

What's been happening on energy markets?



Centre Cournot

New York October 3, 2017

Jokes played by the oil market on its commentators

- Narratives come undone as soon as they take hold
- Market unpredictability vs. dumbing down of the storyline
- Impact vs. insight
- L'envers de la médaille
 - More simplistic messages
 - Once adopted, views become entrenched
 - Internet memory
- Caveat: self-fulfilling fallacies



Last #1 hit of the old regime

POLITICS 12 NOVEMBER 2010

The age of cheap oil is over

There is no time for denial. Governments and communities need to start adapting now.



Age of Cheap Oil Is Over. IEA's Chief Economist



News > Business > Business News

Market turmoil as IEA warns 'age of cheap oil is over'

Unrest in the Middle East drives Brent crude above the \$117 per barrel mark



'Age of cheap oil is over'



INDEPENDENT

NewStatesman

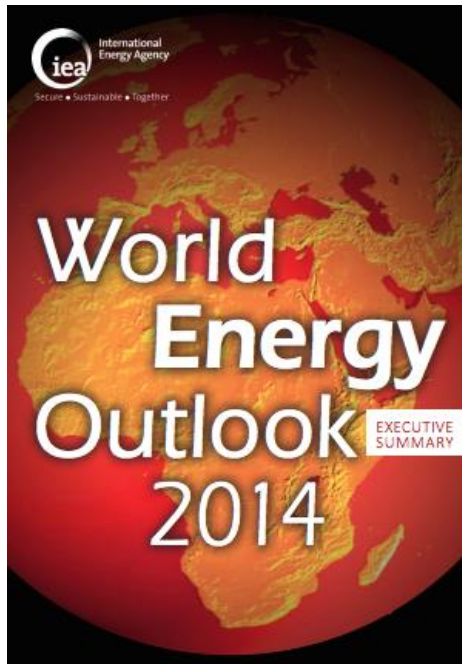
**PETROLEUM
ECONOMIST**

The age of cheap oil is over, says the IEA

Oil prices could reach \$135/b by 2035 says the IEA, as conventional output declines, while China drives rising demand, reports Helen Robertson



Dueling song sheets



WHO WE ARE WHAT WE DO OUR THINKING CITIZENSHIP

OUR THINKING >

"THE NEW OIL ORDER" - MAKING SENSE OF AN INDUSTRY'S TRANSFORMATION



Executive Summary

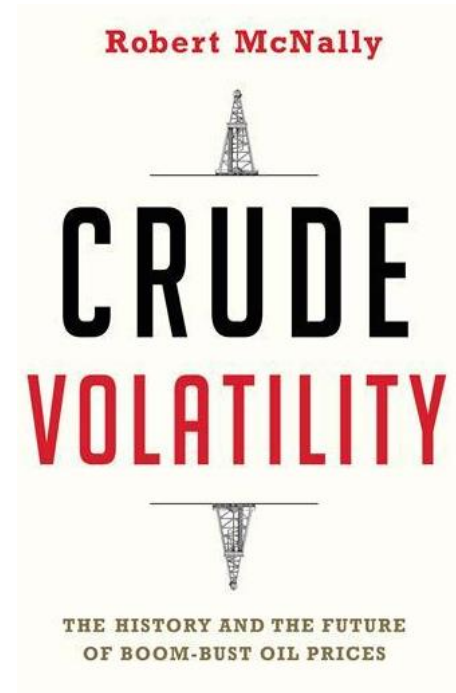
An energy system under stress

The global energy system is in danger of falling short of the hopes and expectations placed upon it. Turmoil in parts of the Middle East – which remains the only large source of low-cost oil – has rarely been greater since the oil shocks in the 1970s. Conflict between Russia and Ukraine has reignited concerns about gas security. Nuclear power, which for



