# Upstream Spotlight

Unlocking Permian value

Clinton, October 2, 2018

This presentation contains forward-looking statements made in our public March 7, 2018 Analyst Meeting presentation, which is separately available on our website. All forward-looking statements included in this presentation and the assumptions made in developing these forward-looking statements speak only as of the date of their original presentation unless specifically noted herein. Inclusion of such forward-looking statements in this material does not represent an update or confirmation of such statements or their assumptions as of any later date.



Neil Chapman Senior Vice President, Exxon Mobil Corporation

# Cautionary statement

Forward-Looking Statements. Outlooks, projections, estimates, goals, descriptions of business plans and objectives, market expectations and other statements of future events or conditions in this presentation or the subsequent discussion period are forward-looking statements. Actual future results, including future earnings and other areas of financial and operating performance; demand growth and energy mix; ExxonMobil's production growth, volumes, development and mix; the amount and mix of capital expenditures; proved and other reserves; reserve and resource additions and recoveries; project plans, completion dates, timing, costs, and capacities; efficiency gains; operating costs and cost savings; integration benefits; product sales and mix; production rates and capacities; and the impact of technology could differ materially due to a number of factors. These include changes in oil or gas demand, supply, prices or other market conditions affecting the oil and gas industries; reservoir performance; timely completion of exploration and development projects; access to adequate and cost-efficient product transportation, war and other political or security disturbances; changes in law, tariffs, taxes or other government regulation, including environmental regulations, taxes, and political sanctions; the outcome of commercial negotiations; the actions of competitors and customers; unexpected technological developments; general economic conditions, including the occurrence and duration of economic recessions; unforeseen technical difficulties; and other factors discussed here, in *Item* 1A. Risk Factors in our Form 10-K for the year ended December 31, 2017 and under the heading "Factors Affecting Future Results" in the *Investors* section of our website at www.exxonmobil.com. The forward-looking statements in this presentation regarding future earnings are based on good faith market projections as of February 2, 2018 included in our Energy Outlook and management's good faith plans and objectives as of the Company's March 7, 2018 Analyst Meeting and will only be updated or reaffirmed by a future public disclosure. We assume no duty to update these statements or any other forward-looking statements as of any future date and neither future distribution of this material nor the continued availability of this material in archive form on our website should be deemed to constitute an update or re-affirmation of these figures as of any future date.

Supplemental Information. See the Supplemental Information included on pages 48 through 50 of this presentation for additional important information concerning definitions and assumptions regarding the forward-looking statements included in this presentation, including illustrative assumptions regarding future crude demand and supply; reconciliations and other information required by Regulation G with respect to non-GAAP measures used in this presentation including earnings excluding effects of tax reform and impairments; and definitions and additional information on other terms used including returns and resources.



# Agenda

- Opening remarks
- Permian overview
- Development capabilities
- Integration
- Technology

- Neil Chapman, Senior Vice President, Exxon Mobil Corporation
- Sara Ortwein, President, XTO Energy
- Staale Gjervik, Sr. Vice President, Permian Integrated Development
- Bryan Milton, President, Fuels & Lubricants
- Vijay Swarup, Vice President, Research and Development





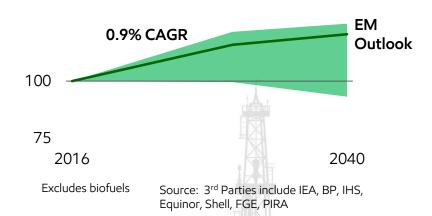


# Meeting demand with advantaged investments

### Oil demand, scenario range

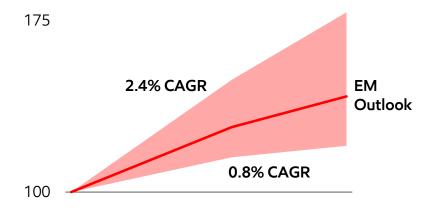
Indexed, 2016 = 100

175



### **Gas demand,** scenario range

Indexed, 2016 = 100



75 2016 2040

> Source: 3<sup>rd</sup> Parties include IEA, BP, IHS, Equinor, Shell



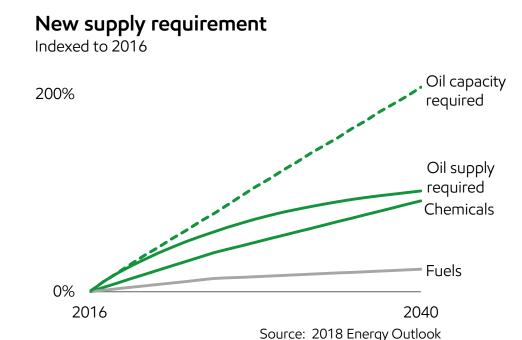






# Industry oil supply replacement opportunity

# Oil supply & demand MOEBD 120 Demand Supply required Decline without investment 0 2016 2040 Source: 2018 Energy Outlook







See supplemental information





# Winning in the Upstream

- Strength of portfolio
- Project execution
- Operations excellence
- Technology









# Reconnect to March Analyst Meeting

Deep water Guyana, Brazil

Unconventional
U.S. tight oil

LNG PNG, Mozambique

- Strongest portfolio of opportunities since the merger
  - Attractive across range of prices
  - All producing by 2025
  - 50% of 2025 Upstream earnings
- Plans deliver ~3x 2017 Upstream earnings¹ by 2025 at \$60/bbl
- Portfolio enhancement continues
  - Strengthening portfolio through continued acreage capture in 2018 (2017 highest quality acreage captured in 10+ years; >8 BOEB net resource potential)
  - Increased divestment focus

<sup>1</sup>Excludes one-time impact of U.S. tax reform and impairments in 2017; see supplemental information







# Permian position

Extensive Unconv. Play **Expertise** 

- XTO among the most experienced and active unconventional developers
- Dedicated team focused on executing world-class development
- Leverage deep ExxonMobil technology capability

### **Significant**

Acreage &

Resource

- 1.6M+ net acres across the Permian; vast majority XTO-operated Hz development
- Over 7,000 gross well locations, across multiple stacked pay zones; sparsely developed
- ~9.5 billion OEB recoverable resource (net)

### Unique

ExxonMobil

Position

- Continuous acreage enables manufacturing approach
- Control own destiny
- Can capture full value chain integration



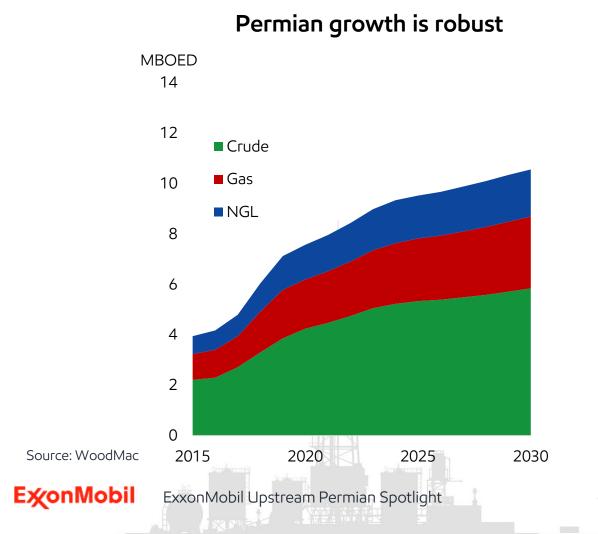






## Permian

The scale and extent of EMs integrated value chain presents a unique opportunity to maximize value of Permian crude



