Our Energy Future

Project El Camino DRB
Pre-read issued July 12, 2019

DE: Jason Klein
BOM: Jan Sherman

El Camino Integrated DRB

Pre-Read

*New DRB members

Discussion

Agenda (60 Minutes)

- Welcome & introduce new DRB members (5 min)
- HSSE (5 min)
- Risk & opportunities
- Project Update (20 min)
  - CO2 PSV and 45Q
  - Capture concepts
  - Concept evaluations & recommendations
- Capex ceiling
- OP19 submission

- DRB Decisions/Steer (30 min)
  - Does the DRB endorse the recommended CCUS concepts to take to next phase of evaluation?
  - Does the DRB agree with risks and opportunities presented?
  - Does the DRB agree to sponsor the Denbury valuation (NBD)?
  - Does the DRB support the OP19 submission?

What do we want?

- DRB endorsement on CCUS concepts to take to next phase of evaluation
- Decisions/Steer
  - Risks & opportunities
  - Support for OP19 submission

Pre-read for information

- NFI Economic assumptions CO2 PSV & 45Q

Pre-Read

Key Messages (1)

- Risks & Opportunities: No showstoppers. Most items common to all concepts.
- Alignment with Group Carbon and Economics SME that economic evaluation will combine Shell PSVs and Legislative 45Q Tax Incentive
- Shell project more likely onshore EOR or gas storage in Louisiana
  - Multiple capture sources up to 6 MMtpa (Geismar, Convent, Norco, industry gas) with opportunity for "pooled" capture at Convent (Shell, Praxair, AirProducts)
  - Small EOR ~0.8 MMtpa (cheapest CO2, close to source, right sized for "Theremin" field)
  - Medium gas storage up to 1.5 MMtpa (multiple sites close to source, low cost to operate, simpler execution) – scalable for future CO2 volumes (I.e. LC LNG 500 ktpa, Azure GtL 2 MMtpa)
  - External stakeholders have high level of interest (State of Louisiana, CO2 Sequestration Act, LSU geological studies, etc.)
  - Steer Request: Drop internal work on swamp and offshore EOR, can reopen if material change in key assumptions.
  - Steer Request: Drop internal work on saline aquifer storage; monitor external opportunities (BEG, LSU, etc.)
- Industry coalition more likely Texas EOR or offshore storage
  - Large opportunity but requires more than 45Q to incentivize
  - Many onshore EOR fields in Texas Gulf Coast (Denbury, Hilcorp, etc.)
  - External stakeholders have high level of interest (OGCI Kickstarter, State of Texas, Greater Houston Partnership, etc.)
  - Denbury line will enable volumes to move West from Louisiana to Texas – tariff and access uncertainty remains
  - Peer Group Competitors have mis-aligned interests, i.e. XoM interest in offshore storage 10-15 mmtpa, Oxy interest in infrastructure to Permian, Total interest in Lake Charles LNG (non-operator), CVX monitoring, BP watching
  - Steer Request: Leverage industry on offshore storage (OGCI Kickstarter, GCCC BEG, XoM, etc.)

Pre-Read

Key Messages (2)

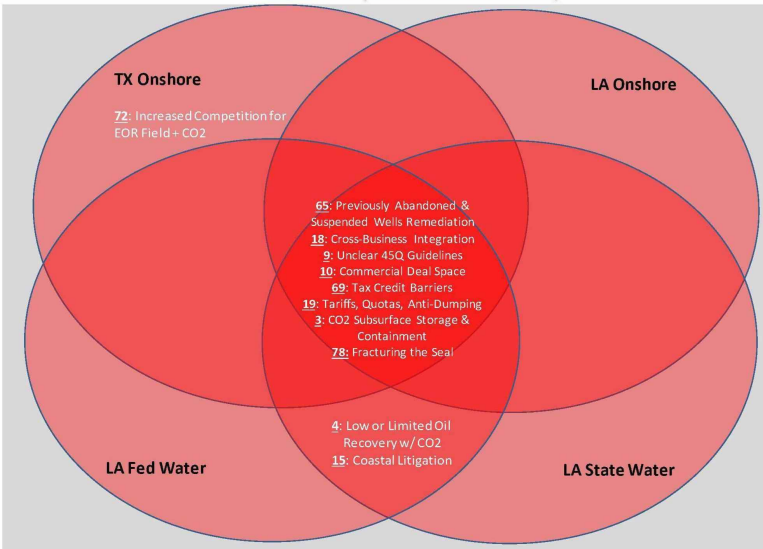
- Scaling up Capture increases cost per unit CO2
  - No economy of scale, more CO2 requires more investment
  - Opportunities to reduce costs to be assessed next (site visits, integration at Convent, connection with Cansolve Improvement Initiative)
  - Steer Request: Early indication of Capex ceiling would defer highest cost CO2 capture (i.e. Norco, low purity streams)
- Denbury assets well positioned
  - Existing pipeline enables connection of best capture and best EOR sinks
  - Webster field attractive for ~1-2 MMtpa concept with capacity to expand to include other Texas fields
  - Support Request: Kick-off valuation of Denbury and commercial options to access GC infrastructure and EOR fields