Hit #2: The rudderless market

- New price regime?
- “Death of OPEC”
- Shale as swing producer?
 - Price elasticity
 - Short cycle
 - Untested
 - Distributed
 - Financially vulnerable
- High volatility
 - “Brace yourself”



Hit #3: The return of OPEC

- Premature obits
- La relève
 - Barkindo effect
 - New generation
- Master of storytelling
 - Heads of state shuttle diplomacy
 - Selfies
 - Coalition building
- La grande entente
- Missing post-mortem



Hit #4: Lower for longer (again)

Plunging oil prices 'could go even lower for even longer'

Nathan Bomey, USA TODAY Published 2:41 p.m. ET June 20, 2017 | Updated 7:21 p.m. ET June 20, 2017

- OPEC's catch 22
- Shale resilience
- Productivity gains
- Permian miracle
- Endless learning curve
- More when it's coming from



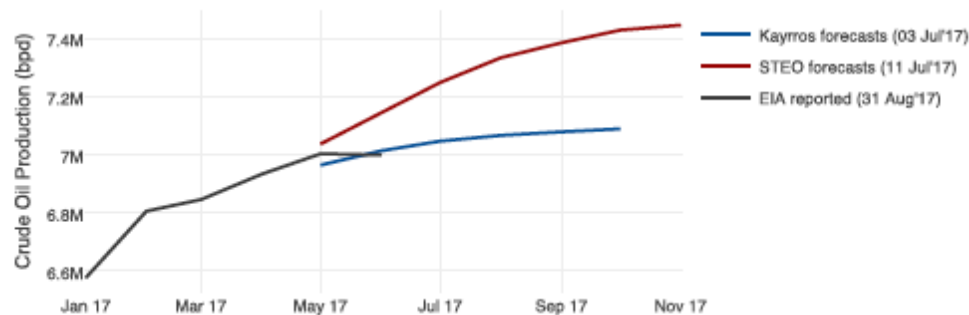
Limits of shale

- Disappointing growth
- Lower guidance
- Cost inflation
- Tight labor
- Congestion
- Sweetspotting
- Finance crunch



Pioneer Natural Resources Co PXD

Chart 1: Lower 48 Crude Oil Production – Kayros Forecasts Lower Production than the EIA



Back to square 1?



≡ 🔍 FINANCIAL TIMES

HOME WORLD US COMPANIES MARKETS OPINION WORK & CAREERS LIFE & ARTS

Oil [+ Add to myFT](#)

'Lower for longer' oil price era almost over, Trafigura says

Trader warns of oil crunch as rising demand strains supply and Brent nears \$60 a barrel



Catchy tunes

FINANCIAL TIMES

US COMPANIES MARKETS OPINION WORK & CAREERS LIFE & ARTS

Oil [+ Add to myFT](#)

The oil price is living on borrowed time

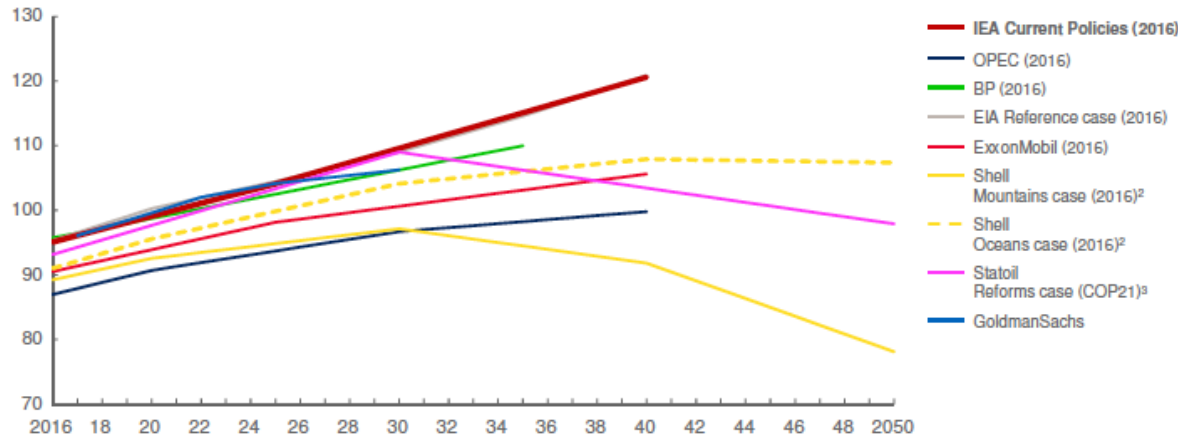
Emerging market demand for oil in vehicles will dissipate faster than many expect

