Preliminary Financial Modeling Results

• Project Team Working with Commercial Bank Representatives
• Commercial Credit Underwriting Model Being Modified for Industrial CCUS
• Initial Focus on Single CO2 Sources from Ammonia, Hydrogen or Ethylene Oxide Transported to Single EOR Field
• Information in Public Domain Used to Inform Model
Project Overview

**Element 1 – CO2 Capture**

- CO2 is captured from a single source and sold to a single end user for EOR
- Revenue generated by the sale of the CO2 must provide sufficient revenue to meet minimum Commercial Bank underwriting requirements

**Element 2 – CO2 Transportation**

- CO2 is moved via dedicated pipeline from single source to EOR user
- Revenue generated by toll to move CO2 must provide sufficient revenue to meet minimum Commercial Bank underwriting requirements

**Element 3 – CO2 EOR**

- CO2 is purchased at delivered price based on combined cost of capture and cost of transportation
- Revenue generated by EOR and sale of additional oil must provide sufficient revenue to meet minimum Commercial Bank underwriting requirements
CO2 Capture and Transportation Costs $/Metric Ton*

- Ammonia 1.0 DSCR
- Ammonia 1.25 DSCR
- Ammonia 2.0 DSCR
- Ethylene Oxide 1.0 DSCR
- Ethylene Oxide 1.25 DSCR
- Ethylene Oxide 2.0 DSCR
- Hydrogen 1.0 DSCR
- Hydrogen 1.25 DSCR
- Hydrogen 2.0 DSCR

*Cost estimates based on capture of 1,000,000 Metric Tons/year and 100 mile pipeline
Key Drivers in the Financial Model

• Assuming no major technological advances, the cost and operation of the CO2 capture and transportation systems will be similar for all borrowers

• Credit strength of the underlying participants will impact borrowing costs which in-turn impacts the delivered cost of CO2 for EOR
  – Credit spreads* based on underlying credit ratings 10/27/2016
    • AAA + 76 bps
    • A +108 bps
    • BBB +174 bps

• Equity requirements may increase as credit quality declines

• Higher rated borrowers may have access to longer tenor debt

*Source: Bloomberg – 10 year bond spreads
Over Time, Oil Projections have Varied

World Oil Prices $/bbl*


*source EIA Annual Energy Outlook
Permian Basin “Rule of Thumb” Oil Values

Estimated Oil $/bbl @ Projected Delivered Cost

- Ammonia $34.50/MT
- Ammonia $38.75/MT
- Ammonia $51.90/MT
- Ethylene Oxide $37.50/MT
- Ethylene Oxide $42.75/MT
- Ethylene Oxide $58.90/MT

*Oil price calculated based on delivered cost of CO2. $Oil/bbl*2% * 18.9=CO2 $/MT