

Occidental Petroleum Permian CO₂ EOR Business

Carbon Sequestration Leadership Forum

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Why Carbon Capture, Utilization and Storage (CCUS) is important

- The International Energy Agency (IEA) recognizes that CCUS plays a vital role in achieving a significant reduction in greenhouse gas (GHG) emissions
- 2016 World Energy Outlook (WEO) 450 Scenario and the 2017 WEO Sustainable Development Scenario both rely on wide-scale CCUS deployment
- In a 2015 lifecycle analysis of carbon dioxide (CO₂) EOR, the IEA recognized that using captured industrial CO₂ can provide a net CO₂ emissions reduction taking into account emissions from oil consumption
- There are many areas throughout the world that are amenable to EOR using CO₂



Occidental's Leadership in EOR & CCUS

- Successfully producing oil using CO₂ EOR in the U.S. for over four decades
- Largest CO₂ flood operator in the world

CO₂ Enhanced Oil Recovery (EOR) is a form of carbon capture, utilization and storage (CCUS) technology that results in the permanent sequestration of CO₂ in older hydrocarbon formations

Global EOR Scale, Position & Capability

- ✓ **Permian Basin: CO₂ flood and Waterflood**
- ✓ **Qatar: Waterflood**
- ✓ **Oman: Steamflood**
- ✓ **Colombia: Waterflood and Steamflood**

EOR supports a competitive, advantaged business strategy

EOR positions us to be successful in a carbon-constrained environment

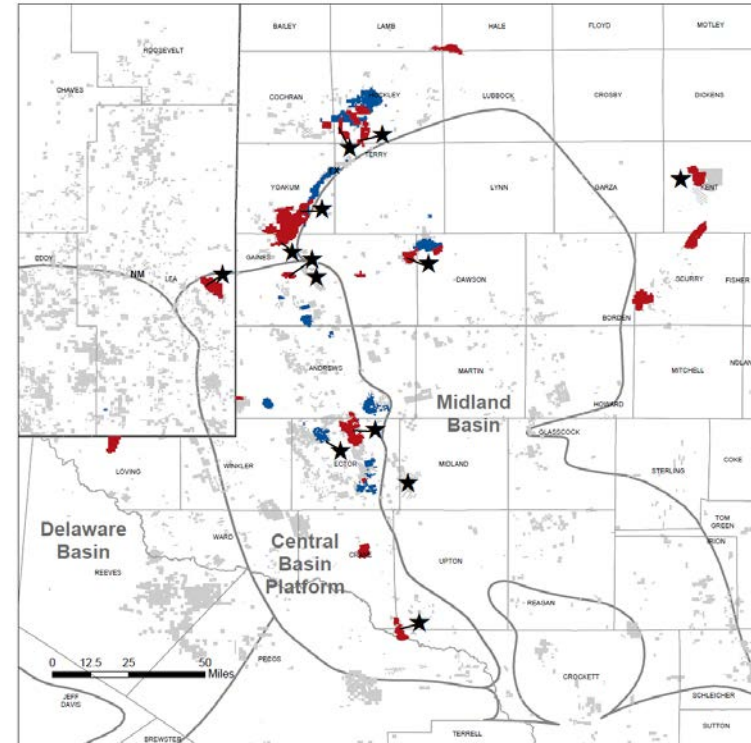
- ✓ EOR technologies also have the potential to help manage the company's GHG emissions – **Occidental permanently sequesters billions of cubic feet of CO₂ per year**
- ✓ Expertise in CO₂ EOR enables **higher oil recovery** from existing fields and **is less environmentally intrusive** by leveraging existing infrastructure
- ✓ Less than 5% production decline reduces capital intensity



Permian EOR World Class Position and Capability

- More than half of the CO₂ floods in the Permian are Occidental Operated
 - > 34 Active CO₂ Floods
 - > 70 Waterfloods
 - > 13 CO₂ Processing Plants
 - > 3 Operated CO₂ Source Fields
 - > 2.4 Bcf CO₂ Injected Daily
 - > 4,500+ miles of CO₂ pipeline