### Integration comparison Permian liquid production Logistics control ExconMobil Competitor ExonMobil Range ExconMobil 2017 2025 2017 2025 Lt. crude refining capacity USGC cracking capacity ExonMobil Ex/onMobil 2017 2025 2017 2025 Source: PIRA, WoodMac, EM estimates Exon Mobil See supplemental information; competitor data based on publicly available information

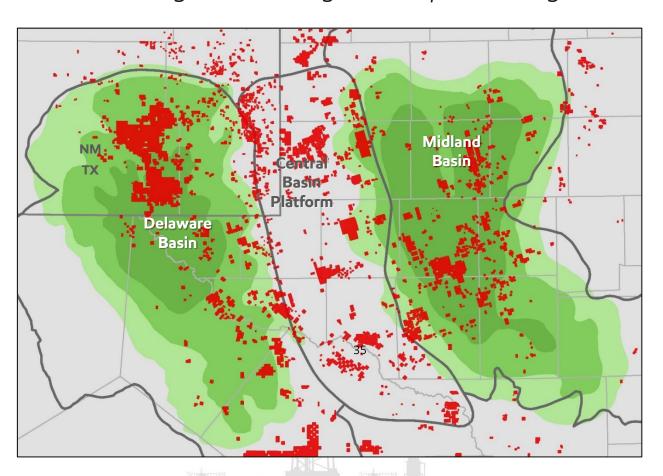
# Permian focus

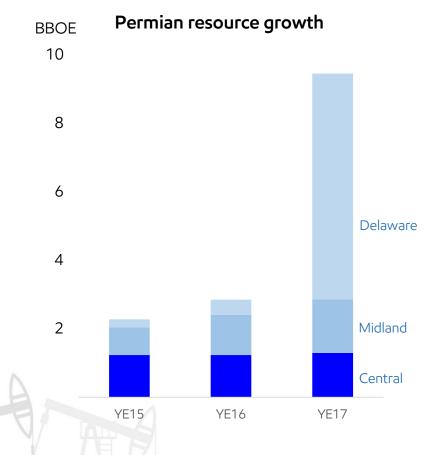
<b>Upstream</b>	Optimize and grow position – enhance EUR; manufacturing mindset
Midstream Crude	Participate in capacity; segregation and aggregation
Midstream Gas	Avoid shut-in; timely commitments; field consumption
Midstream NGL	Establish assets to enable trading; support industry growth
Fuels & Lubricants	Capture quality; grow light crude processing; lubes
Chemicals	Minimize feedstock cost; exploit light crude cracking capability
Technology	Recovery and cost reductions; sustainable competitive advantage

# Permian overview

Grown a unique competitive position in the Permian

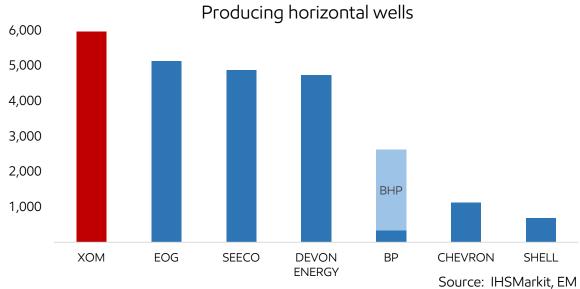
4-fold resource growth with significant upside through Delaware delineation

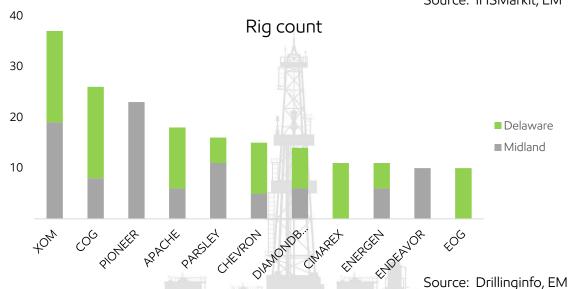


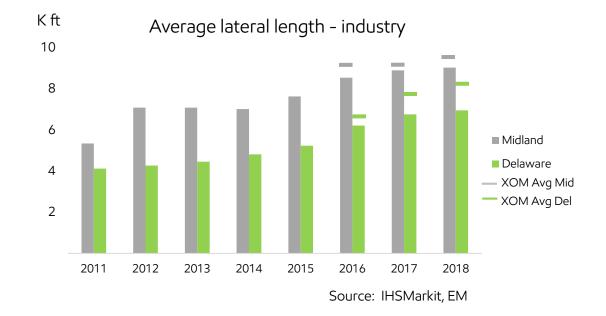


# Capabilities

ExonMobil



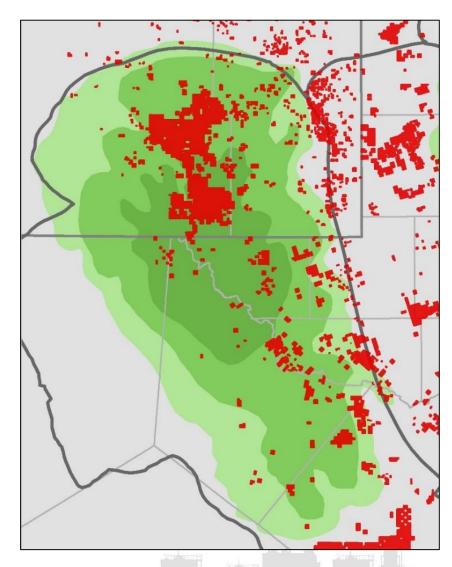




- Experience leading to value generation
- Development costs reduced ~70% since 2014



# Unique position

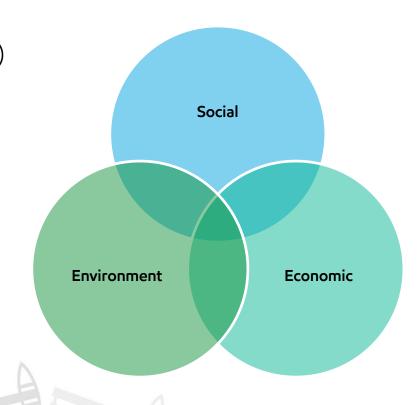


- Continuous acreage; manufacturing approach
- Operatorship control; control own destiny
- Highgrading with bolt-on opportunities



