



Annual Shipper Meeting

April 6, 2017

Lake Charles, Louisiana

WELCOME

Agenda

- ✦ *Introduction of Kinetica Team*
- ✦ *Commercial Statistics*
- ✦ *Industry Trends*
- ✦ *Year in Review*
- ✦ *Customer Service*
- ✦ *Kinetica Value Chain*
- ✦ *Patterson System Maintenance Status Update*
- ✦ *BREAK*
- ✦ *South Pass System Maintenance*
- ✦ *Liquefied Natural Gas*
- ✦ *FERC Update*
- ✦ *Q & A*
- ✦ *Ongoing Activities – Tonight and Friday*

Theme of Meeting

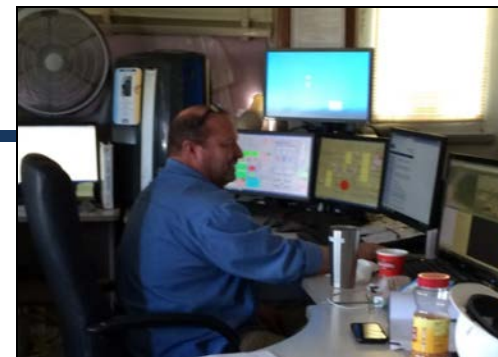
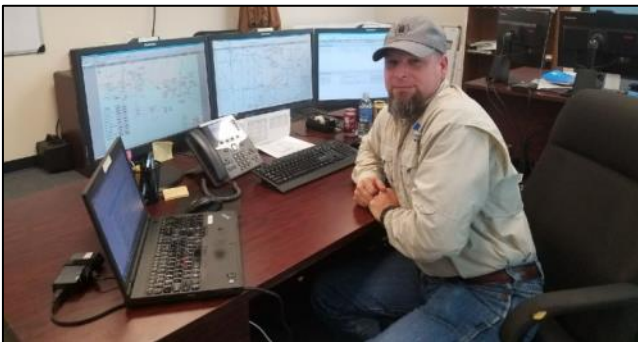
Expanding Our Future Together



Past

Present

Future



Introduction of Kinetica Team



Kinetica Leadership Team

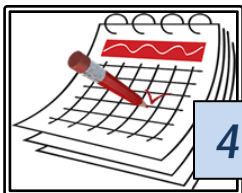
Team Member	Position
<i>Diane Dundee</i>	<i>President</i>
<i>Rae Donaldson</i>	<i>Vice President - Operations, Engineering & Commercial</i>
<i>Michelle Dundee</i>	<i>Vice President - Administration</i>
<i>Kurt Cheramie</i>	<i>Vice President - Compliance Officer & Gas Control</i>
<i>Bill Prentice</i>	<i>General Counsel, Legal & Human Resources</i>
<i>Katherine Ko</i>	<i>Chief Financial Officer, Controller</i>
<i>Robin Mann</i>	<i>Sr. Director, Corrosion, Environmental & Gator Plant</i>

Kinetica Team Members

Team Member	Position
Sheryl Sellers	Director, Supply, Customer Service & Contracts
Chris Cantrelle	Director, Pipeline & Measurement
Patrick Bourg	Director, Facilities & Aviation
Rick Sacco	Director, Engineering
Tracy Gerard	Human Resources
Kevin Bush	Manager, Information Technology
Mark Sellers	Manager, Measurement
Colette LeBlanc	Manager, Accounting
Nicole Blow	Manager, Accounting
Sally Bergeron	Manager, Offices, Budgets & Procurement
Lynn Nguyen	Lead Scheduler
Damon Young	Gas Control Lead
Deirdre Fontenot	Environmental and Gas Control
Eliot Levin	Sr. Gas Supply Analyst
Shane Lopez	Corrosion / Pipeline
Jeanie Falkenstein	Transportation Revenue and Measurement
Cheryl Galindo	Scheduler
Janice Park	Scheduler

Commercial Statistics

Commercial Statistics



43 Months in Service



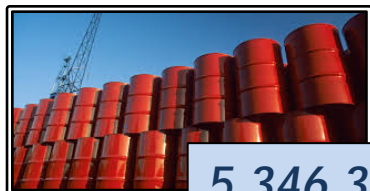
92 Employees



813,152,787 Bcf Gas Transported



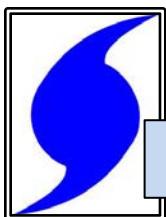
400 Pig Runs



5,346,351 Bbls Condensate Transported



Injury Free



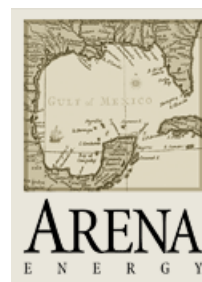
\$50 Million Wind Insurance

- ✦ 14 Gas Markets Served
- ✦ 4 Condensate Markets Served
- ✦ 9 Processing Plants Served

Top Shippers by Volume



ConocoPhillips



FIELDWOOD ENERGY

LLDG
exploration



CASTEX

Anadarko



Hilcorp



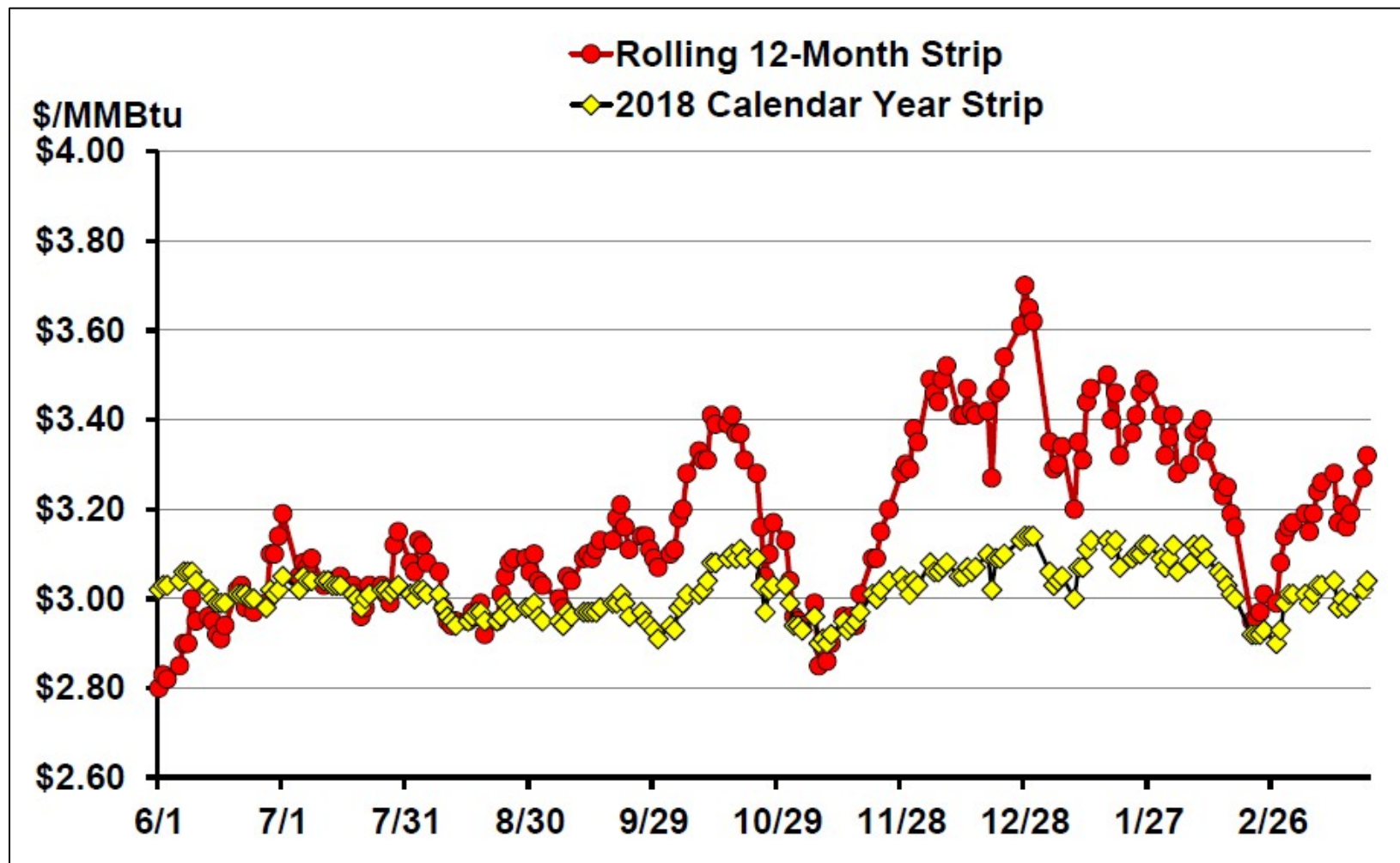
WALTER OIL & GAS CORPORATION



W&T OFFSHORE

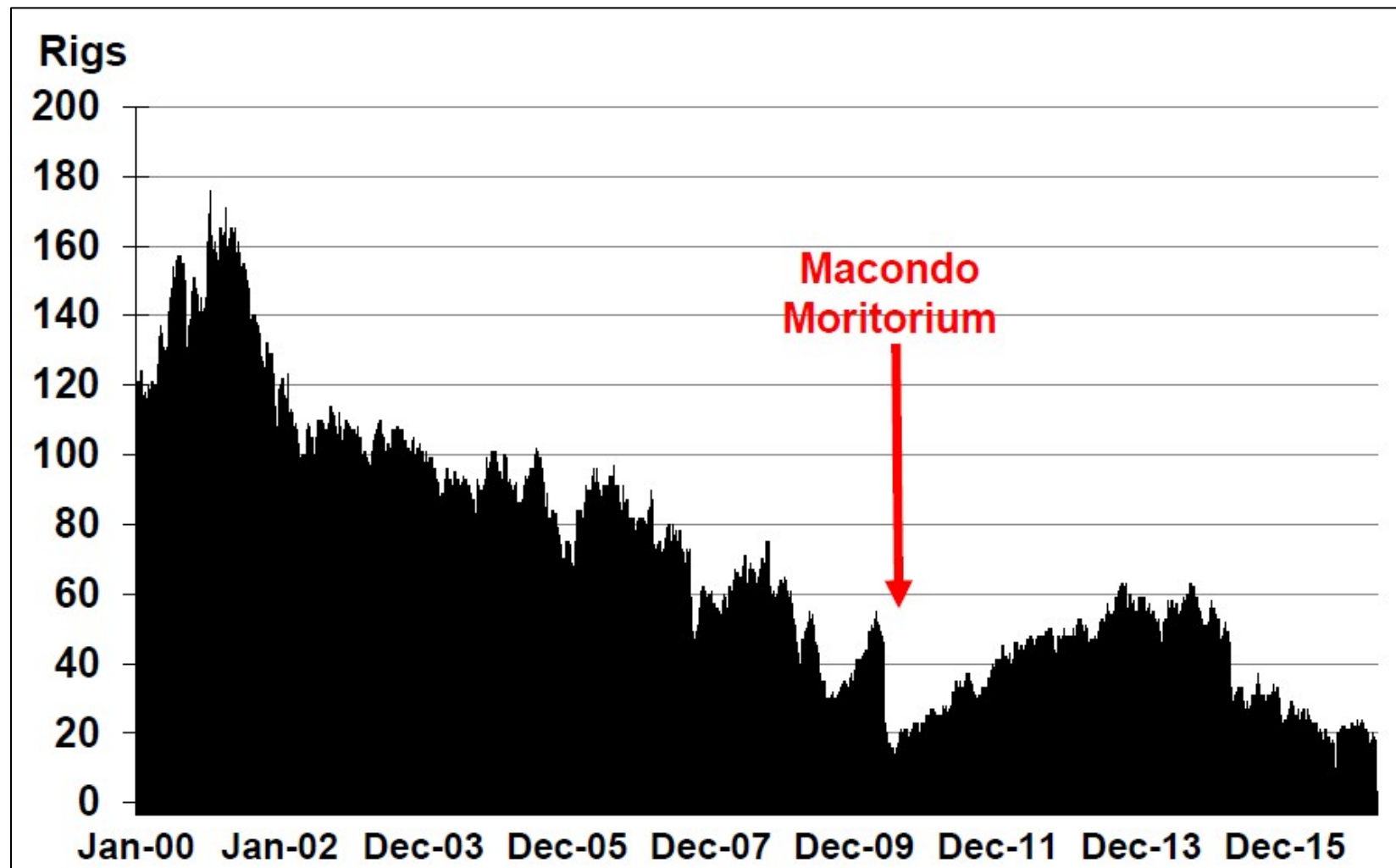
Industry Trends

NYMEX Natural Gas Future Strip Prices



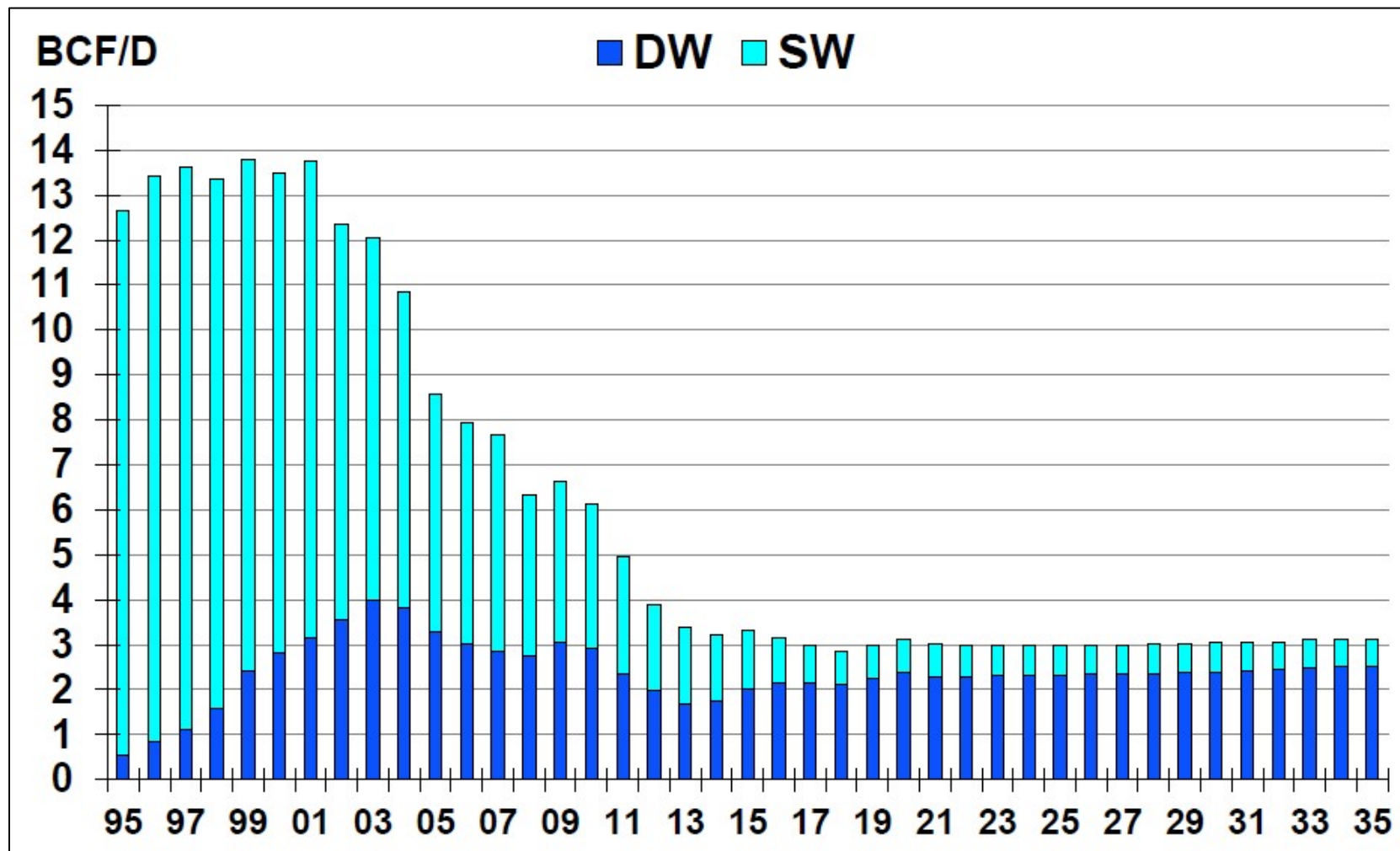
Source: PIRA Energy Group

Offshore GOM Oil and Gas Drilling



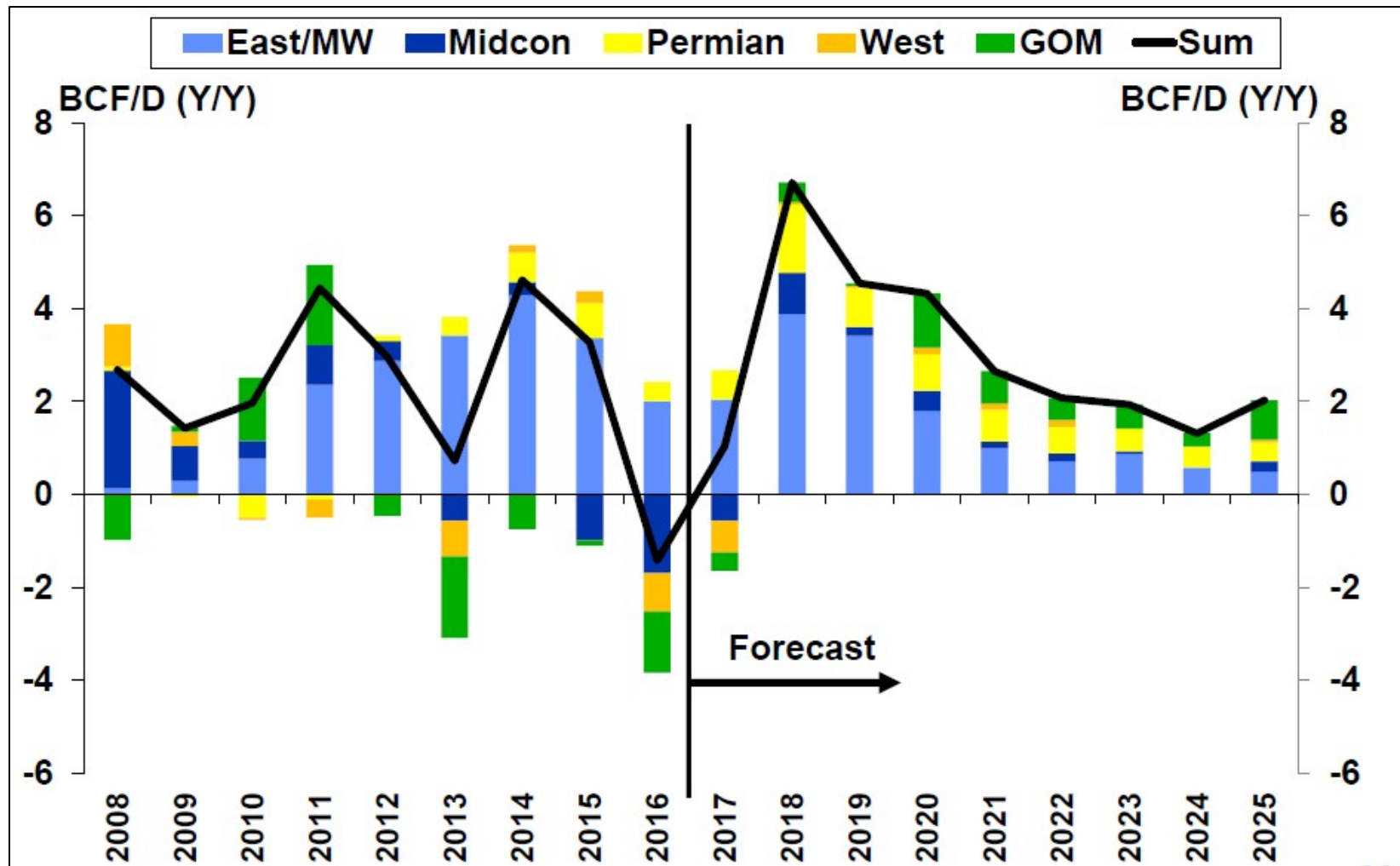
Source: PIRA Energy Group

Offshore GOM Production



Source: PIRA Energy Group

US Gas Production: Greater Regional Diversity Ahead



Source: PIRA Energy Group

Year in Review



==
Past

Present

Future →

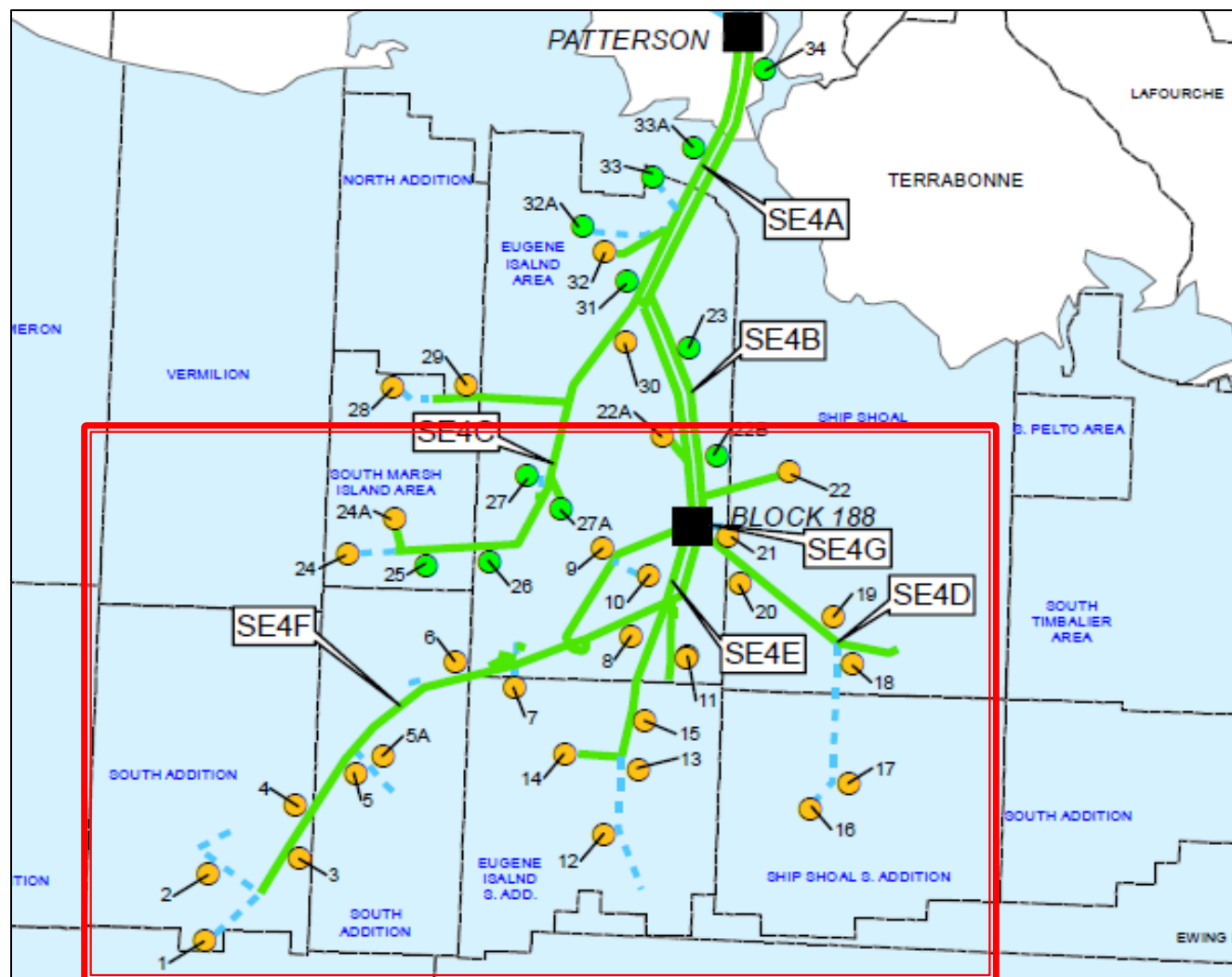
Year in Review

- ❖ *Acquisition of TransCanada Offshore (TCO)*
 - ❖ *Effective April 1, 2016*
 - ❖ *Name Change – TCO to Kinetica Deepwater Express (KDE)*
 - ❖ *Aviation Department*
- ❖ *Acquisition of Grand Chenier Gas Processing Plant*
 - ❖ *Via Settlement*
 - ❖ *Name change to Gator Plant*
- ❖ *Enhanced Kinetica Pigging Plan*
 - ❖ *Regular pre-defined pigging schedule*
 - ❖ *Continuous refinement throughout Kinetica ownership*
 - ❖ *Recovered 1.08 million barrels of condensate in 2016*

Year in Review

- ✦ *Safety Record – No Injuries in 2016*
- ✦ *Clean DOT – PHMSA Audit*
- ✦ *Hired and Integrated 30 New Employees*
- ✦ *New Supply*
 - ✦ *38,500 Dth/day of gas*
 - ✦ *1,800 Bbl/day of condensate*

Deepwater Gathering Reach



Aviation Department



- ✦ 4 Augusta Westland – A119-MK11
- ✦ 3 Hangars
- ✦ Patterson hangar is main maintenance hub

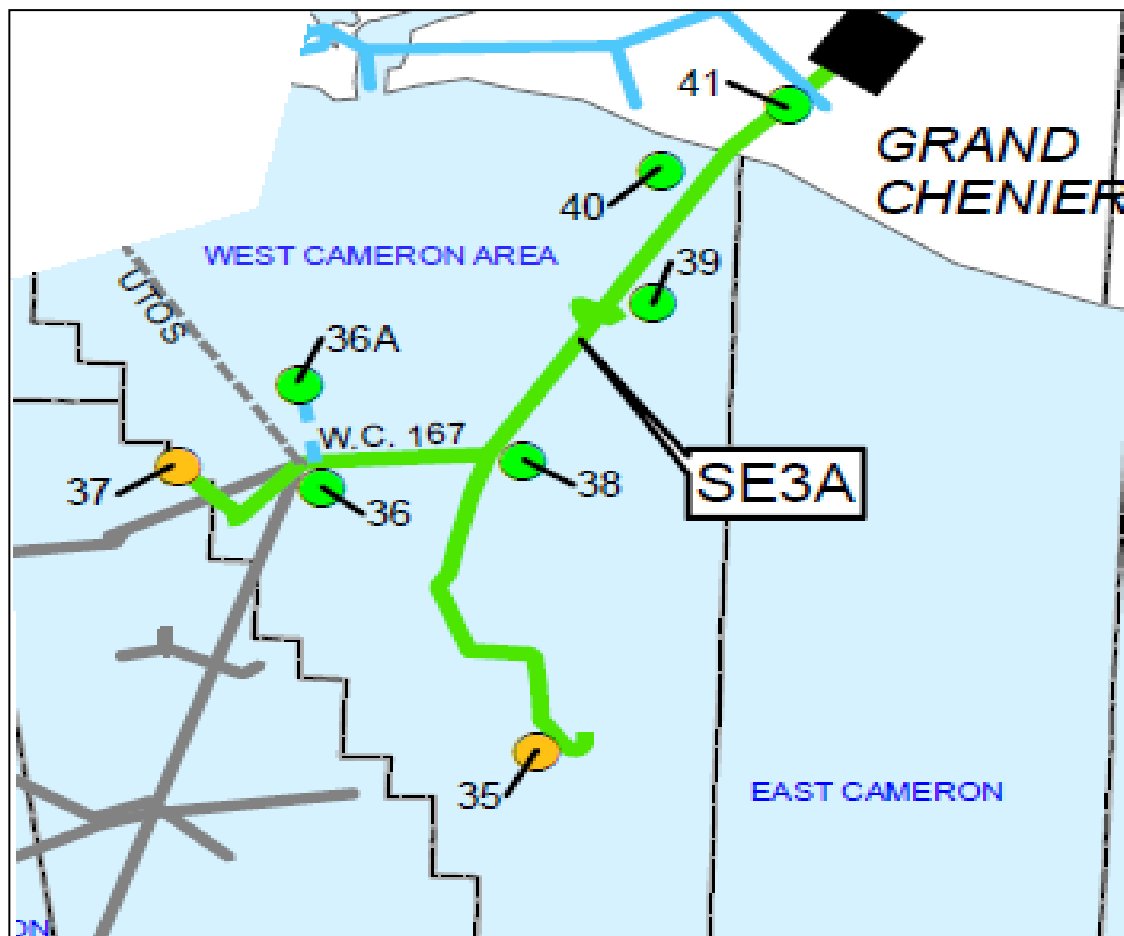
Kinetica Deepwater Express

- ❖ *446 miles of Pipeline*
- ❖ *Patterson Terminal and Station*
- ❖ *Pelican Stabilizer*



Nearshore System

✿ 75 miles of Pipeline



Nearshore System

❖ *Abandonment to Avocet*

- ❖ *TransCanada filed for a 7(b) authorization for an order approving abandonment by sale of the Grand Chenier facilities to Avocet LNG, LLC*
- ❖ *Federal Register Notice is Docket Number CP16-78, and was filed February 24, 2016*
- ❖ *7(b) Abandonment approved by FERC on September 22, 2016*
- ❖ *Closing of Grand Chenier Liquids Handling facility required by purchase agreement*
- ❖ *To prevent production shut-in, negotiated extension of Avocet closing from December 18, 2016 to August 31, 2017*

Gator Plant

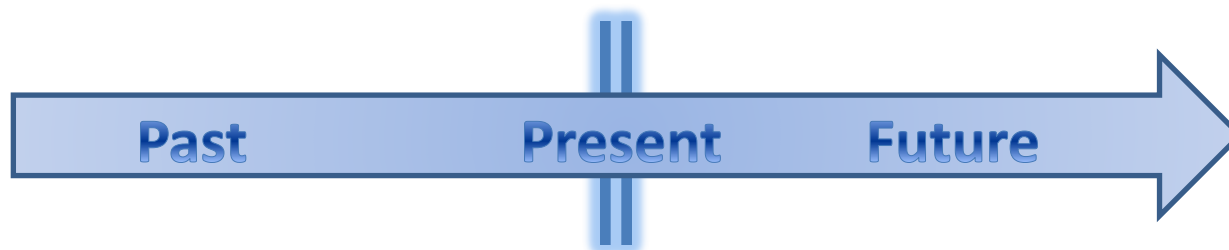
- ❖ *Located in Cameron Parish*
- ❖ *Plant acquired via settlement*
- ❖ *Operated to deliver merchantable gas to Tennessee Gas Pipeline*



CUSTOMER SERVICE

OUR VISION

Kinetica is a solution driven small company implementing our mission of attracting supply while maintaining our high standards of safety, service, simplicity, and stability.