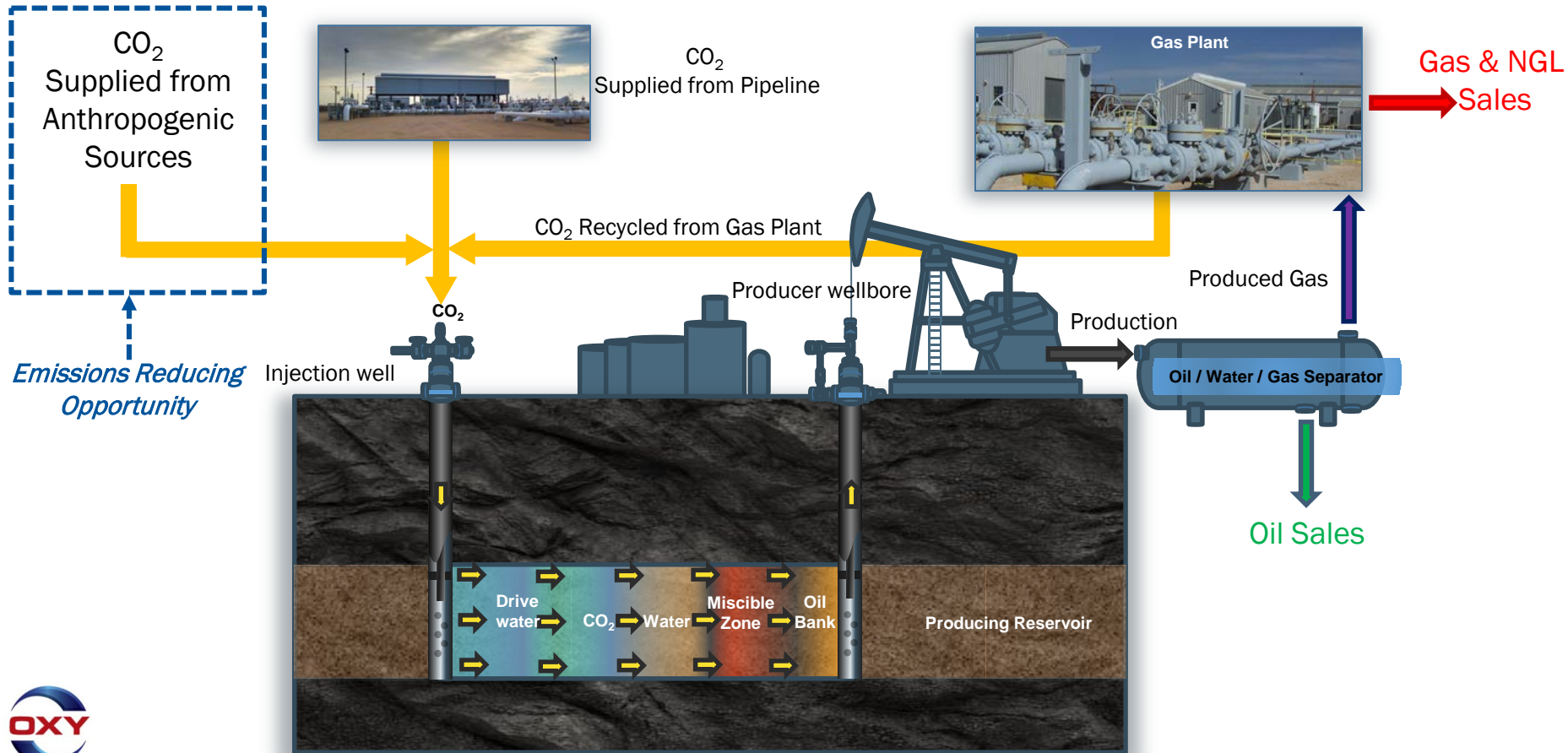
Occidental is the Largest CO₂ Flood Operator in the World
Over 2 Bboe Net Resource Potential