# Industry perspective

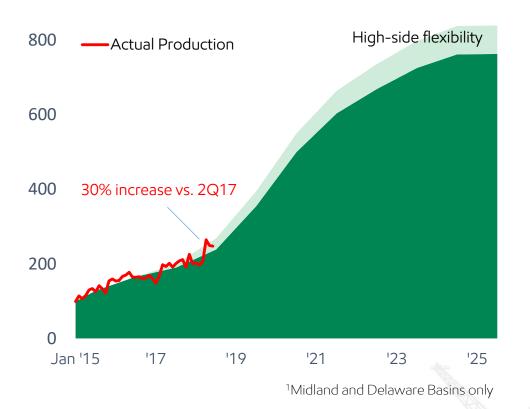
- Intense activity in remote location
- Evacuation of hydrocarbons (logistics required, potential value leakage)
- Produced water
- Sustainability responsible operator
- Growth projections, market fundamentals





# ExxonMobil competitive advantages

Permian<sup>1</sup> and Bakken production **KOEBD** net



- Development capability
- Integration through value chain
- Technology

See supplemental information



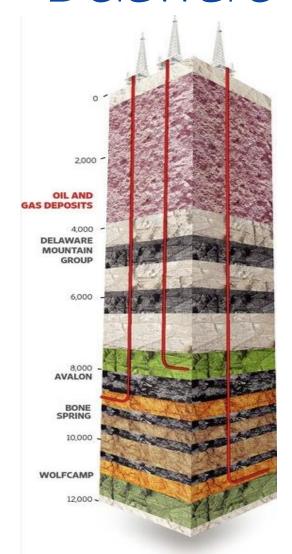




# Development capabilities



# Delaware



Connecting reservoirs that verticals couldn't drain

Multiple distinct economic targets;

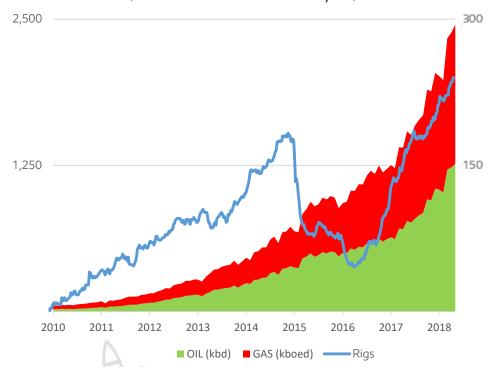
Delaware 2014: 5

Delaware 2018: ~15

1,900 – 2,100 ft of net pay

### Delaware Basin

(Horizontal wells: 2010 - May'18)



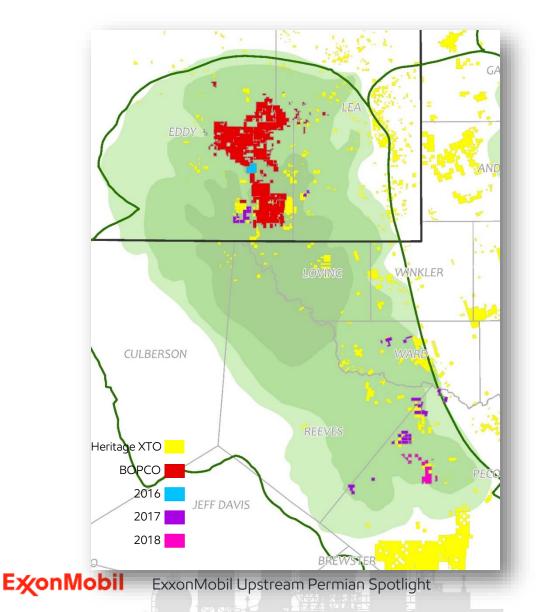
Source: IHSMarkit, Baker Hughes





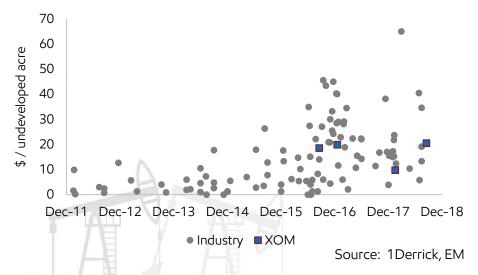


# Building the Delaware position



Year	Deal	Operated net acreage
2016	Nash Unit	3 K
2017	Bass Acquisition	230 K
2017	Other Acq. & Trades	22 K
2018	Acq. & Trades	14 K
	Accumulated ('16-'18)	269 K

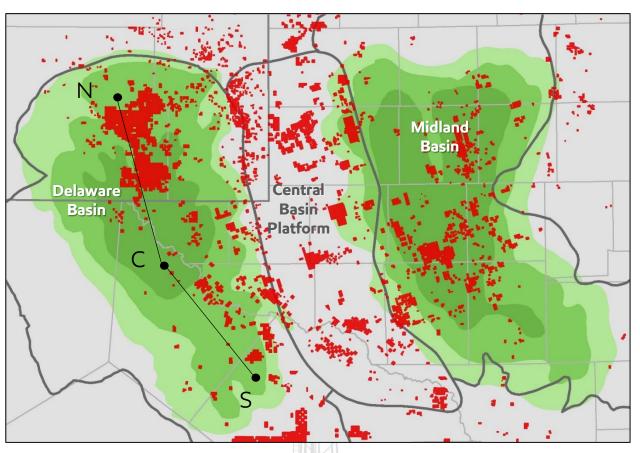
### **Delaware transactions**



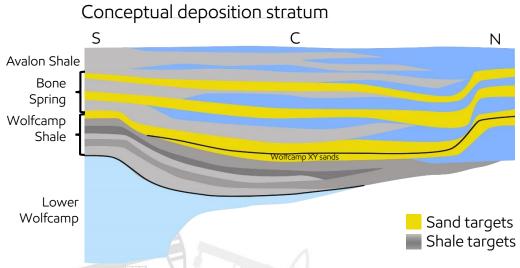




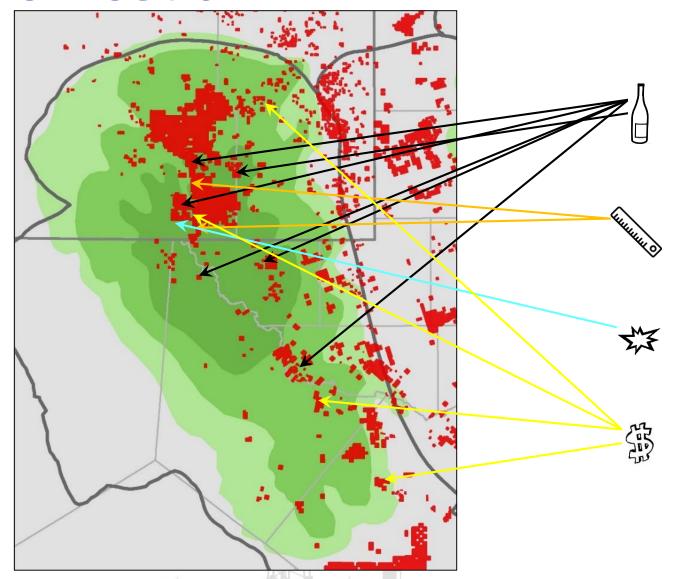
# Delineating Delaware



- Leveraging analytics, modelling and field experimentation to optimize development
- Planning world-scale development
- Building volumes while delineating