Decision
Discussion

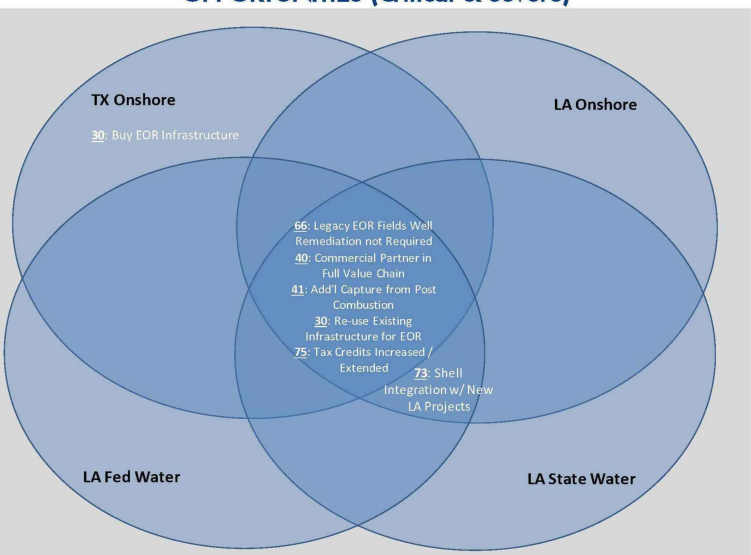
Risks & Opportunities Update

- TECOP workshop in late-April
- No show stoppers currently
- Most items are common to all options

THREATS (Critical & Severe)



OPPORTUNITIES (Critical & Severe)