8" Jumper Project – Cameron Parish



8" Jumper Project – Cameron Parish

- ❖ Jumper installed to move condensate from Nearshore line to Harvest
- ❖ Project funded 100% by Kinetica under blanket certificate
- ❖ Construction cost of \$450,000
- ❖ Completed in 45 days



Flowing KEE East to West following Events of February 2017

- ❖ February 9, 2017 at 7:00PM - Explosion at Phillips 66 Paradis Station*
- ❖ Impacted processing capability of Venice and Larose plants*
- ❖ Directly impacted ability to take deliveries from KEE*
- ❖ Discovery deliveries reduced to 0 Dth/day*
- ❖ Venice deliveries reduced by 70%*

Major Accomplishments by Kinetica Team

- ✦ *Unprecedented, temporary redirection of flow from East to West through Cocodrie & Bluewater*
- ✦ *NO production pressured offline*
- ✦ *NO pro-rata curtailment cuts*
- ✦ *3 meters put into service, which had not been used since acquisition, or longer:*
 - ✦ *Egan A (meter 024005)*
 - ✦ *192,000 Dth delivered to Columbia Gulf*
 - ✦ *Venice Interconnect (meter 012516)*
 - ✦ *Direct connection with Mississippi Canyon Gas Pipeline*
 - ✦ *80,000 Dth received*
 - ✦ *Discovery (Receipt) (meter 012650)*
 - ✦ *Williams reconfigured meter to obtain bi-directional flow*
 - ✦ *12,000 Dth received*

Major Accomplishments by Kinetica Team

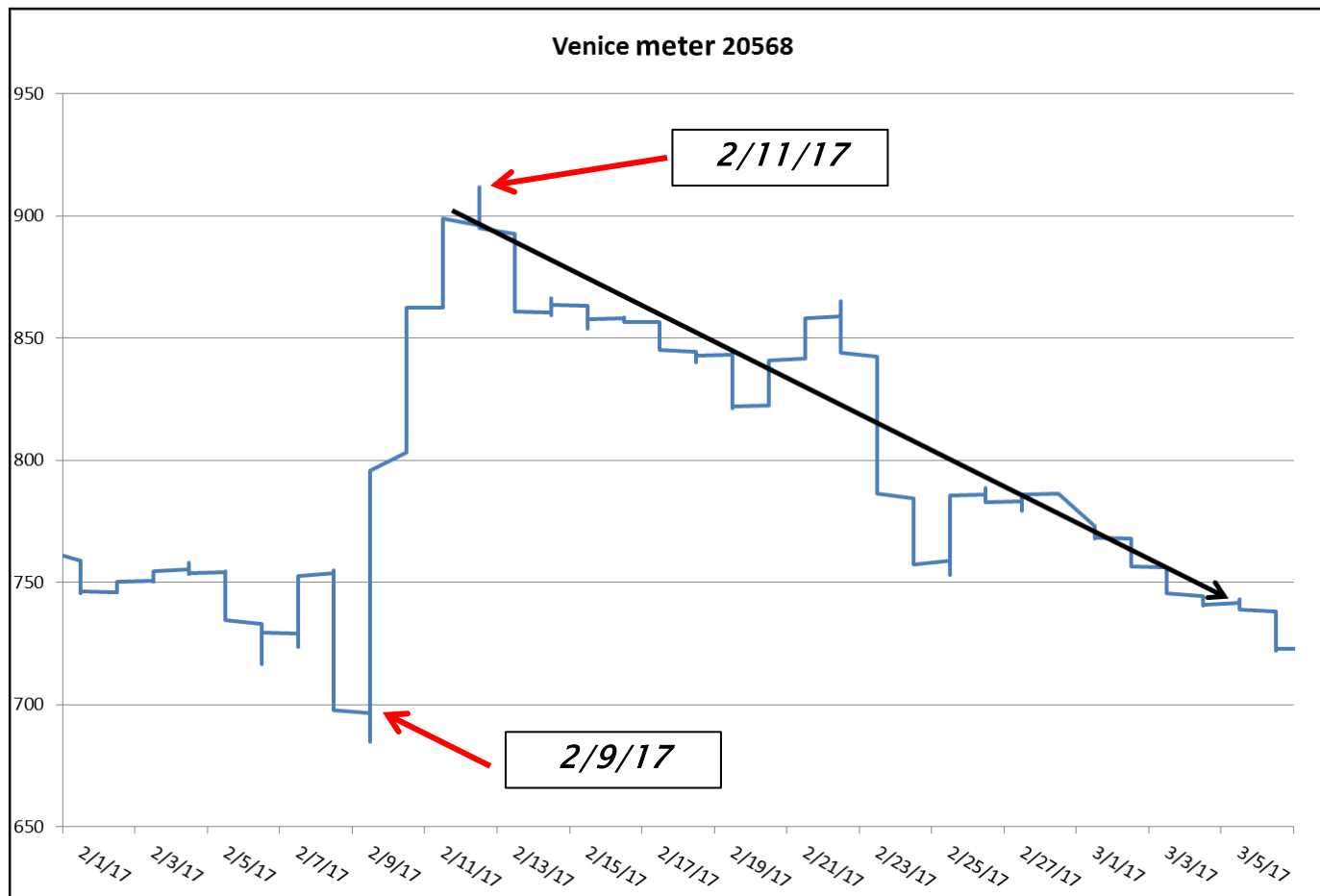
- ❖ *Egan B (meter 024002)*
 - ❖ *Typically only used during East Leg pigging*
 - ❖ *262,000 Dth delivered*

- ❖ *Cooperation received from EnLink and Harvest to increase deliveries into Gueydan/Lirette & Egan Gap respectively*

- ❖ *Event impacted operations on KEE from February 9 until February 23*

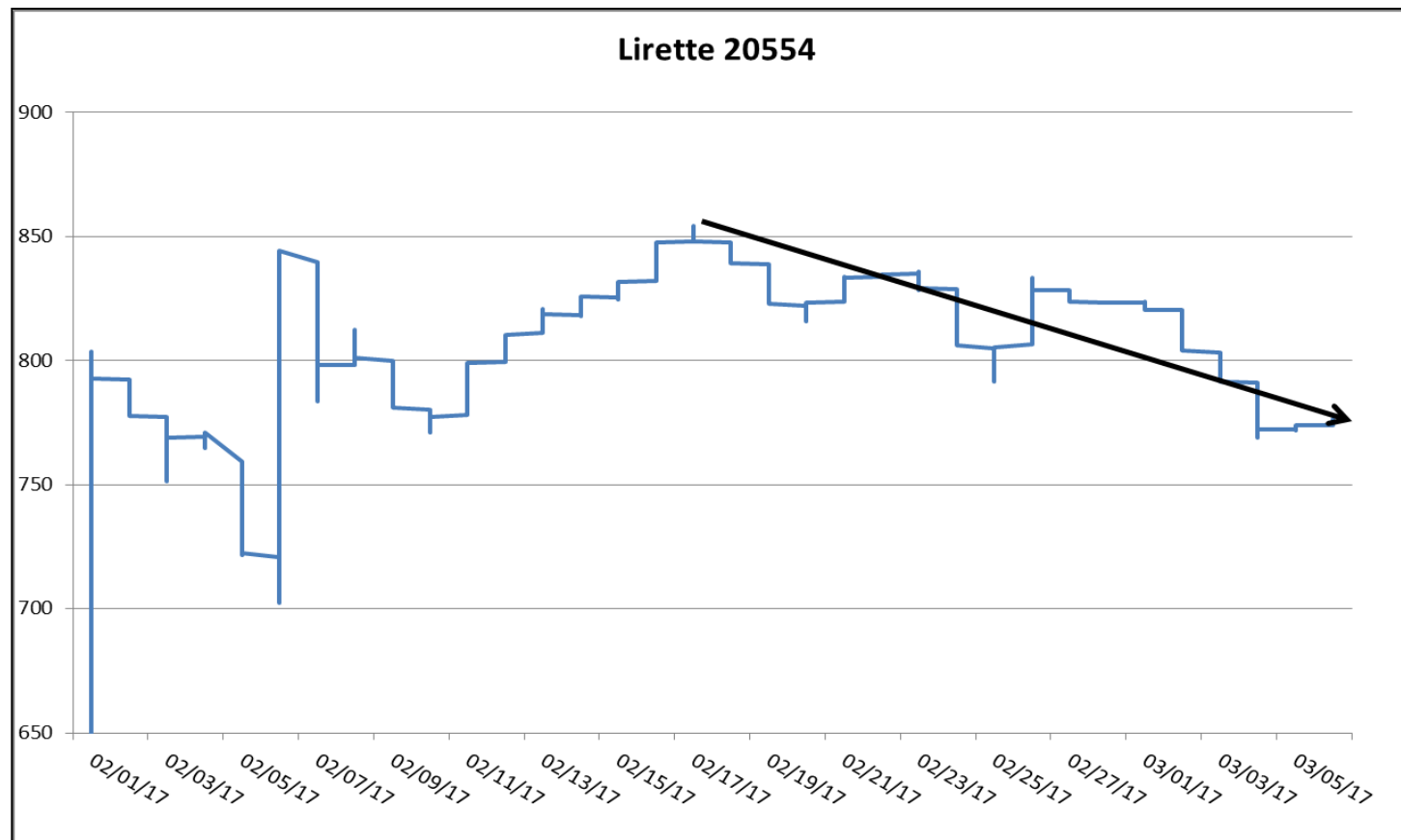
- ❖ *500 overtime hours worked by Kinetica team during event to maintain system integrity and westward gas flow*

Venice 20568 Pressure Trend



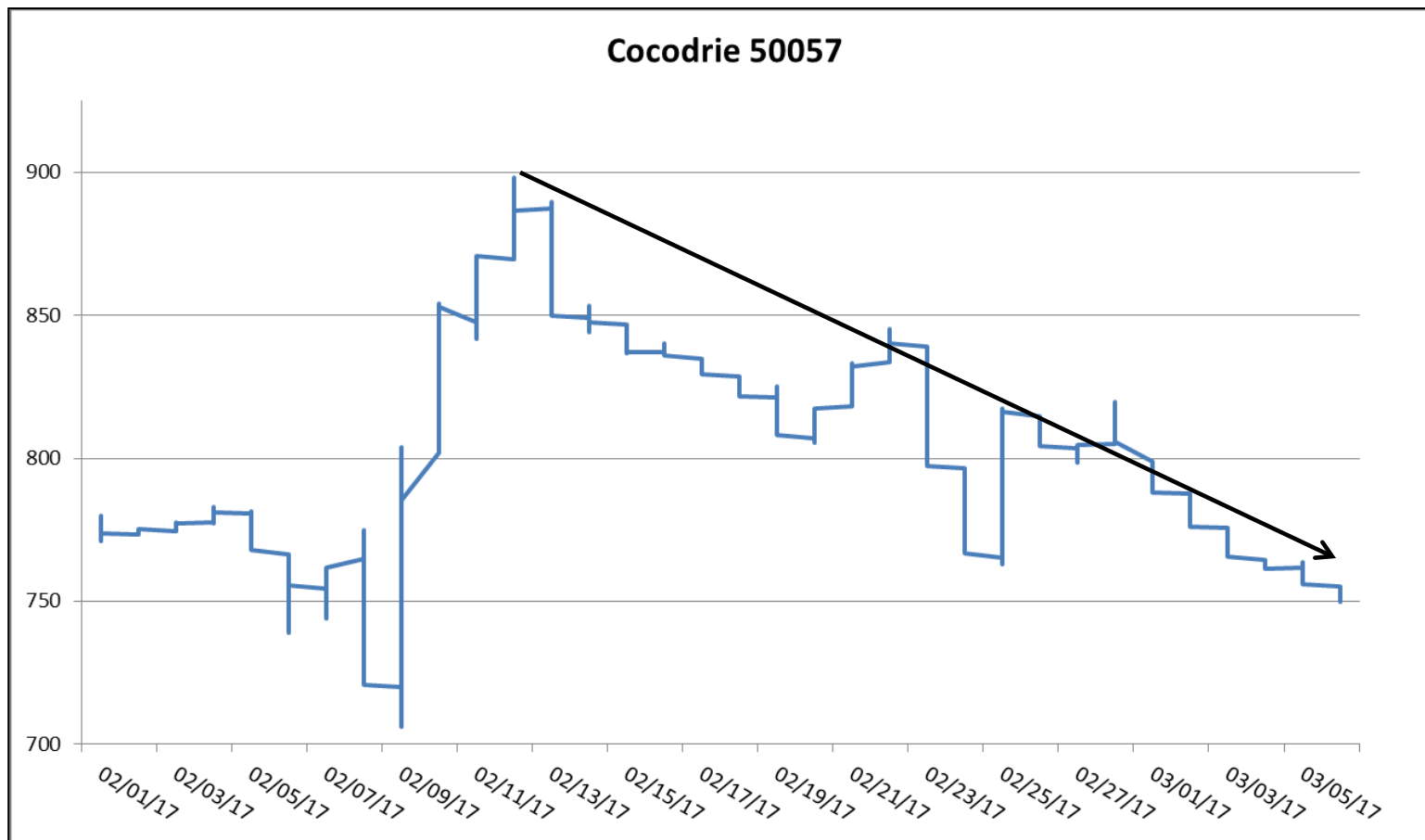
Average	789.9	
Maximum	912.0	
Minimum	684.8	
Std Dev	56.4	7.14%

Lirette 20554 Pressure Trend



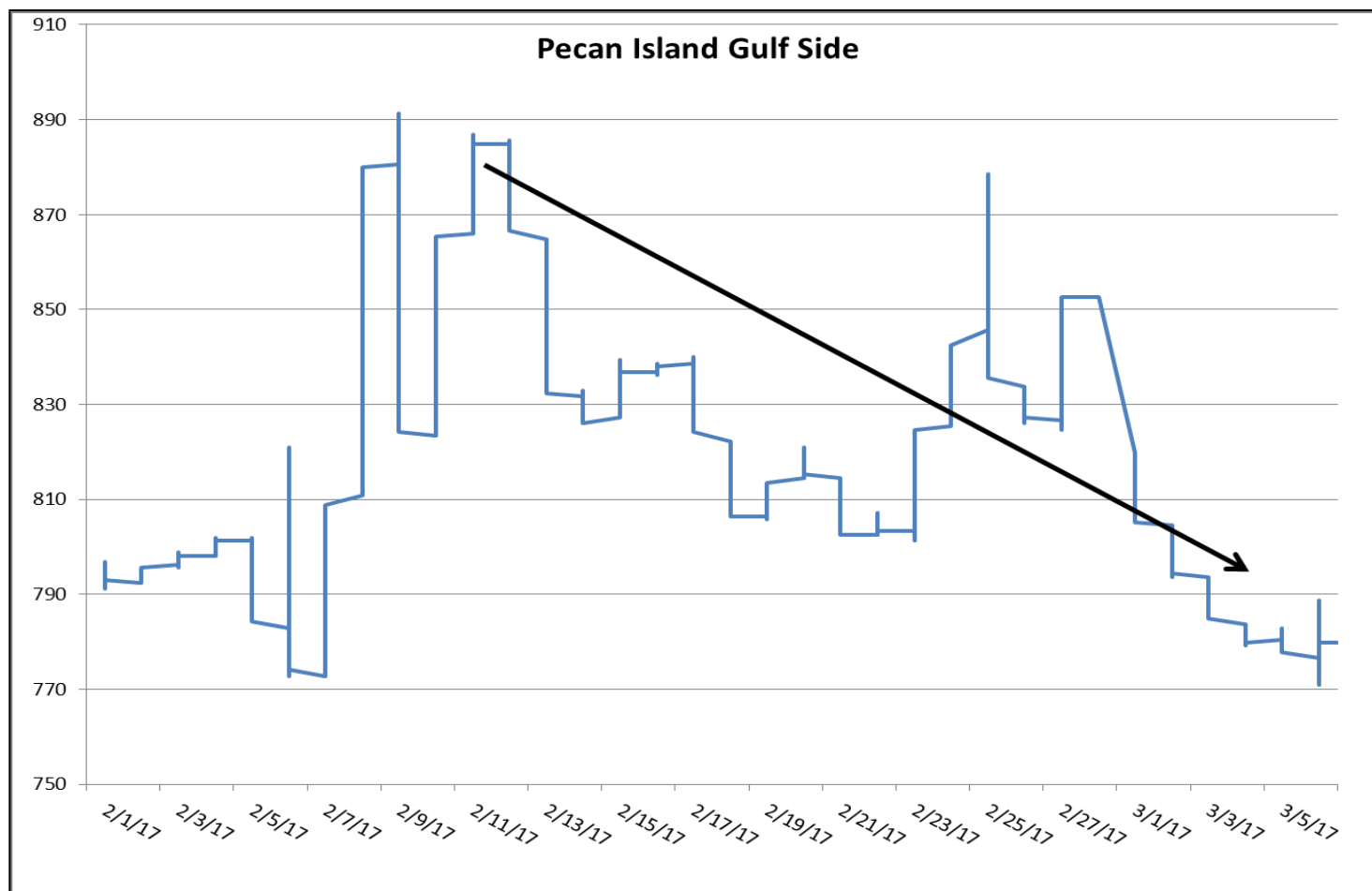
Average	789.7	
Maximum	891.0	
Minimum	701.8	
Std Dev	38.3	4.9%

Cocodrie 50057 Pressure Trend



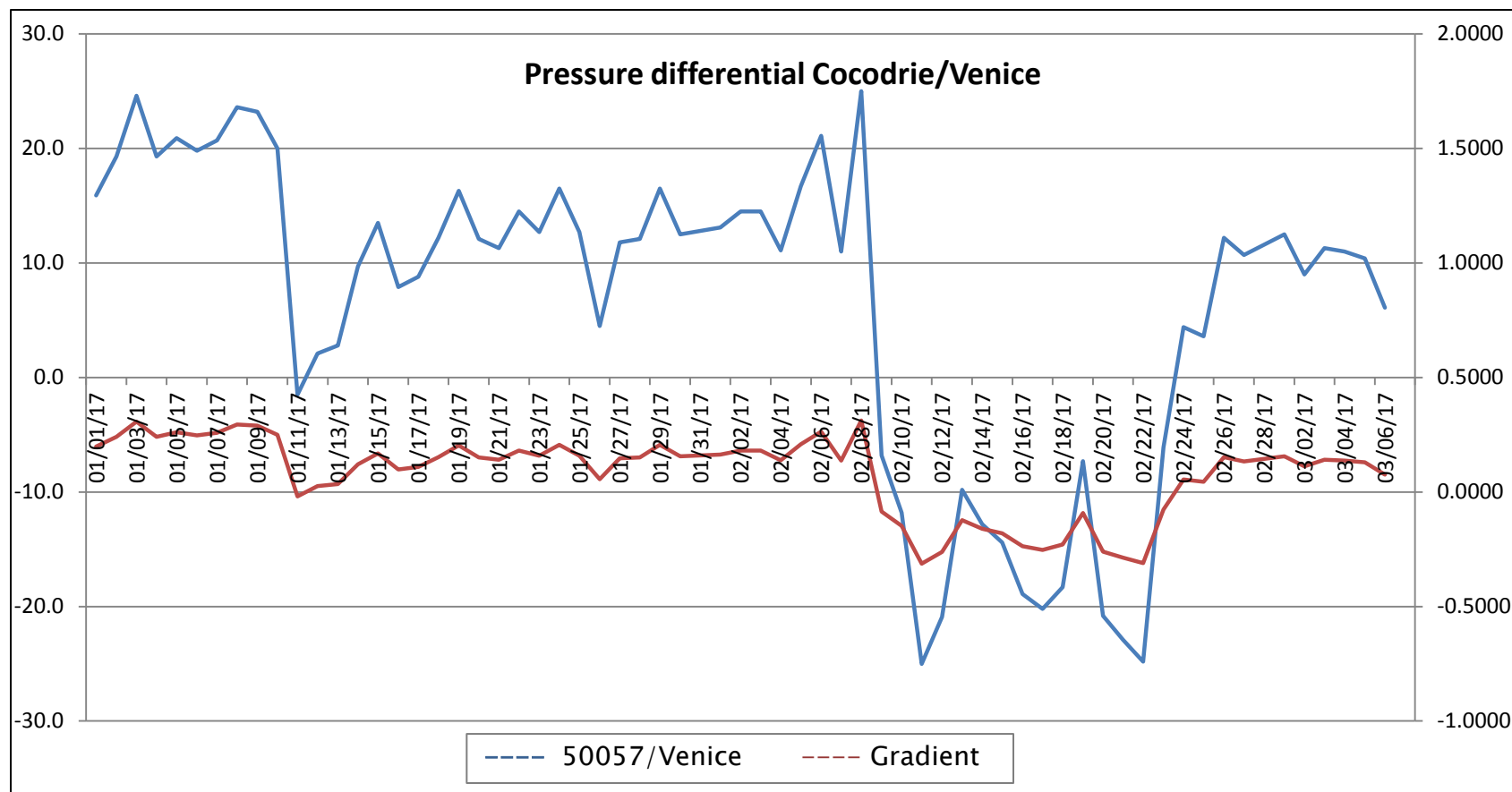
Average	801.4	
Maximum	898.2	
Minimum	706.1	
Std Dev	37.8	4.71%

Pecan Island Station Pressure Trend



Average	816.9	
Maximum	891.3	
Minimum	771.0	
Std Dev	30.0	3.67%

Pressure Differential between Cocodrie and Venice

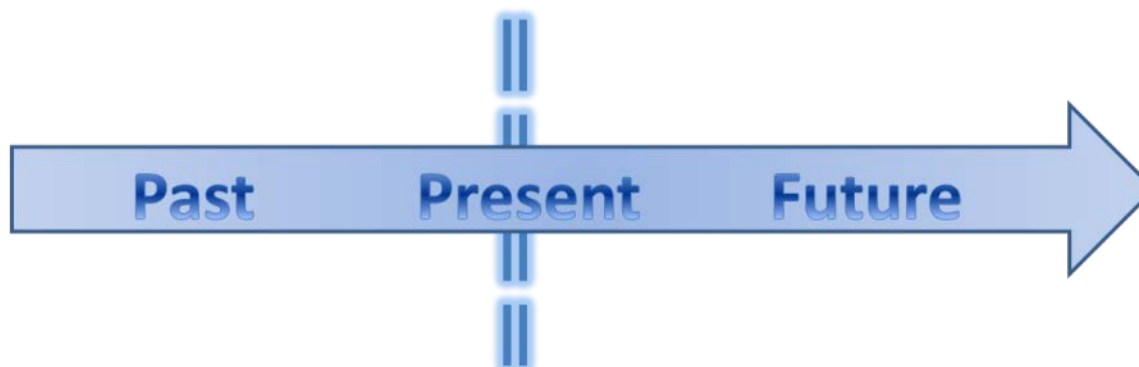


Impact on Line Pack

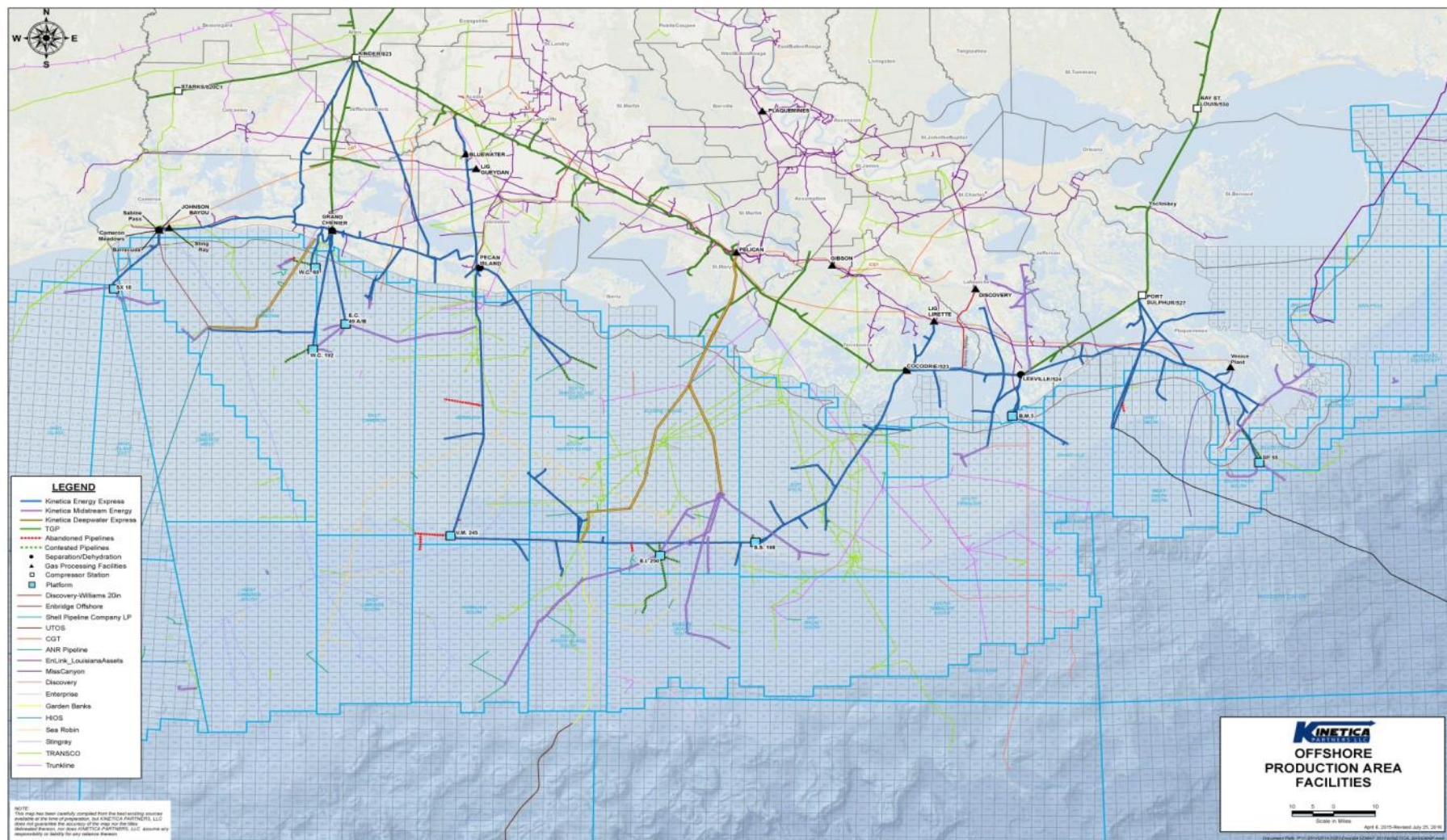
❖ February 2017 Eastern System Line Pack

<u>System</u>	<u>2/8/17</u>	<u>2/9/17</u>	<u>2/10/17</u>	<u>2/11/17</u>	<u>2/12/17</u>	<u>2/13/17</u>	<u>3/6/17</u>
Bluewater	733,173	766,036	763,566	785,919	804,574	782,918	706,340
South Timbalier	126,618	118,307	139,152	146,533	156,010	149,885	123,541
South Pass	159,428	147,086	171,995	190,622	206,658	190,560	155,911
I Hub	63,169	55,253	66,073	66,073	68,953	71,699	59,031
TOTAL	1,082,388	1,086,682	1,140,786	1,189,147	1,236,195	1,195,062	1,044,823