# Delineation



### Well stack tests

 Range of configurations across zones e.g. 3BS, WCXY, WCA

### Well length tests

• Range of lateral lengths (7.5-15k')

### Completion intensity tests

• Proppant (sand) varied from 2-3klbs/ft

### Reservoir quality tests

• Deliberately gathering insights by horizon e.g. Wolfcamp B & E, 1st Bone Spring

# Resource definition focus

### James Ranch; Remuda Nash

- Testing Lower Wolfcamp shale via re-entry after favorable offset log
- Testing alternate stacking patterns to maximize sectional value

### **Corral Canyon; Ross Draw**

 High intensity completion tests on fully instrumented long laterals

### **River Tracts**

• Assessment of 3<sup>rd</sup> Bone Spring Shale

### Rojo

• Extending Wolfcamp B play window

### **SWD & Deep Pilot Wells**

 Opportunistic data gathering for early assessment of RQ and landing / stacking optimization

### Northern Delaware Basin

- Established significant economic benefit from upscaled stimulations in 1<sup>st</sup> and 2<sup>nd</sup> Bone Spring, extending play window
- Assessment of 3<sup>rd</sup> Bone Spring Shale

### **Big Eddy**

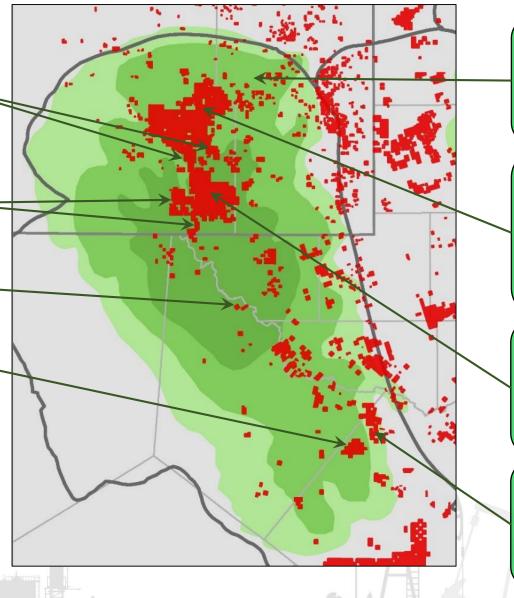
- Seismic reprocessing aiding conventional target assessment and unconventional reservoir quality mapping
- Preparing to drill and log a deep SWD well in data spare area to accelerate green-field maturation

### Poker Lake

- Testing Wolfcamp shale
- Test new completion recipes
- Evaluating most optimal stacking of high well density resource

### Waha, Coyanosa

- Appraise Avalon Shale and 3 Bone Spring; test emergence of Woodford Shale
- Testing multiple landing targets in Wolfcamp Shale







Delivering results

### **James Ranch Unit**

- Wolfcamp (WC) XY, 4,350' LL, IP30 = 2,270 boepd
- 2<sup>nd</sup> Bone Spring (BS), 8,400′ LL, IP30 = 2,125 boepd
- Wolfcamp XY, Drilled longest well in Delaware Basin
  - Measured Depth 26,150'

### **Poker Lake Unit**

- 2<sup>nd</sup> BS 10,700′ LL, IP30 = 2,275 boepd
- WC A, 6,160′ LL, IP24 = 2,700 boepd

### **Corral Canyon**

- 2nd BS, 9,800′ LL, IP30 = 2,700 boepd
- 2nd BS, 4,464′ LL, IP30 = 2,250 boepd

### El Kabong

WC B, 9,900' LL, IP30 = 1,190 boepd

### Espejo / Severus

- 3<sup>rd</sup> BS 4,700′ LL, IP30 = 1,770 boepd
- 3<sup>rd</sup> BS, 7,200′ LL IP30 = 1,637 boepd