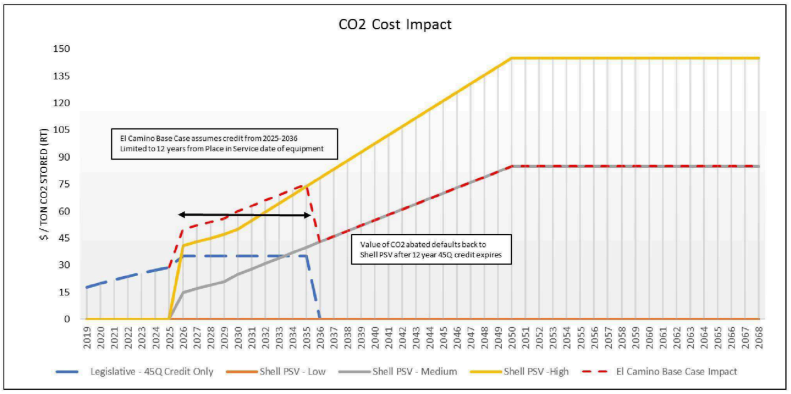


SOC-HCOR-056637

Pre-Read

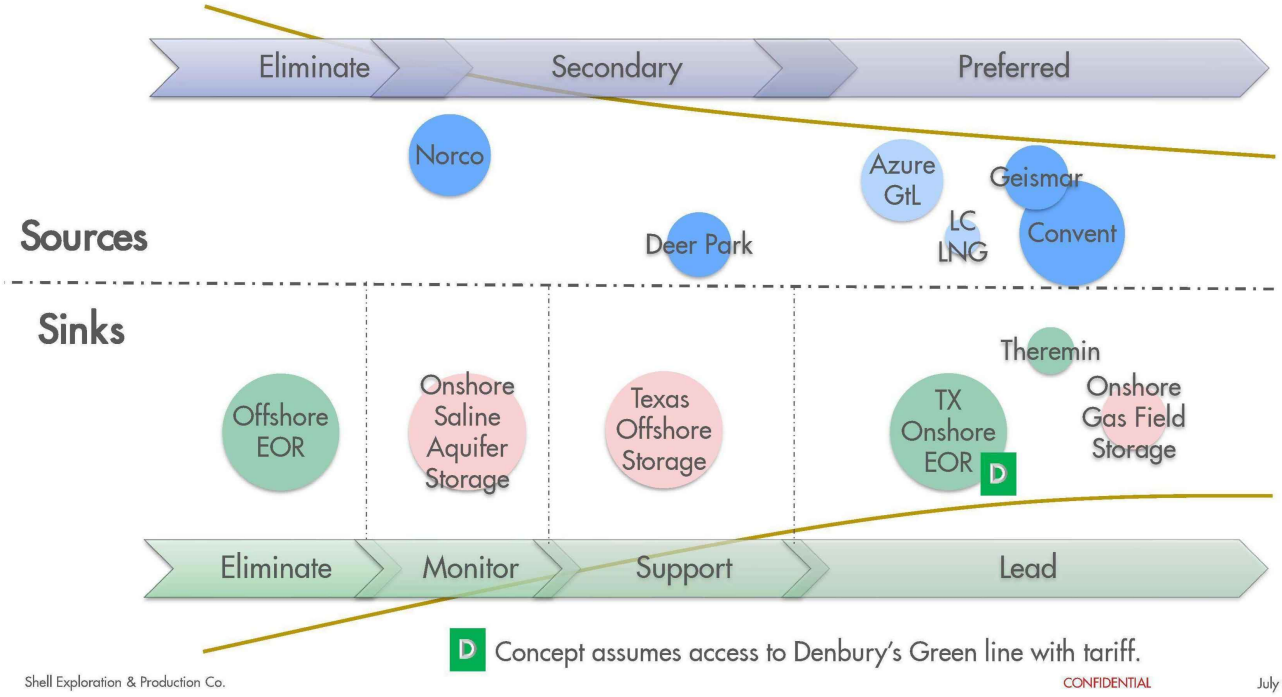
Economics: CO2 PSV and 45Q

- Value of the CO2 emissions avoided is a critical component of project justification
  - Reduce Carbon Footprint as a Value Driver
- Economics are based on combination of Shell PSVs and Legislative 45Q Tax Incentive
  - Base Case is defined as Shell PSV Medium plus 45Q
- Shell PSVs represent a future Carbon Tax environment and are included in all project evaluations
- 45Q is best viewed as a short term Carbon Capture investment incentive
  - Tax credit is on top of and separate from Shell PSV
- CO2 Stakeholders have been engaged regarding current view of value representation
  - See El Camino CO2 Alignment Document for additional details on treatment of CO2 reduction



Decision
Discussion

Concepts Funnel - Assess



D Concept assumes access to Denbury's Green line with tariff.

Legend

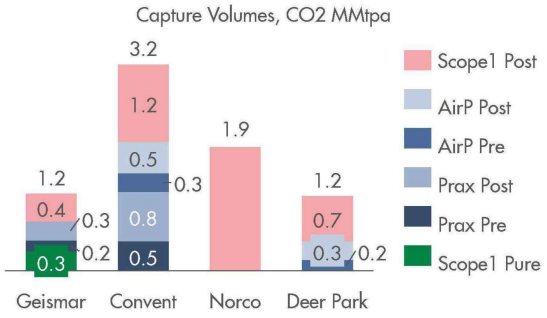
- 4 MMtpa
- 2
- 1
- Existing
- Pre-FID
- Storage
- EOR

SOC-HCOR-056639

Pre-Read

Capture Concepts

- Multiple capture sources up to 6 MMtpa in LA (Geismar, Convent, Norco, industry gas)
- Opportunity for integrating capture equipment at Convent (Shell, Praxair, AirProducts)
- Pre & Post-combustion split (40:60) for CO2 from Hydrogen (assumption to be confirmed at site visits)
- Cheapest 1 MMtpa links Geismar and Convent



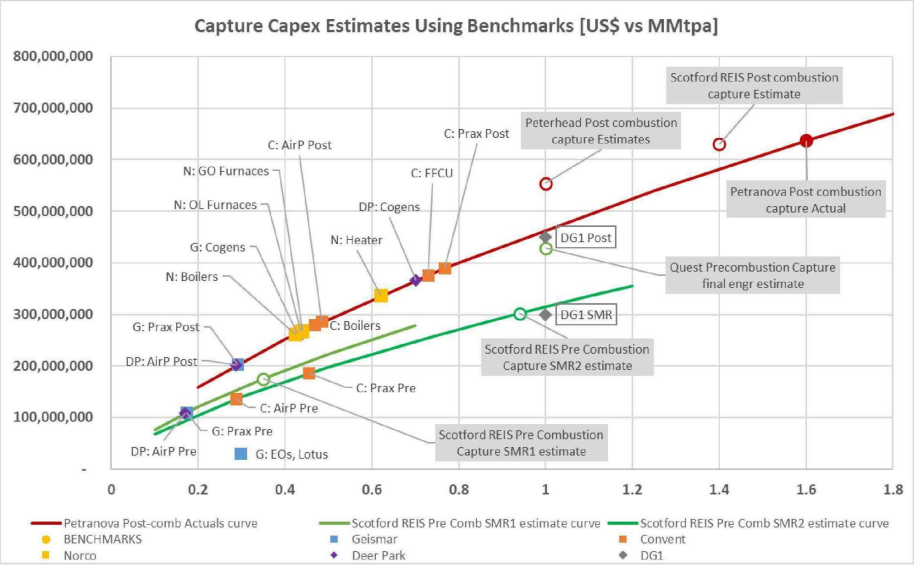
	Geismar (1.2 MMtpa)				Convent (3.2 MMtpa)					Norco	Deer Park (1.2 MMtpa)						Sink Options		
	EOs+Lotus	Praxair		Scope 1	Praxair		Air Products		Scope 1	Scope 1	Air Products		Scope 1				LA Onshore EOR	TX Onshore EOR	Onshore Storage (Gas field)
Type	Pure	Pre-c	Post-c	Post-c	Pre-c	Post-c	Pre-c	Post-c	Post-c	Post-c	Pre-c	Post-c	Post-c						
Capturable [MMtpa]	0.3	0.2	0.3	0.4	0.5	0.8	0.3	0.5	1.2	1.9	0.2	0.3	0.7						
Capex [MM$]	30	110	200	260	190	390	140	290	660	1130	110	200	370	Capex [B$]	$/tpa				
LA EOR or storage (0.8 MMtpa)	X				X									0.2	290		X		X
LA storage (1.5 MMtpa)	X				X	X								0.6	400				X
LA to TX EOR (2.3 MMtpa)	X				X	X	X	X						1.0	450			X	
LA to TX EOR (4.4 MMtpa)	X	X	X	X	X	X	X	X	X					2.3	520			X	
LA-TX EOR (4.3 MMtpa)	X	X	X	X	X	X	X	X			X	X	X	2.3	530			X	