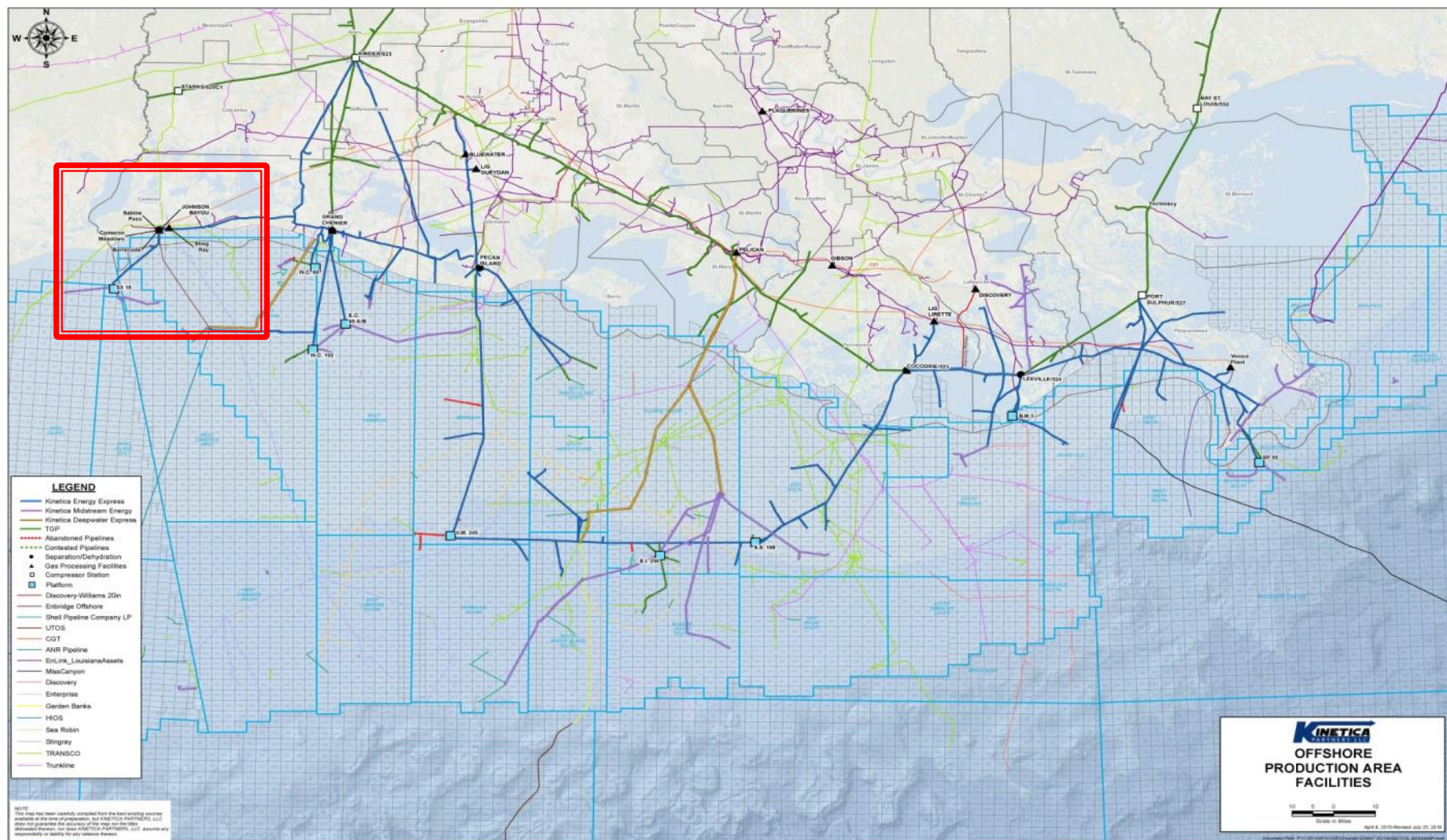
Kinetica Value Chain



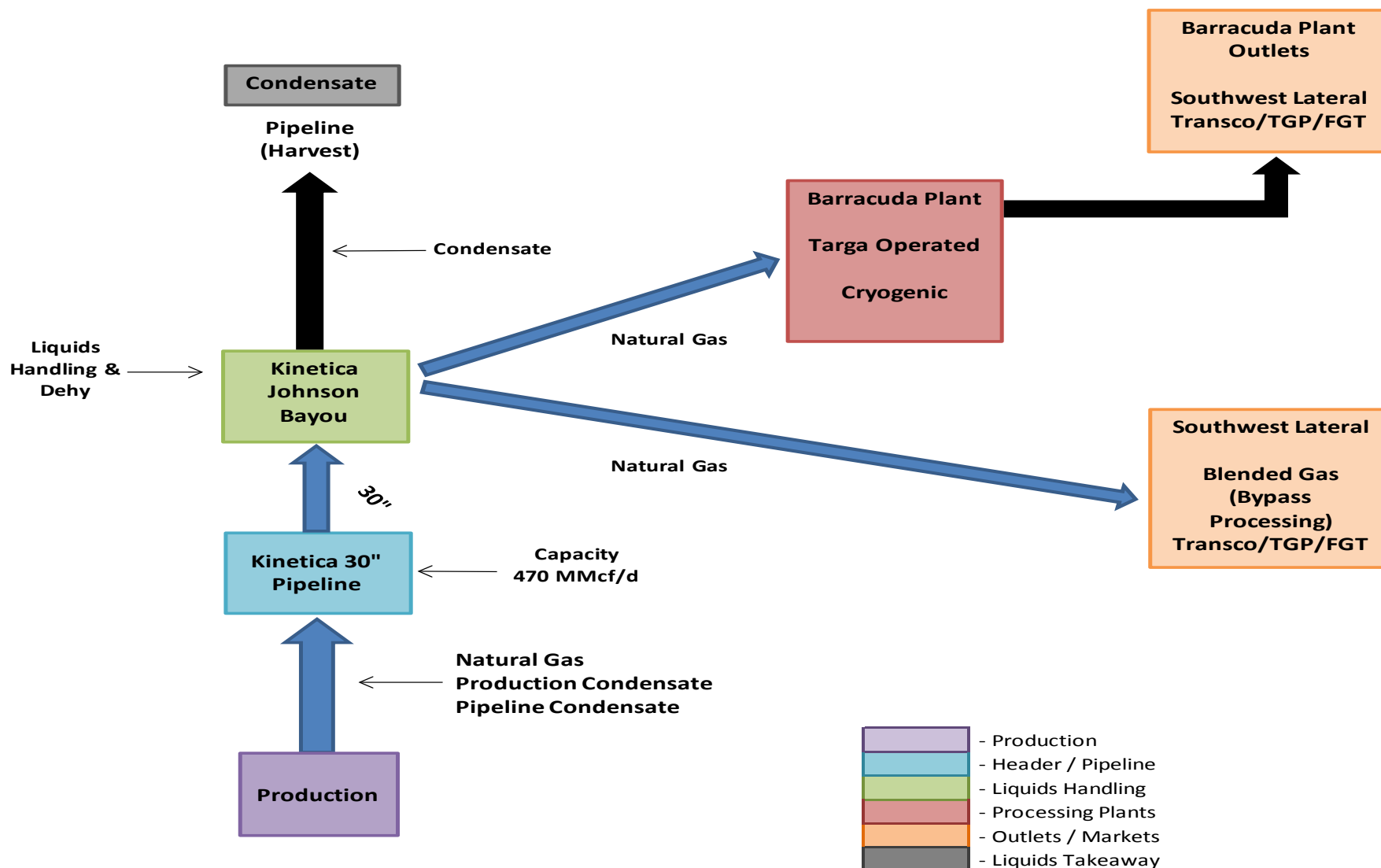
Kinetica Value Chain



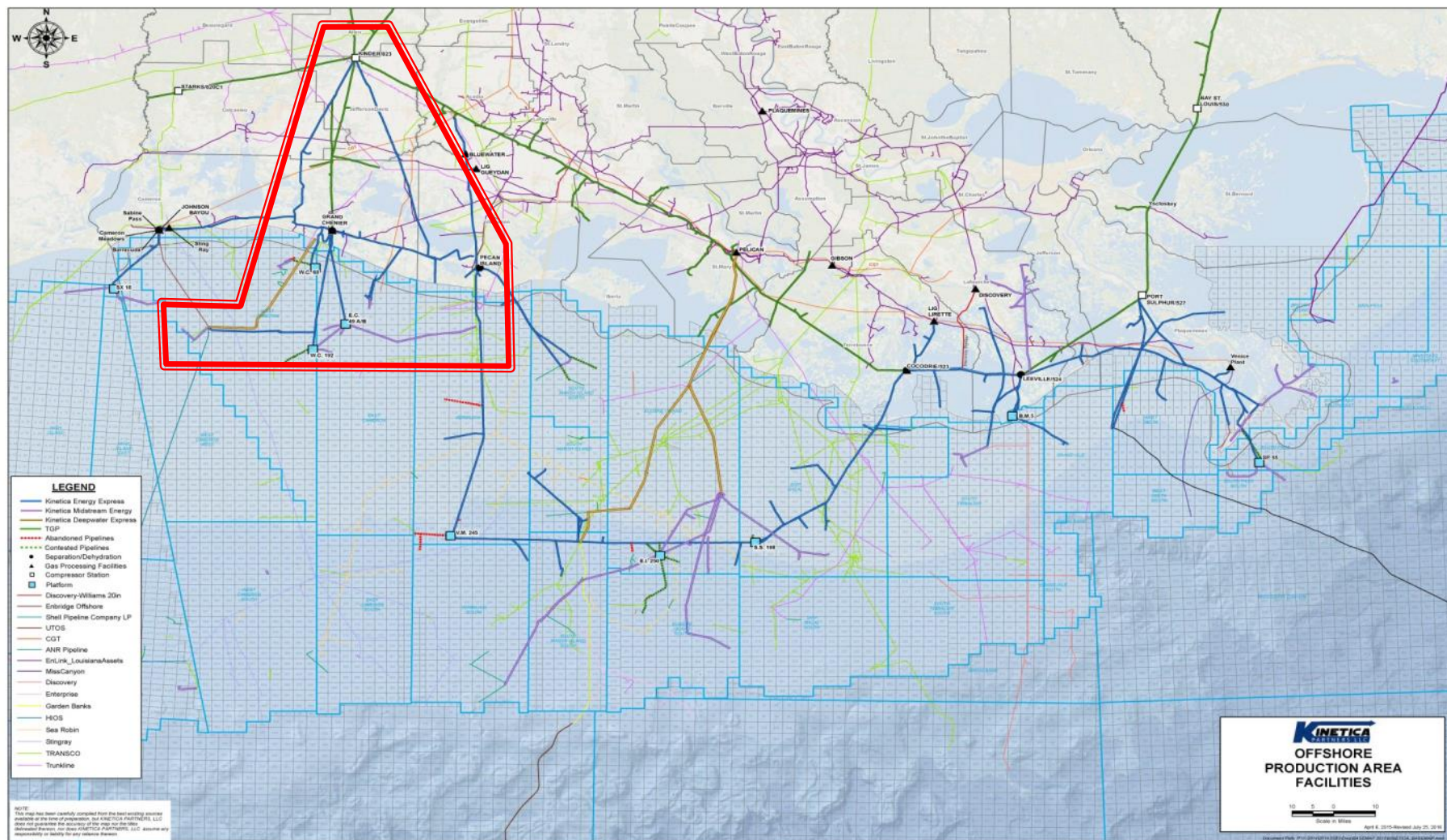
Sabine System



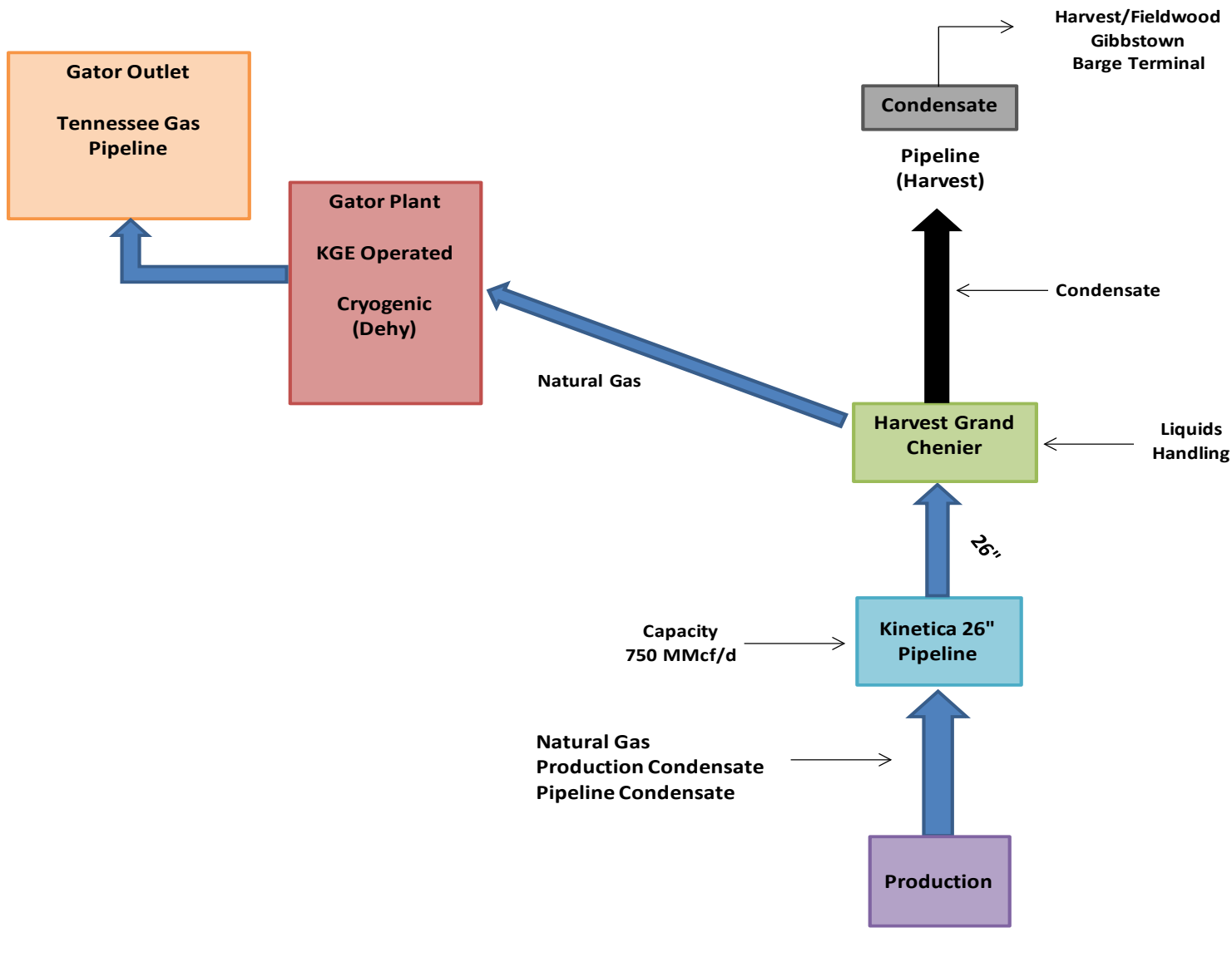
Sabine Value Chain



Cameron and Nearshore System

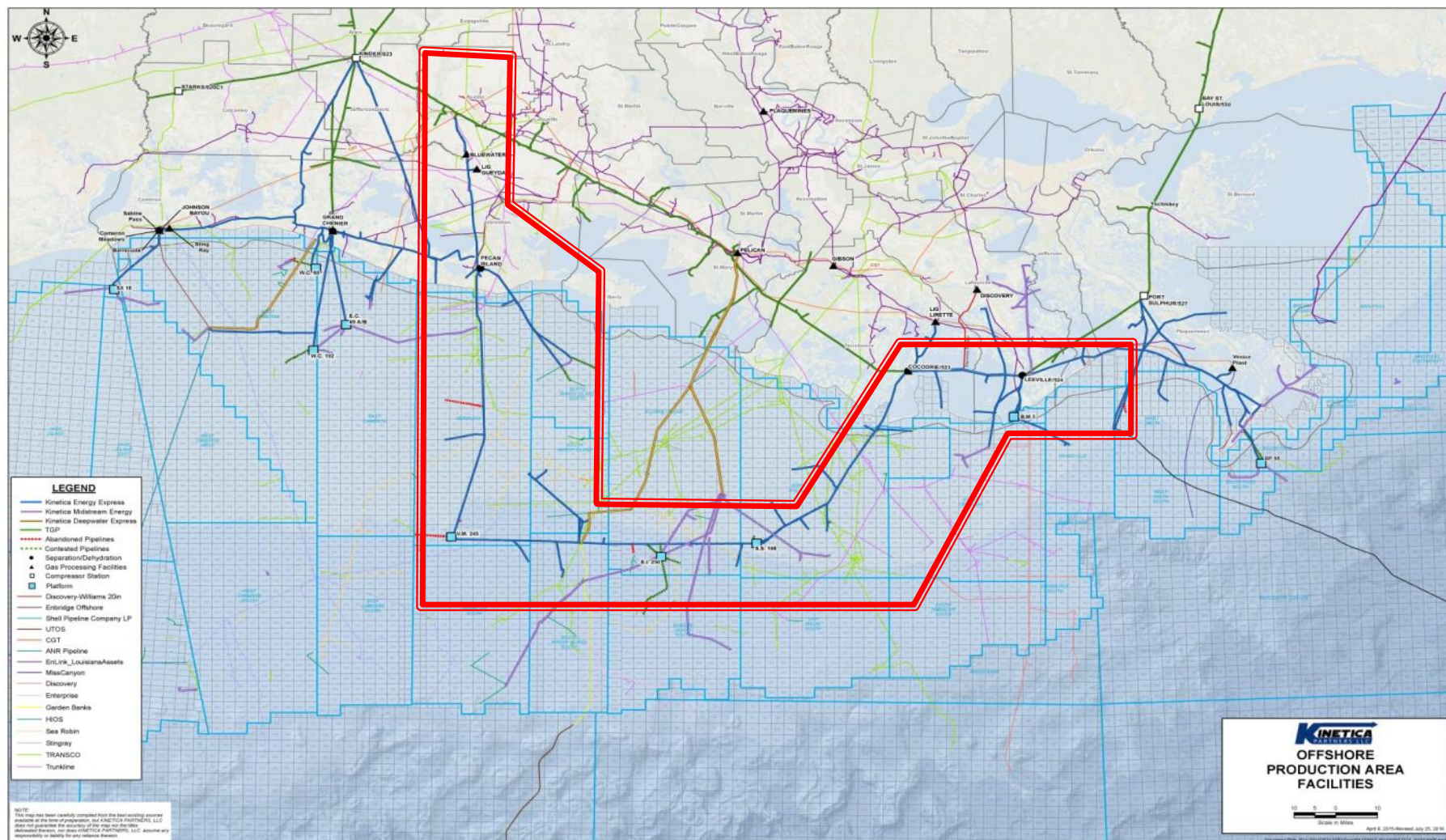


Cameron and Nearshore Value Chain

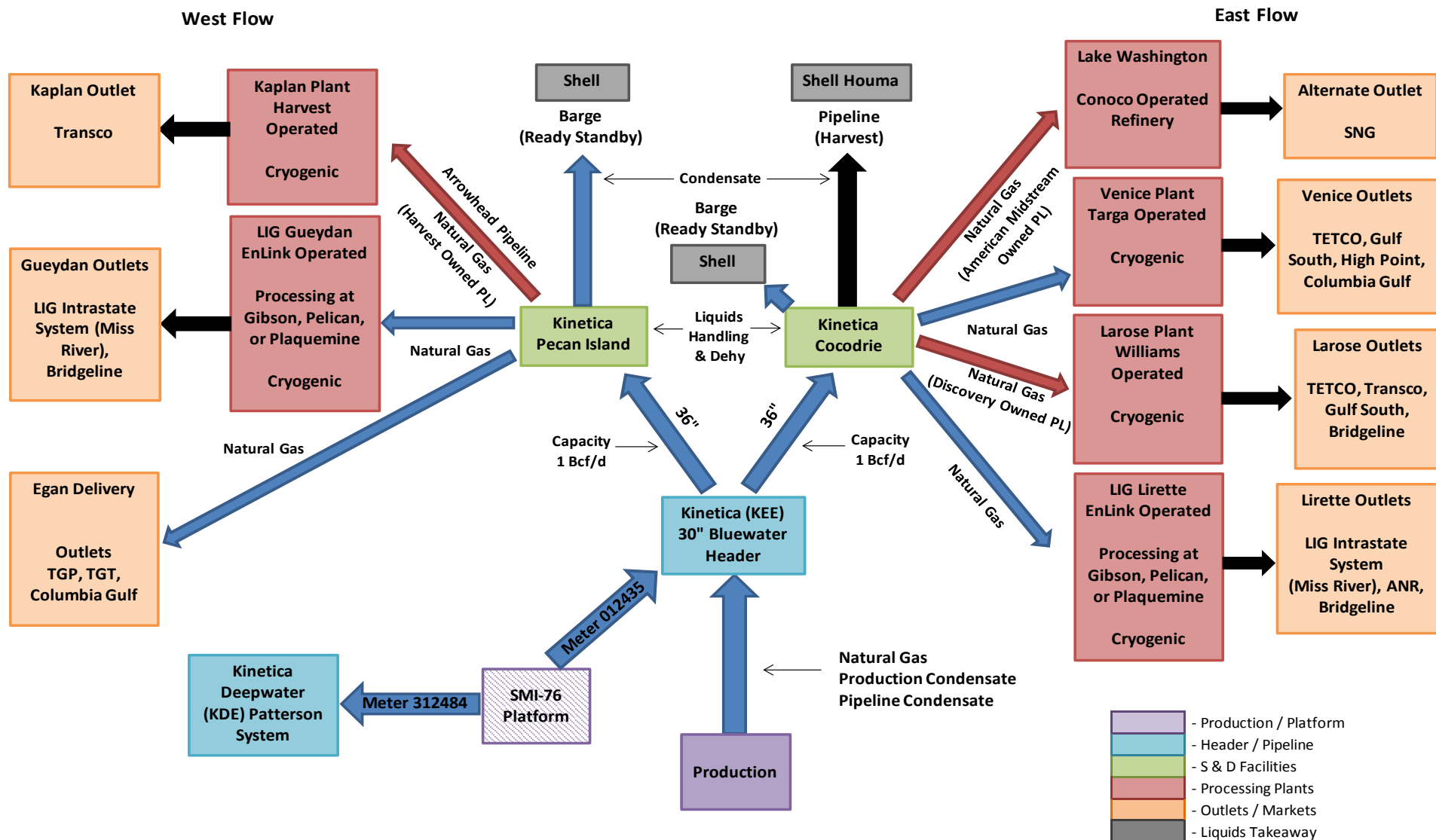


- Production
- Header / Pipeline
- Liquids Handling
- Processing Plants
- Outlets / Markets
- Liquids Takeaway