- Permian EOR Water Floods
- Permian EOR CO₂ Floods
- ★ Permian EOR Plants

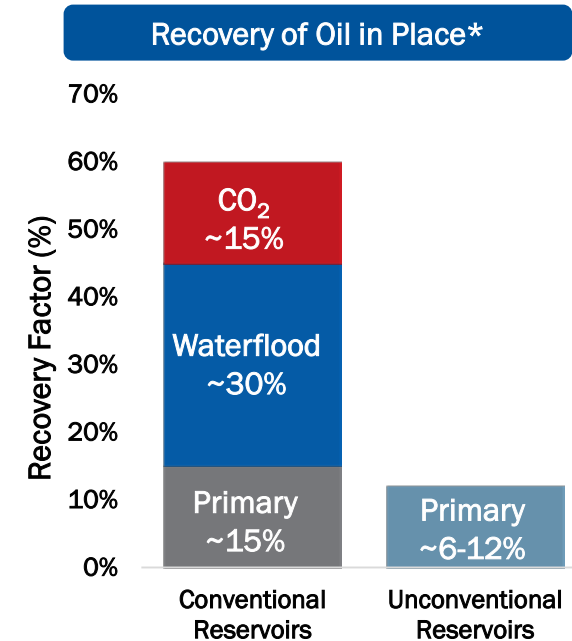
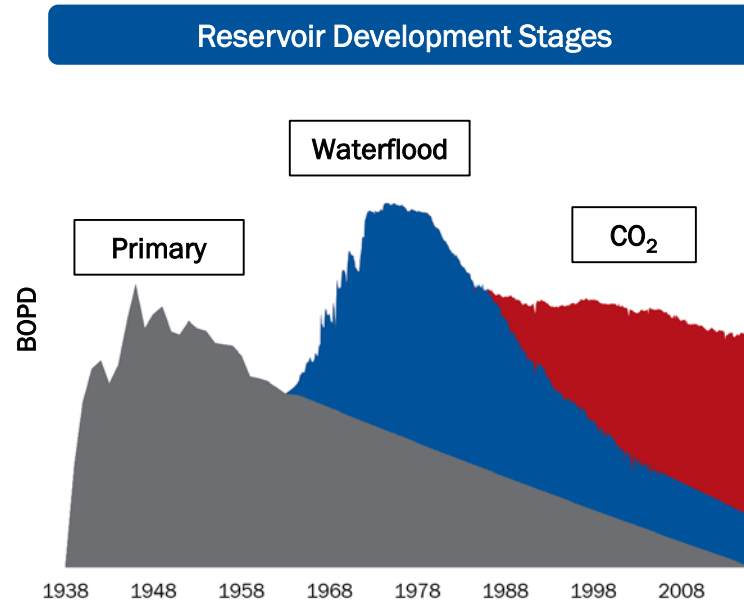


CO₂ EOR Process



Benefits of EOR: Proven History of Maximizing Recovery

- Long-term cash generator
 - > Low capital intensity growth opportunities
 - > Less than 5% base decline
- Provides opportunities in a carbon constrained environment



*Recovery factors listed are representative and are not specific to a field. Actual recovery factors will vary higher and lower depending on specific reservoir characteristics.



Occidental: Leading the Way Forward

- ✓ 2015 – Occidental first company to receive U.S. Government approval for methodology for quantifying amount of CO₂ sequestered during EOR
- ✓ 2016 - Occidental began monitoring & reporting sequestered CO₂ at one of its Texas fields
 - > In the first year, we sequestered more than 59 BCF of CO₂ (or 3.1 million metric tons)
 - > More than 30% of this sequestered amount comes from captured anthropogenic sources, the equivalent of annual emissions from over 200,000 vehicles
- ✓ Occidental is working to capture additional volumes of its own CO₂ emissions for use in EOR
- ✓ Occidental has a dedicated CO₂ strategy team focused on developing capture and transportation projects for third-party CO₂ for CCUS
- ✓ Occidental actively supports legislative efforts to accelerate CCUS

