Tabula Rasa Partners

2016 CO_2 Conference - Midland

Tabula Rasa
ENERGY

CO_2 – EOR
Surviving Low Oil Prices

Prospective from the Private Equity Point of View

Tabula Rasa ENERGY

Fundamentals of CO_2 EOR Projects

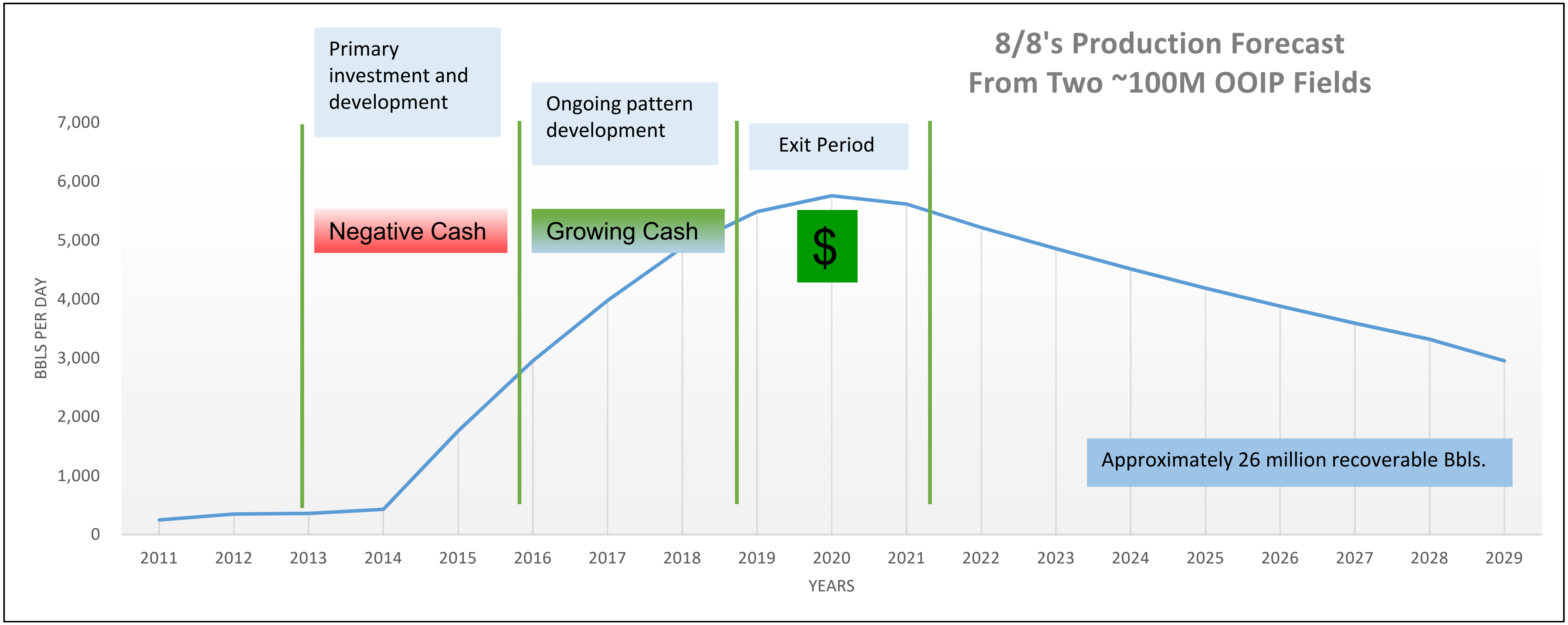
Operational

- Long Term Projects 15+ Years
- Takes four to five years to reach peak production from first CO_2 injection
- High confidence in ultimate recovery but timing can shift
  - Assumes flooding known reservoirs like Permian Basin San Andres
- Once CO_2 injection has started, stopping is difficult

Financial

- Significant upfront financial commitments
  - CO_2 Purchase Agreement
  - Upgrade – Wells & Facilities
  - New CO_2 pipeline
- Need to be close to peak production rates to realize maximum exit value
  - Private Equity has a definitive exit point
- Oil Price
  - Early on has minimal impact–low production
  - Oil price at exit time is a big value driver
- Hedging is good but you can't hedge to far forward
  - Production timing risk
  - Credit issues

Economic Cycle of Two Small CO_2 EOR Projects



What we Did

- About 25% reduction in people
  - Significant senior management reduction
- Delayed one project a year plus
  - Had not started CO_2 injection
  - Most facility and phase I well work completed
- Financed about 20% of the development capital with a Volumetric Production Payment – VPP (Closed in Feb. 2015)
  - Assumed we would do a follow on VPP as production increased but did not due to very low oil prices
- **NO** Other Debt
- Looked at all costs for savings
- Private Equity committed funds for development

Learnings

- Get the capital you need up front
  - ***I can't over emphasize this!!!***
  - Capital over the past year or so has been very expensive or not available
- Delaying the project has delayed
  - Positive cash flow – Production driven
  - Exit timing by 12 to 18 months
- It is debatable if delaying the project was the right call
  - Very inefficient use of capital
- You can't save your way to prosperity
- Make sure your CO_2 purchase agreement works in a low oil price environment
- Once the capital is invested and production is responding, projects can go cash flow positive at fairly low oil prices
- At ~$50 WTI, project level IRRs ~7-8% pretax unlevered *(Note: Every project is different)*
- Use of VPP was very effective
  - Covenant lite
  - Payments tied to oil price
    - *Helped Cash Flow vs. Traditional P & I*

Closing Comments

- Still like CO_2 EOR projects
  - Low production risk
  - Long term production profile mitigates oil price risk
- The Management Team and Capital Provider have to be committed to the project(s)
- As a former CO_2 supplier from Shell and Kinder Morgan, we always said "CO_2 EOR projects should be started in a low oil price environment."
  - I still think this is true with the right capital provider that has a positive long view of oil price and long term investment profile ***(Not particularly easy to find)***