*Emerging projects: Lake Charles (0.5 MMtpa), Azure GtL (2+ MMtpa)

Pre-Read

Capture Costs – Current estimates and Next steps

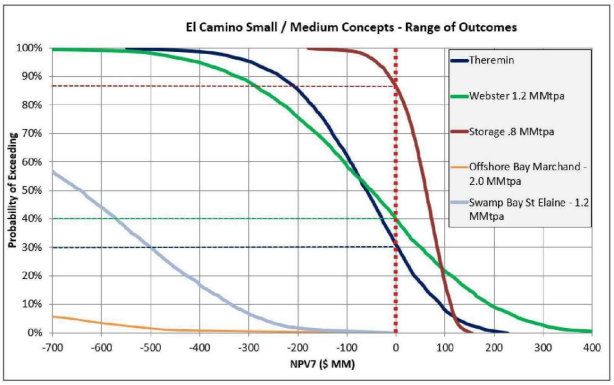
- Capture costs estimated by scaling by volume from similar projects
  - REIS SMR estimates (pre-combustion), Petranova actuals (post-combustion)
  - Estimates reflect: size of capture source (bigger yields cheaper unit cost), and pre-combustion is cheaper than post.
- Next step: site visits, source-specific capture process design, equipment lists, cost estimates with space, utility & learning curve considerations.
  - Potential to reduce capture costs by integrating Convent (shared equipment for Shell, Prax and AP, and clarifying pre- vs post-combustion split.
  - Risk of increasing costs due to identifying process and/or utility complexities.
- Cansolve ToR just kicked off cost reduction project on Shell's post-combustion capture technology. El Camino offers best opportunity to deploy with ~4 MMtpa Scope1 post-combustion CO2 in LA and TX.

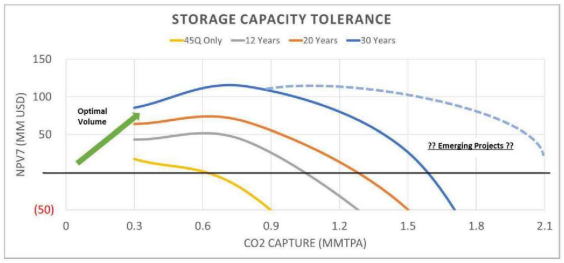


Discussion

Shell project more likely onshore EOR or gas storage in Louisiana

- Small onshore EOR ~0.8 MMtpa (cheapest CO2, close to source, right sized for "Theremin" field) potentially feasible
  - Opportunity for improvement in cost performance
- Medium gas storage up to 1.5 MMtpa at current cost to capture (multiple sites close to source, low cost to operate, simpler execution) potentially feasible
  - Low Risk with 45Q revenue stream but also limited upside in this concept
- Gas storage scalable for future CO2 volumes (I.e. LC LNG 500 ktpa, Azure GtL 2 MMtpa)
- Swamp & Offshore EOR cases show very low probability of NPV > 0 (<1%)
  - Too expensive; EOR revenue does not justify high cost to go offshore
  - **Steer Request**: Drop internal work on offshore & swamp EOR, can reopen if material change in key assumptions.
- Onshore saline aquifer storage screened as unattractive
  - Issues include: pore-space ownership, extent of aquifer vertical isolation (seals), lateral plume extent
  - **Steer Request**: Drop internal work on saline aquifer storage; monitor external opportunities (BEG, LSU, etc.)

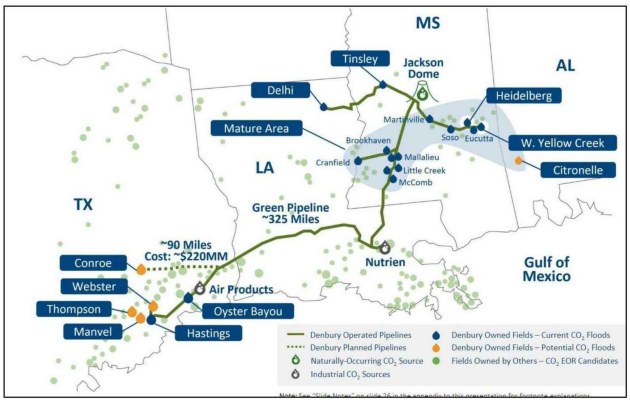




Discussion

Industry coalition more likely Texas EOR or offshore storage

- Large opportunity but requires more than 45Q to incentivize
- Many onshore EOR fields in Texas Gulf Coast (Denbury, Hilcorp, etc.)
  - Webster field (Denbury) is attractive for 1-2 Mmtpa concept with capacity to expand to include other Texas fields
- Denbury line will enable volumes to move West from Louisiana to Texas – tariff and access uncertainty remains, but connects best capture sources to best EOR sinks
- Peer Group Competitors have mis-aligned interests, i.e. XoM interest in offshore storage 10-15 MMtpa, Oxy interest in infrastructure to Permian, Total interest in Lake Charles LNG (non-operator), CVX monitoring, BP watching, but…
  - External stakeholders have high level of interest (OGCI Kickstarter, State of Texas, Greater Houston Partnership, etc.)
- **Steer Request**: Leverage industry work on offshore storage (OGCI Kickstarter, BEG, XoM, etc.) and guide OGCI to support
- **Support Request**: Kick-off valuation of Denbury and commercial options to access GC infrastructure and EOR fields