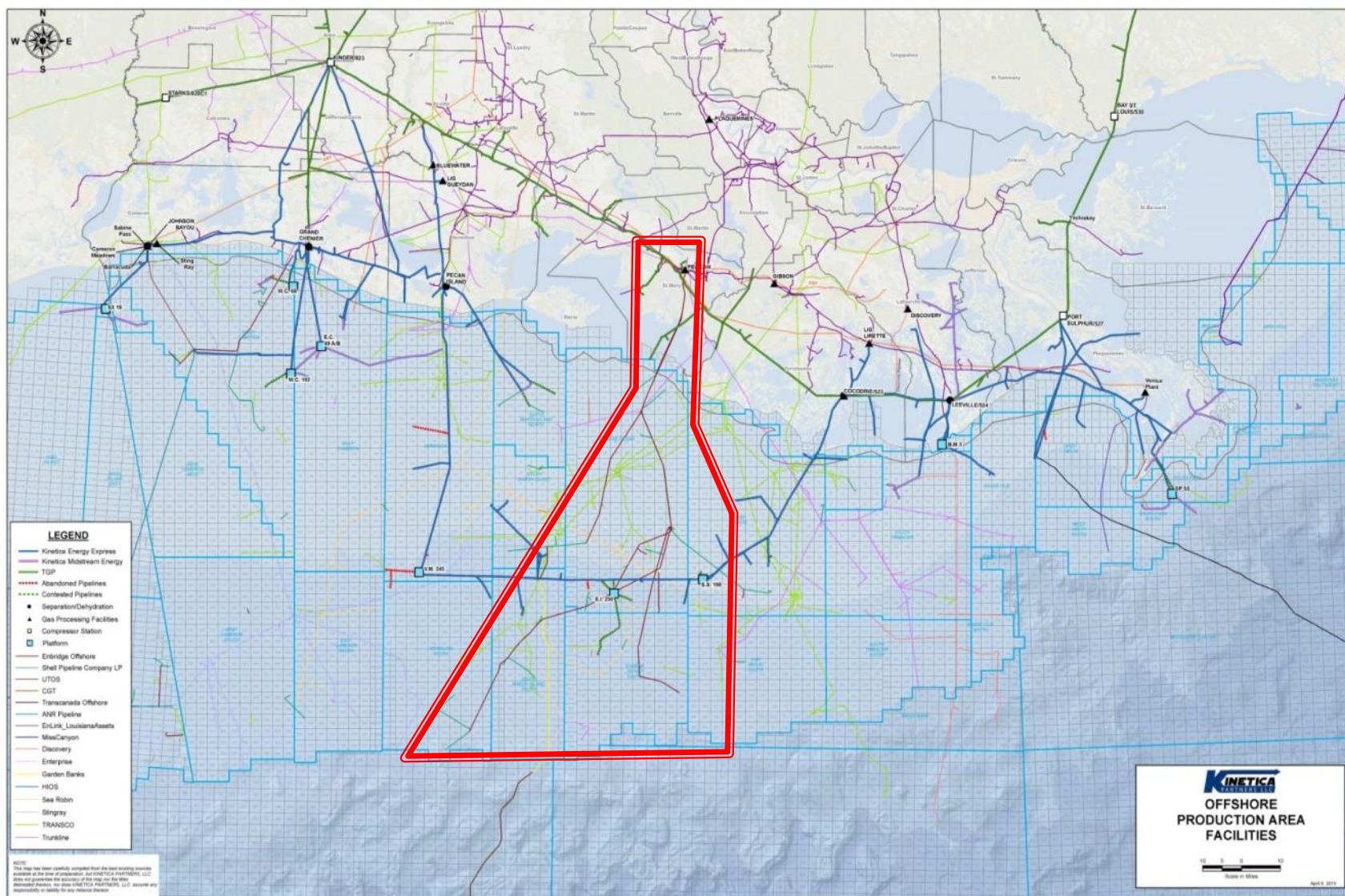
Bluewater System



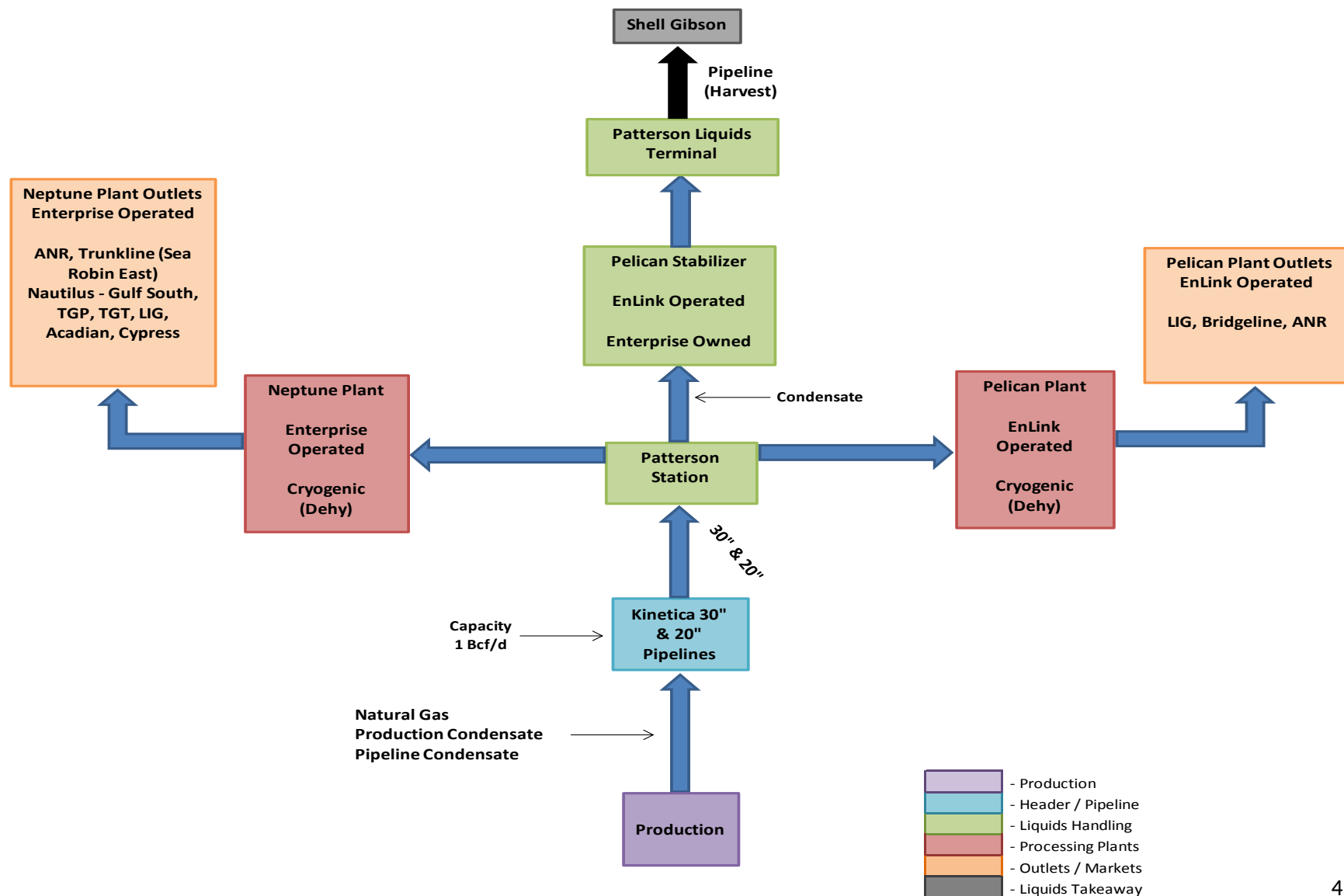
Bluewater Value Chain



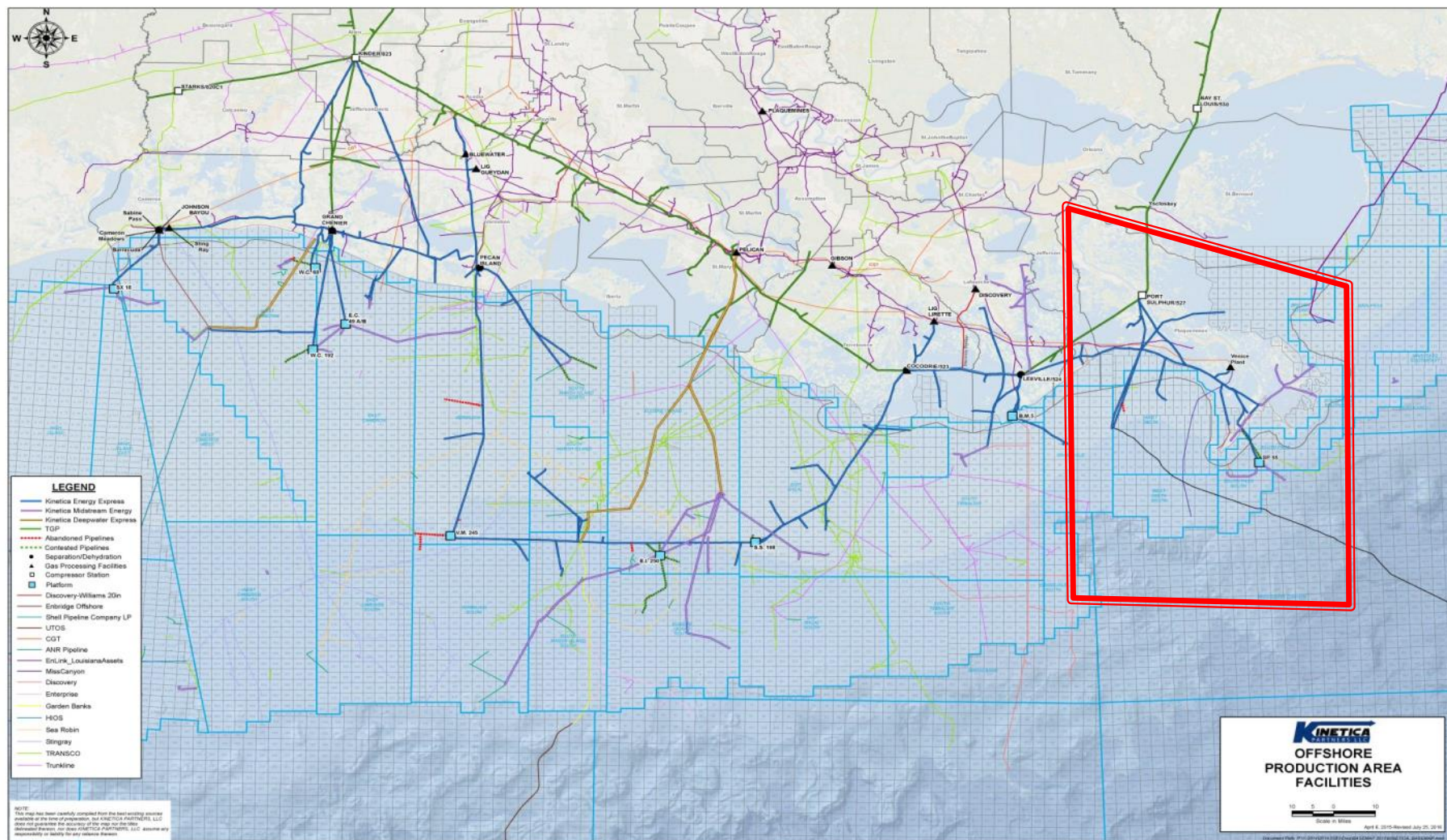
Patterson System



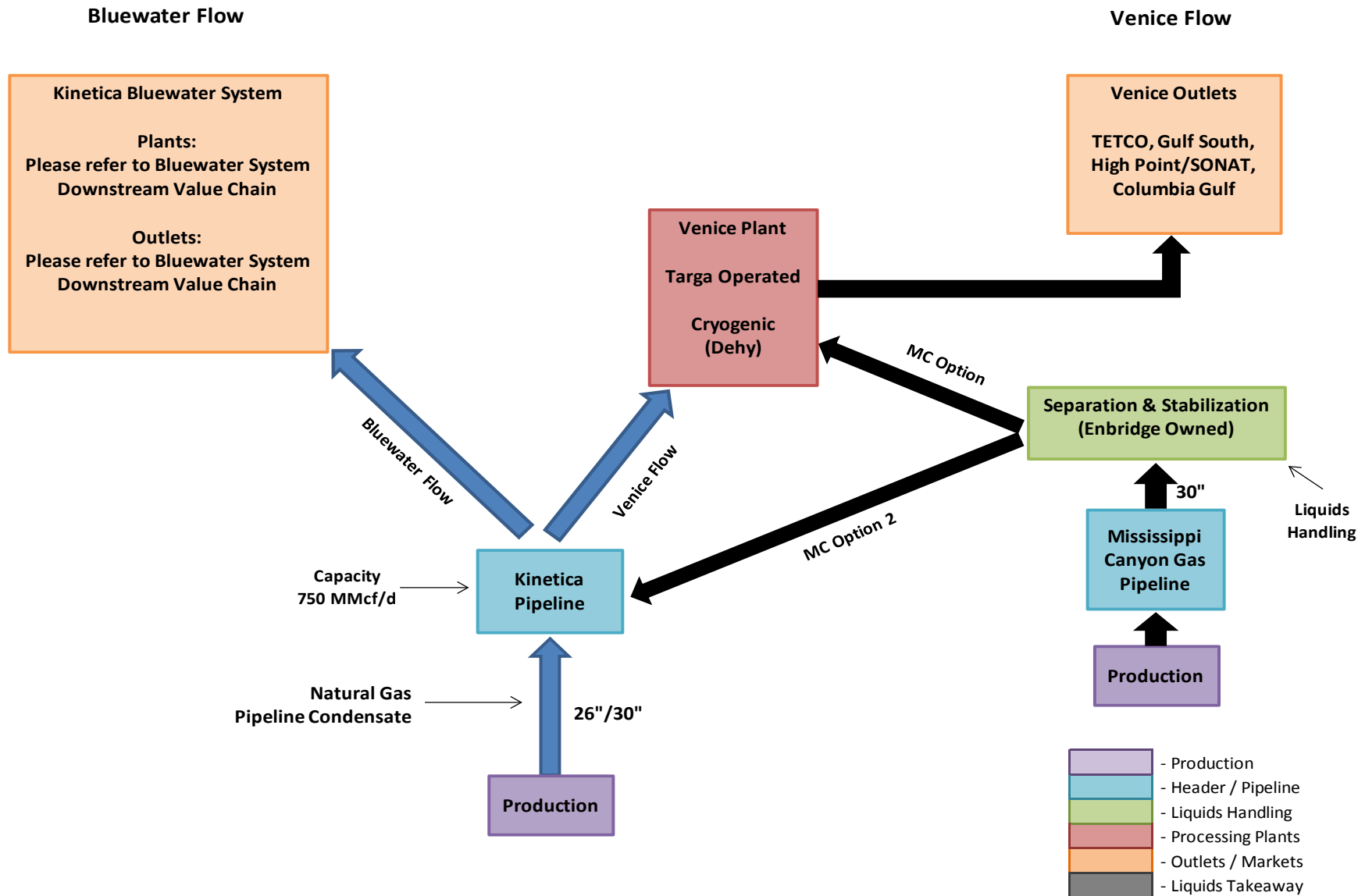
Patterson Zone Value Chain



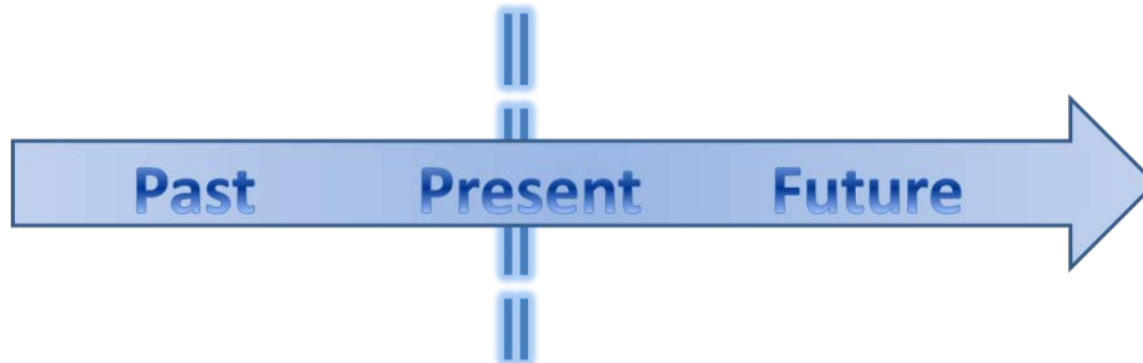
South Pass System



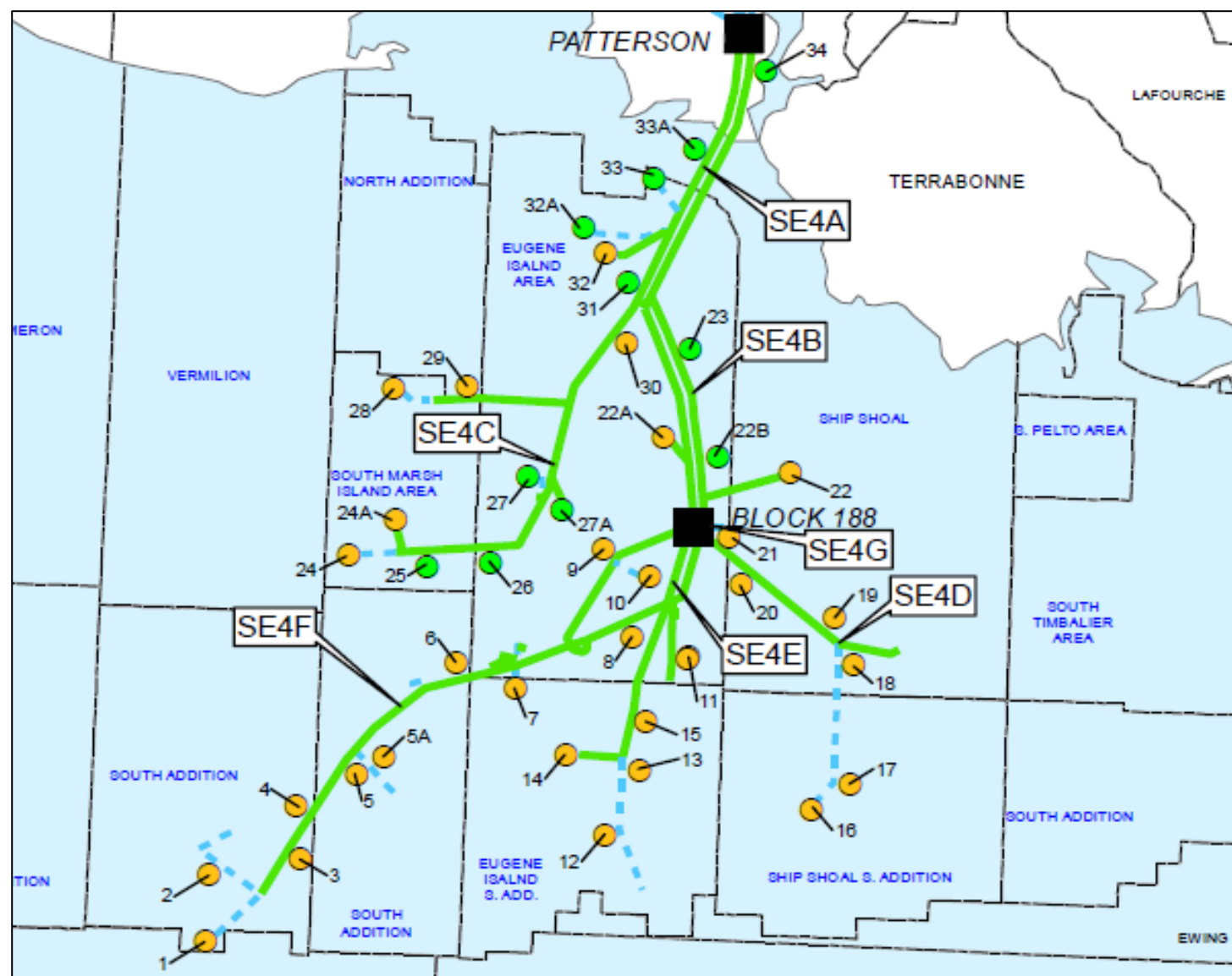
South Pass and Independence Trail Value Chain



Patterson System Maintenance Status



Patterson System



Current Status

Launch Point	Date/Time Launched	Receipt Point	Date/Time Received
VR 397	Pig 1: 3/29 at 10:20 AM Pig 2: 3/31 at 09:50 AM	El 188	Pig 1: 4/1 @ 12:00 AM Pig 2: 4/1 @ 08:23 AM
El 188	4/1 at 9:05 AM	Patterson	4/5 at 8:45 PM
El 11	4/6 at 10:15 AM	El 63	
El 188 Loop		El 63	
El 188		Patterson	

✿ *Currently handling liquids at Patterson*

✿ *BBLs to Date = 30,000 Bbls (as of 4/6/17)*

Nominations

- ❖ *Effective Timely Cycle for Gas Day March 31 and until completion of maintenance (estimated April 18 at 9:00 AM), scheduled quantities will be held to 0 Dth/day for all meters on 30" line*
- ❖ *Includes meter 399001-ANR/Patterson*

Receipt Points on 30" Line

Meter Number	Description
310002	VR 380
310014	EI 341
312106	SS 204/205
312108	SS 207/216
312112	EI 208
312122	EI 76/77
312124	SS 277/299
312126	EI 142
312130	VR 379
312132	VR 376
312152	EI 188/189
312162	EI 255/259
312166	SS 219

Meter Number	Description
312168	SS 105
312178	EI 327
312184	SS 300
312200	EI 217
312204	SS 80
312222	EI 238
312232	EI 346
312234	VR 356
312508	SS 178
312518	SS 152 (EI 211/212)
312544	SS 207/Manta Ray
312566	GB 426 (VR 397)

Meter Number	Description
313009	SM 149C
313026	EI 143
313055	SS 207/Enbridge
313056	EI 275
313074	EI 246
313081	SM 149D
313092	EI 17
313097	EI 342
313102	Belle Isle West
322128	EI 346BB
322140	SS 178BB
323005	SS 219BB

Table includes receipt points on 30" line where capacity will be restricted

Receipt Points on 20" Line

- ❖ *Producers on the 20" line may experience higher than normal pressures*
- ❖ *No capacity restrictions*

Meter Number	Description
310012	SM 288
312156	SM 7/10
312484	SM 76
313073	EI 63/11

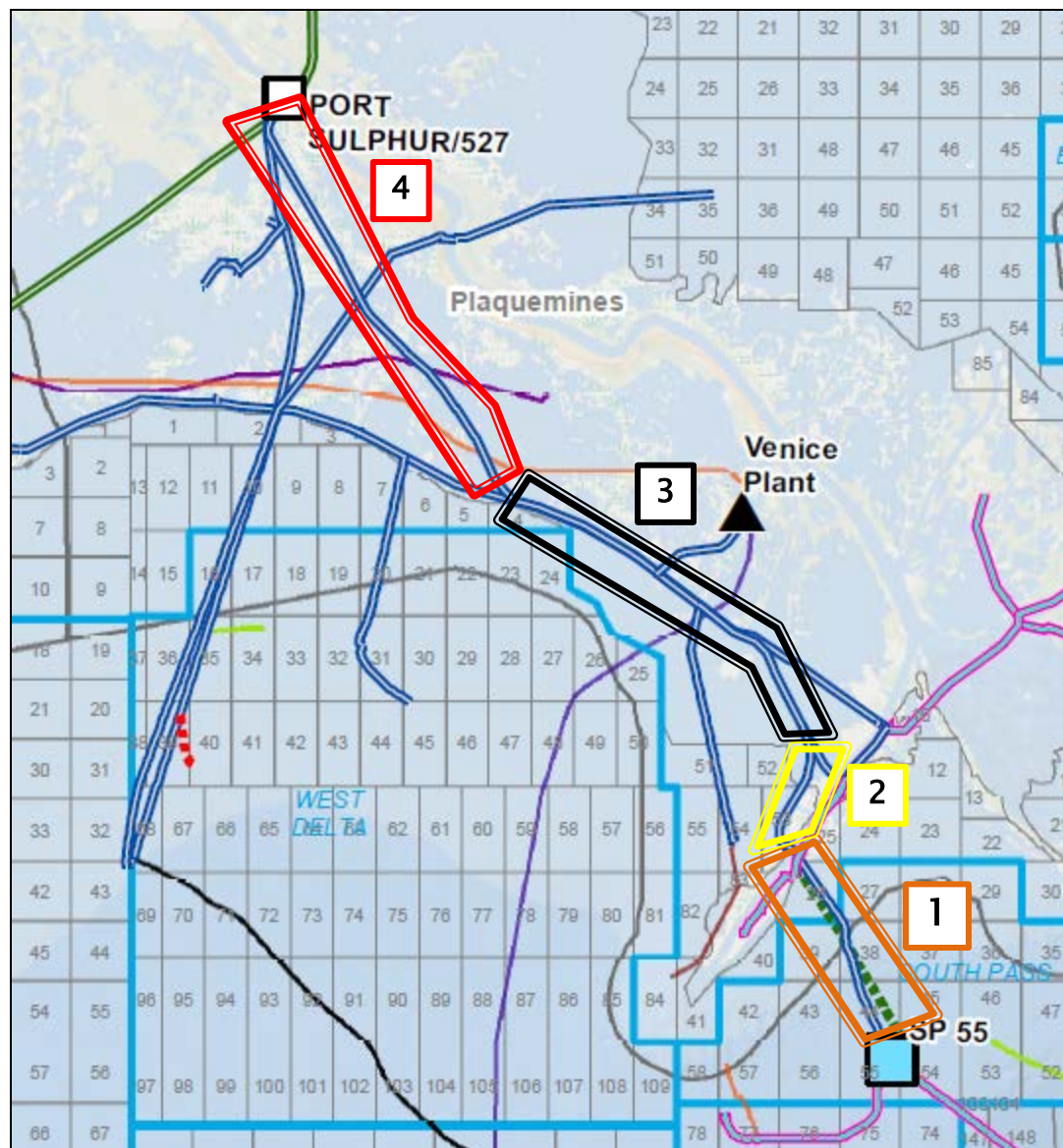
Break

30 Minutes

South Pass System Maintenance



South Pass System Maintenance Pigging



Line Segments to be Pigged

#	Line Segment	Distance	Diameter
1	South Pass 55A to West Bank of Mississippi River Southwest Pass	11.45 miles	36"
2	West Bank of Southwest Pass to Scott Bay	6.05 miles	36"
3	Scott Bay to Scofield Bayou	17.56 miles	26"
4	Scofield Bayou to Port Sulphur Station	22.45 miles	26"



Duration and Schedule

- ✦ *Last pigged in 2011*

- ✦ *Duration*

- ✦ *Segments One thru Three*

- ✦ *Estimated Duration: One Day for each segment (three days total)*

- ✦ *Fourth segment dependent on liquid volume*

- ✦ *Estimated duration: Four to Six Days*

- ✦ *Estimated total duration is 9 days*

- ✦ *Liquid Handling*

- ✦ *Liquid handling rate at Port Sulphur is 12,000 Bbls/day*

- ✦ *Total tank capacity at Port Sulphur is 32,000 Bbls*

- ✦ *Liquids transported via truck*

- ✦ *End of Q3*

Delivery Points and Nominations

- ✦ Venice delivery capacity restricted to 0 Dth/day for duration of pigging
- ✦ Overall flow of gas will move from East to West
- ✦ Available delivery points for production East of Cocodrie include (based on capacity):
 - ✦ American Midstream (meter 021073)
 - ✦ Discovery (meter 021032)
 - ✦ EnLink – Lirette (meter 020554)
 - ✦ EnLink – Gueydan (meter 024012)
 - ✦ Egan Gap (meter 024016)
 - ✦ Egan B (meter 024002)
 - ✦ Egan A (meter 024005)
- ✦ Available delivery points for production West of Cocodrie include (based on capacity):
 - ✦ EnLink – Gueydan (meter 024012)
 - ✦ Egan Gap (meter 024016)
 - ✦ Egan B (meter 024002)
 - ✦ Egan A (meter 024005)



Liquefied Natural Gas (LNG)





Commonwealth LNG, LLC Mid-Scale LNG Export Terminal

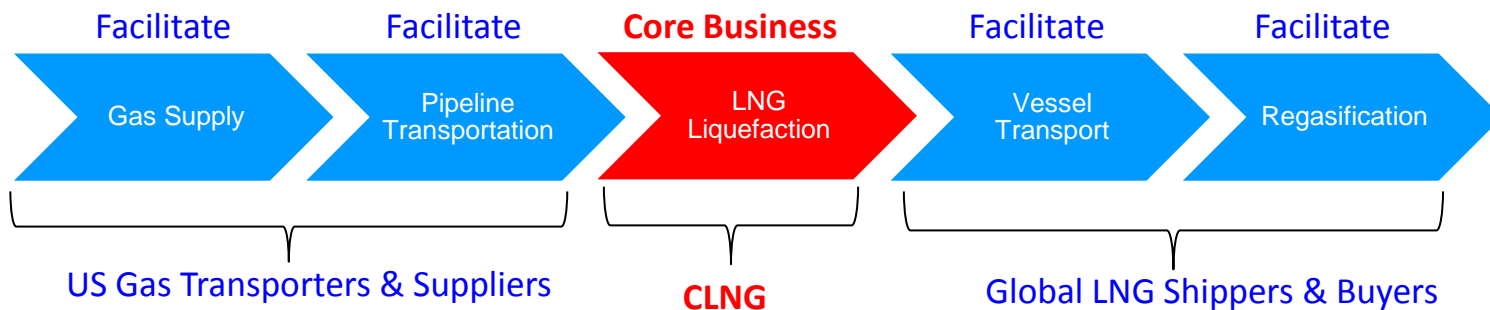


Project Presentation to:
Kinetica 2017 Shippers Meeting
April 6, 2017



CLNG Core Business Model

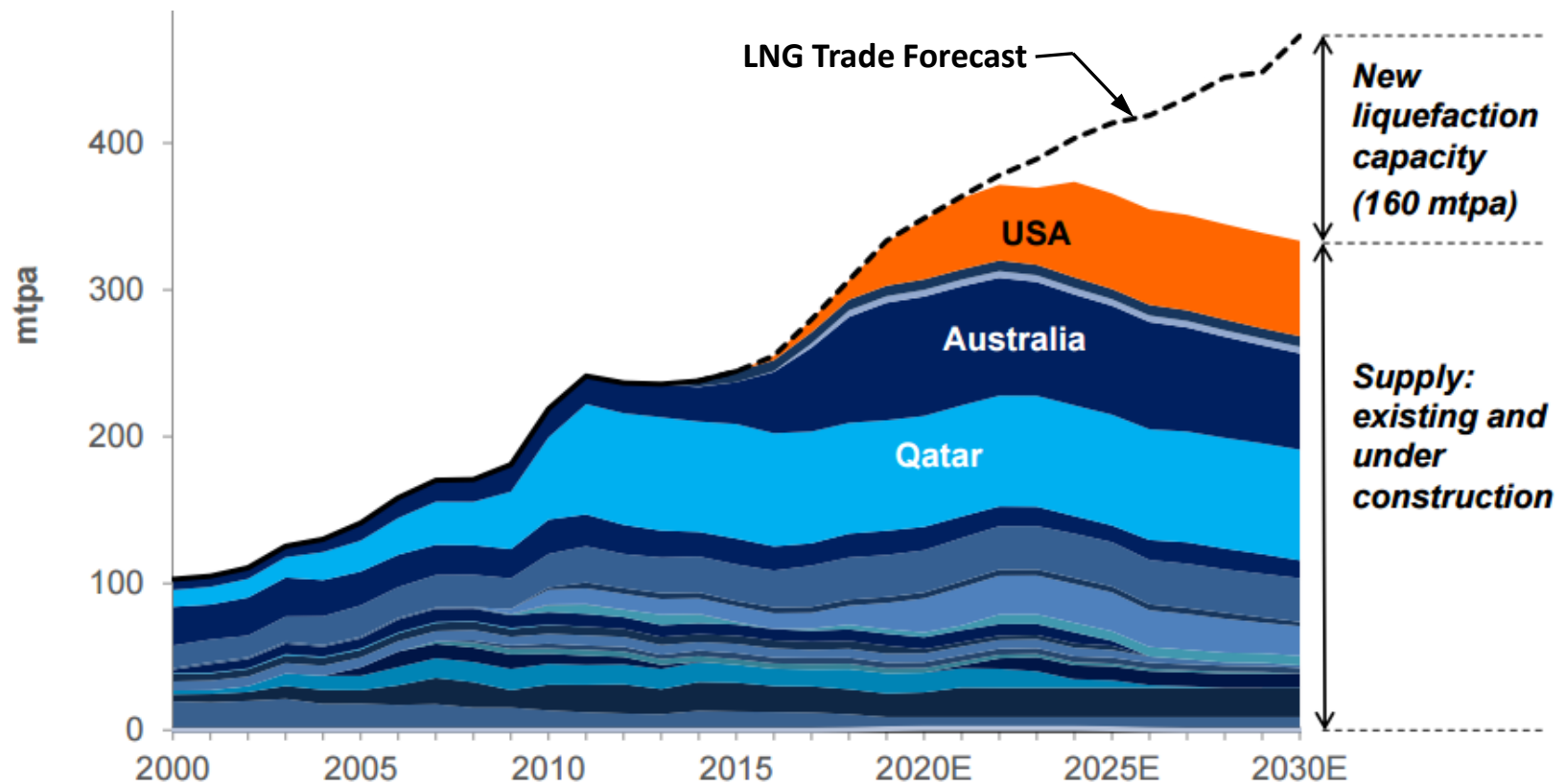
- ▶ Project Developer
- ▶ Develop, finance, build and operate LNG export terminals
- ▶ Receive compensation via liquefaction tolling services
- ▶ Create added value for potential customers by facilitating upstream and downstream supply chain connectivity





Future LNG market

- ▶ By 2022, Global LNG demand is expected to outstrip existing and under construction production
- ▶ By 2030, 160 MTPA of new liquefaction capacity will be required
- ▶ CLNG represents only 5% of the new build market



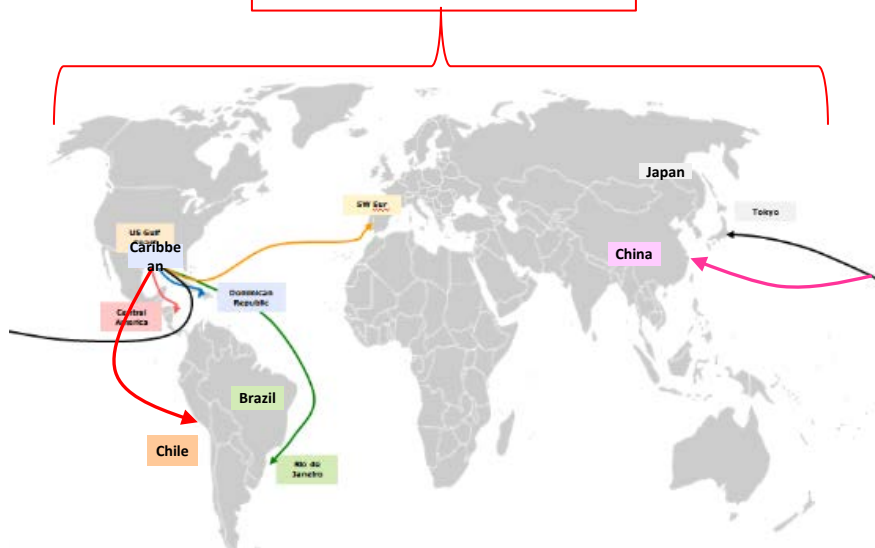
Source: CPL public domain research



Commonwealth LNG Export terminal

- ▶ 8 million tonnes per annum (“MTPA”) LNG Export terminal
- ▶ Requires 1.25 BCF natural gas transpiration and supply on a 24 – 7 basis
- ▶ Commercial operation in 2022 to serve the next wave LNG global demand
- ▶ Located at the mouth of the Calcasieu River in Louisiana
- ▶ Connects US / Louisiana natural gas system to the global LNG market
- ▶ Can support contract terms as short as 5 years

Global Market Reach







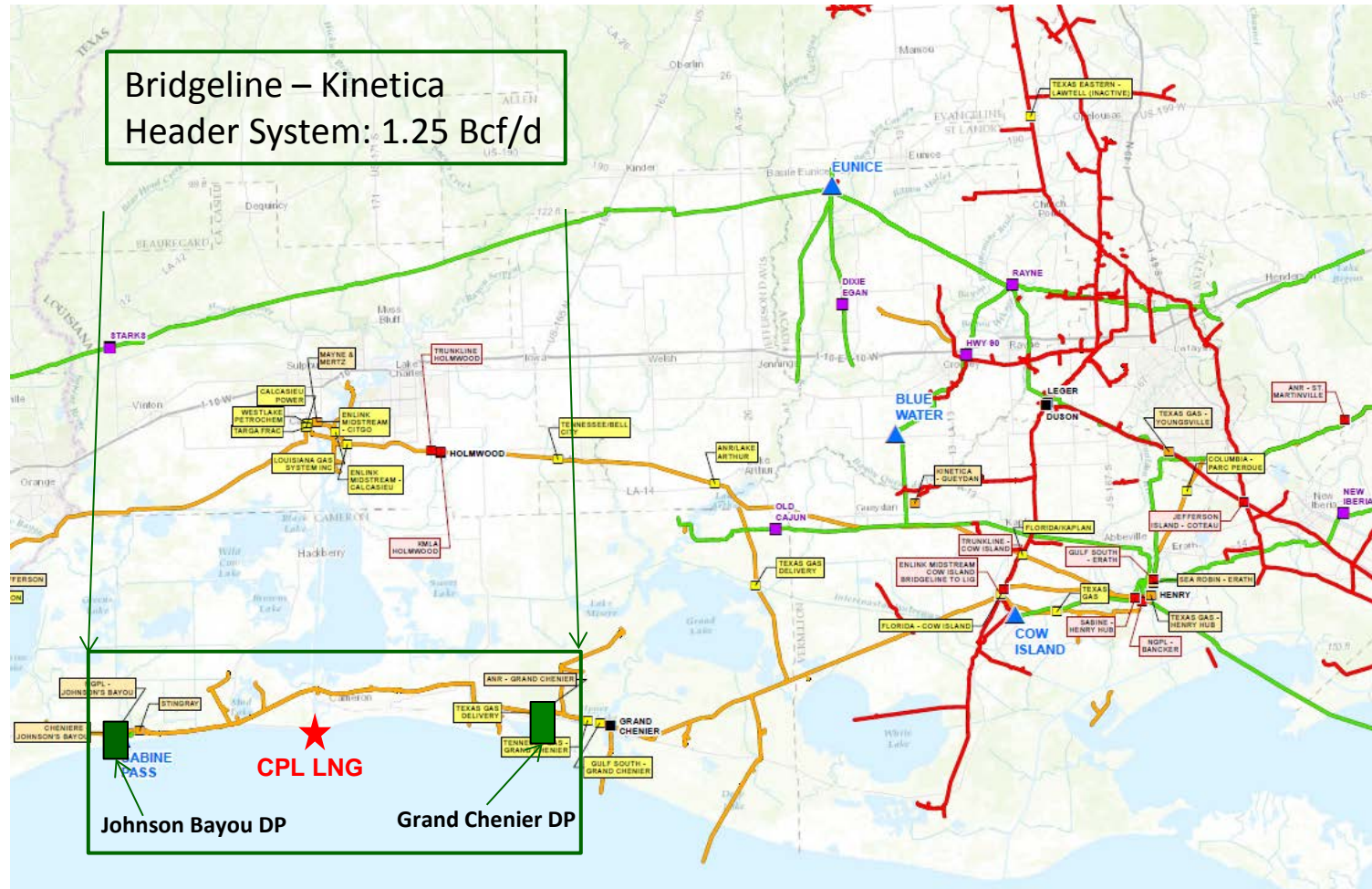
NG Pipeline

- ▶ Connected multiple pipelines
 - 16" Kinetica pipeline
 - 12' & 20" EnLink Bridgeline pipeline
- ▶ Three interconnects
 - Two 16" into Kinetica
 - One 24" into EnLink
 - Headered into single 30" to site
- ▶ 4 mile interconnect





Bridgeline-Kinetica Header System





Opportunity

- ▶ Our customers will desire long term (5 – 20 years) gas supply contracts
- ▶ Anyone connected to the Kinetica or EnLink system can have access to those customers via our terminal
- ▶ If our project can provide value, we'd like to talk!





ENERGY WORLD (USA)



Fourchon LNG 2.0 MTPA LNG Plant Small-Scale LNG Plant

*Kinetica Partners
2017 Shipper's Meeting*

*Lake Charles, LA
April 6, 2017*



ENERGY WORLD Company Overview

Energy World USA Inc. (EWUSA) is part of the Energy World International Ltd. (EWI) group of companies, engaged in the business of developing, constructing and operating in property investment, infrastructure, power generation and energy related projects.

The company's engineering and construction expertise is gained via Slipform Engineering Ltd., also a member of the EWI group with over 25 years' experience in the construction industry. The Company has the proven capability to handle all stages of project development from initial identification, evaluation and project financing, through detailed design, construction and ultimately operation.

EWI has a controlling interest in the Australian public company Energy World Corporation (EWC) headquartered in Hong Kong. EWC's Chief Executive Officer is Mr. Stewart Elliott who, along with other key executives, formed EWI following the sale in 1997 of Consolidated Electric Power Asia Ltd. (CEPA) to the U.S. Company Southern Company for USD \$3.1 billion. CEPA had been formed in 1993 to develop, construct and operate power projects under the leadership of Mr. Elliott as Managing Director.

Prior to heading up CEPA, Mr. Elliott was an Executive Director of Hopewell Holdings in Hong Kong which held a 20% stake in CEPA. Under Mr. Elliott's leadership CEPA quickly became Asia's leading independent power producer with over 6,500 MW of electrical power generation in operation or under construction and a further 15,000 MW under negotiation at the time of the sale to Southern Co.

Energy World has long promoted the use of cleaner fossil fuels and delivering clean energy to its global customers.



ENERGY WORLD LNG Overview

EWI/EWC developed the first domestic LNG project in Australia and has over 20 years' experience in the safe production, storage, transportation and delivery of LNG to its Australian customers.

EWI/EWC is currently constructing a mid-scale multi-train modular LNG production and export facility in Sengkang, South Sulawesi, Indonesia. The facility will have an initial capacity of 2.0 million tons per annum (mtpa) and a single 88,000 cubic meter LNG storage tank with the potential to further expand the facility to 5.0 mtpa by adding trains and storage. The Sengkang project is being developed in phases, the first 0.5 mtpa train is expected to begin production by mid-2017 with the initial production capacity of 2.0 mtpa reached by the end of 2018.

EWUSA is proposing to construct an identical mid-scale multi-train modular LNG production and export facility in Port Fourchon, Louisiana; again with an initial capacity of 2.0 mtpa expandable subject to demand.

In addition, EWUSA is proposing to construct a small-scale LNG production facility on the same site as the export facility providing LNG to the local marine vessel market.

EWI/EWC is also currently constructing a LNG Hub Terminal in Pagbilao, The Philippines; which includes a 130,000 cubic meter LNG storage tank, load-out jetty and ancillary equipment to deliver LNG to a 650 MW CCGT power station which EWI/EWC is constructing alongside the LNG import facility. The first 200 MW of power is expected to commence operations by mid 2017.

The LNG Hub Terminal will also distribute LNG in smaller cargos to end-users around The Philippines where EWI/EWC has developed shipping and road transportation solutions to ensure the economic availability of LNG.



Fourchon LNG Project

Project Summary

Energy World USA Limited is looking to develop a Liquefied Natural Gas (LNG) production and export facility on the Gulf Coast U.S.A. region with a proposed capacity of 2.0 million tons per annum (mtpa) and has identified Port Fourchon as the preferred location for said facility.

The Project will be developed in phases, each with a single-train capacity of 0.5 mtpa. At full capacity there will be four trains together with a single concrete LNG storage tank with a capacity of 88,000 cubic meters. There will also be a load-out jetty and ancillary equipment to allow delivery of LNG from the storage tank into an LNG carrier for onward transportation to end-use locations in the U.S., Caribbean or elsewhere. The first phase of 0.5 mtpa is targeted to begin production by the end of 2020 and the project is targeted to reach full production capacity of 2.0 mtpa in 2022.

It is intended that natural gas will be sourced from the Henry Hub and transported via the US South West Region Natural Gas Pipeline Network to the project location in quantities sufficient to produce up to 2.0 mtpa.

The project will be developed in such a way as to allow for a shortened construction timeline and hence earlier revenue which can be used to further develop subsequent phases. LNG will be sold into U.S. domestic markets for shipping and vehicle fueling; Jamaica and the wider Caribbean and Asia, specifically The Philippines where Energy World is currently constructing an LNG Hub Terminal and 650 MW gas fired power plant which is expected to commence operations mid 2017.



Fourchon LNG Project

Project Summary (cont'd...)

Energy World has long promoted the use of cleaner and greener fossil fuels and delivering clean energy to its global customers. The recent volatility in the cost of oil worldwide and increasing awareness of the negative environmental impact of burning traditional fossil fuels is shifting global awareness more and more to the use of alternative fuels, including LNG. Energy World intends to take further advantage of this shift by utilizing the company's longstanding knowledge and expertise in energy and in LNG specifically to produce and deliver clean energy worldwide.

The cost of the project is estimated to be USD 888 Million for a 2.0 mtpa production facility (four modular trains) and associated facilities with 70% financed by non-recourse Project Financing and the remaining 30% to be equity.