### **Big Eddy Unit**

• 2<sup>nd</sup> BS, 11,400′LL, IP30 = 1,830 boepd

### **Saints**

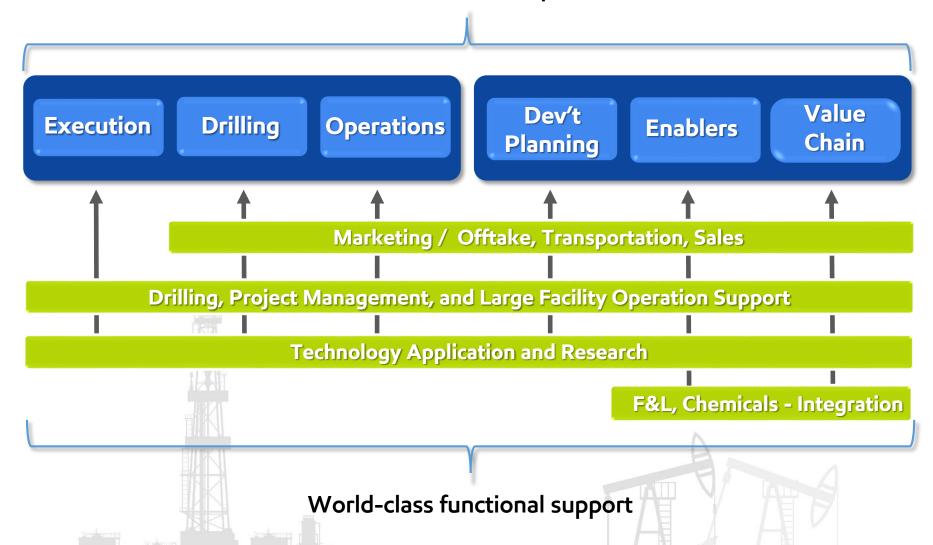
WC A, 9,900' LL, IP30 = 2,410 boepd



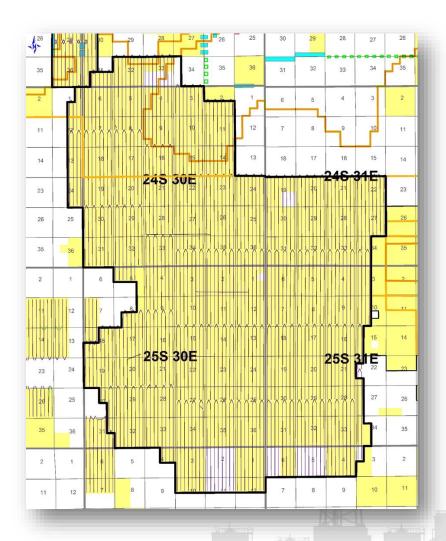


# Organizational capability

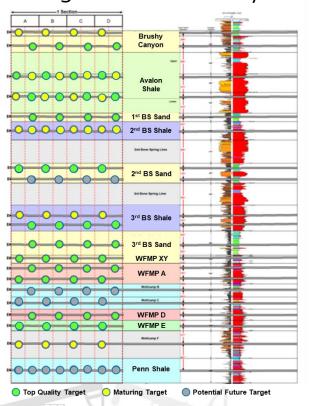
XTO business line expertise



# Manufacturing ability



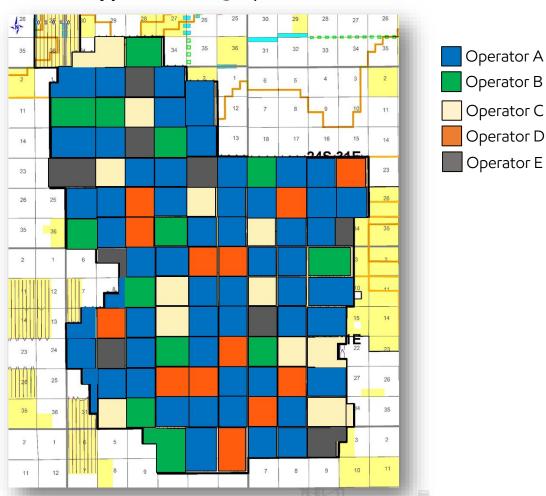
### High resource density





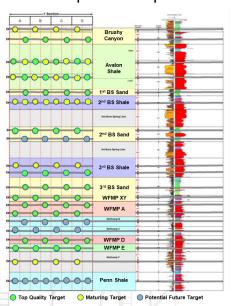
# Manufacturing ability

### **Typical** acreage position



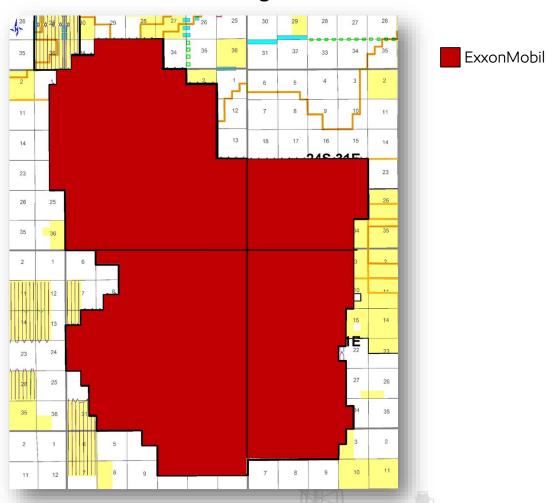
### **Restricts** exploitation of high resource density

- Inefficient execution
- Overlapping surface footprint
- Limited development options



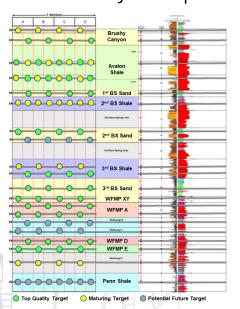
# Manufacturing ability

### **Differentiated** Acreage Position

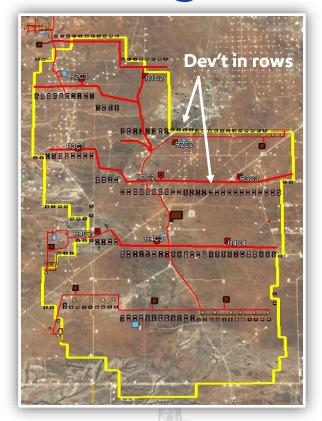


**Enables** exploitation of high resource density

- Highly efficient execution
- Capital efficient surface footprint
- Room to learn adjust optimize



# Manufacturing



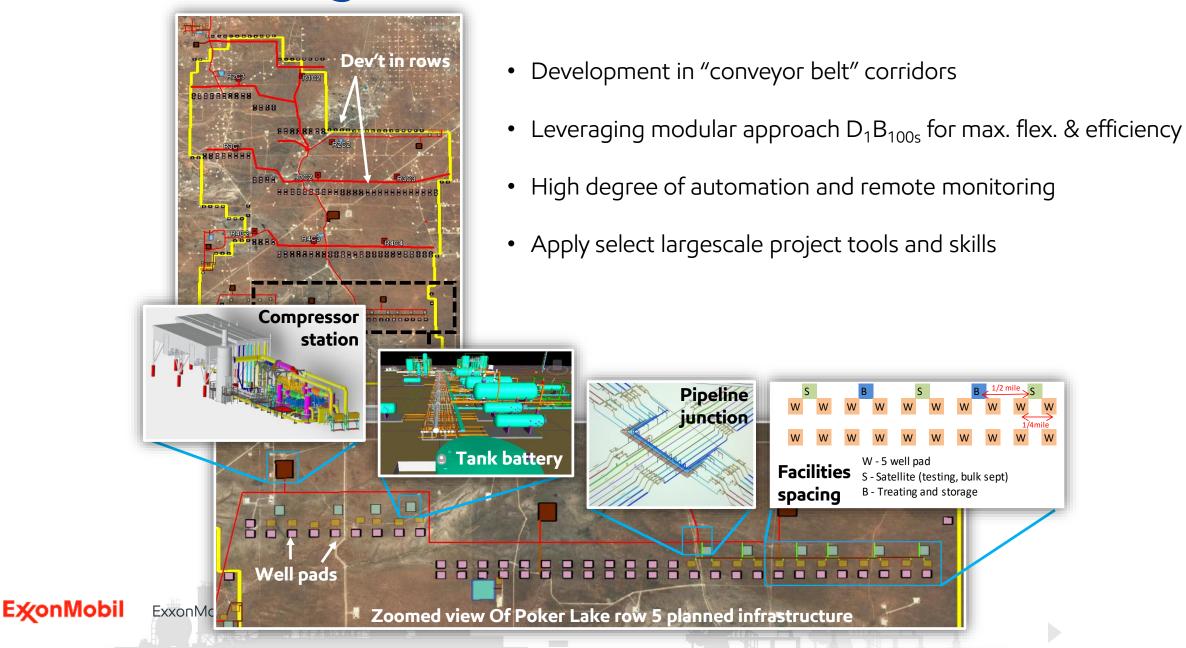
ExxonMobil Upstream Permian Spotlight

- Development in "conveyor belt" corridors
- Leveraging modular approach  $D_1B_{100s}$  for max. flex. & efficiency
- High degree of automation and remote monitoring
- Apply select largescale project tools and skills

