Overview

- Energy Sources
- Energy History
- OPEC
- US Shale
- Market Assessment
- Outlook
Wellhead To Burner Tip

Many Subsectors Within The Oilpatch

This information is for illustrative purposes only
Source: Petrol Malaysia
Sizing The Oilpatch

Oil

100mmbbls/day × $60/bbl
~$2.2 Trillion

Gas

3.8tcm/year × $3/mcf
~$400 Billion

= 3-4% of Global GDP

Source: TPH Asset Management

CONFIDENTIAL - Please see important disclosures at the end of this presentation
Where Do (Oil and Gas) Babies Come From?

A. Water
B. Sedimentary rock
C. Impermeable Rock

- Dead and decaying organic matter
- Trapped fossils
- Oil
- Natural Gas

This information is for illustrative purposes only
Source: Energy Education
OPEC

OPEC share of world crude oil reserves, 2017

<table>
<thead>
<tr>
<th>Country</th>
<th>Reserves (billion barrels)</th>
<th>OPEC Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Venezuela</td>
<td>302.81</td>
<td>24.9%</td>
</tr>
<tr>
<td>Kuwait</td>
<td>101.50</td>
<td>8.4%</td>
</tr>
<tr>
<td>Qatar</td>
<td>25.24</td>
<td>2.1%</td>
</tr>
<tr>
<td>Gabon</td>
<td>2.00</td>
<td>0.2%</td>
</tr>
<tr>
<td>Equat. Guinea</td>
<td>1.10</td>
<td>0.1%</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>266.26</td>
<td>21.9%</td>
</tr>
<tr>
<td>UAE</td>
<td>97.80</td>
<td>8.1%</td>
</tr>
<tr>
<td>Algeria</td>
<td>12.20</td>
<td>1.0%</td>
</tr>
<tr>
<td>IR Iran</td>
<td>155.60</td>
<td>12.8%</td>
</tr>
<tr>
<td>Libya</td>
<td>48.36</td>
<td>4.0%</td>
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<tr>
<td>Angola</td>
<td>8.38</td>
<td>0.7%</td>
</tr>
<tr>
<td>Qatar</td>
<td>147.22</td>
<td>12.1%</td>
</tr>
<tr>
<td>Nigeria</td>
<td>37.45</td>
<td>3.1%</td>
</tr>
<tr>
<td>Ecuador</td>
<td>8.27</td>
<td>0.7%</td>
</tr>
</tbody>
</table>

A Volatile Business

Source: Department of Energy
US Production History

Monthly U.S. field production of crude oil (Jan 1920-Aug 2018)

Source: EIA

Production fell below 4 million b/d in Sep 2008 because of hurricane-related outages

U.S. crude oil production first crossed 10 million b/d in Oct 1970

U.S. crude oil production again crossed 10 million b/d in Nov 2017

Source: U.S. Energy Information Administration, Petroleum Supply Monthly
Shale Is The Big Story

Shale Accounts for More Than Half of U.S. Crude Oil

Source: The Fuse
US Shale Basins

Source: CNBC.com
Multi-Stage Fracking

Source: Texas A&M University
Where Are We?

- 5th Year Of A Downturn
- Underperforming Stocks
- Apathetic Investors
- Production Boom
- US Energy Superpower
- Green New Deal!
- Peak Demand Fears
- Industry Focus Shifting
- Stymied Capital Markets

Crude Oil (WTI) 2012 - Current

This information is for illustrative purposes only
Source: Bloomberg as of 3/15/2019

West Texas Intermediate, $/bbl

Dec-12 Dec-13 Dec-14 Dec-15 Dec-16 Dec-17 Dec-18
Cyclical Business

1980’s

- Oil bottoms at $10/Bbl in 1986
- Rallies to $25/Bbl in 1987

1985

- Oil $15/Bbl in March 1999
- Rallies to $35/Bbl by June 2020

March 1999

- U.S. Production
  - 5.5 MMbopd October 2003
  - 11.7 MMbopd November 2018

Global Consumption
  - 2003 = ~80MMbopd
  - 2018 = ~100MMbopd

2003-2018

- Oil bottoms at $40/Bbl in December 2008
- Rallies to $80/Bbl by September 2009 and to $100/Bbl by March 2011

October 2003

- September 2008

2008-2009

Source: EIA
Investor Perspective

**Investor Psychology Overriding Fundamentals**

- **“This Is A Bad Business”**
- **Not Competitive With Other Sectors**
- **US Growth Has Killed The Macro**
- **Returns Are Not Good Enough**
- **4 Of Past 5 Years Are Bad**
  - **Absolute**
  - **Relative**

**TPHAM View - Classic Cyclical Trough Ongoing**

Source: Raymond James Research, Bloomberg. This information is for illustrative purposes only.
Competitive Threats
OPEC Isn’t Necessarily The Lowest Cost Producer

OPEC Breakeven With Social Cost

This information is for illustrative purposes only
Source: IMF, Bloomberg
Energy Stock Performance

Market Reaction From 2014 Peaks

- Current
- Trough

-82% -76% -77% -76% -73% -72% -69% -62% -48% -46%
-85% -75% -65% -55% -45% -35% -25% -15% -5% 5% 15% 25%

-12% -13% -17% -25% 0% 16% 33% 10%

12-Mo. Crude Strip (NYMEX)
MLPs (AMZ)
High Yield Energy Credit
Majors (XOI)
Utilities (XLU)

-85% -75% -65% -55% -45% -35% -25% -15% -5% 5% 15% 25%

-82% -76% -77% -76% -73% -72% -69% -62% -48% -46%

-12% -13% -17% -25% 0% 16% 33% 10%

12-Mo. Crude Strip (NYMEX)
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The Energy Macro IS Going to be Supportive

2019 Supply / Demand Dynamics

Source: TPH Equity Research, TPH Asset Management, IEA. This information is for illustrative purposes only.
2019 Outlook

- $50/bbl Doesn’t Work
- Risk Level Higher
- OPEC Doing Its Job
- US Shale Juggernaut
- Industry Better Behaved
- Industry Better Prepared
- Investors Exhausted
- We’re a Long Way Away From Irrelevancy
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Energy Sector Index SPDR (XLE) - The Energy Select SPDR (XLE) is an Exchange Traded Fund (ETF) that tracks the Energy Sector Index, or the energy sector of the S&P 500 (SPX). The fund invests up to 95% of its total assets in common stocks in the Oil, Natural Gas and Oil & Gas Drilling & Exploration Industries.

Hedge Fund Energy/Basic Material Energy Index (HFRISEN) - Equal weighted equity index of global hedge funds that invest across Basic Materials and Energy as tracked by Hedge Fund Research, Inc. (HFR)

S&P 1500 Energy - The S&P 1500® Energy Index comprises those companies included in the S&P 1500 that are classified as members of the GICS® energy sector.

Crude Oil WTI (CL1) - Crude Oil Futures Crude oil is the world’s most actively traded commodity, and the NYMEX Division light, sweet crude oil futures contract is the world’s most liquid forum for crude oil trading, as well as the world’s largest-volume futures contract trading on a physical commodity. Because of its excellent liquidity and price transparency, the contract is used as a principal international pricing benchmark.
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