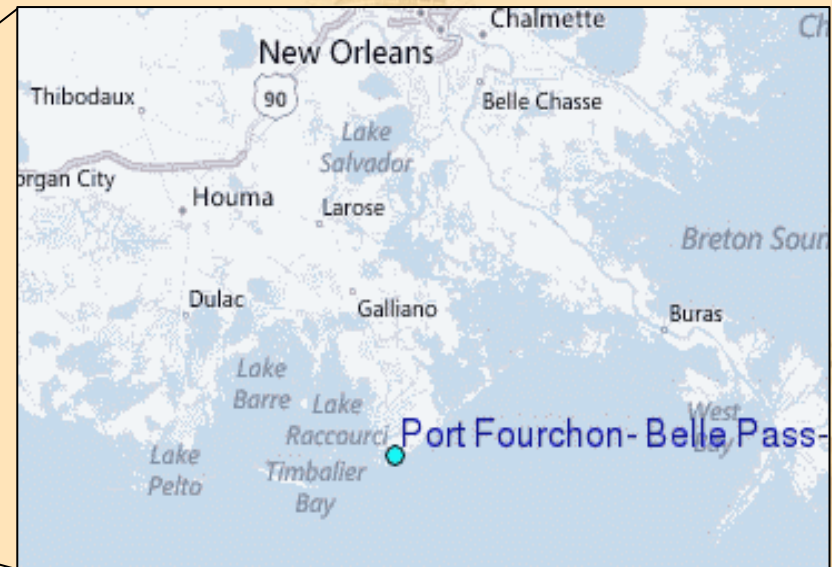


Cost Estimate:

- ❖ Project Cost = 888 million USD
- ❖ Debt = 621.6 million USD
- ❖ Equity = 266.4 million USD



Fourchon LNG Project



Strictly Confidential & Patents Pending



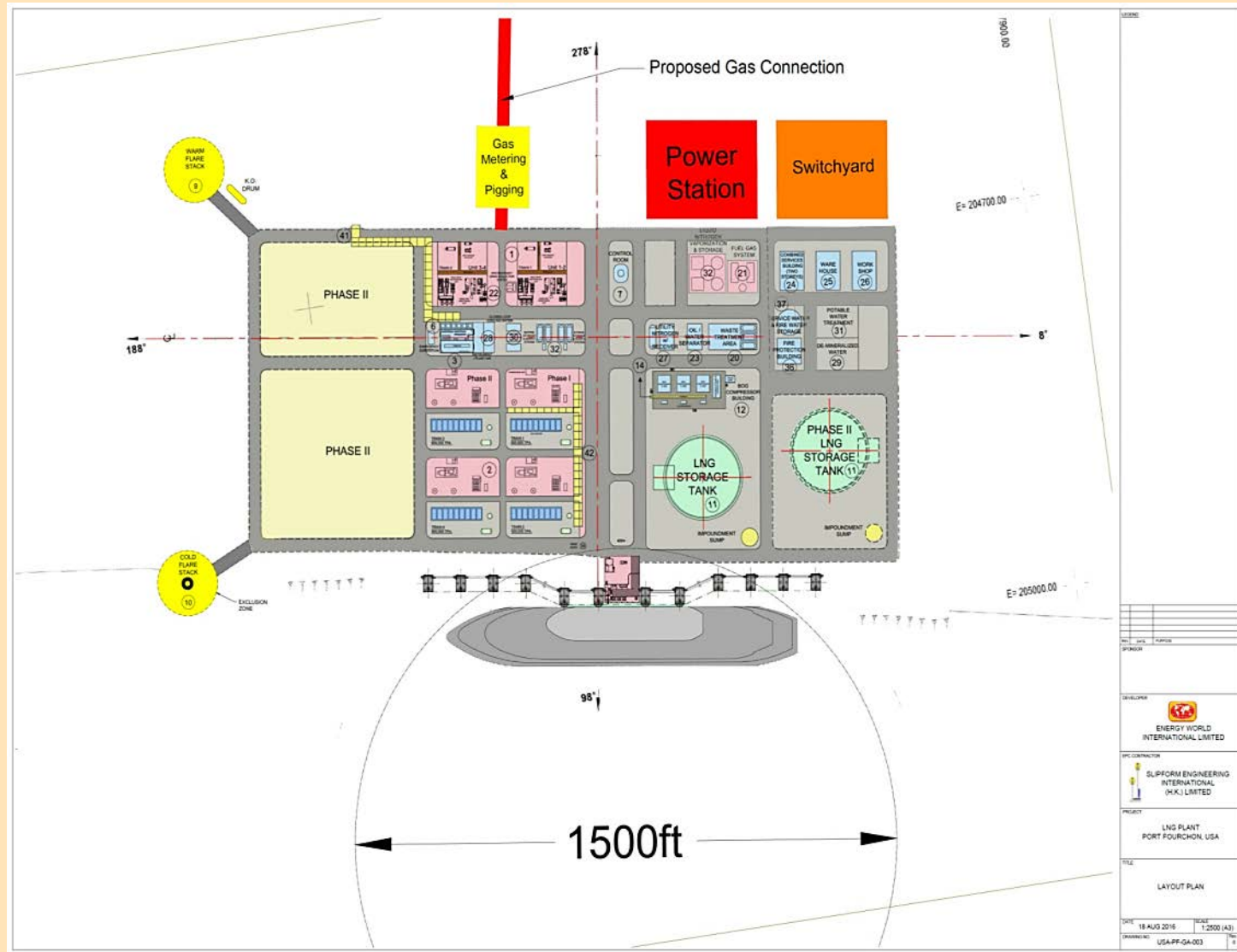
Fourchon LNG Project



Strictly Confidential & Patents Pending



Fourchon LNG Project





Proposed Project Timeline

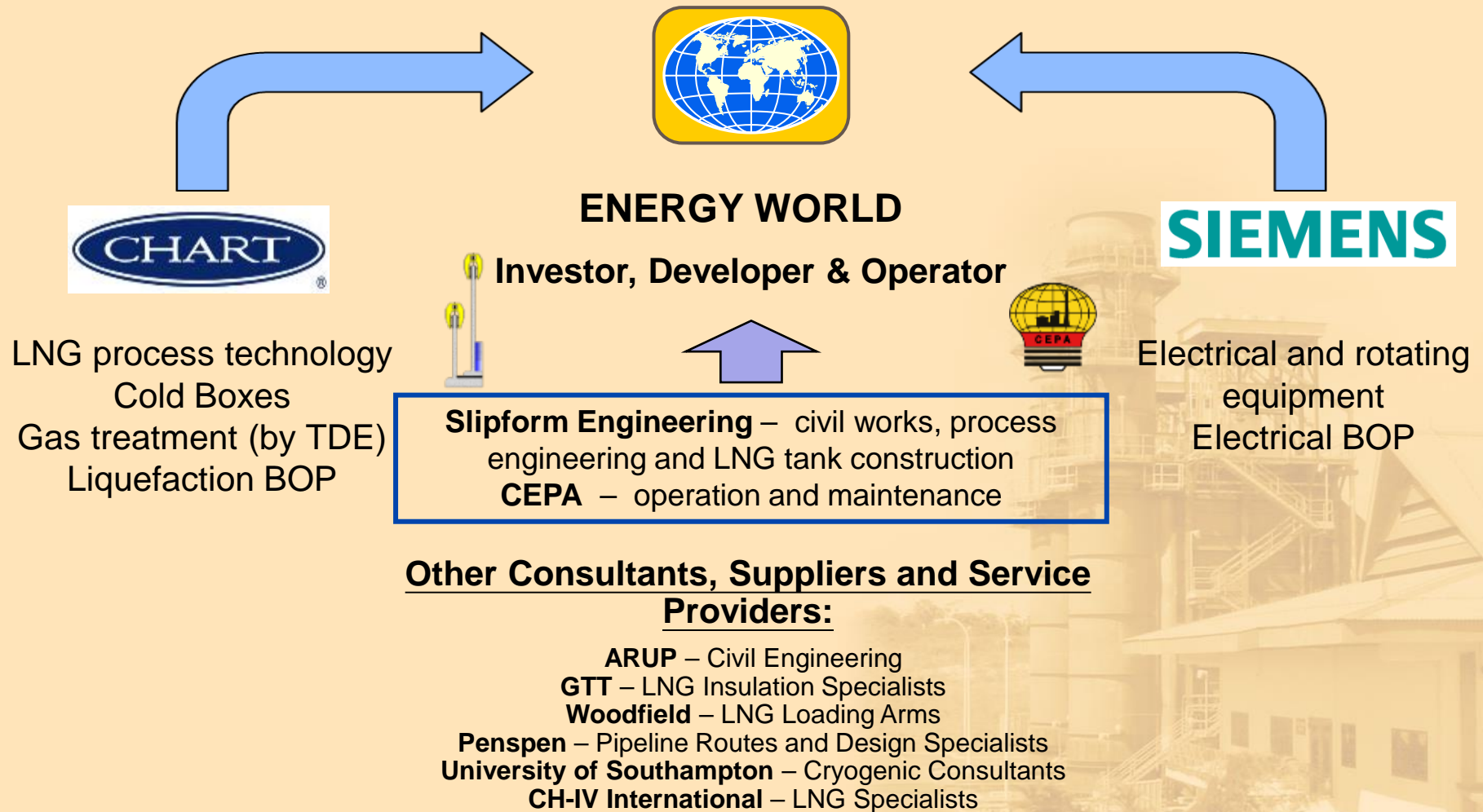
Strictly Confidential & Patents Pending

Milestone	Projected Schedule
Fourchon LNG Submits Request to Initiate Pre-Filing Review Process	April 2017
OEP Director Issues Authorization and Notice of Pre-filing Commencement	April 2017
Fourchon LNG Holds Open Houses	TBD in Consultation with FERC Staff
Fourchon LNG Files NGA Section 3 Application	December 2017
FERC Issues Final Environmental Impact Statement	November 2018
FERC Issues Order Granting Section 3 Authorization	March 2019
FERC Issues Authorization to Proceed and Commence Construction	June 2019
Fourchon LNG Places Project In Service	Q4 2020



ENERGY WORLD – Strategic Partners

Energy World has brought together global leaders in LNG including Chart Industries and Siemens AG to develop an efficient, electric drive modular LNG system



Strictly Confidential & Patents Pending



Port Fourchon Small-Scale LNG Project

Energy World USA Limited is also looking to develop a separate small-scale Liquefied Natural Gas (LNG) production facility adjacent to the 2.0 mtpa plant.

The capacity of the small-scale plant is still to be determined but is expected to be in the range of 100,000 gallons per day (gpd) to 500,000 gpd.

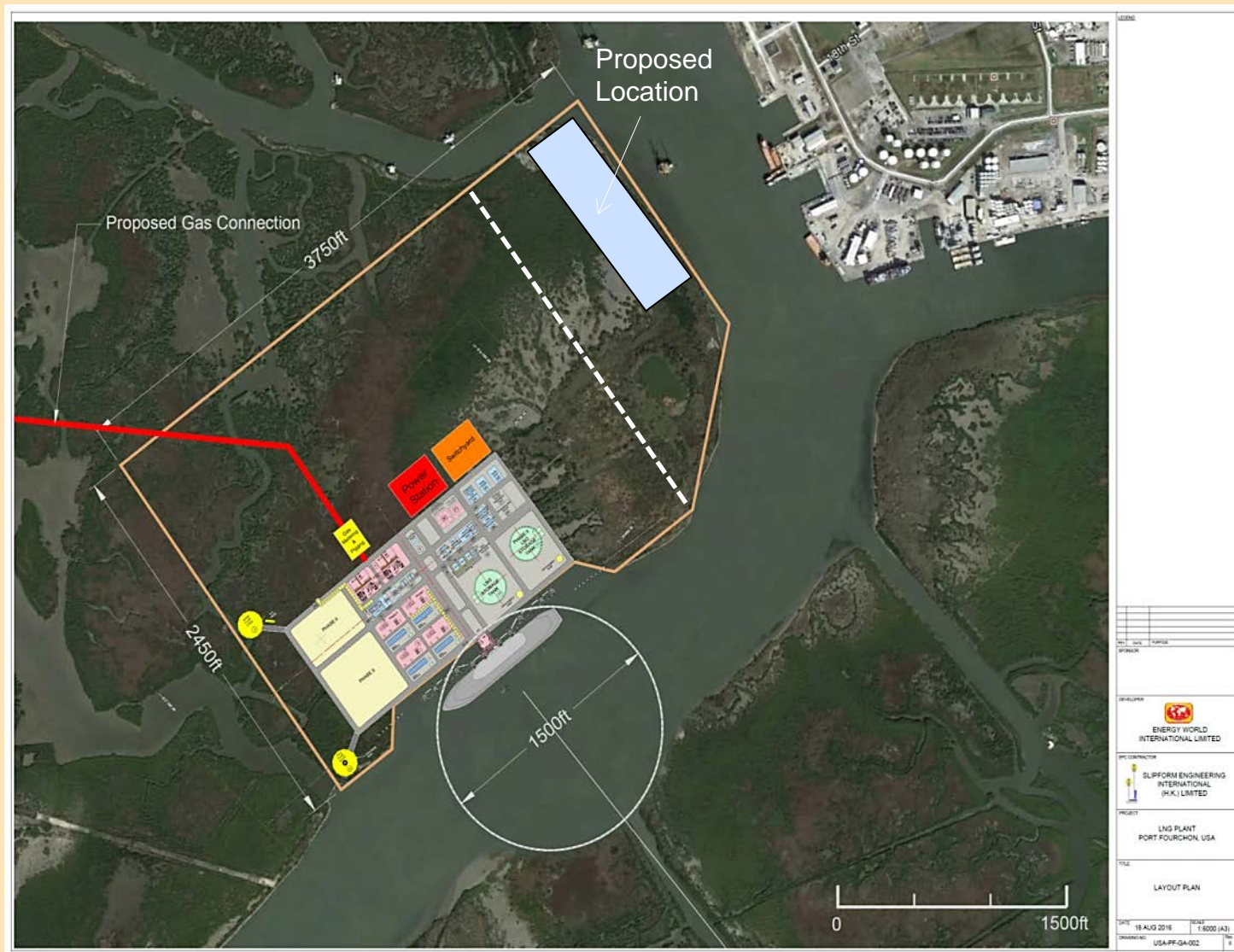
The LNG produced by the small-scale plant will be offered to local marine companies that are operating vessels out of Port Fourchon and would like to switch to cleaner fuels for economic and environmental reasons but who are currently unable to purchase LNG locally.

The plan is to develop the project while working through the Federal Energy Regulatory Commission (FERC) application for the 2.0 mtpa export facility with construction starting Q1 2018 and LNG production targeted for mid 2019.

Strictly Confidential & Patents Pending



Port Fourchon Small-Scale LNG Project



Strictly Confidential & Patents Pending



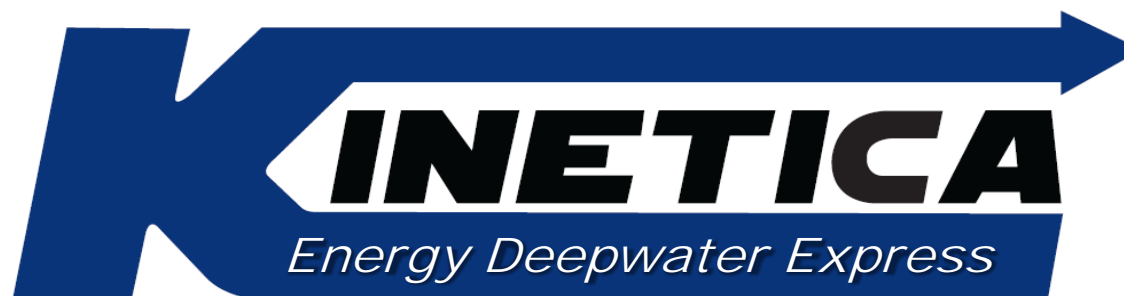
FERC Update



FERC – Kinetica Energy Express

#	Activity	Date
I.	<i>Filed clean up tariff (Docket RP16-1299)</i>	<i>09/30/16</i>
II.	<i>FERC order accepting and suspending tariff revisions</i>	<i>10/31/16</i>
III.	<i>Technical Conference</i>	<i>12/01/16</i>
IV.	<i>Initial Comments</i>	<i>01/27/17</i>
V.	<i>Reply Comments</i>	<i>02/15/17</i>
VI.	<i>FERC Staff report</i>	<i>02/28/17</i>
VII.	<i>Tariff revisions suspension ends</i>	<i>04/01/17</i>
VIII.	<i>KEE/KDE combination filings</i>	<i>Fall 2017, following Nearshore System closing</i>
IX.	<i>KDE Patterson System abandoned into KEE by sale; services continue unaffected</i>	<i>Fall 2018</i>
X.	<i>Patterson System to have incremental zone initial rates, based on only its own costs. No effect on existing KEE postage stamp rates.</i>	<i>Fall 2018</i>

Expanding Our Future Together





Ongoing Activities – Tonight & Friday

Reception and Dinner

❖ *Reception 5:00 p.m. – 6:00 p.m.*

❖ *Dinner 6:00 p.m. – 9:00 p.m.*

◆ ***Key Note Speaker***

Dr. Gregory Upton, Jr.

Center for Energy Studies
Louisiana State University



Friday Morning

8:00 am - Buses depart hotel

✦ **Johnson Bayou Facility Tour**

✦ **Peveto Woods Bird and Butterfly Sanctuary**



1:00 pm - Buses return to Lake Charles – Golden Nugget

Thank You for Attending !





Mid-Stream Investment in the Era of Shale

Kinetica Shipper Meeting

Lake Charles, LA

Gregory B. Upton Jr., Ph.D.
Louisiana State University
Center for Energy Studies
April 6, 2017

Introduction

Up-Stream Historical Trends

Mid-Stream Infrastructure

Outlook

Conclusions

Introduction

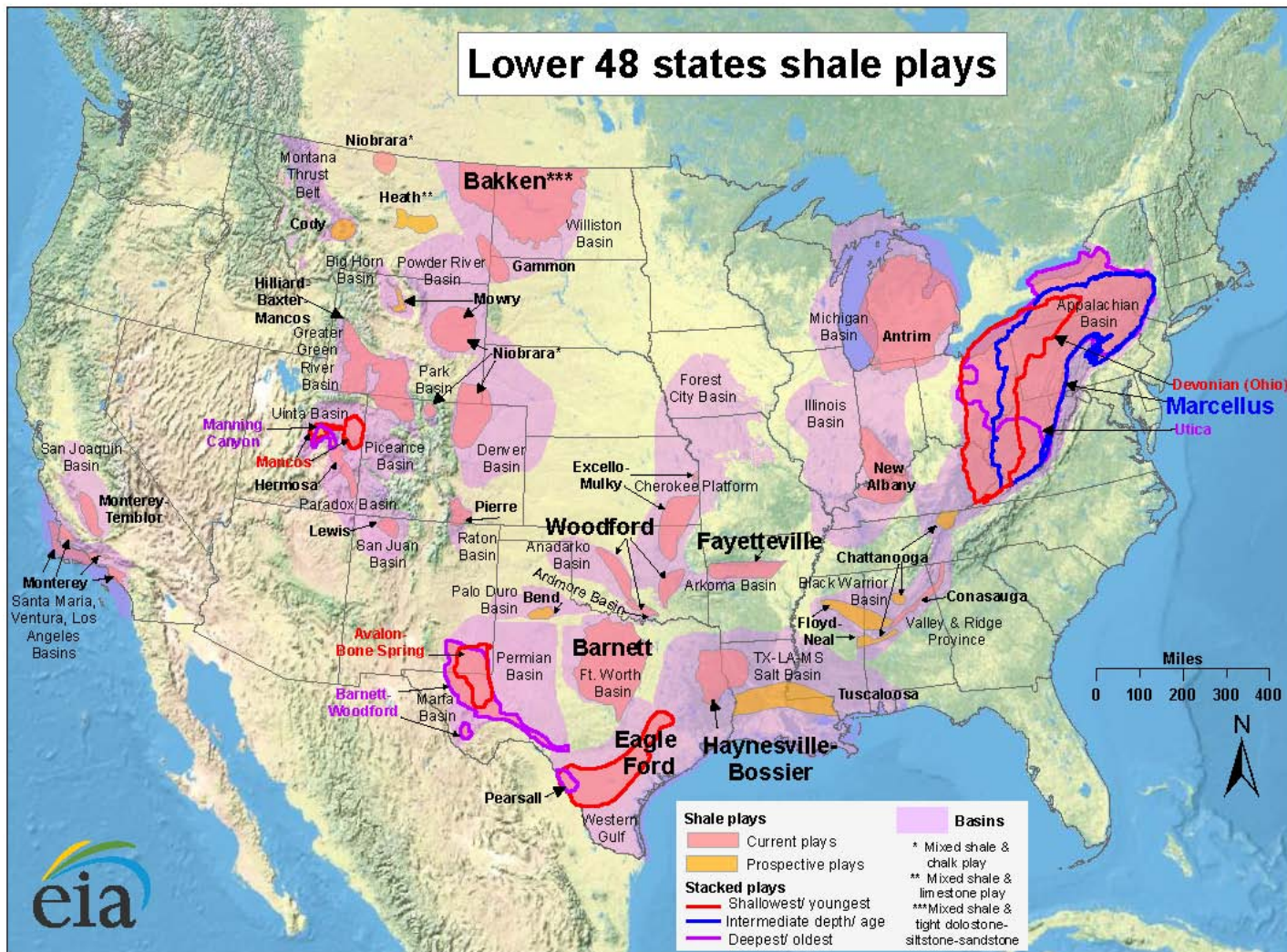
Introduction

- The advent of shale oil and gas has fundamentally shifted the energy outlook not only here in on the U.S. Gulf Coast, but also globally.
- While Gulf Coast production of both oil and gas has increased significantly with shale, the composition of this production has changed significantly, creating potential winners and losers.
- Because resources are coming from new areas and at starkly different quantities, investment in mid-stream infrastructure has been spurred by changes in spatial price differentials.

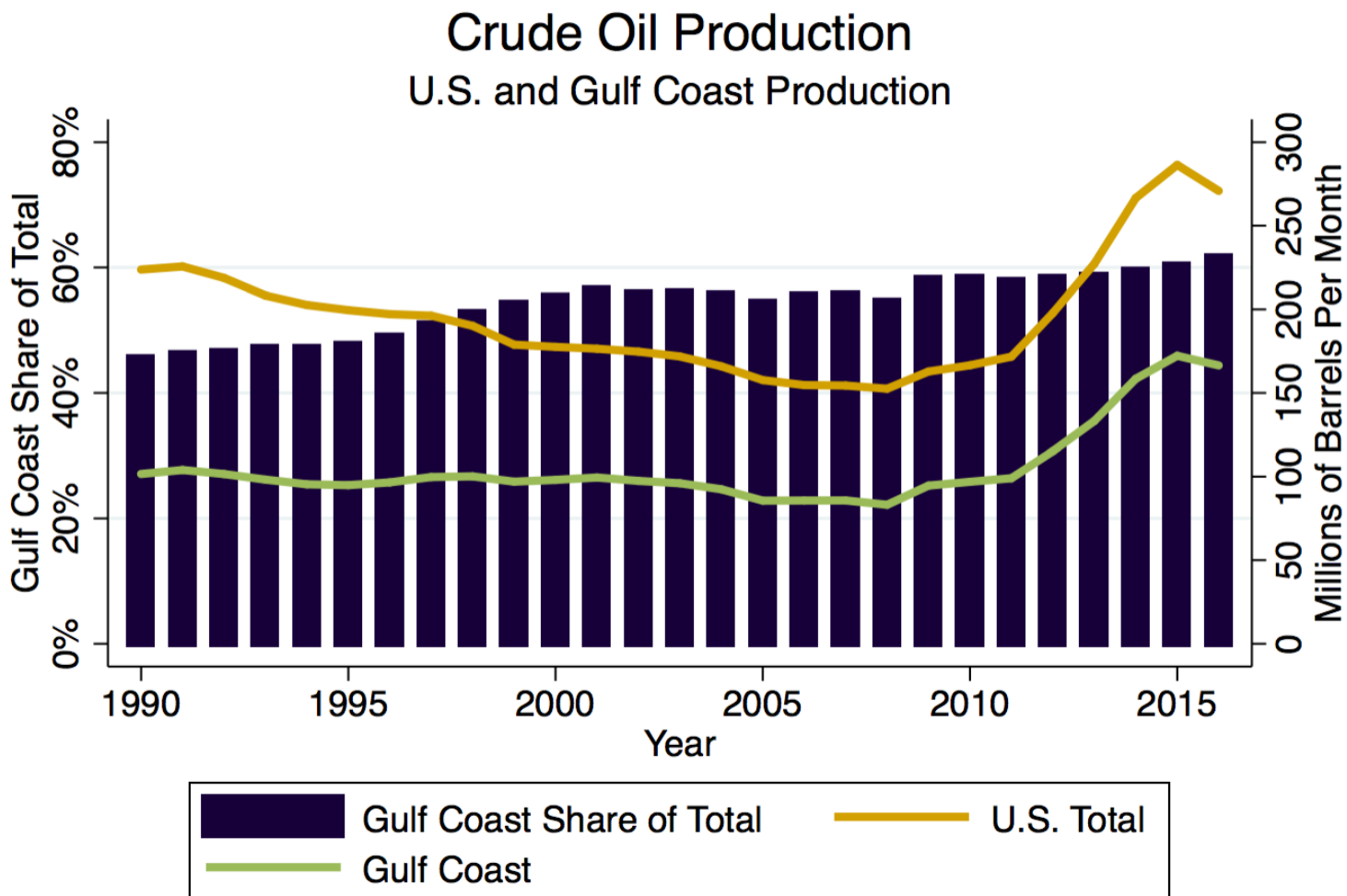
Up-Stream Oil and Gas

Domestic Shale Gas Basins and Plays

U.S. unconventional production from shale plays has unleashed a considerable level of domestic energy production. This production, however, is arising in new areas, necessitating new infrastructure in order to deliver to the market.

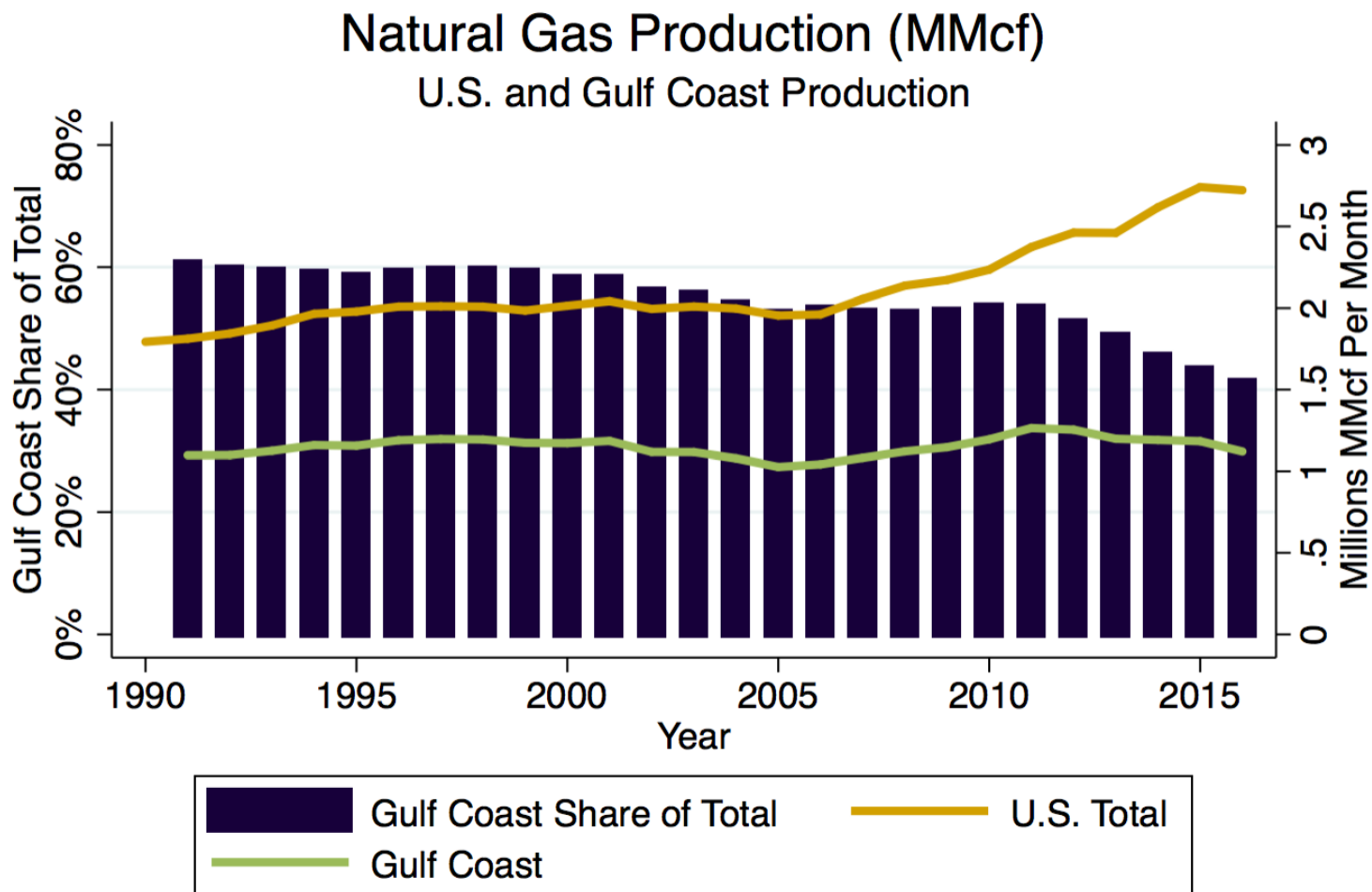


Gulf Coast Crude Production



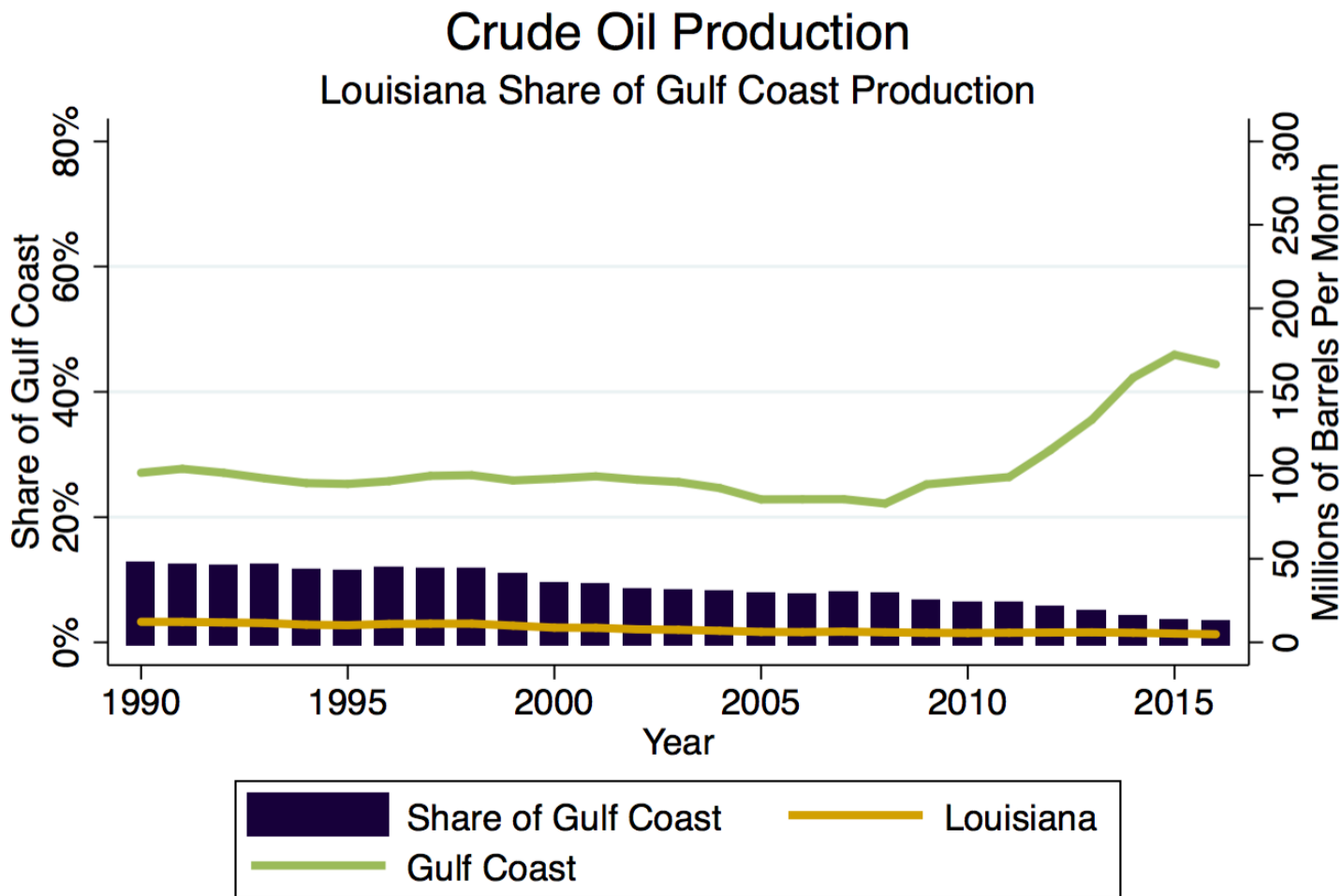
Source: EIA - Crude Oil Production (Monthly). Gulf Coast defined as PADD 3. Data only available until September 2016, therefore average production in January-August shown for 2016.