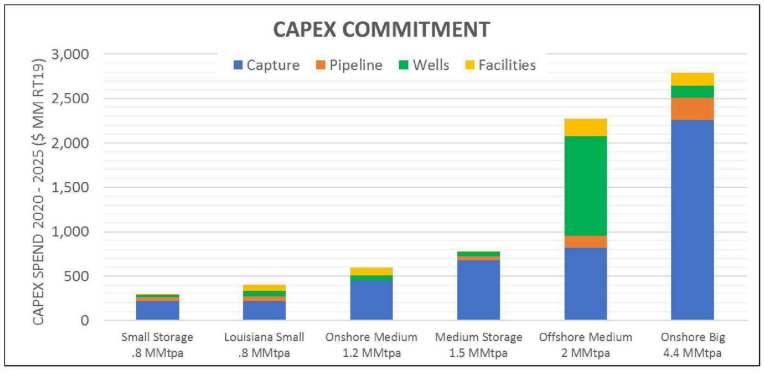


Source: Denbury website

Discussion

Steer Request: Early indication of Capex ceiling

- No economy of scale, more CO2 requires more investment
  - Cost efficiencies exist in EOR investments but absolute cost will increase
- Allow team to focus concepts and narrow scope
  - Identify where partnerships will be required
- Maintain realistic set of concepts related to size and number of Downstream sites
- Defined as Capital requirements necessary to reach First Injection (2020 – 2025)
  - EOR sites will require annual Capex investment to grow recovery but at much lower scale
- **Steer Request**: Early indication of Capex ceiling would eliminate pursuit of most expensive CO2 capture (Norco, low purity streams)



- Capture equipment is majority of spend in all concepts
- Offshore figures highlight Wells step change in Offshore and Swamp concepts
- Facilities Capex grows proportional to size of CO2 injection

Decision
Discussion

OP19 Input

- "Theremin" is proposed case to use as the basis for OP19 (consistent with OP18)
- Alternative case is a gas storage option, which would differ from the case presented in the following ways:
  - Earlier FID and start up
  - Lower Feasex
  - Capex accelerated into 2022
  - Higher Capex related to capture
  - Less Capex related to site development
  - No Upstream revenue

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Revenue	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**9.6**	**25.7**	**32.7**	**39.5**	**45.3**
Tax Credits	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**29.2**	**32.0**	**33.3**	**34.7**	**36.1**
Proxy CFFO	**-13.2**	**-17.0**	**-96.2**	**-134.8**	**-151.2**	**16.1**	**29.0**	**20.5**	**25.2**	**10.3**
Other Shell FTE										
Scotford REIS Team										
VAR										
P&T	*13.2*	*17.0*	*19.6*	*18.0*						
Management Adjustment										
Total Feasex	**13.2**	**17.0**	**19.6**	**18.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Field Operations - NFA	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Field Operations - Transport & EOR	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*3.0*	*3.0*	*3.7*	*5.5*	*6.6*
Carbon Capture	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*10.8*	*10.8*	*10.8*	*10.8*	*10.8*
Shell Governance Team										
Total Opex	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**13.8**	**13.8**	**14.5**	**16.3**	**17.4**
Carbon Capture	*0.0*	*0.0*	*43.2*	*86.4*	*86.4*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Transport and EOR Development	*0.0*	*0.0*	*30.0*	*38.7*	*60.3*	*61.3*	*11.7*	*31.7*	*31.5*	*49.5*
Total Capex	**0.0**	**0.0**	**73.2**	**125.1**	**146.7**	**61.3**	**11.7**	**31.7**	**31.5**	**49.5**
Total spend (feasex + opex + capex)	**13.2**	**17.0**	**92.8**	**143.1**	**146.7**	**75.1**	**25.5**	**46.2**	**47.8**	**66.9**
NFA (kboe/d)	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
EOR (kboe/d)	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.4*	*1.1*	*1.4*	*1.7*	*2.0*
Total Production (kboe/d)	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.4**	**1.1**	**1.4**	**1.7**	**2.0**