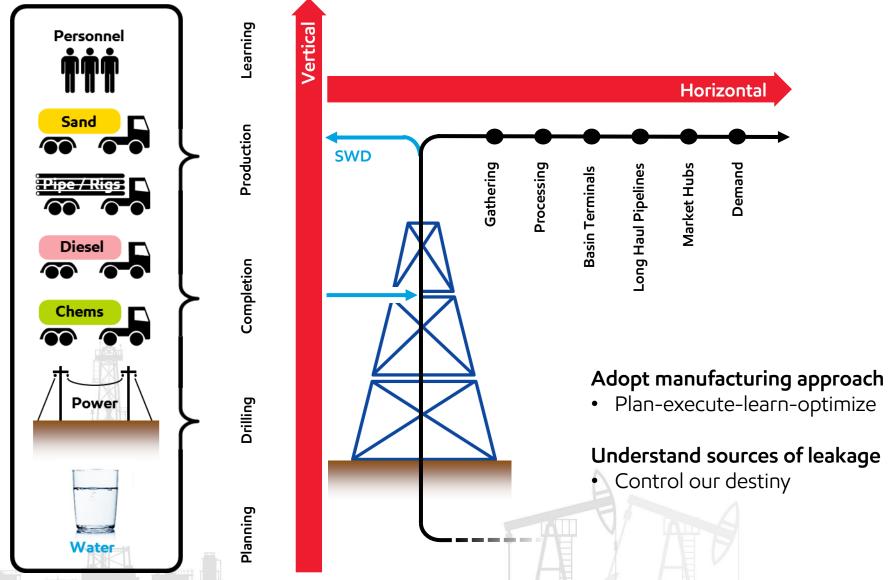




# Manufacturing

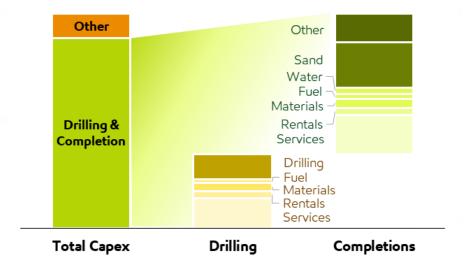


Integration



# Vertical integration

### **Total Well Cost By Major Component**



**Drilling** 



- Need a lot of everything scale and running room matters
- Value leakage management and value generation
- Prioritize based on highest value

Completion

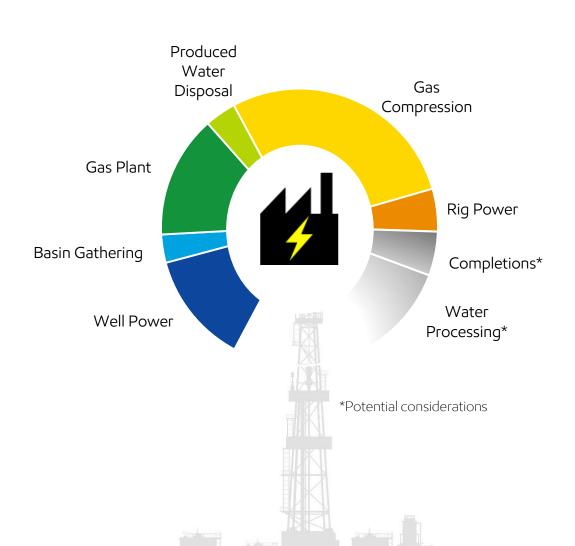


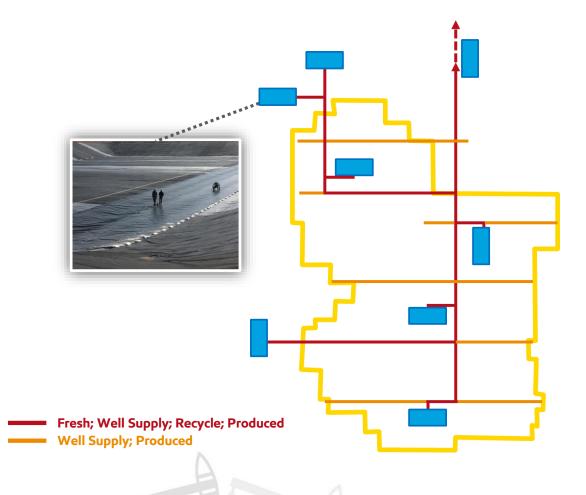






# Vertical integration

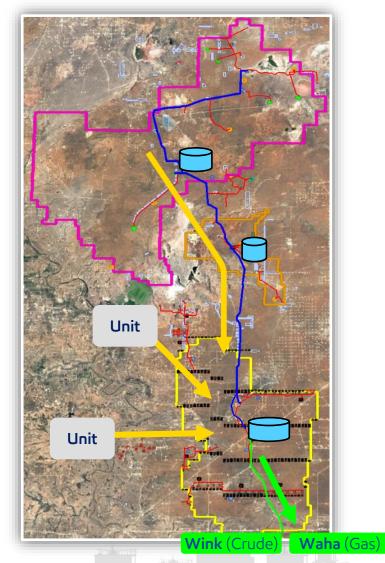






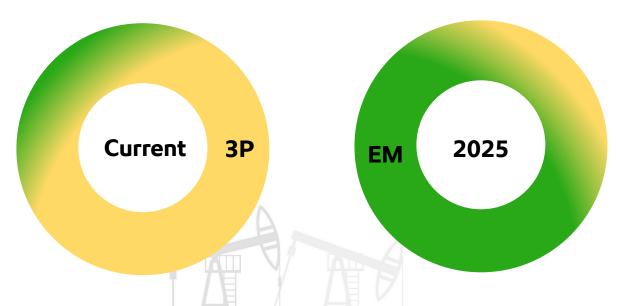


# Control own destiny

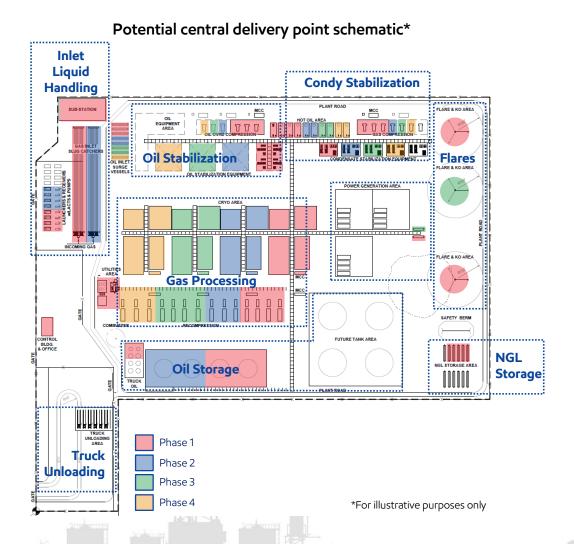


- Position enables centralization and control of equity molecules
- Value chain opportunities in crude

### Working interest gathering opportunity



# Control own destiny

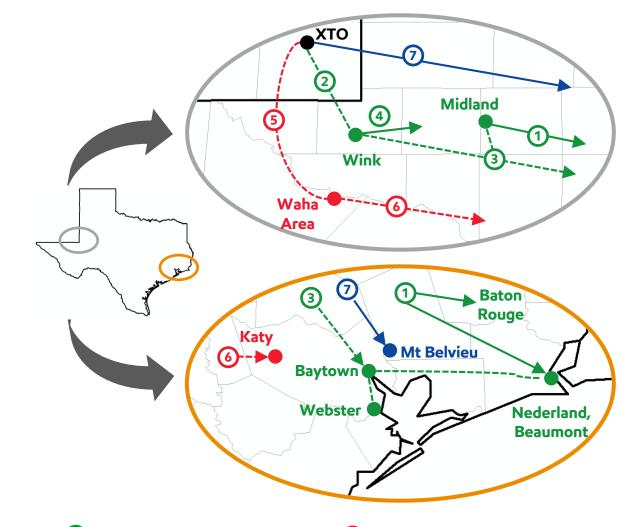


- Design one, build many
- Modular, phased approach to expansion
- 200MMSCFD/100KBD increments