Gulf Coast Crude Production



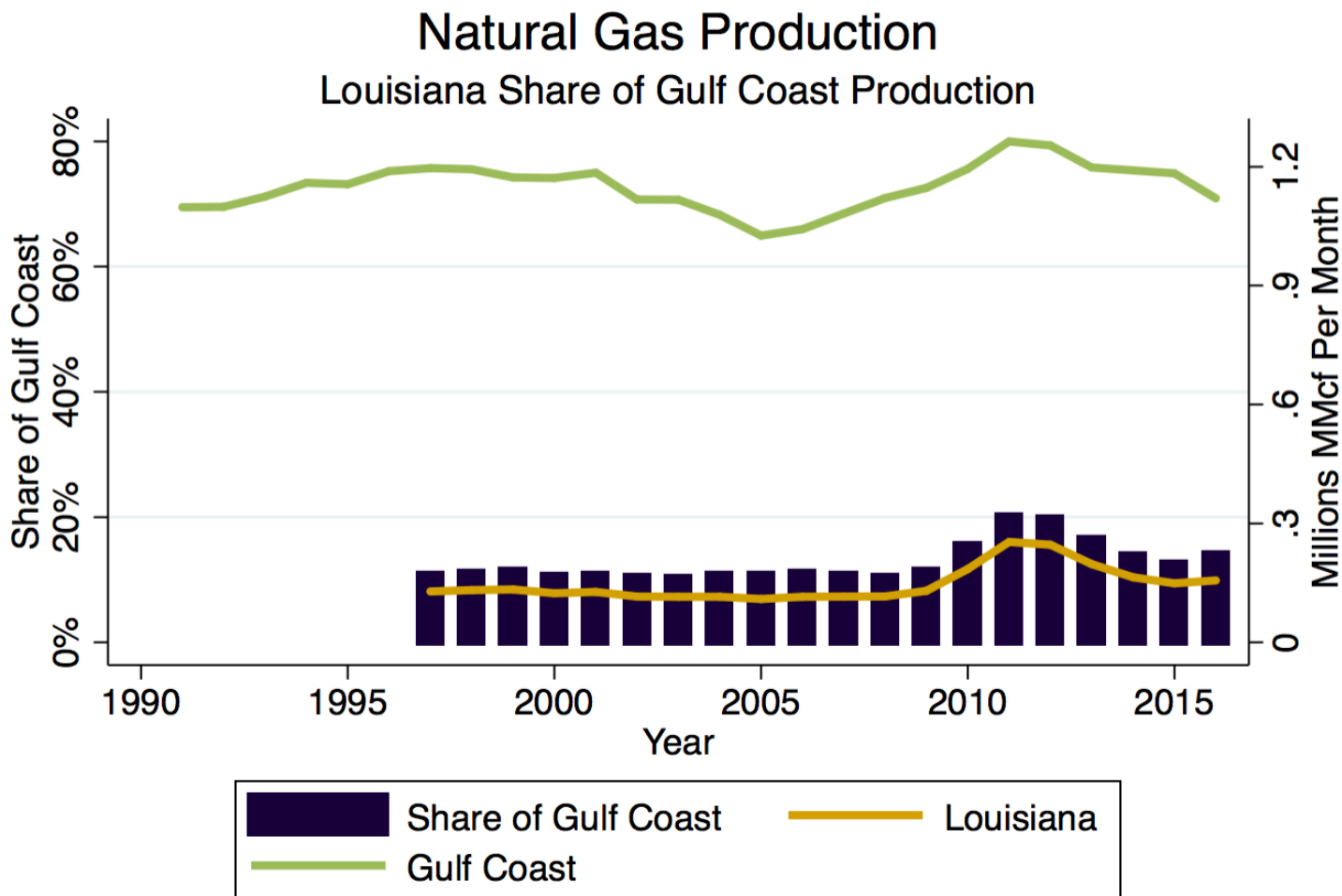
Source: EIA - Natural Gas Gross Withdrawals (Monthly). Gulf Coast defined as PADD 3. Data only available until September 2016, therefore average production in January-August shown for 2016. PADD 3 production data not available before 1991. Natural Gas production data not available for Alabama and Mississippi.

Louisiana's Share of Gulf Coast Crude Production



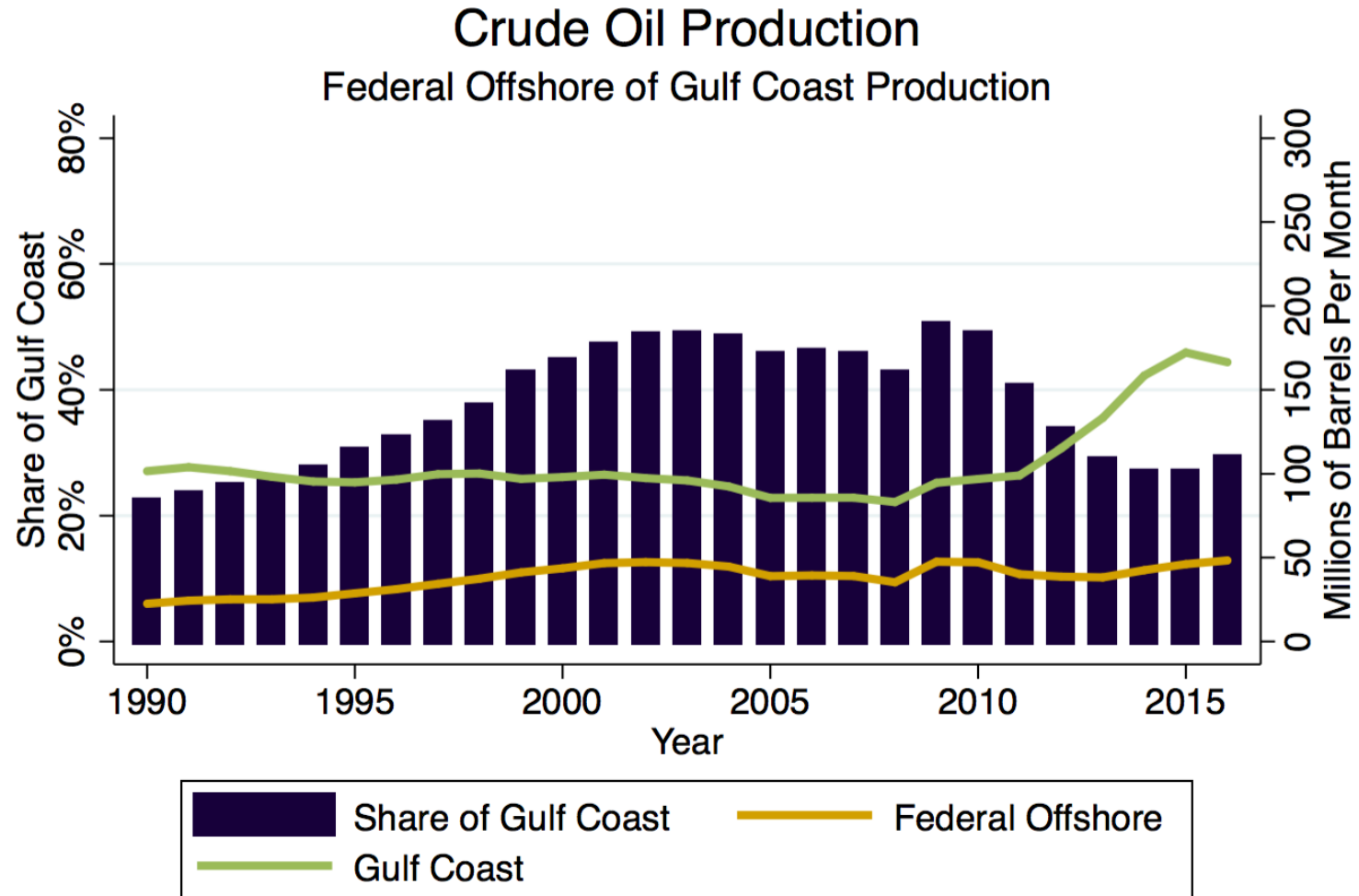
Source: EIA - Crude Oil Production (Monthly). Gulf Coast defined as PADD 3. Data only available until September 2016, therefore average production in January-August shown for 2016.

Louisiana's Share of Gulf Coast Crude Production



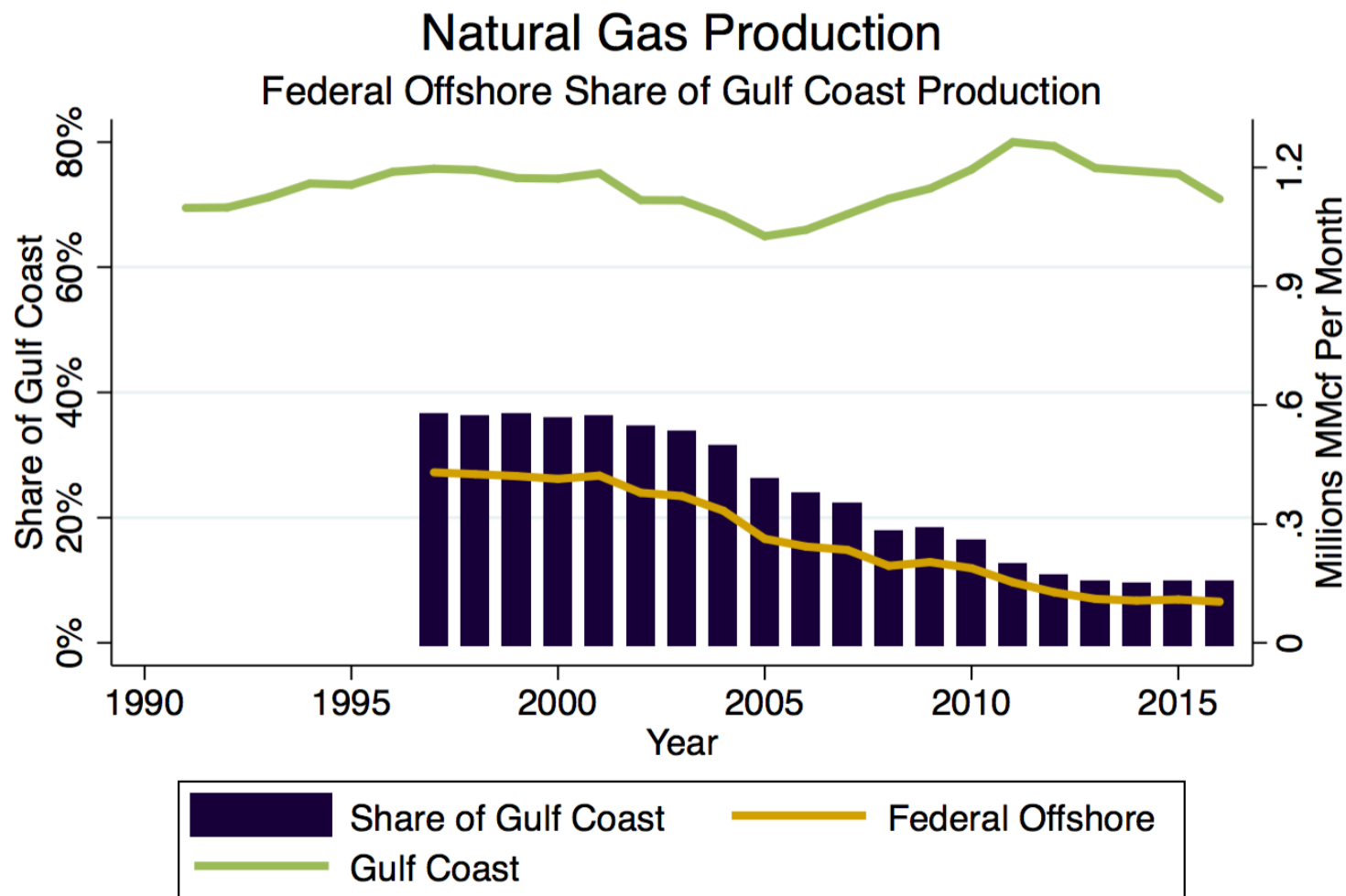
Source: EIA - Natural Gas Gross Withdrawals (Monthly). Gulf Coast defined as PADD 3. Data only available until September 2016, therefore average production in January-August shown for 2016.

OCS's Share of Gulf Coast Crude Production



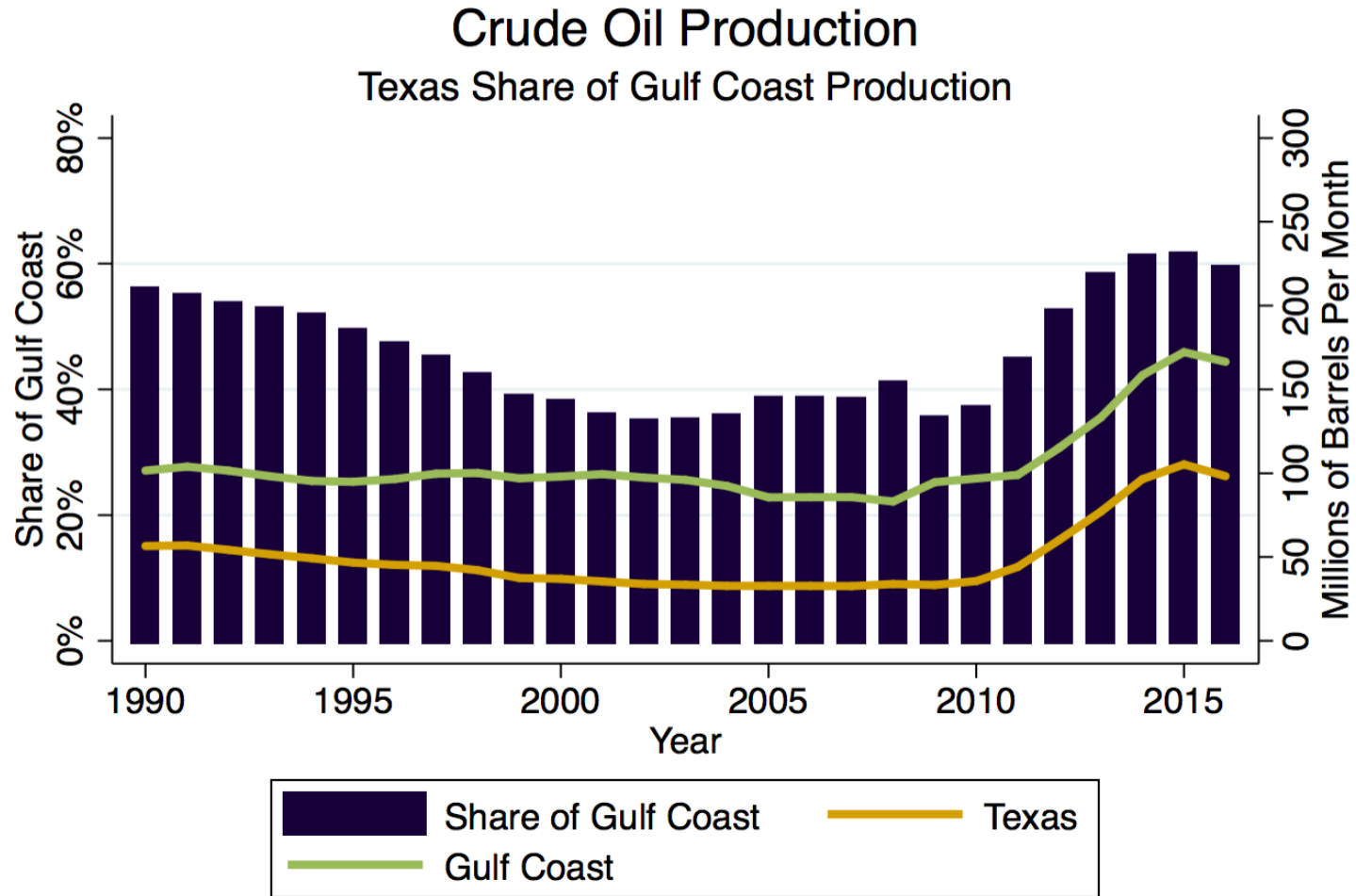
Source: EIA - Crude Oil Production (Monthly). Gulf Coast defined as PADD 3. Data only available until September 2016, therefore average production in January-August shown for 2016.

OCS's Share of Gulf Coast Crude Production



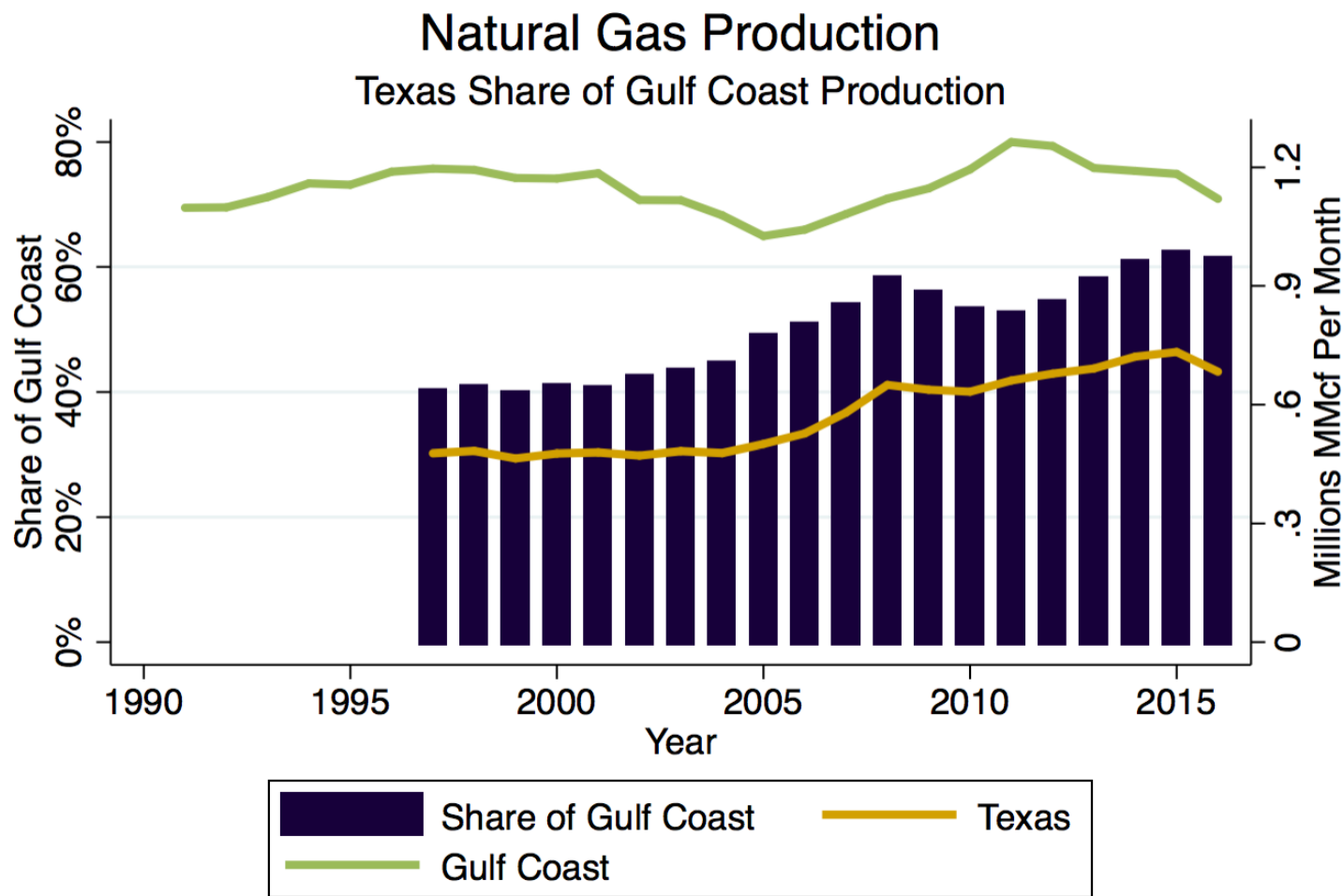
Source: EIA - Natural Gas Gross Withdrawals (Monthly). Gulf Coast defined as PADD 3. Data only available until September 2016, therefore average production in January-August shown for 2016.

Texas' Share of Gulf Coast Crude Production



Source: EIA - Crude Oil Production (Monthly). Gulf Coast defined as PADD 3. Data only available until September 2016, therefore average production in January-August shown for 2016.

Texas' Share of Gulf Coast Crude Production



Source: EIA - Natural Gas Gross Withdrawals (Monthly). Gulf Coast defined as PADD 3. Data only available until September 2016, therefore average production in January-August shown for 2016.

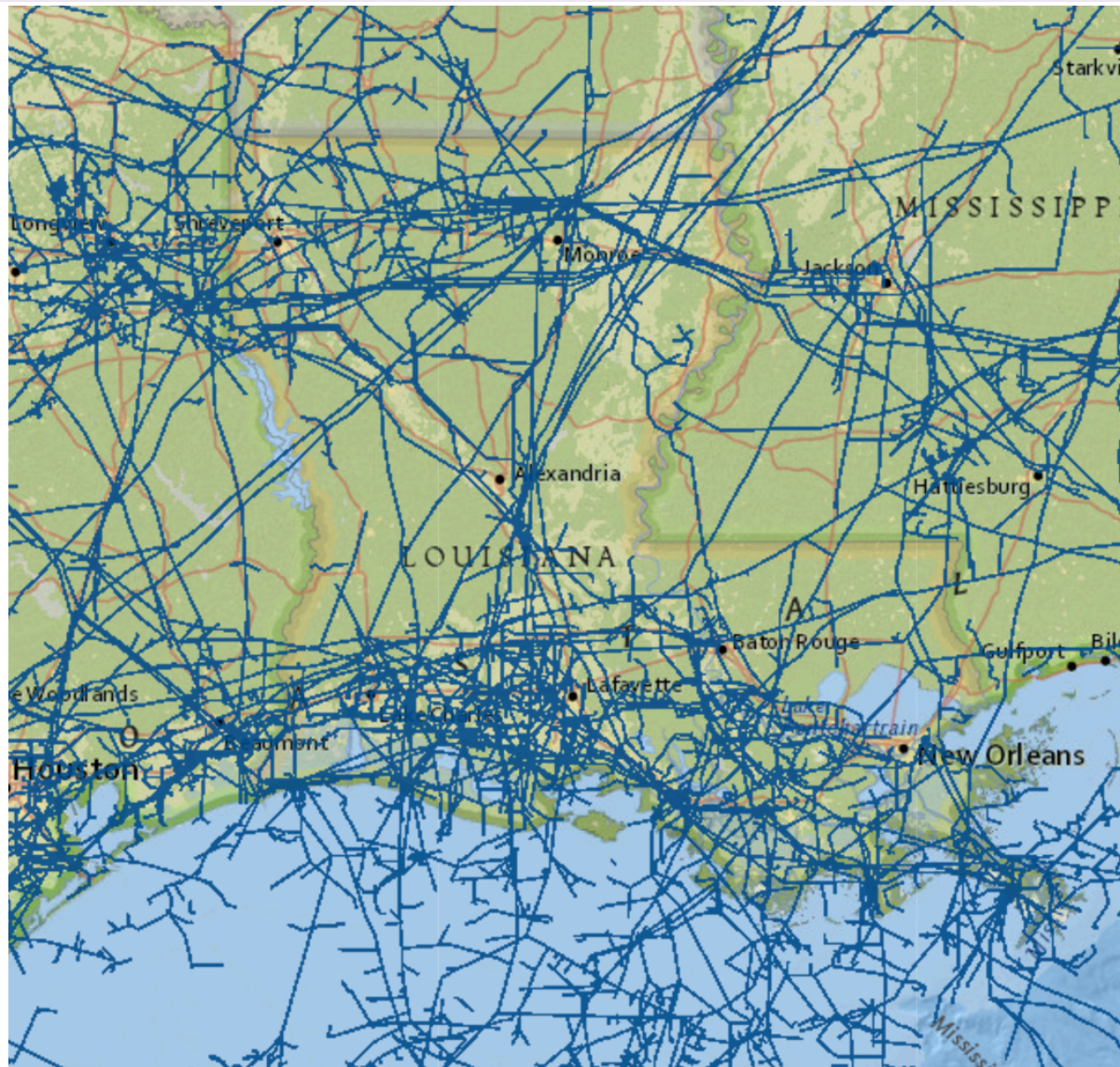
Mid-Stream Infrastructure

Examples of Recent Mid-Stream Infrastructural Investments

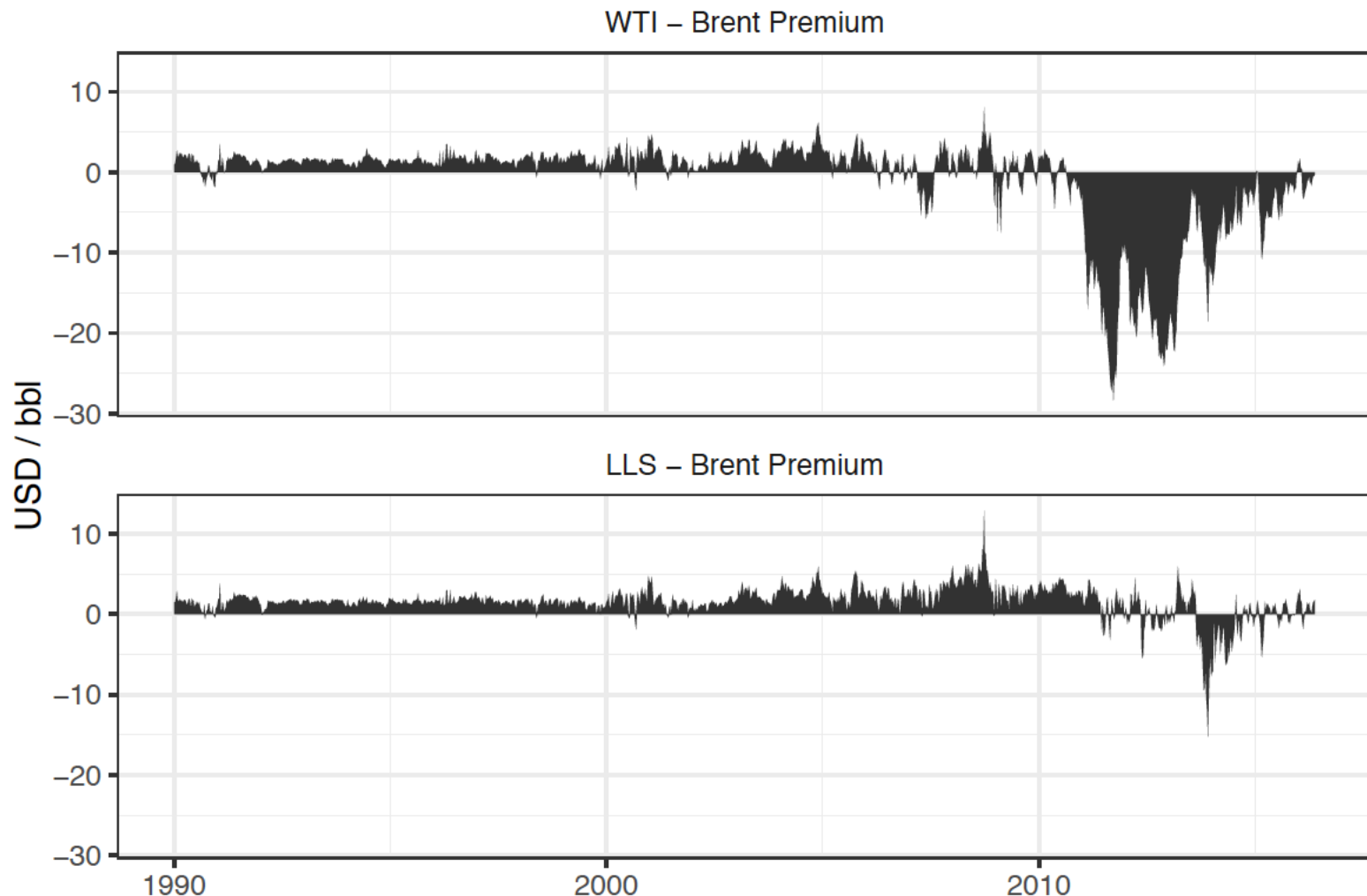
- New Pipelines
 - Keystone XL (current)
 - Dakota Access (current)
 - Bayou Bridge (current)
- Reversals/Expansions
 - Seaway (2012)
 - Longhorn (2013)
 - Houma-to-Houston (2013)
 - North Louisiana System (2015)