Pre-Read

OP19 Input – Storage Case

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Revenue	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Tax Credits	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**79.3**	**86.1**	**89.6**	**93.2**	**97.0**
Proxy CFFO	**-13.2**	**-17.0**	**-161.1**	**-208.3**	**-265.7**	**1.0**	**49.2**	**67.1**	**70.2**	**73.9**
Other Shell FTE										
Scotford REIS Team										
VAR										
P&T	*13.2*	*17.0*	*19.6*	*18.0*						
Management Adjustment										
Total Feasex	**13.2**	**17.0**	**19.6**	**18.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Field Operations - NFA	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Field Operations - Transport & EOR	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*
Carbon Capture	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*33.8*	*33.8*	*33.8*	*33.8*	*33.8*
Shell Governance Team										
Total Opex	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**34.3**	**34.3**	**34.3**	**34.3**	**34.3**
Carbon Capture	*0.0*	*0.0*	*135.2*	*270.4*	*270.4*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Transport and EOR Development	*0.0*	*0.0*	*0.0*	*18.0*	*43.5*	*50.5*	*0.0*	*0.0*	*0.0*	*0.0*
Total Capex	**0.0**	**0.0**	**135.2**	**288.4**	**313.9**	**50.5**	**0.0**	**0.0**	**0.0**	**0.0**
Total spend (feasex + opex + capex)	**13.2**	**17.0**	**154.8**	**306.4**	**313.9**	**84.8**	**34.3**	**34.3**	**34.3**	**34.3**
NFA (kboe/d)	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
EOR (kboe/d)	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Total Production (kboe/d)	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Pre-Read

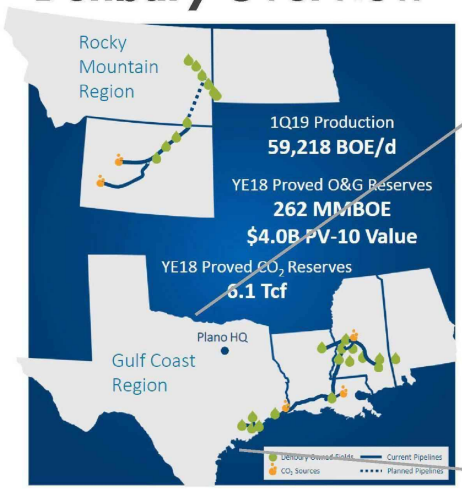
Recommendations for Concepts

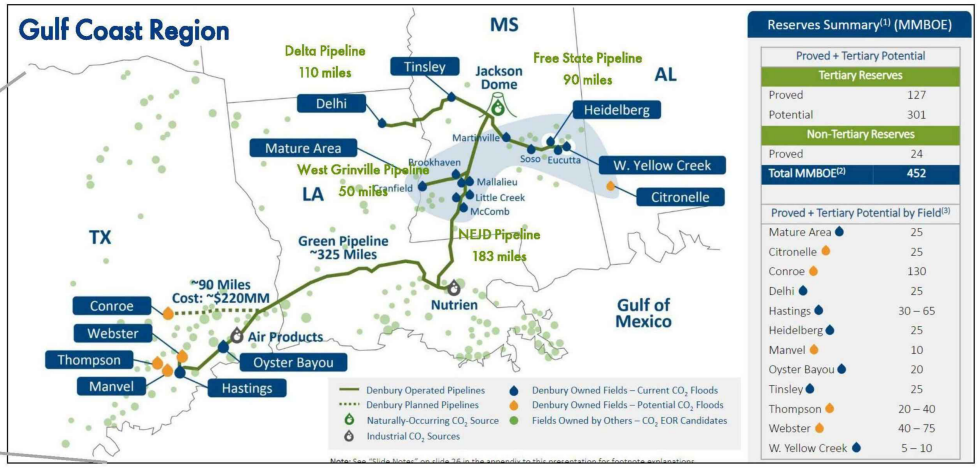
	Feasibility Criteria	Range/Target			Louisiana EOR			Onshore Storage			Texas Onshore EOR				Offshore Storage
					Onshore	Swamp	Offshore	Depleted Gas Field		Saline Aqfr	Near DP	West	Near DP + Denbury field		
		Red	Yellow	Green	Small (0.8)	Medium (1.2)	Large (2.0)	Small (0.8)	Medium (1.3)	Large Potential	Medium (1.2)	Large (4.4)	Medium (1.2)	Large (4.4)	Large Potential
T	Material Capture Volume	<0.5 MMtpa	0.5-1.5 MMtpa	>1.5 MMtpa	🟡	🟡	🟢	🟡	🟡	🟡	🟡	🟢	🟡	🟢	🟡
	Wells (cost and liabilities)	<10 active wells, offshore, >750 P&A wells	10-50 active wells, swamp or deep, 200-750 P&A wells	>50 active wells, onshore, <200 P&A wells	🟢	🟡	🔴	🟢	🟢	⚫	🟢	🟢	🟡	🟡	⚫
E	Profitable CCUS	<20% prob NPV+	20-50% prob NPV+	>50% NPV+	🟡	🔴	🔴	🟢	🟢	⚫	🔴	🟡	🟡	🔴	⚫
	Schedule meets 45Q Deadline 1/1/2024	No	<6 mo construction leeway	>6 mo construction leeway	🟢	🟢	🟡	🟢	🟢	🟢	🟢	🟡	🟢	🟡	🟡
C	Field size requires single field/operator or multiple field/operator	3+ fields / 2+ operators	2 fields / two operators	Single field / one operator	🟢	🟢	🟡	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🔴
	Does operator have multiple fields within a concept / multiple fields	1 field	2 fields	3+ fields	🟢	🟡	🔴	🔴	🔴	⚫	🔴	🟢	🟢	🟢	⚫
O															
P	Non-commercial external stakeholder reaction	Resistance expected	Unknown; expect pockets of resistance	Community steps up to support	🟢	🟡	🟡	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟡
	Regulatory Approval Complexity	High	Mid	Low	🟢	🟡	🟡	🟡	🟡	🟡	🟢	🟢	🟢	🟢	🟡