Markets Insight




Most mainstream outlooks forecast oil demand growth of ~1% per year in “reference case”

Global liquids consumption forecast¹; million barrels / day



¹ Intra-polated data for intermediate non-forecast years
² Oceans Case - Power is decarbonized, competing interests are accommodated and compromise is king. Economic productivity surges on huge wave of reforms; Mountains case - World with status quo power locked and those at the top align their interests to unlock resources steadily and cautiously, not solely dictated by immediate market forces
³ Reforms scenario - built on NDCs pledged by nations around the world in the framework of Paris Agreement from COP21; Renewal Scenario focuses on developments that combine to deliver an energy related CO2 trajectory that is consistent with 50% probability of limiting global warming to 2deg C; Rivalry scenario is based on populist, nationalist, inward looking and short term priorities direct policy making where climate skepticism runs high

SOURCE: IEA - World Energy Outlook; EIA - International Energy Outlook BP statistical Outlook; OPEC World Oil Outlook; Shell; Statoil, ExxonMobil; Literature search; [WSJ](#)

Energy Insights  2





Old & new

Shell energy scenarios
to 2050



Tony Seba
Clean Energy Action

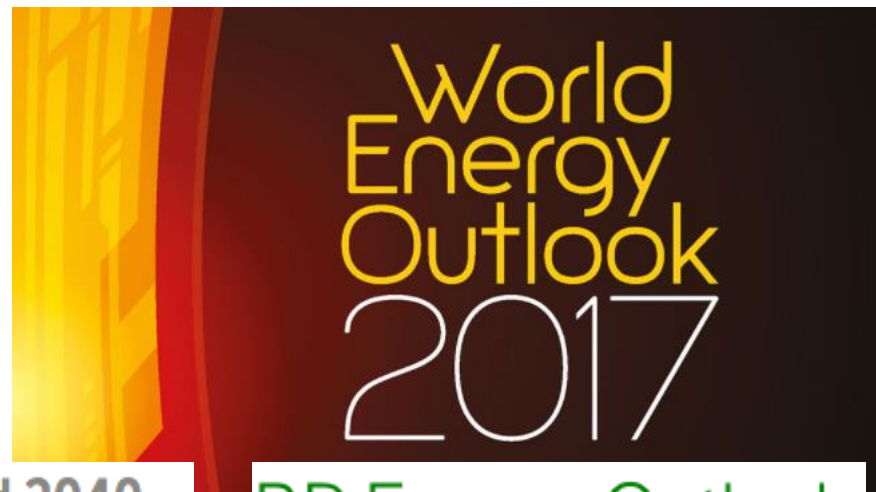
Clean Disruption of Energy & Transportation

Tony Seba of Stanford University is recipient of the Clean Energy Action 2017 Sunshine Award and founder of RethinkX.