Crude Pipelines

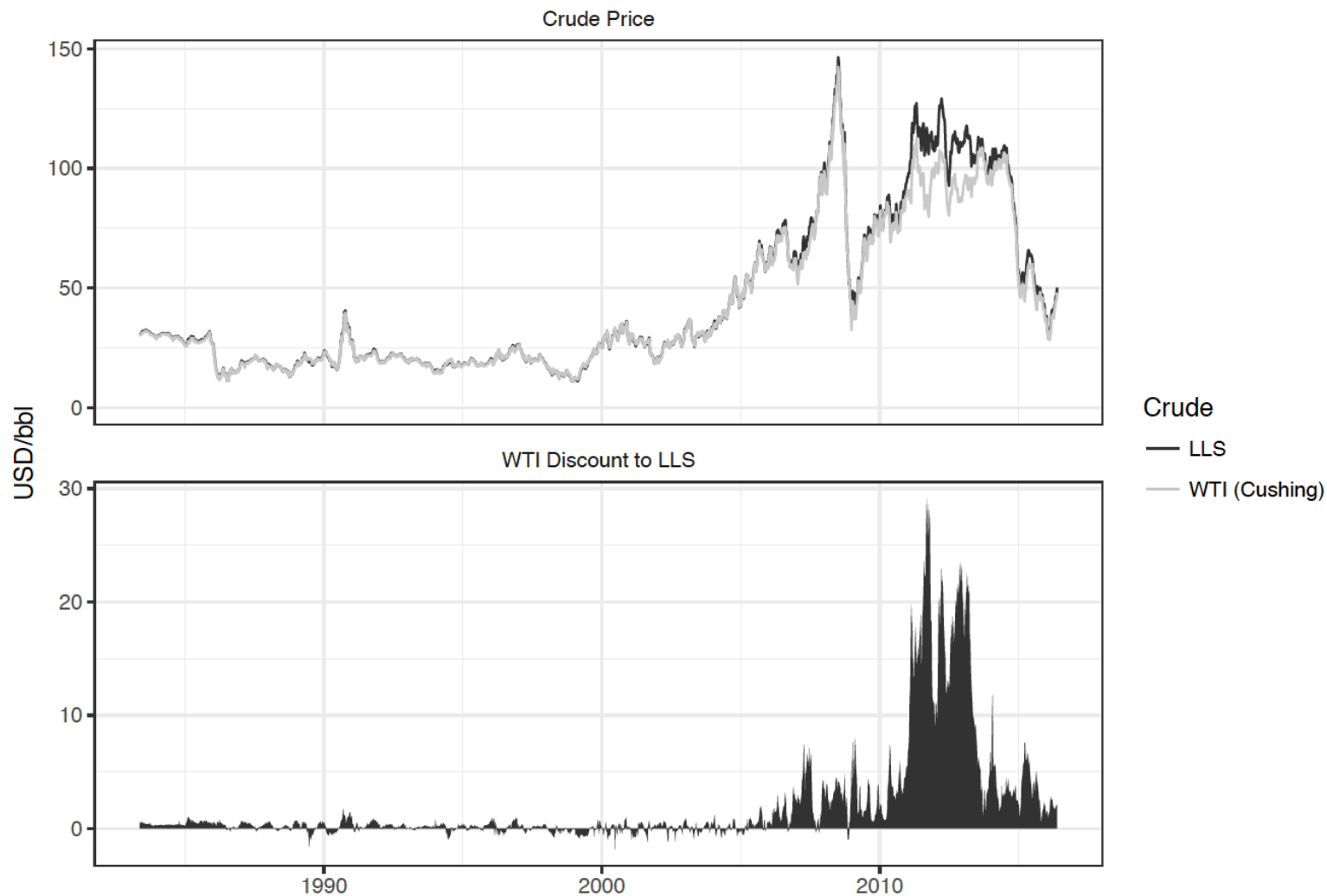


Natural Gas Inter/Intrastate Pipelines


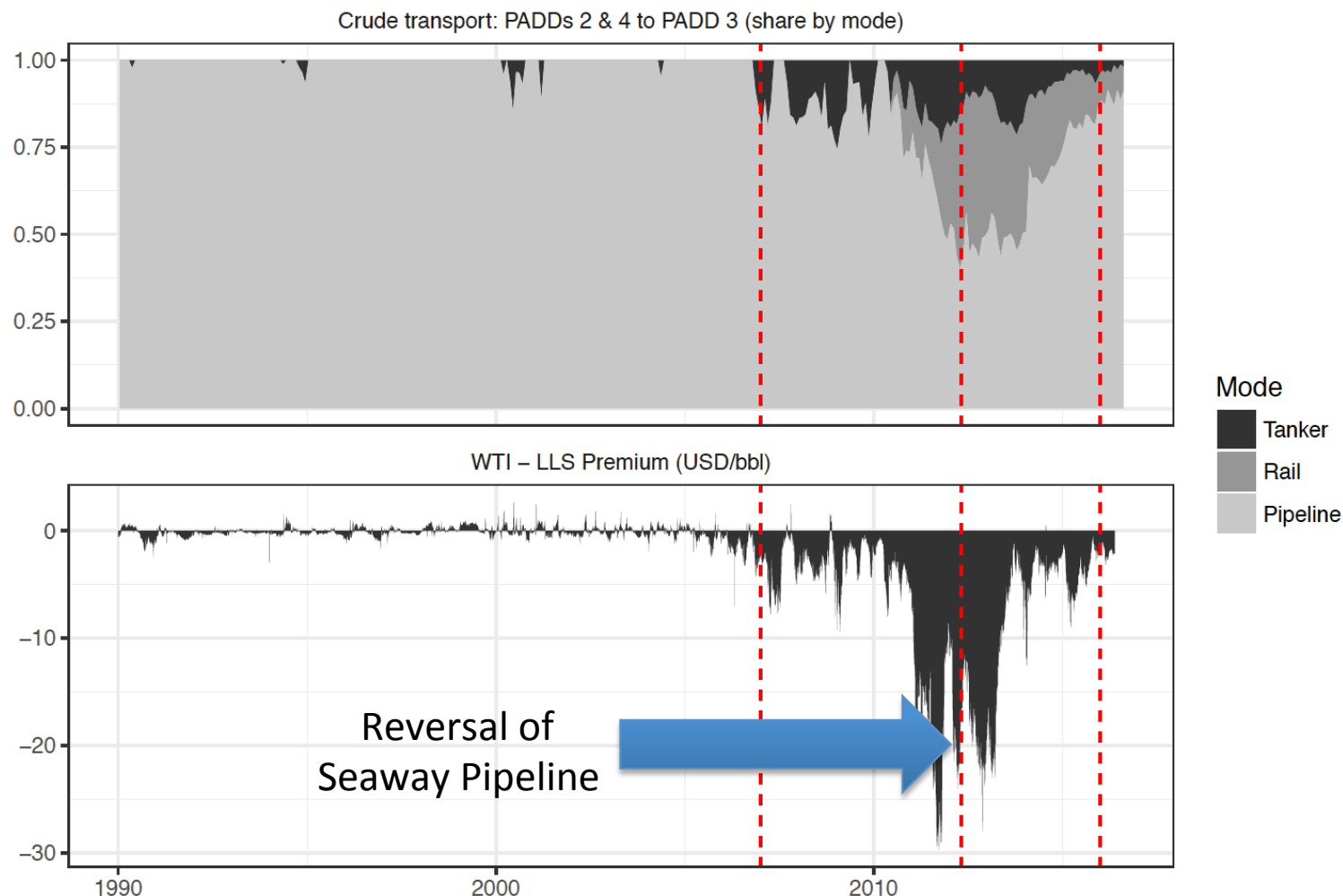
Foreign/Domestic Price Differentials



Price Differentials Within the U.S.

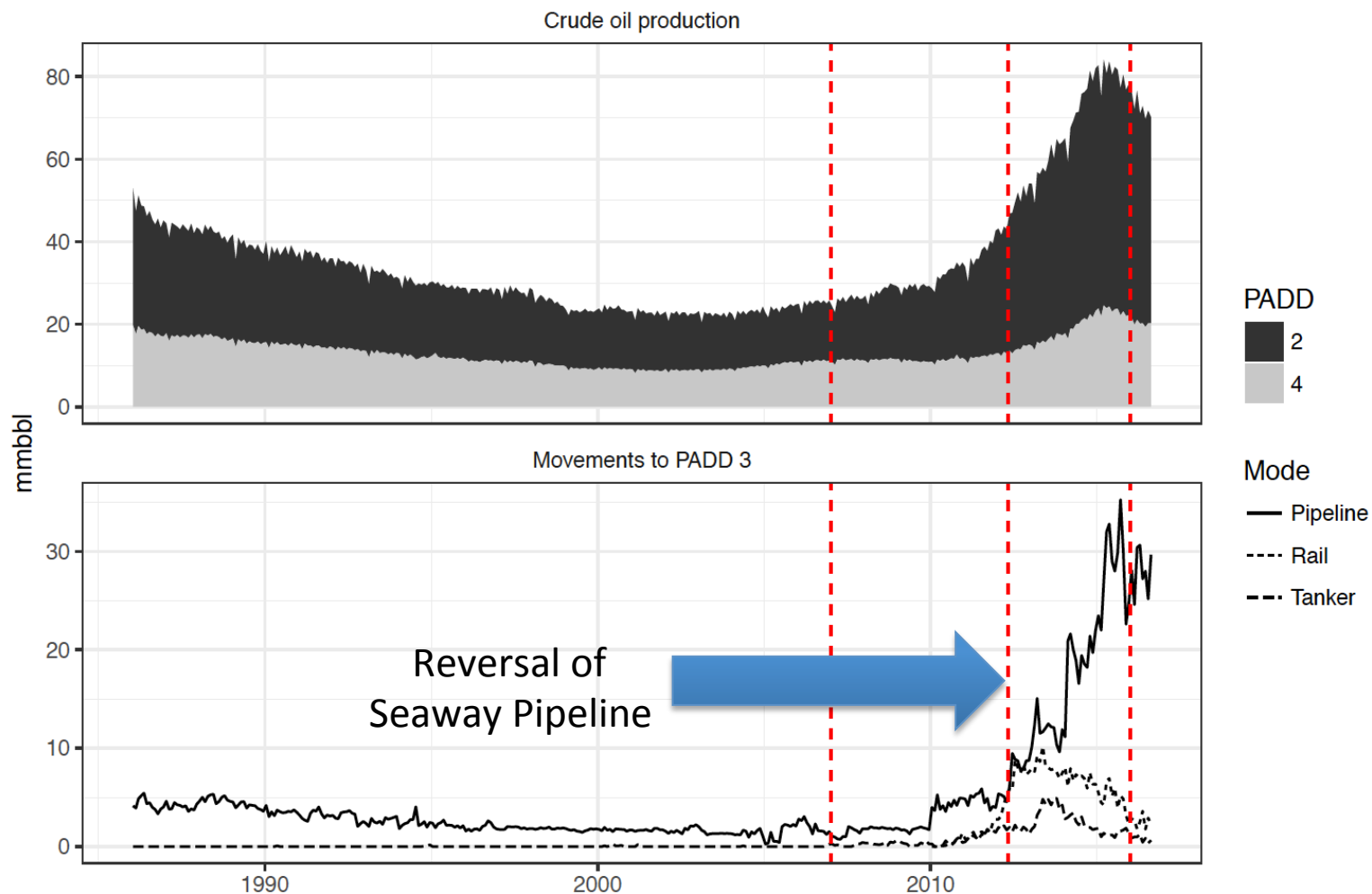


Price Differentials and Shipping Constraints



Lines at Jan 2007, May 2012, Jan 2016

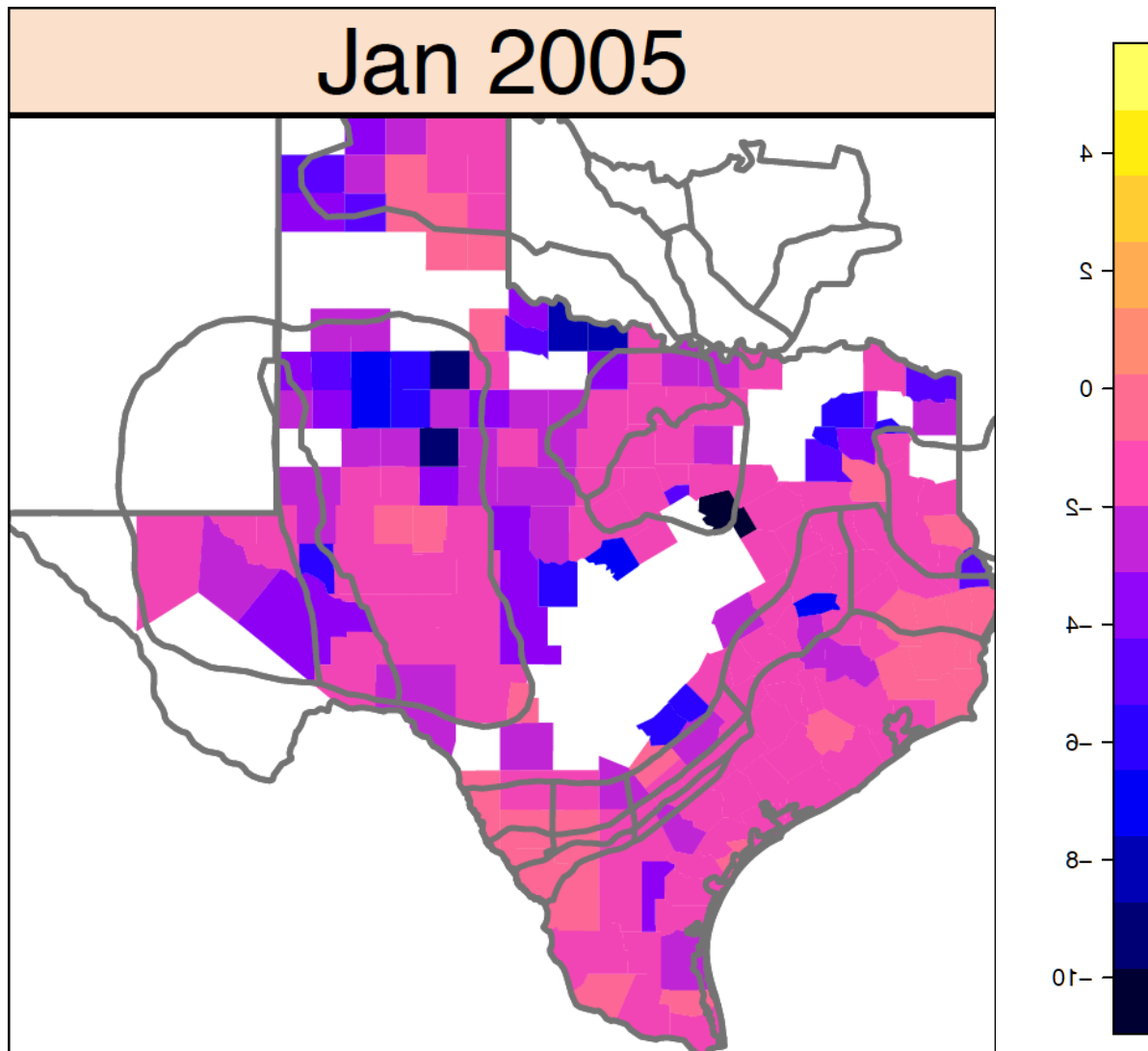
Price Differentials and Shipping Constraints



Lines at Jan 2007, May 2012, Jan 2016

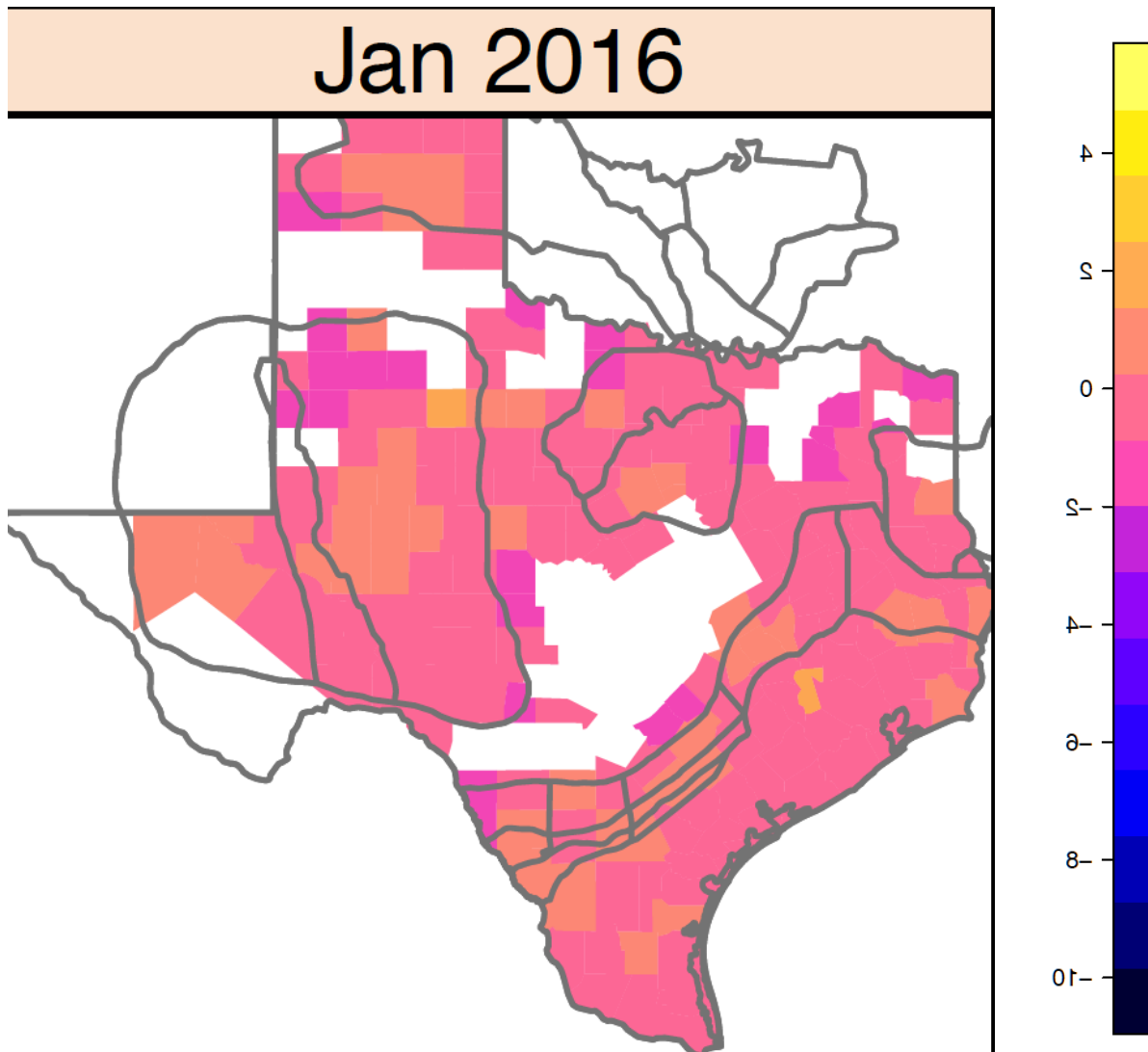
Natural Gas Price Premium to HH

During the peak of the natural gas boom, natural gas wellhead prices in west Texas were discounted heavily to Henry Hub.



Natural Gas Price Premium to HH

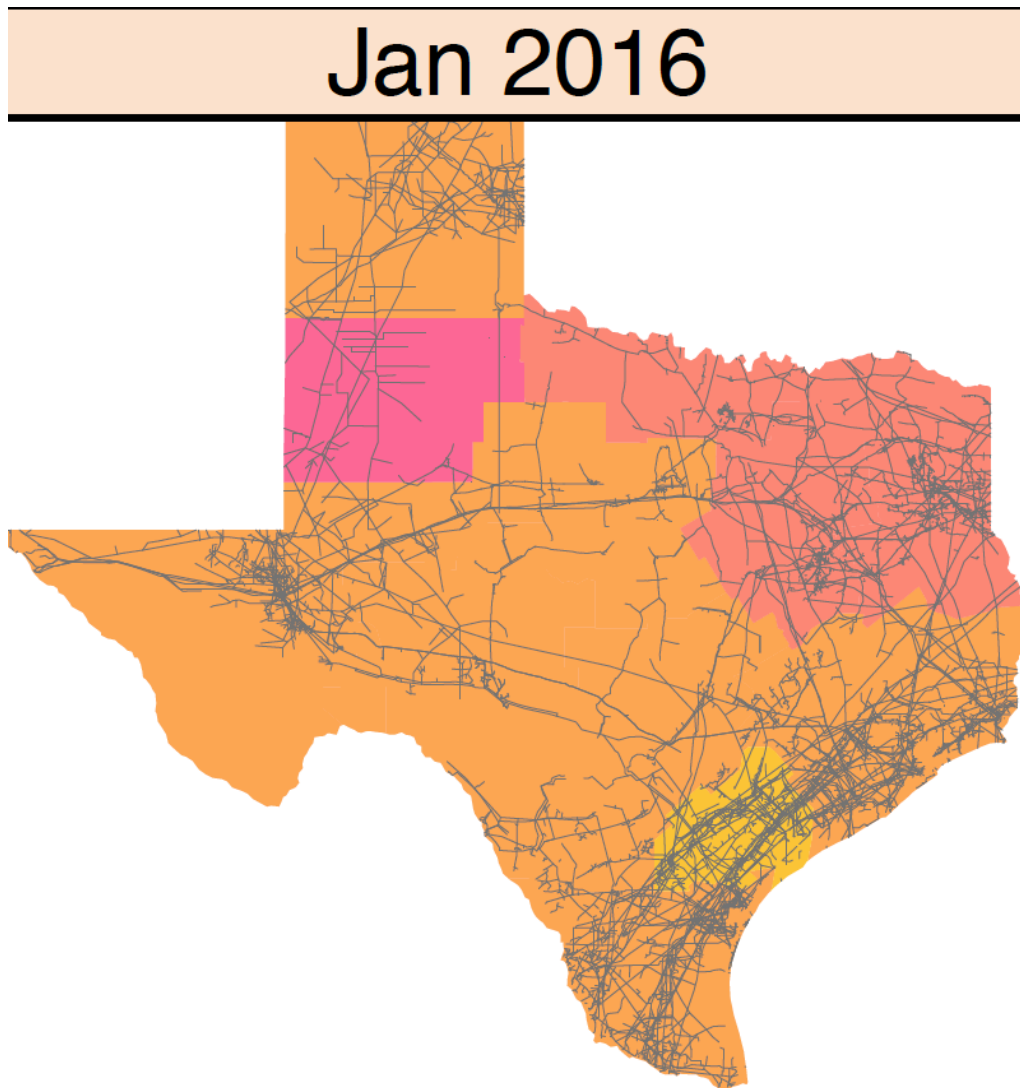
Recently, well head price differentials have stabilized and most areas counties are experiencing wellhead prices similar to Henry Hub.



Natural Gas Price Premium to HH

Even today, price discounts appear to be impacted by the availability of natural gas pipelines needed to get gas to Gulf Coast.

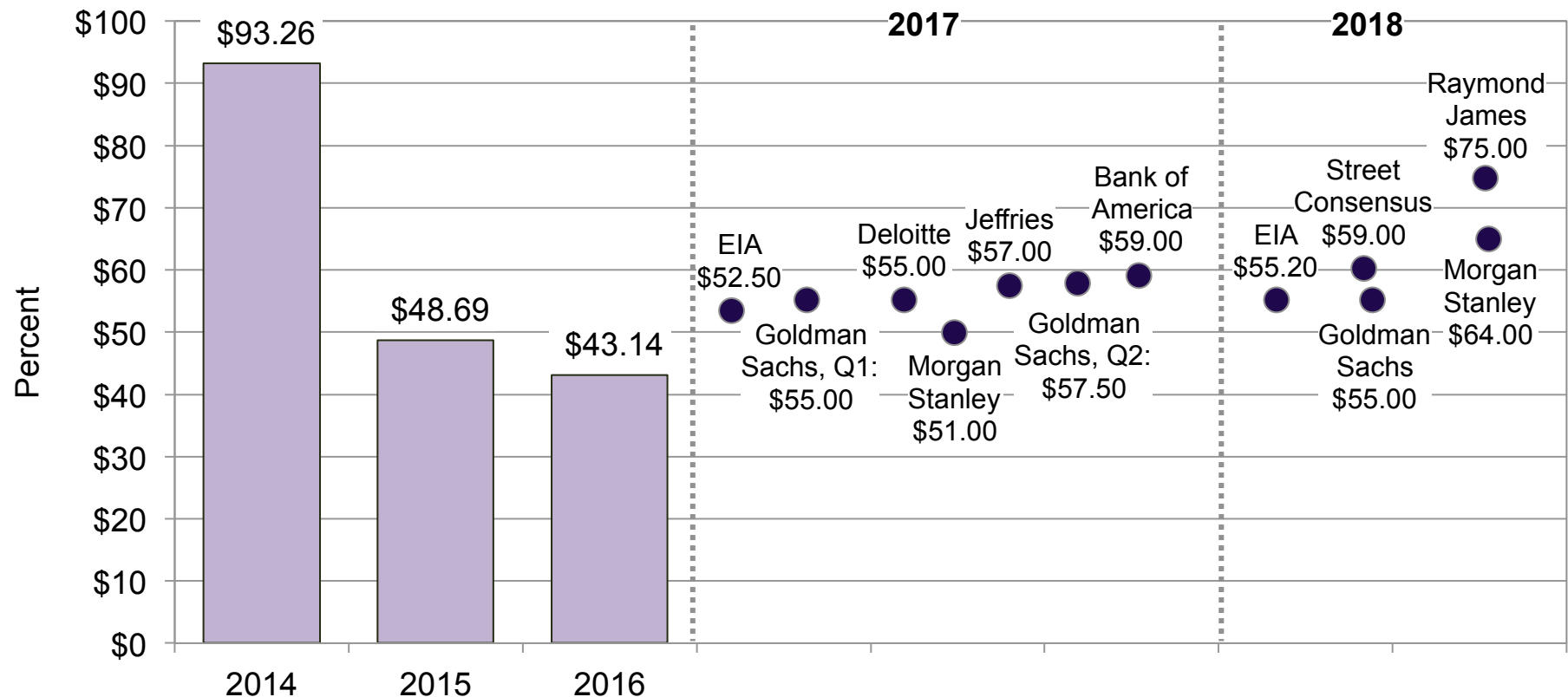
Current research focuses on importance of natural gas pipelines on upstream economics.



Outlook

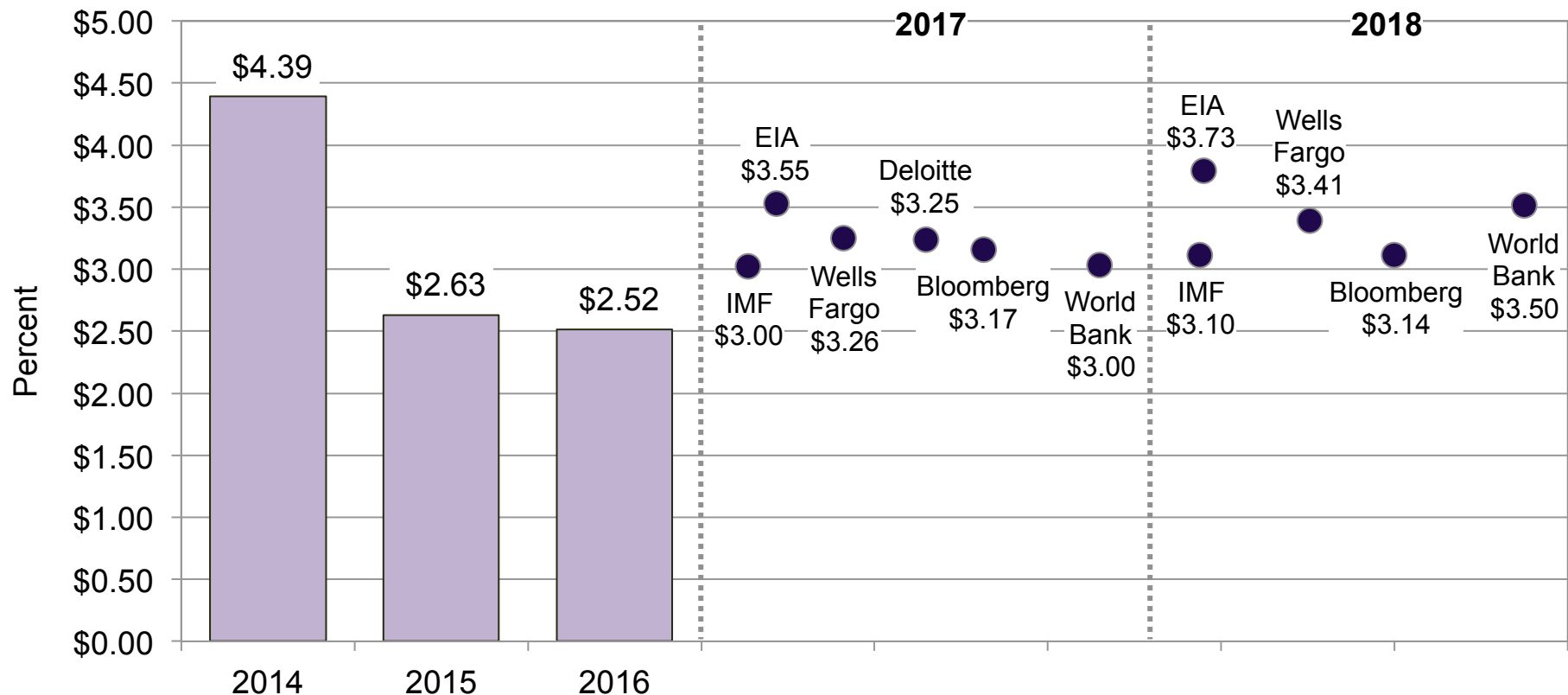
Crude oil price outlook

Most crude oil price projections for 2017 are around \$55 per barrel. Prices are expected to increase in 2018, but remain below \$75 per barrel.



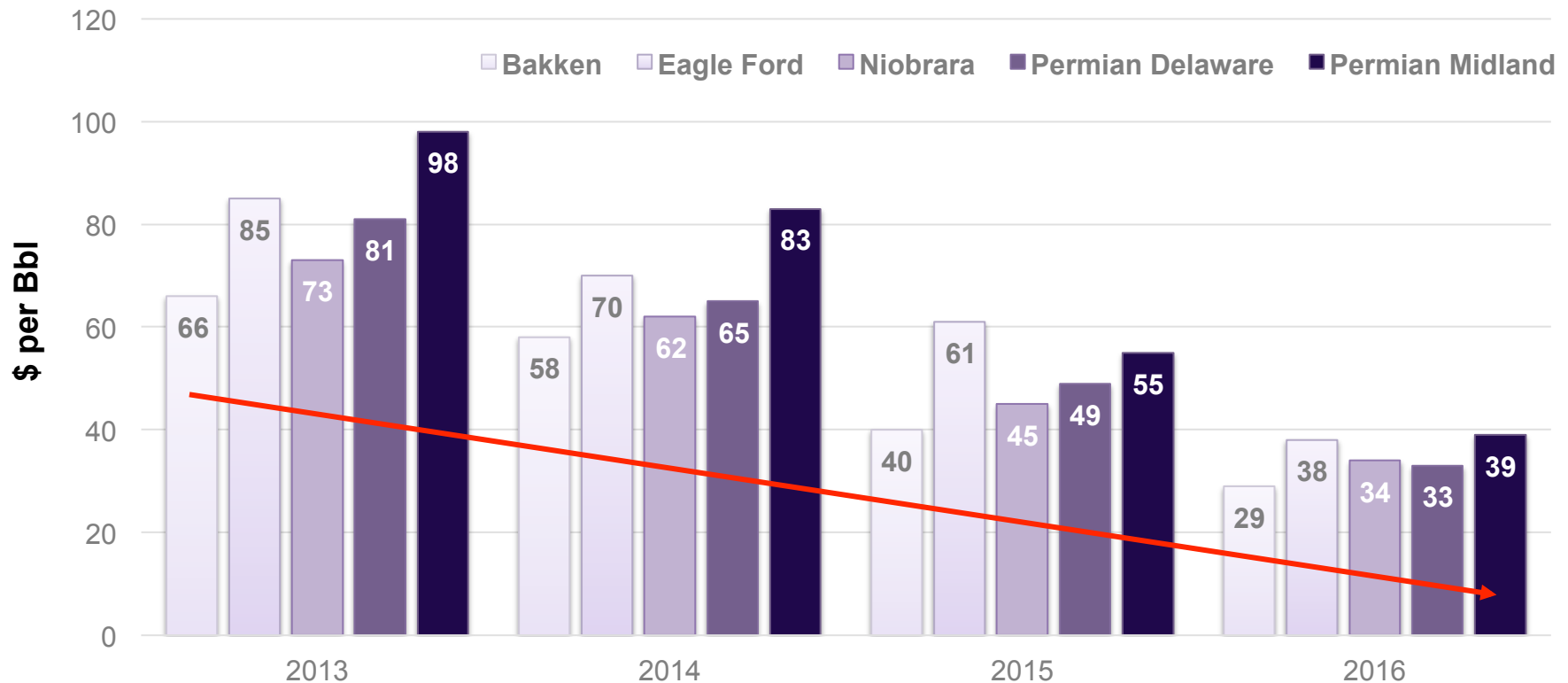
Natural gas price outlook

Natural gas prices are expected to stay below \$3.55 per MMBtu in 2017 and under \$3.75 in 2018.