*Gray = not assessed

Denbury Overview

Pre-Read





Reserves Summary[1] (MMBOE)

Proved + Tertiary Potential	
Tertiary Reserves	
Proved	127
Potential	301
Non-Tertiary Reserves	
Proved	24
Total MMBOE[2]	**452**

Proved + Tertiary Potential by Field[3]	
Mature Area	25
Citronelle	25
Conroe	130
Delhi	25
Hastings	30 – 65
Heidelberg	25
Manvel	10
Oyster Bayou	20
Tinsley	25
Thompson	20 – 40
Webster	40 – 75
W. Yellow Creek	5 – 10

- Company value~$3-4 bln
  - Market cap $0.6 bln, Debt $3 bln, Cash $64 mln
- 59 mboe/d production
- 262 mmboe proven reserves (57% in Gulf Coast)
- 840 mmboe potential reserves (64% in Rockies)
- Utilizes 11 Mtpa of CO2 (30% industrially sourced)
- Gulf Coast assets are in close proximity to El Camino CO2 sources

- Experienced operator for tertiary oil recovery
- Own 750 miles of pipeline in Gulf Coast region, access to 950 miles of pipeline
- 21 owned fields across four Gulf Coast states
  - 16 fields currently CO2 flooding, 5 more fields with potential to CO2 flood

Existing CO2 Sources in Gulf Coast

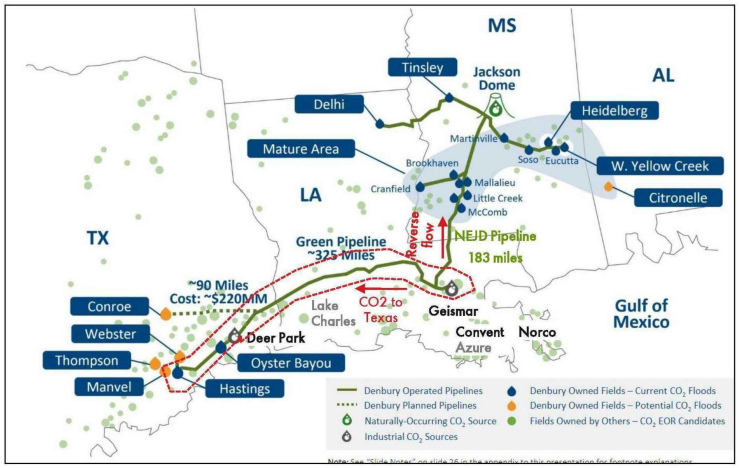
- One naturally occurring CO2 source: Jackson Dome
- Two industrial sources, Nutrien and Air Products, provide 65 mmscfd of CO2
- Lake Charles identified as future source for CO2

CONFIDENTIAL

SOC-HCOR-056648

Shell could leverage Denbury assets for CO2 disposal/use

Pre-Read



Opportunity

- Replace CO2 from Jackson salt dome with industrial CO2 while leveraging Denbury's existing pipeline network and fields
- Longer-term opportunity to reverse flow in NEJD pipeline and send industrial CO2 to oil fields and back into Jackson Dome

Green Pipeline

- 930 mmscfd capacity
- Has "ample" capacity per Denbury 2018 10K

Possible commercial constructs

- Shell sells CO2 to Denbury
  - Tariff to use Denbury pipeline
  - Must monitor CO2 to ensure long-term sto
- Purchase Green Pipeline and Texas fields from Denbury
- Purchase entire gulf coast region from Denbury
- Purchase Denbury corporation…etc.

Pre-Read

Steer from prior DRB

Incorporate aspirations to "go-big" instead of just stating a minimum of 1mln in the opportunity statement.

- Reduce Shell's net carbon footprint by leading a CCUS partnership (public and/or private) for the US Gulf Coast that will enable scalable, profitable, material CCUS project(s) that meet 45Q requirements.

Add Reduction in Net Carbon Footprint (NCF) as a Value Driver.

- Profitable and Competitive CCUS - obtain 45Q tax incentives and maximize government support, reduce cost of capture, lower CO2 EOR unit costs
- Reduce Shell's carbon footprint; Integrate value chain; Ability to replicate from Shell portfolio

Hydrogen is included in our NCF; therefore do not need to meet 0.6 VIR investment threshold for these third-party volumes.

- Confirmed that hydrogen supplier contracts transfer CO2 costs and impacts to Shell (James MacDonald, Category Manager)
- Scope 1 emissions refer to direct emissions from company's activities
- Scope 2 emissions are indirect such as from purchased power
- Scope 3 emissions are those created by customers of a company's product.