# Out of basin logistics

- Connecting Permian crude to the USGC
  - Assure equity clearing
  - Capture full value chain
  - Develop opportunities for third party throughput
- Ensuring long-term gas and NGL offtake
  - Secure advantaged transport
  - Maintain sufficient fractionation capacity



- 1 Crude PEP JV PL
- 2 Crude Delaware Connector
- 3 Crude Wink to Webster PL
- 4 Wink rail loading

Existing

- Gas Basin to Waha PL
- 6 Gas to USGC Markets
- 7 NGL Basin to Mt Belvieu PL

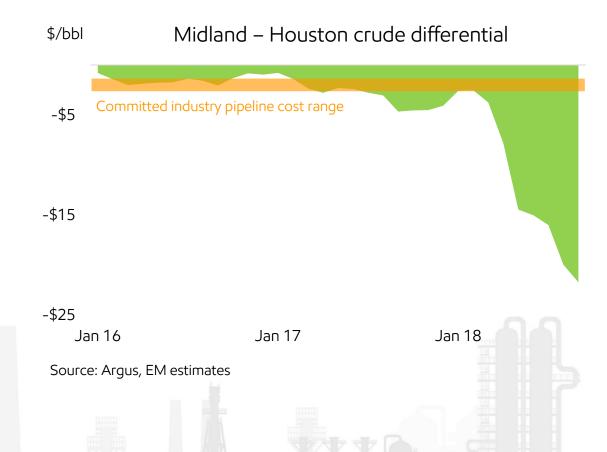
---- Under development







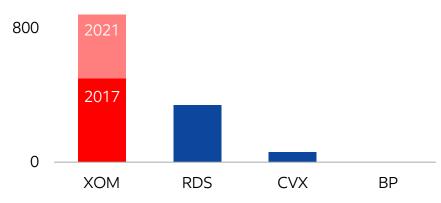
# Logistics value



- Aggressively securing incremental low-cost transport
  - Exceeding crude production outlook
  - Covering gas production outlook
- Leveraging advantaged logistics position during market disconnects
  - Protecting equity production value
  - Capturing market differential with net excess capacity

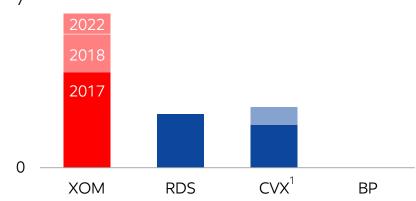
# Processing

USGC light crude refining capacity KBD



USGC ethylene capacity

MTA 7



150% of CP Chem

ExonMobil

- Differentiated with world-class manufacturing on the U.S. Gulf Coast
- Expanding refining and chemicals to process advantaged feedstocks
- \$2B planned investments

Sources: IHS, EM estimates See supplemental information; competitor data based on publicly available information









# ExxonMobil technology commitment

\$1+billion
annually on R&D





Clinton Research Campus 800 acres / 430 labs / 90 pilot plants





## A history of innovation at ExxonMobil

Mobil 1

synthetic

lubricant

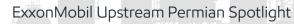
Today Low-sulfur Specialty plastics gasoline Advanced 2010 metallurgy 3D 2000 Digital seismic simulator Mobil 1 1990 **Annual** Plastic protection 1980 Extended-1970 reach drilling Ultra-low 1960 sulfur diesel 1950 Ultra-deepwater 1940 development Lithium



High

octane

gasoline



Synthetic catalyst



batteries







## Underpinned by core technical capabilities

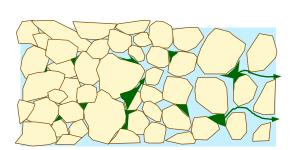
Physics & Mathematics

**Engineering Physics** 

**Computational Modeling** 

**Data Analytics** 

**Optimization** 



ExonMobil

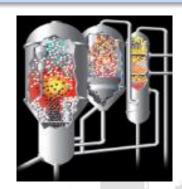
Process Engineering

Separations

**Process Engineering Fundamentals** 

Scale-up

**Process Intensification** 



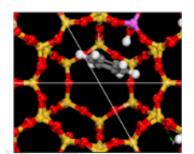
Materials

**Active Materials** 

Materials Performance

Catalysis

Polymer Science



Hydrocarbon & **Emerging Energy** 

> Organic & Electro Chemistry

> > Biology

Climate Science & LCA

Thermodynamics









### Scientific collaboration to develop new solutions

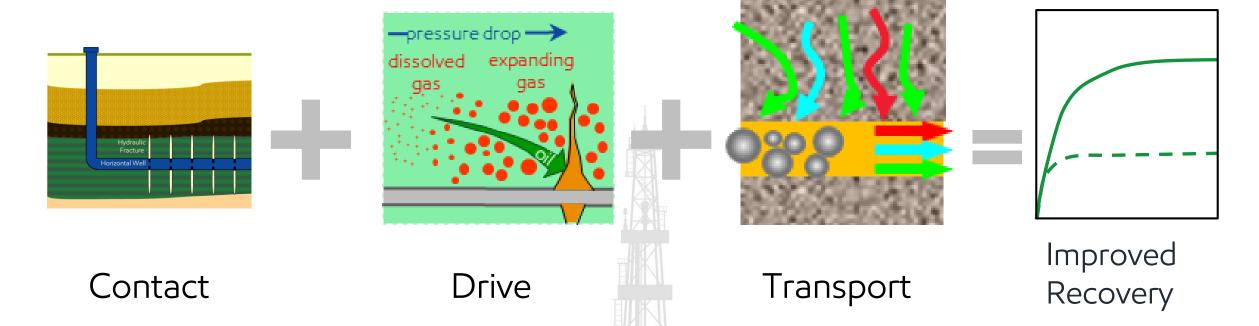
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	Emissions reducing focus areas	MIT ('14)	Princeton ('15)	U Texas ('16)	Stanford ('18)	Singapore (′19)	
Electricity Generation	Renewable power (solar, nuclear)	✓	✓	✓	✓	✓	
	Carbon Capture, Utilization & Storag (active materials)	ge 🗸		✓	✓	✓	
	e <sup>-</sup> Storage: Grid (electro-chemistry)			✓	✓	✓	
Transportation -	e <sup>-</sup> Storage: mobile (electro-chemistry)		✓		✓		
	Gas storage (adsorption)	✓		✓	✓		
Industry -	Gas Conversion (biocatalysis)	✓	✓		✓	✓	
	New Products (building materials)	✓	✓			✓	<i>(</i> 0 :
	Liquids Conversion (membranes)	✓		✓			<ul><li>✓ Ongoing</li><li>✓ Future</li></ul>