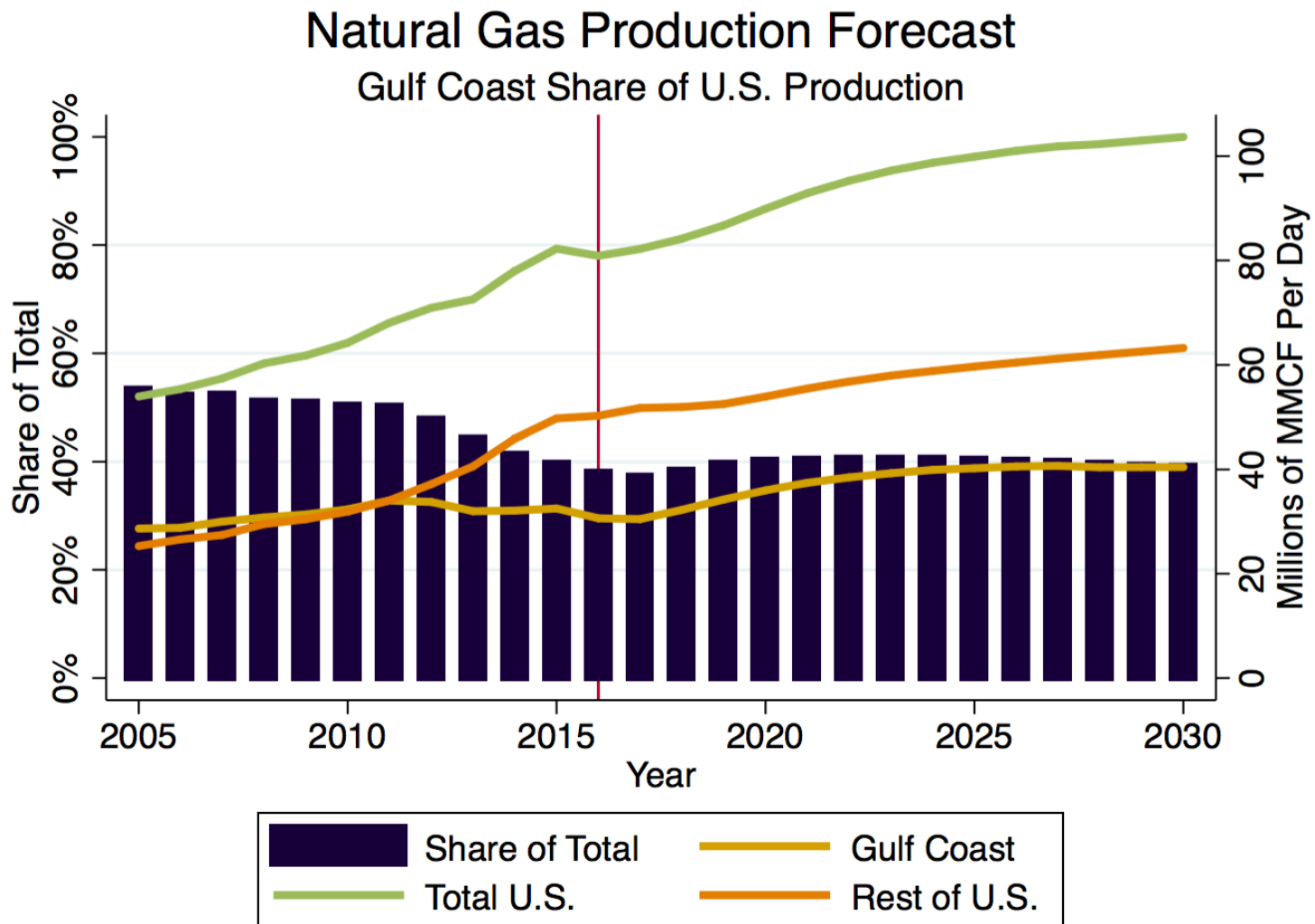


Wellhead breakeven prices for key shale plays

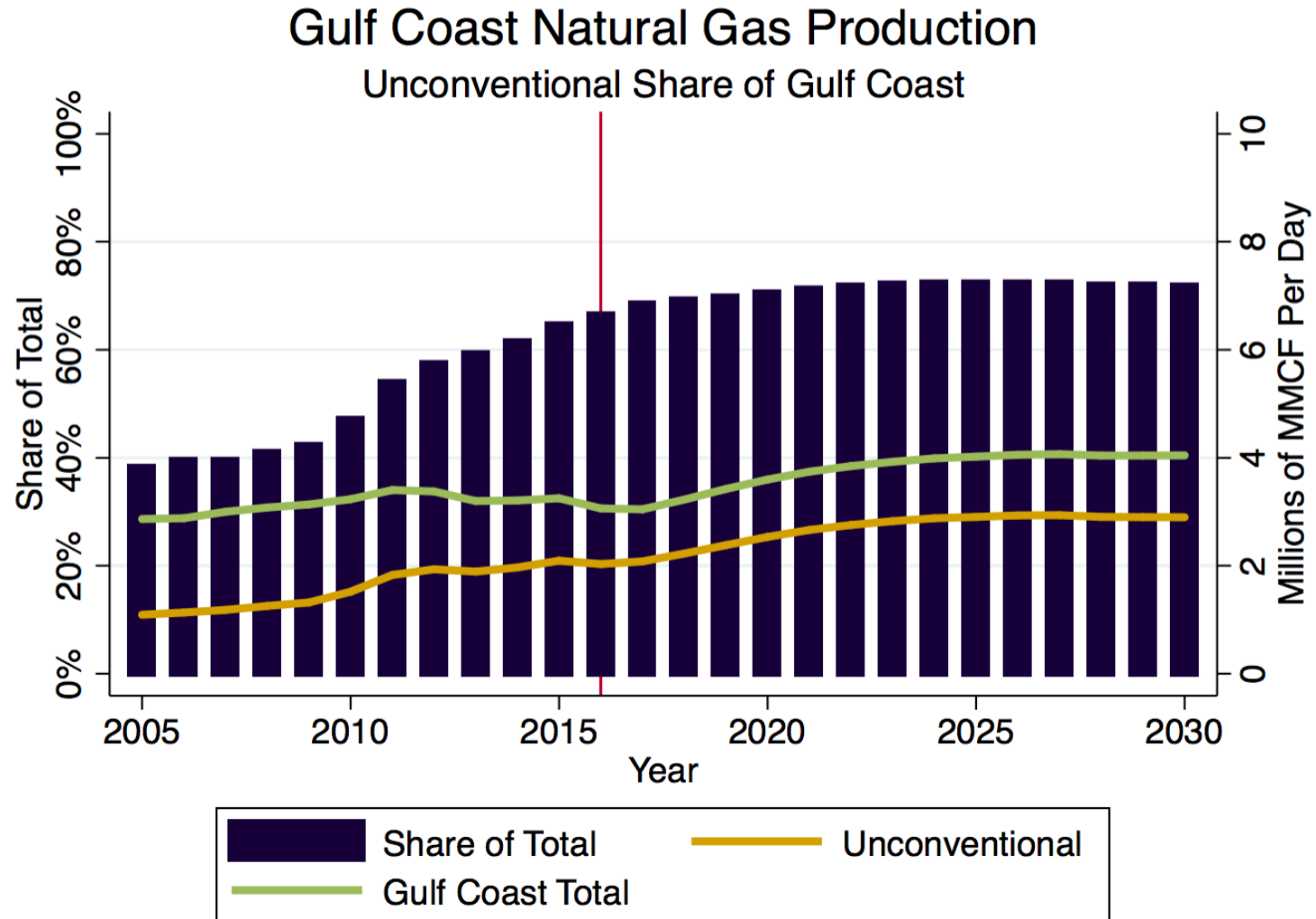
Since 2013, the average wellhead break-even price for key shale plays has decreased from \$80 per barrel to \$35 per barrel, representing an average decrease of over 55 percent.



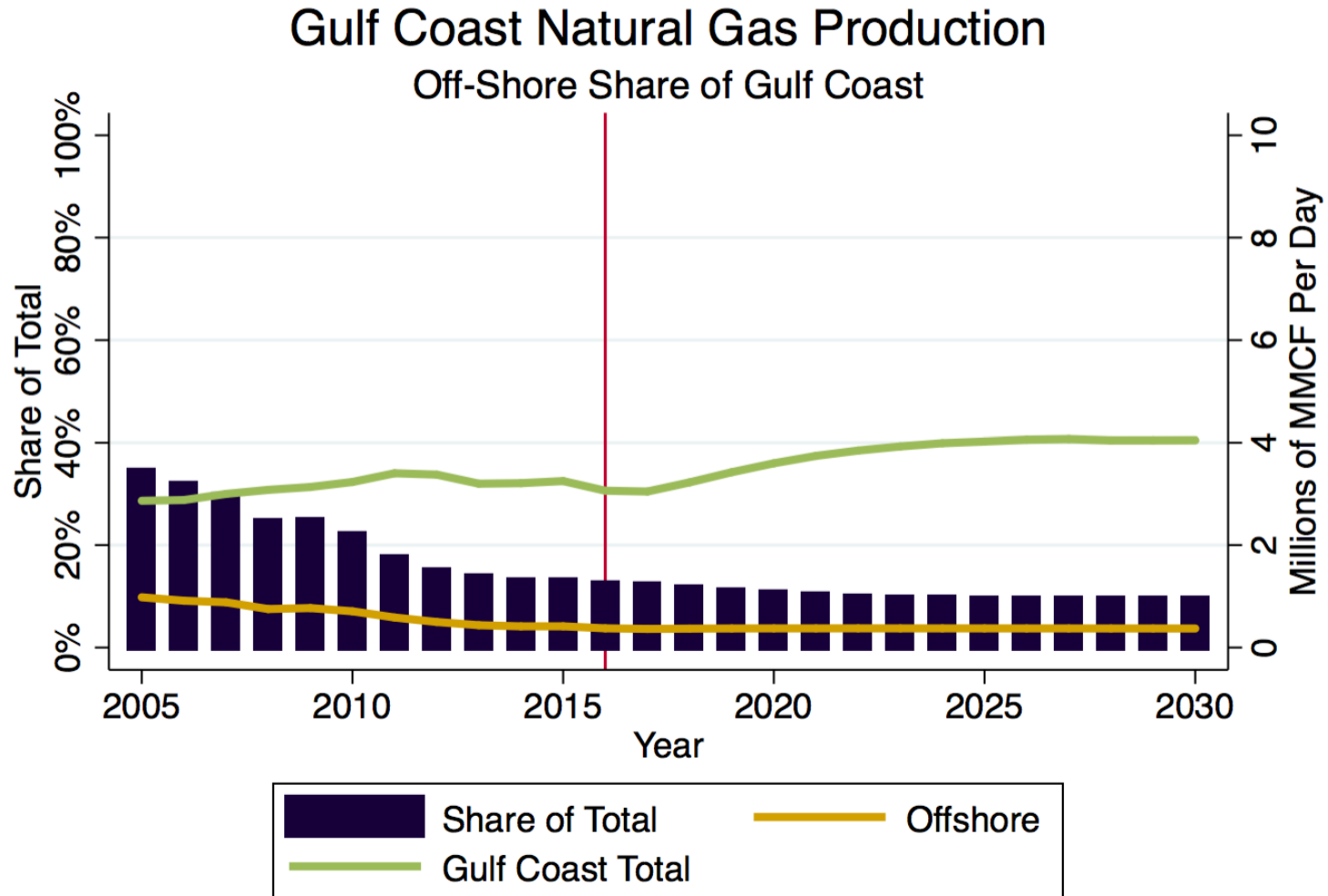
Gulf Coast Natural Gas Production Forecast



Unconventional On-Shore Natural Gas Oil Forecast

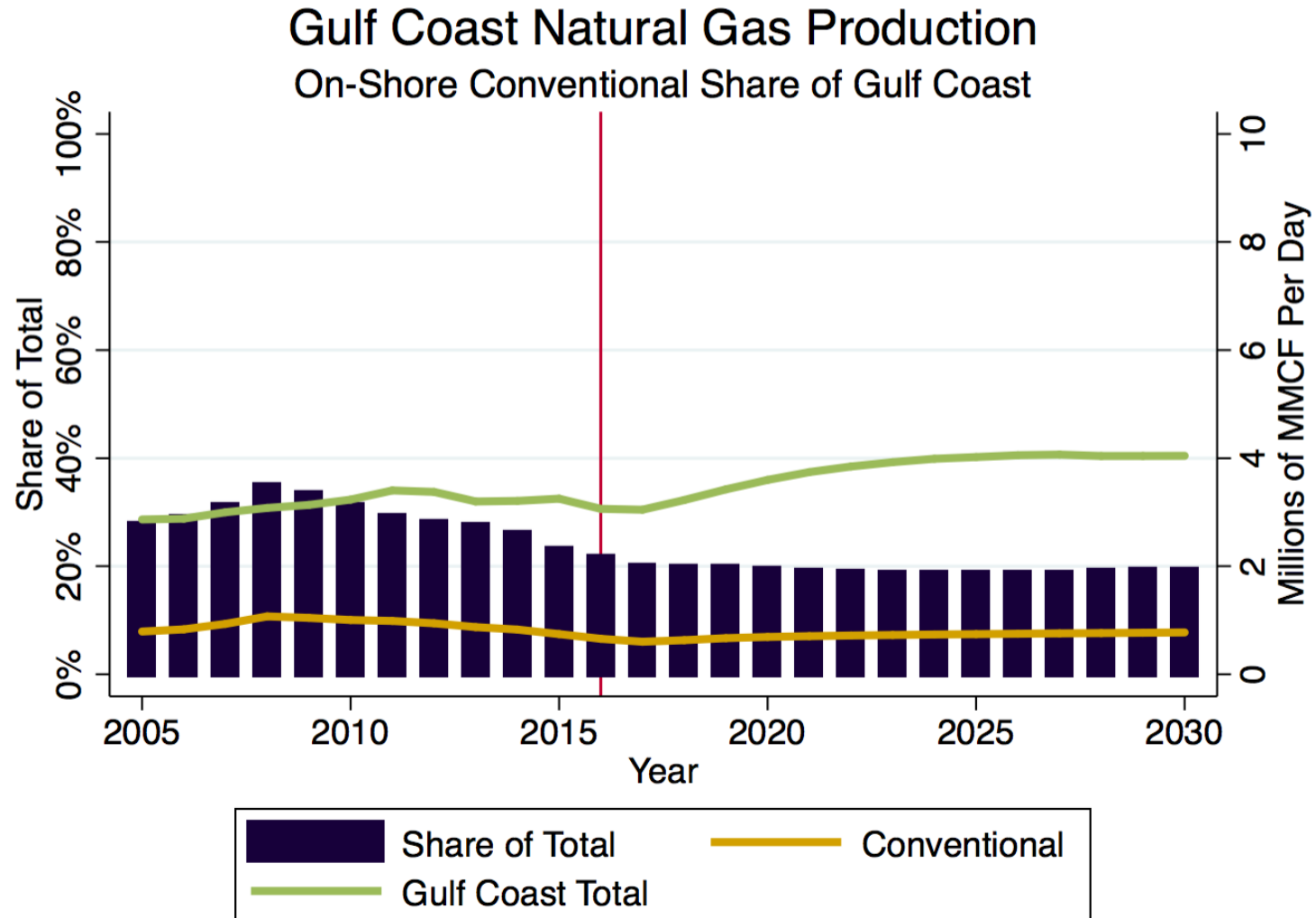


Off-Shore Natural Gas Forecast

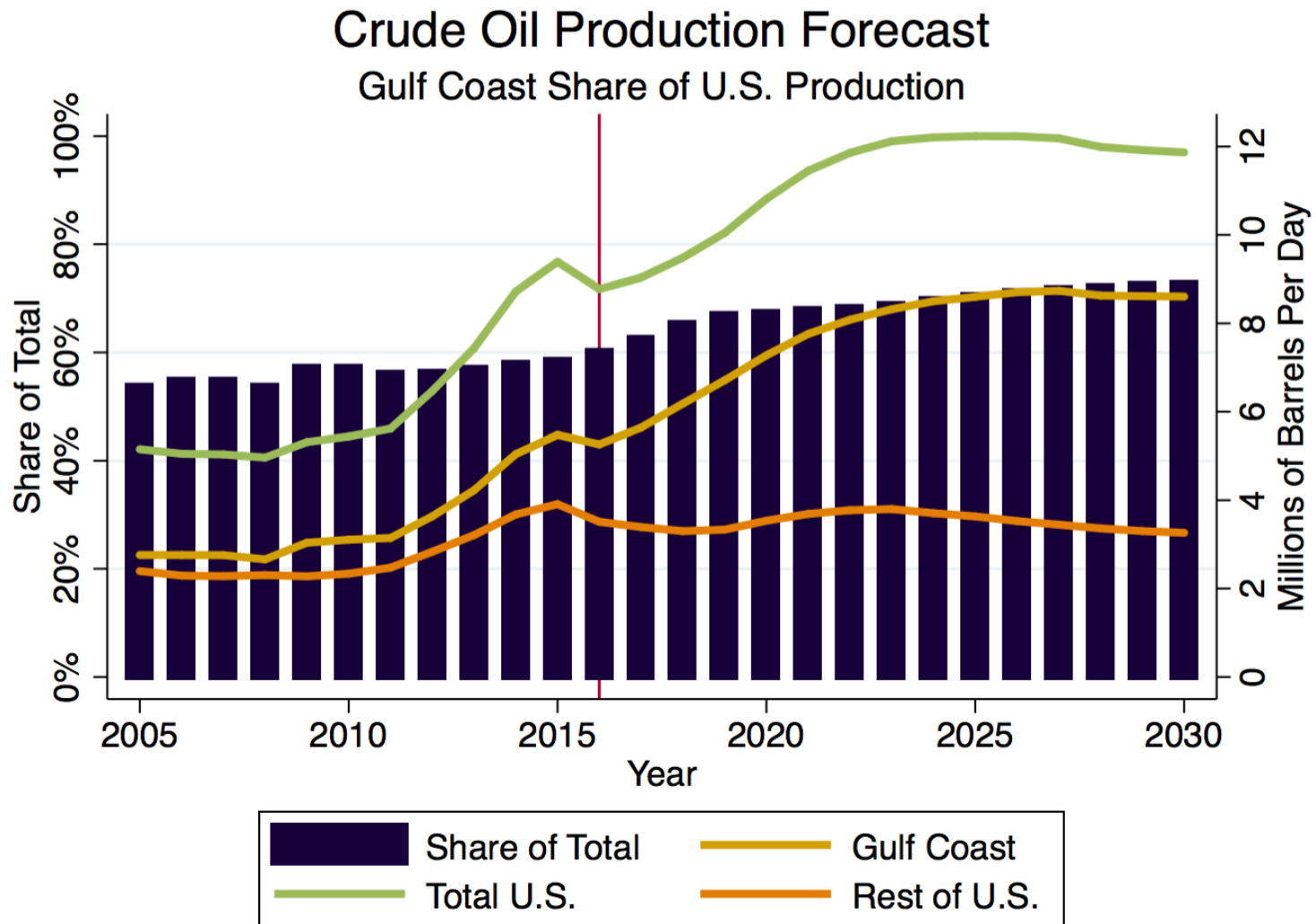


Note: Offshore includes both state and federal waters.

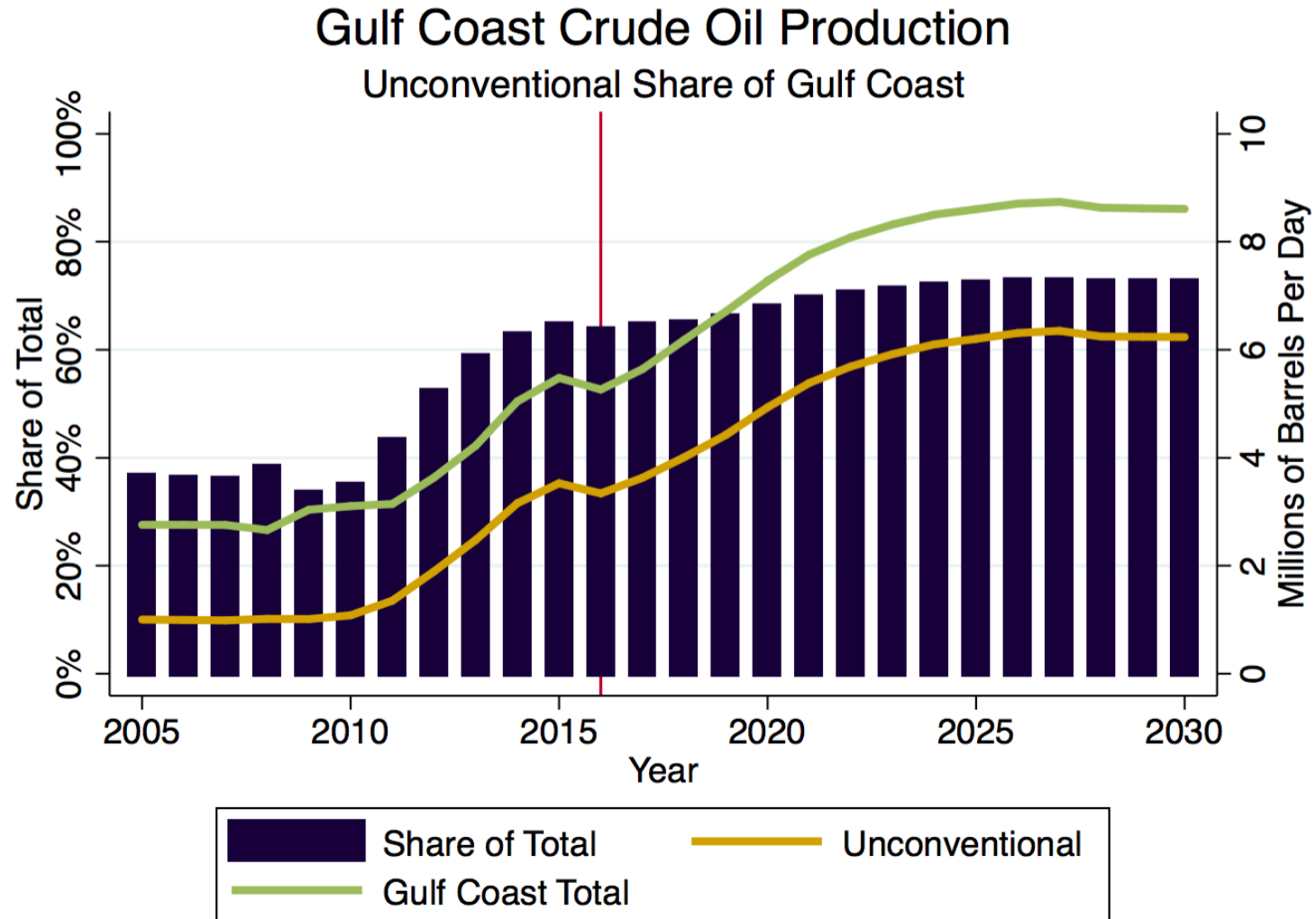
Conventional On-Shore Natural Gas Forecast



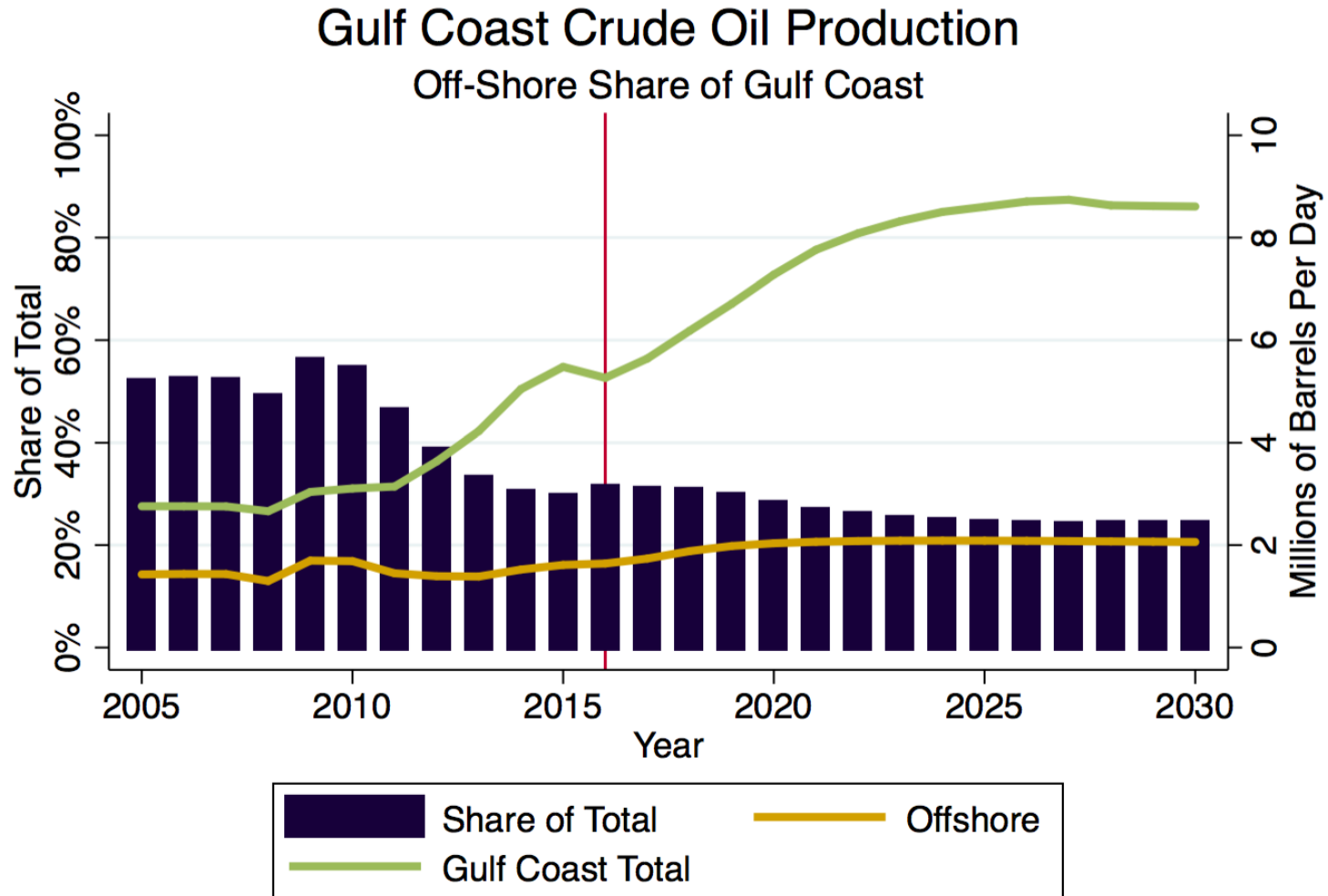
Gulf Coast Crude Oil Production Forecast



Unconventional On-Shore Crude Oil Forecast

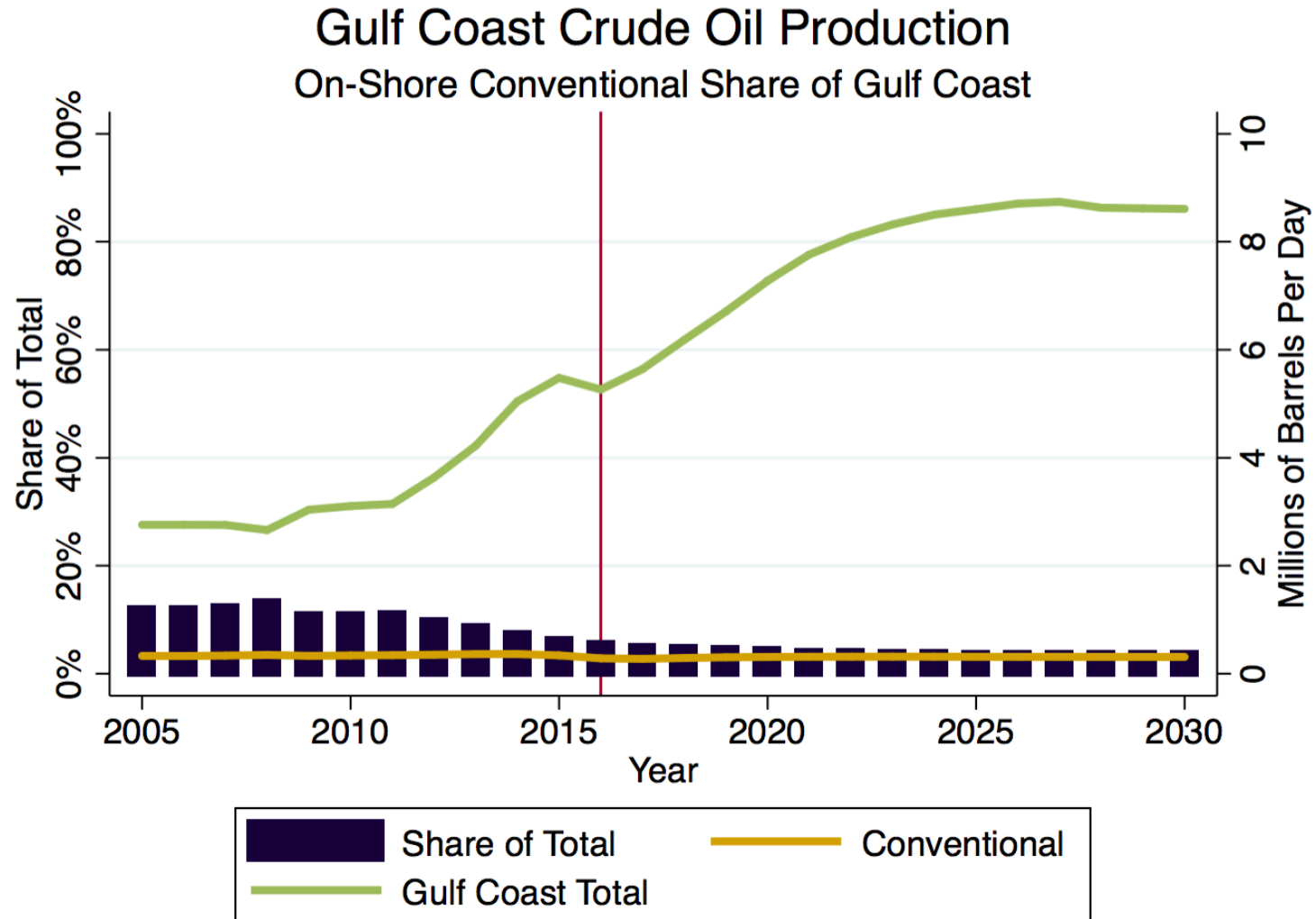


Off-Shore Crude Oil Forecast



Note: Offshore includes both state and federal waters.

Conventional On-Shore Crude Oil Forecast



Conclusions

Conclusions

- Over the past decade, worldwide energy markets have been fundamentally changed due to the advent of U.S. shale oil and gas development.
- These changes have not only impacted *where* hydrocarbons are produced, but has also created significant change to the transportation, processing, and final use.
- The gulf coast has seen large increases in oil and gas production, with these increases mainly concentrated in Texas. Louisiana and Federal Offshore production have decreased in their relative importance.
- Significant investments in the refining, petrochemicals, and transport of hydrocarbons have been made, and will continue to be made over the next decade. The Gulf Coast is well positioned, and could potentially become the world-cited crude benchmark.



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