RethinkX TonySeba.com
Disruption, Implications and Choices RethinkX.com

Clean Energy Action, June 8, 2017 in Boulder, Co.
Cleanenergyaction.org

Video pro bono by Martin Voelker, Colorado Renewable Energy Society, cres-energy.org



World Energy Outlook
2017

Riding the Energy Transition : Oil Beyond 2040

BP Energy Outlook

Author/Editor: Reda Cherif ; Fuad Hasanov ; Aditya Pande

Publication Date: May 22, 2017



ENERGY TRANSITION OUTLOOK 2017



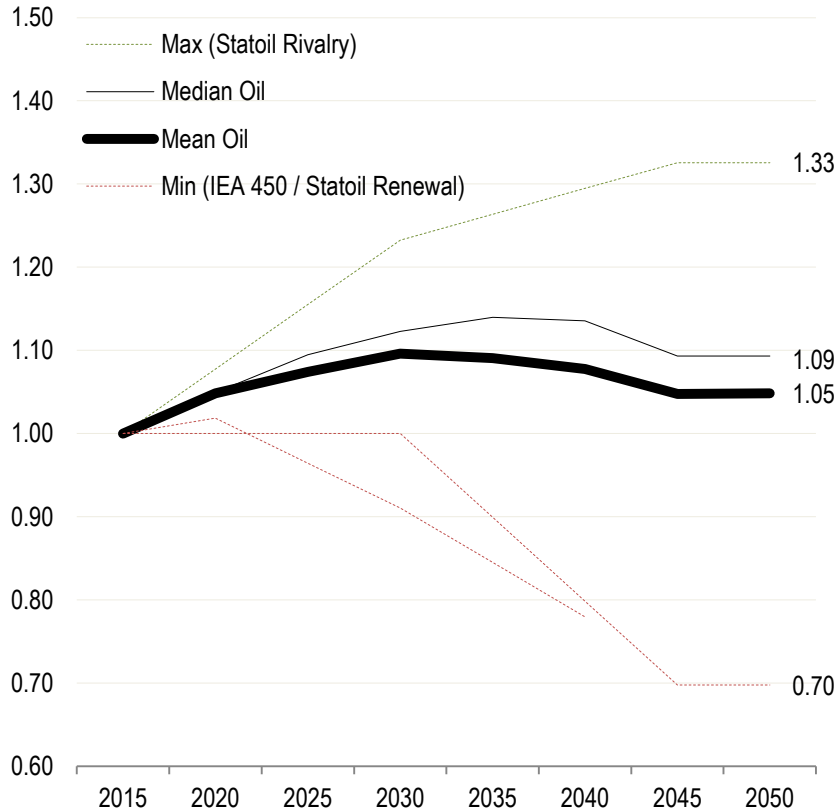
The oil price is living on borrowed time