The initial set of concepts looked reasonable for pursuing through DG2 with agreement that concepts with Scope 3 (non-Hydrogen) will be deferred.

- Consider any potential impacts from small concepts (ex. Theremin) on a bigger concept. Will we eliminate a bigger concept by focusing on a smaller concept?
- Ensure design criteria allows for flexibility so we can expand in the future if needed; especially important for transportation infrastructure
- DS strategy supports all source sights, but Louisiana is likely easier to do than Texas (given Deer Park JV).

Need to review and signoff OAP and PCAP

- Commercial TA2 identified; signoff in progress

Pre-Read

July 10, 2019

El Camino CCS Dashboard

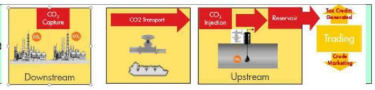
Project Description: Reduce Shell's net carbon footprint by leading a CCUS partnership (public and/or private) for the US Gulf Coast that will enable scalable, profitable, material CCUS project(s) that meet 45Q requirements.
Project Strategic CCS Objective : Mitigate High CO_2 emissions (Scope 1 and 2) in DS M at strategic assets//Supports global CCS industry/establishes replicative business model
Shell role in Project: Initiating / Leading for collaboration with others.

Key Metrics	Unit	Value
Shell Share	%	20-100
CO_2 avoided, SS (Scope 1&2 or 3*)	Mtpa	1- 7
Product carbon intensity reduction	Δ t/t	TBD
CAPEX (PV), Total	$mln	1000 - 7000
CAPEX (PV), SS	$mln	TBD
OPEX (PV), SS	$mln	TBD
NPV (on basis of PSV)	$mln	> 0
UTC (PV/PV)	$/ton CO_2	$40-80
Product Carbon intensity reduction cost	Δ $/t	TBD
VIR	VIR	>0
UDC (For CO2 EOR)	$/bbl	TBD

X-Directorate Integration Issues across the Full Value Chain

- Priorities for capture from assets within the USGC
- Financial approvals and MOA between UPU and DS M
- CCUS competitiveness in a global portfolio
- Ongoing CP contract negotiations with Hydrogen suppliers need to enable future CO2 capture

Project value drivers picture



Governance engagements

- Dec 4, 2018 – DG1
- April 2, 2019 – DRB
- July 17, 2019 – DRB, Concept Evals
- Q4 2019 TBC – DRB, Ref Case
- Q1 2020 TBC - DRB
- Q2 2020 TBC – ITR2, VAR2

Organisation

- US Country Chair (Lead UPU + DS/M)
- DE: Jason Klein
- BOM: Jan Sherman
- FEDM Deniz Dindoruk

Finance Summary (by business line and/or JV)

- Shell only EOR – NPV >0
- Coalition EOR – NPV > 0

Aspirational Coalitions

- Praxair & Air Products Capture
- Hilcorp Louisiana & Texas EOR
- XoM Texas offshore storage
- OGCI or other industry infrastructure & policy
- State of Louisiana gas storage
- Denbury infrastructure access & EOR

Project Milestones & Timeline – Shell only / Small Coalition

DG1: Dec 2018 **DG2:Q3/2020** DG3: Q3/2021 FID: Q3/2022
RFSU: Q3/2025

Key Risks

- Field Liabilities
- CO2 Liability and long-term storage
- Commercial deal space, favorable entry conditions
- Clarity around 45Q credits and how in details one qualifies.
- Cross-business integration
- Capital and opportunity competitiveness
- Regulatory changes - tariffs, quotas, tax law

Key Value Drivers

- Profitable and Competitive CCUS
  - Obtain 45Q tax incentives and maximize government support
  - Reduce cost of capture
  - Lower CO2 EOR unit costs
- Reduce Shell's carbon footprint (Scope 1 & 2 including Hydrogen)
- Integrate value chain
- Ability to replicate from Shell portfolio

Activity Highlights and Focus Areas

- DRB confirmed third-party Hydrogen as part of Shell's NCF
- Assess Phase Risk Workshop held
- Assessing10 source concepts linked to potential EOR and storage sinks
- Smaller NBD opportunity with Hilcorp continues to be evaluated
- Praxair and Air Products indicated interest in joint CCUS opportunities
- Oxy remains interested in a USGC collaboration opportunity (EOR to Permian) and global marketing (trading) opportunities.
- XoM interested in Texas capture to offshore storage (seeking a "few" partners like Shell)
- OGCI Kickstarter initiated. Oxy pushing GC CCUS to Permian EOR. Other member companies (XoM, Total) trying to figure out how OGCI supports.
- Industry invests in direct-air capture in US (Oxy, CVX, XoM)
- Submitted comments to IRS requests on 45Q; guidance to be issued Q4 or later
- Preliminary economics indicate path to NPV>0 through: 45Q tax credits, pure or pre-combustion capture, and EOR or storage in depleted gas fields

Discussion

DRB Decisions/Steer

- Does the DRB endorse the recommended CCUS concepts to take to next phase of evaluation?
- Does the DRB agree with risks and opportunities presented?
- Does the DRB agree to sponsor the Denbury valuation (NBD)?
- Does the DRB support the OP19 submission?