#### Focus on fundamentals to improve unconventionals recovery

Today's approach: Empirical, non-physics based

Primary mechanisms for tight oil/gas production Our research:



Underpinned by fundamental physics and advanced data analytics

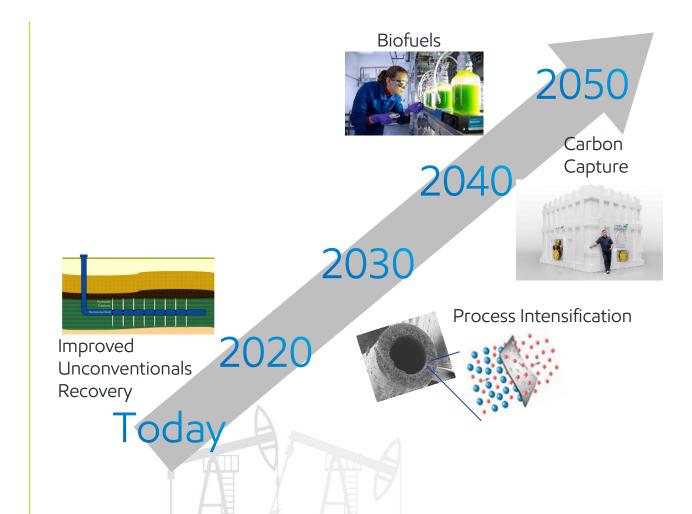




### ExxonMobil advancing technology solutions

 ExxonMobil has a long history of providing scalable energy solutions

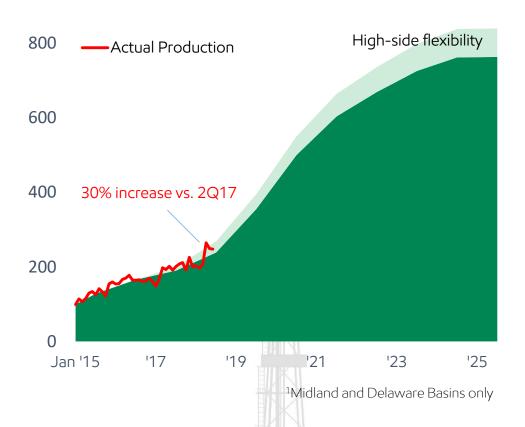
 R&D applying deep science and engineering capabilities to develop next generation solutions





## Summary

#### Permian<sup>1</sup> and Bakken production KOEBD net



- Development capability
- Integration through value chain
- Technology

See supplemental information







#### Backup







#### Supplemental information

Important information and assumptions regarding certain forward-looking statements. Forward-looking statements contained in this presentation regarding future volumes, future earnings, and project returns are not forecasts of actual future results. These figures are provided to help quantify the targeted future results and goals of currently-contemplated management plans and initiatives including new project investments, plans to grow profitable Upstream production volumes, continued highgrading of ExxonMobil's portfolio through our ongoing asset management program, initiatives to improve efficiencies and reduce costs, and other efforts within management's control to impact future results as discussed in this presentation. These figures are intended to quantify for illustrative purposes management's targets for these efforts over the time periods shown, calculated on a basis consistent with our internal modelling assumptions for factors such as working capital and capital structure, as well as factors management does not control, such as interest and exchange rates.

For all price point comparisons, unless otherwise indicated, crude prices and product margins are on a flat real basis. For 2017 crude oil prices we used \$53/bbl Brent. Where price is not stated, we assume a \$60/bbl Brent for future periods. These prices are not intended to reflect management's forecast for future prices or the prices we use for internal planning purposes. For natural gas, except as otherwise explicitly noted in this presentation, we have used management's internal planning prices for the relevant natural gas markets. We have also assumed that other factors such as laws and regulations, including tax and environmental laws, and fiscal regimes remain consistent with current conditions for the relevant periods and that asset sales are consistent with historical levels.

See the Cautionary Statement at the front of this presentation for additional information regarding forward-looking statements.





#### Supplemental information

Non-GAAP and other measures. In this presentation, earnings excluding effects of tax reform and impairments is a non-GAAP measure. With respect to historical periods, reconciliation information is included with the relevant definition below or as noted below in the Frequently Used Terms available on the Investors page of our website at <a href="https://www.exxonmobil.com">www.exxonmobil.com</a>. For future periods, we are unable to provide a reconciliation of forward-looking non-GAAP measures to the most comparable GAAP financial measures because the information needed to reconcile these measures is dependent on future events, many of which are outside management's control as described above. Additionally, estimating such GAAP measures to provide a meaningful reconciliation consistent with our accounting policies for future periods is extremely difficult and requires a level of precision that is unavailable for these future periods and cannot be accomplished without unreasonable effort. Forward-looking non-GAAP measures are estimated in a manner consistent with the relevant definitions and assumptions noted above.

#### Definitions and non-GAAP financial measure reconciliations

**Earnings excluding effects of tax reform and impairments**. The table below reconciles 2017 earnings excluding effects of tax reform and impairments used in this presentation to 2017 U.S. GAAP earnings:

(millions of dollars)	Upstream	
Earnings (U.S. GAAP)	13,355	
U.S. tax reform	7,122	
Impairments	(1,504)	
Earnings excluding U.S. tax reform and impairments	7,737	

**Project.** The term "project" as used in this presentation can refer to a variety of different activities and does not necessarily have the same meaning as in any government payment transparency reports.





#### Supplemental information

Resources, resource base, recoverable resources. These and similar terms include quantities of oil and gas that are not yet classified as proved reserves under SEC definitions but that are expected to be moved into the proved reserves category and produced in the future. Proved reserve figures are determined in accordance with SEC definitions in effect at the end of each applicable year. The term "resource base" or the terms "design / develop" or "evaluating" as used to describe resources are not intended to correspond to SEC definitions such as "probable" or "possible" reserves. The term "in-place" refers to those quantities of oil and gas estimated to be contained in known accumulations and includes recoverable and unrecoverable amounts. "Net resource potential" amounts are not currently included in the resource base.

**Returns, investment returns, project returns.** Unless referring specifically to ROCE, references to returns, investment returns, project returns, and similar terms mean discounted cash flow returns based on current company estimates. Future investment returns exclude prior exploration and acquisition costs.

#### Other information

All references to production rates and project capacity are on a gross basis, unless otherwise noted. References to resource size are on a net basis, unless otherwise noted.

Competitor data is based on publicly available information and, where estimated or derived, done so on a consistent basis with ExxonMobil data. We note that certain competitors report financial information under accounting standards other than U.S. GAAP (i.e., IFRS).

Referenced demand scenarios include data taken from BP Energy Outlook; Equinor (Statoil) Reform, Rivalry scenarios; FGE; IEA World Energy Outlook; IHS Rivalry, Vertigo, Autonomy scenarios; PIRA; Shell New Lens scenarios.

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