Mile-Wide Ranges

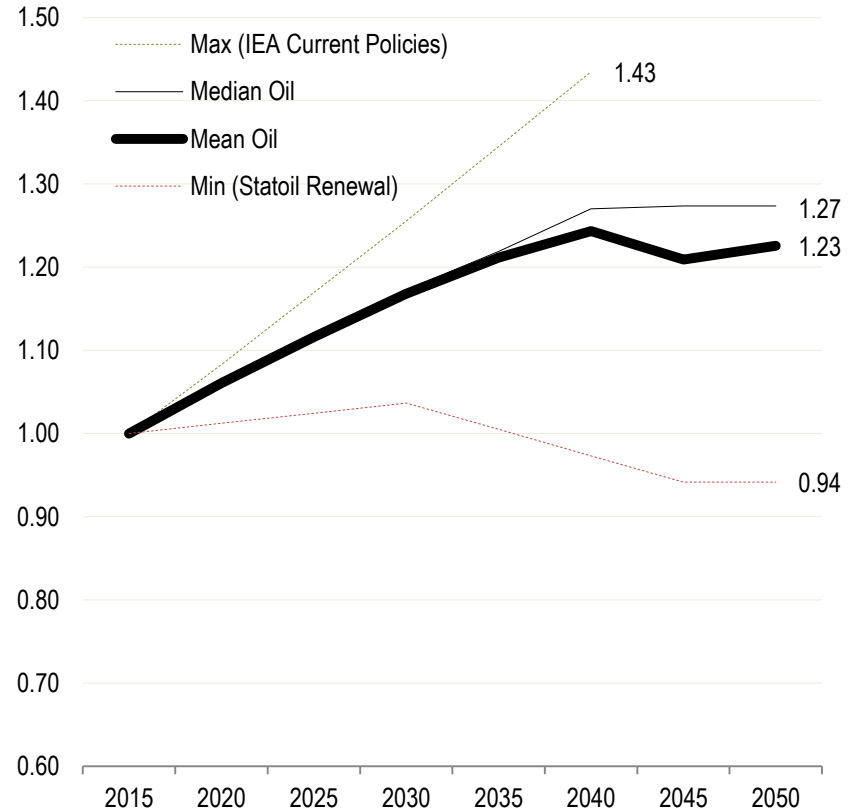
Oil Demand Forecast Range

2015 = 1



Energy Demand Forecast Range

2015 = 1



Include BP, Exxon, Carbon Tracker (3 scenarios), Statoil (3 scenarios), EIA, IEA (3 scenarios), OPEC

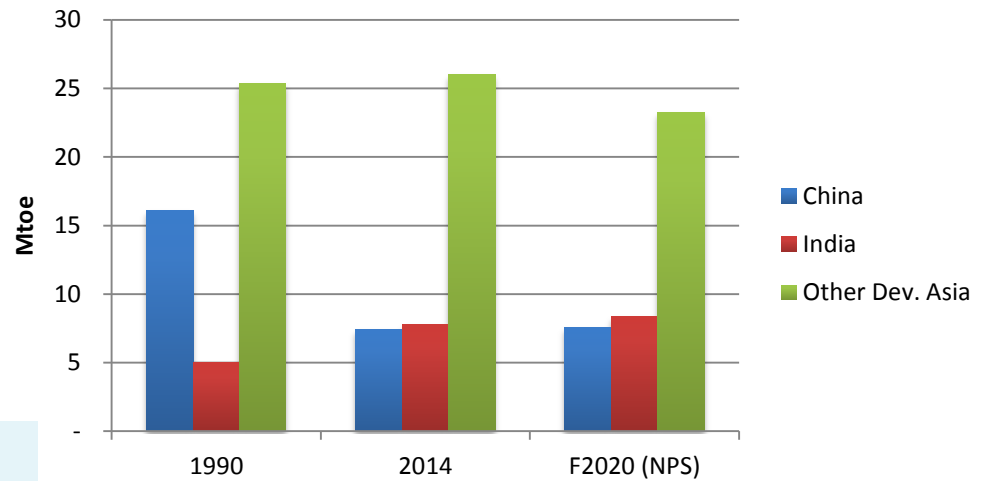


Hiding in Plain Sight



IEA Estimates of Dev. Asia Oil Demand for Power Generation

Source: WEO 2016



KOEL GREEN
BY KIRLOSKAR
EFFICIENCY, INTEGRATED

INDIA'S #1 GENSET BRAND

7 DAYS ASSURED DELIVERY
ON 15-1010 kVA* Gensets

EFFICIENCY HAS A NEW NAME. KOEL GREEN.



Non-road transport



Top stories



Govt ending GE contract for diesel locomotives plant? Piyush Goyal says not yet

The Hindu · 13 hours ago



GE warns India about risks to altering \$2.5 billion diesel locomotives deal

Livemint · 1 day ago



Threatened by India's all-electric push, top US conglomerate GE puts government on notice

Economic Times · 10 hours ...



Petrochemicals



- Irrepressible demand?
- Consumer side
 - Recycling / Plastic in the ocean
 - Consumer behavior
- Supply side
 - Naphtha vs LPG, Pulp, other Bio...



Urbanization



Thank you



 COLUMBIA | SIPA
Center on Global Energy Policy

Antoine Halff

Sr. Research Scholar; Director, Global Oil Markets Program

a.halff@columbia.edu
+1 (212) 853-0116

