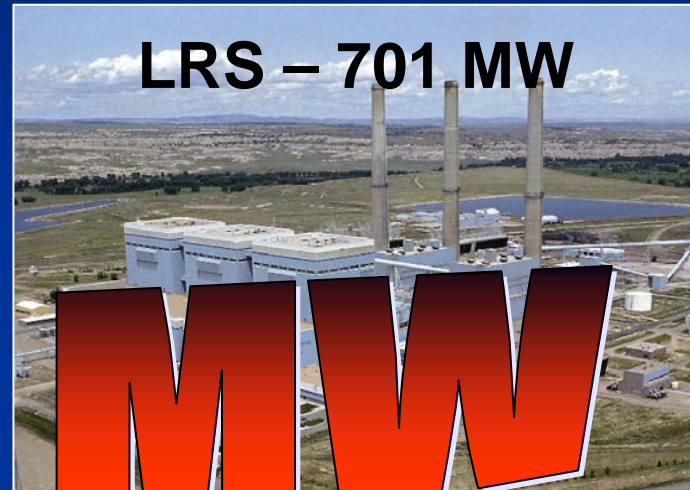
## 3000 MW



- Coal/Oil/Diesel
- Natural Gas
- Renewables



# Base-load Facilities



**2300 MW**

# Wind/Gas Option



# 95% Power Supply

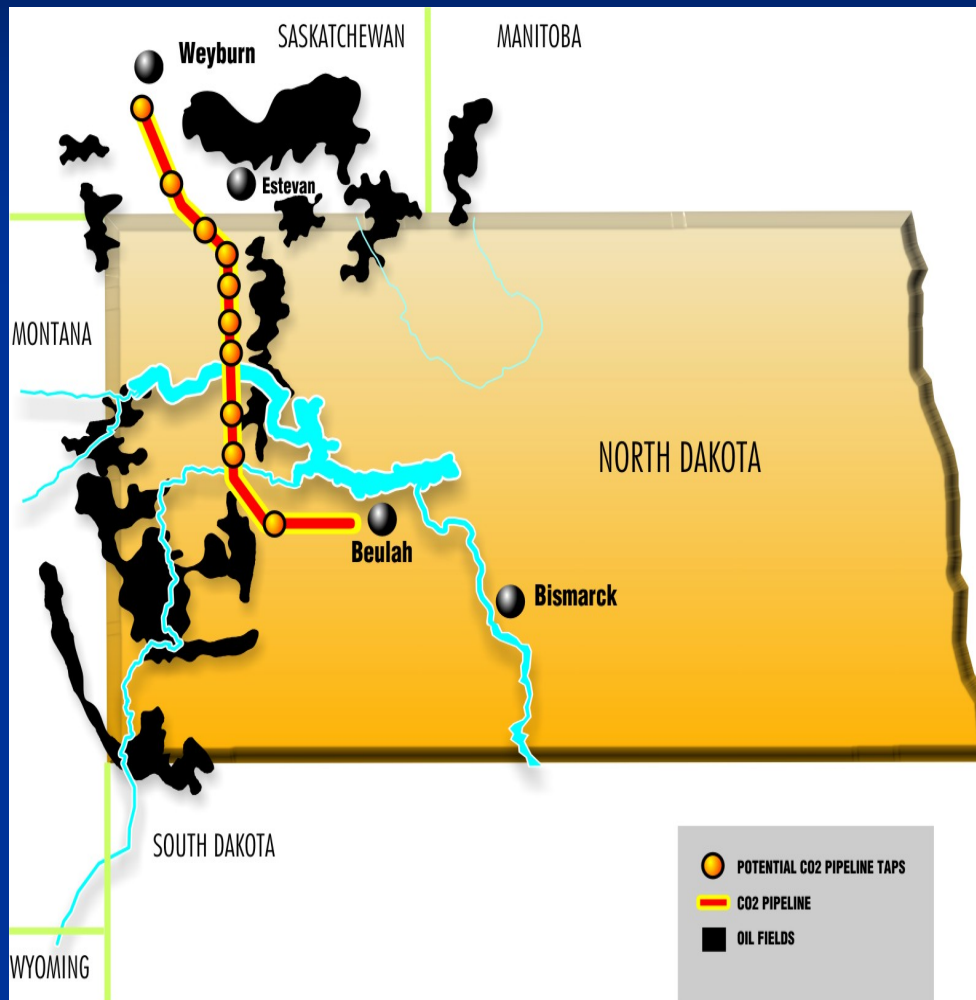






***Dakota Gasification  
Company***

# CO<sub>2</sub> Pipeline



- 205 miles
- 14" and 12" carbon steel pipe
- Strategically routed through Williston Basin oil fields



# Dakota Gasification Company

## World's Largest Carbon Sequestration Project

Weyburn, Saskatchewan

10 Million Tons Sequestered To Date



240 mmscf/d  
Pipeline capacity

CO<sub>2</sub> PIPELINE ←

Current flow rate:  
153 mmscf/d



Compressors

CO<sub>2</sub> →



# EnCana and Apache







# DGC/AVS



# Carbon Capture – Antelope Valley Station (AVS)

- CO<sub>2</sub> Business Plan – May 1
- Dakota Gasification Company (DGC) – experience
- Infrastructure – Additional pipeline capacity
- AVS close proximity to DGC
- Demand/market for CO<sub>2</sub>
- Plains CO<sub>2</sub> Reduction Partnership (PCOR) – CO<sub>2</sub> source for Phase III
- Building future coal generation – Demonstrating Carbon Capture and Storage (CCS) is vital

