



Commercialization of R&D Technologies

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Imagination at work.

GE: Deliver Products that are Cost-Competitive, Technology Differentiated and Customer-Centered.

CO2 is part of the mission of GE's Oil and Gas Technology Center

- CO2 supply solutions for the oil and gas industry
- CO2 utilization that produces benefits that capital markets can realize

Edwardsport / Stargate / Amino Silicone / Hollow Fiber Membrane

GE Oil & Gas growth story

(Orders \$ in billions)



Technology Commercialization within GE

- Research Laboratory (develop)
- Technology Center (accelerate)
- Profit and Loss Center (deliver)
- Marketing (sell)

Ownership of a Technology is Handed Off as it Progresses.

Never linear

- Ideas
- Customer/Market Feedback
- Adjacency
- Lean Start up



Partnering is Important

- Test Level of Customer Interest
- Integrate with Supplier Technology
- Acquire Data and Feedback from the Commercial Operation
- Gain the Benefit of Customer Perspectives, Experience

... Managing IP / sharing the fruits is vital

- Non-disclosure
- Joint Technology Development
- Joint Marketing



CO2 Supply Commercial Applications

CO2 Supply Application	CO2 Price	Difficulty	Minimum scale
Anchor	Medium	Varies	High
Supplemental	Low	Low	Low
On field	Medium	Medium	Medium
Fracturing/ unconventional	High	High	Medium



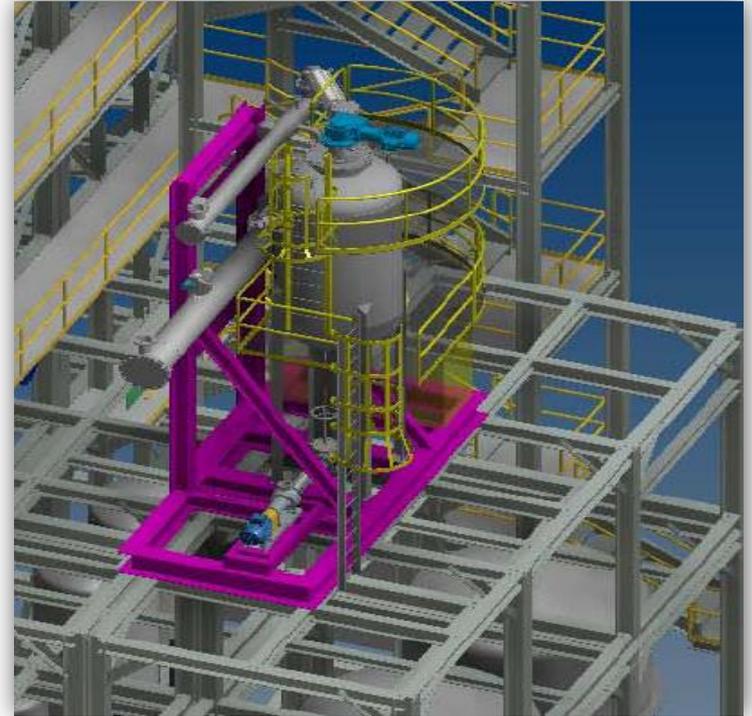
Case Study: GE Amino Silicone Technology

Initiated by Stated Customer Interest in GHG Mitigation Options for GE Power Generation Equipment . . . and a DOE Solicitation!

Differentiated Cost and Performance Relative to Aqueous Amines.

- Lower Cost Absorber / Desorber
- Higher CO₂ Loading and Thermal Stability
- Less Corrosive Sorbent Solution
- Challenges: Solution Viscosity, Solvent Cost

Studying Early Niche Applications that may Favor the Performance Attributes of A.S.





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