# Carbon Capture – AVS

- Demonstration/Commercialization Project
- AVS –two 450 MW units, lignite, dry scrubbers/baghouse
- 120 MW slipstream
- 57 MMSCF or 3,000 tons/daily
- CO<sub>2</sub> – used in Enhanced Oil Recovery (EOR)



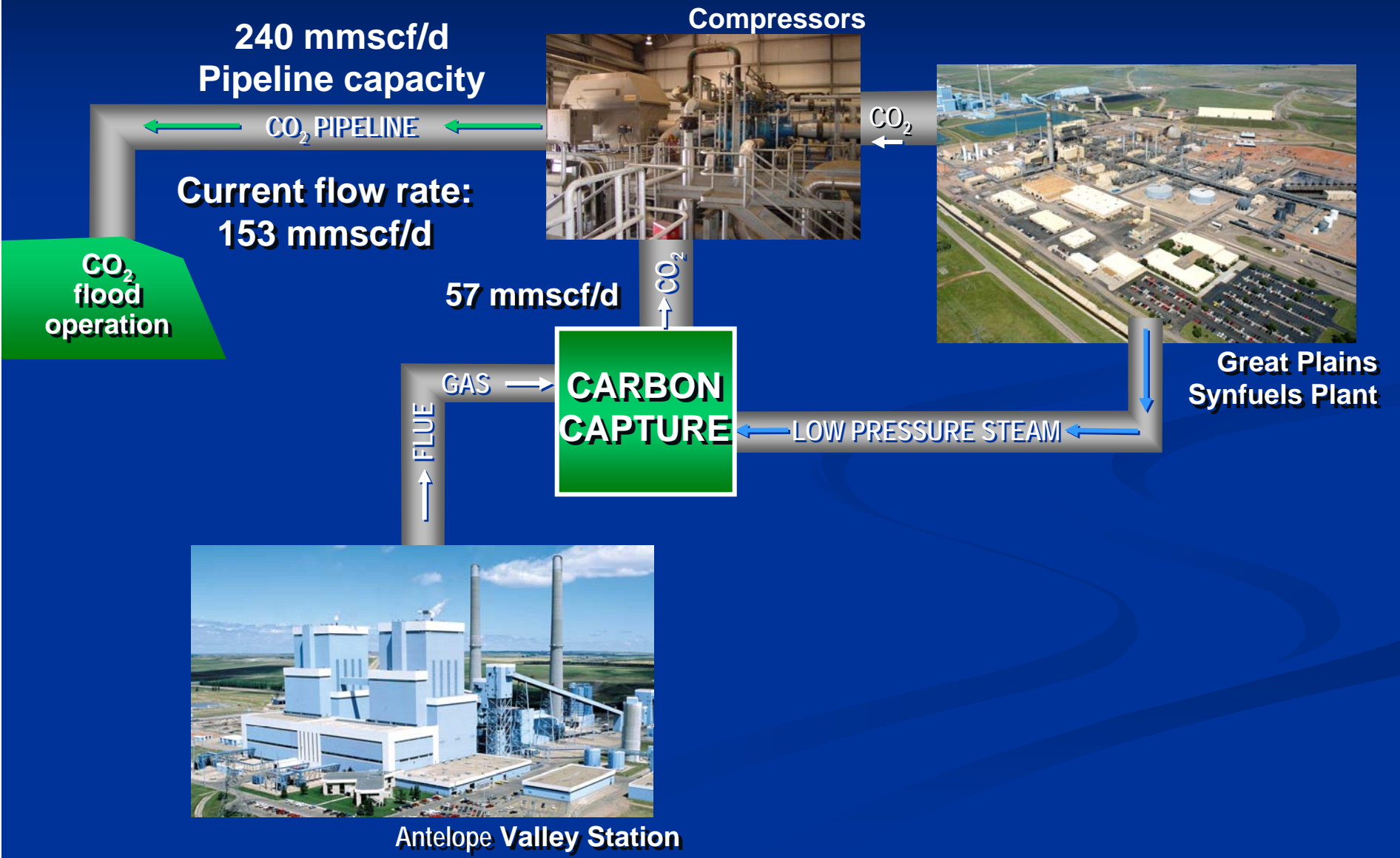
# Carbon Capture – AVS

- Request For Proposal (RFP) released on June 1
- Sent to 10 companies, RFP placed on website
- Plant site visit encouraged in RFP
- Proposals due - September 4
- Basin Electric's selection – December 1

# Carbon Capture – AVS

- Cansolv Technologies Inc.
- Carbozyme, Inc.
- Powerspan
- Babcock & Wilcox
- HTC Pureenergy
- ALSTOM
- Mitsubishi Heavy Industries
- Fluor
- GE Global Research
- ConocoPhillips

# Carbon Capture Optimization Project





# Carbon Capture – AVS

## Final selection

- Technical feasibility
- Commercial feasibility
- Financial strength/participation
- Project business model
- Environmental

# Carbon Capture – AVS

## Challenges

- Great risk in being the first to commercialize the newest technology
  - Reliability
  - Cost
  - Station Power for CCS
  - Performance/guarantees

# Carbon Capture & Storage

- Opportunities
  - EOR is a driver for our AVS CCS project
  - EOR is a bridge for understanding future sequestration in saline aquifers & unrecoverable coal seams
  - Our industry needs Carbon Capture Technology demonstrated – R & D must continue
  - Policies and regulations must be developed for CCS



**Thank You!**

