INTERNATIONAL ENERGY FORUM

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New forces at work in oil supply and demand:

Trends, questions, and outlook

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International Oil Summit

Flow

1. Trends

2. Questions

3. Outlook

Flow

1. **Trends**

2. Questions

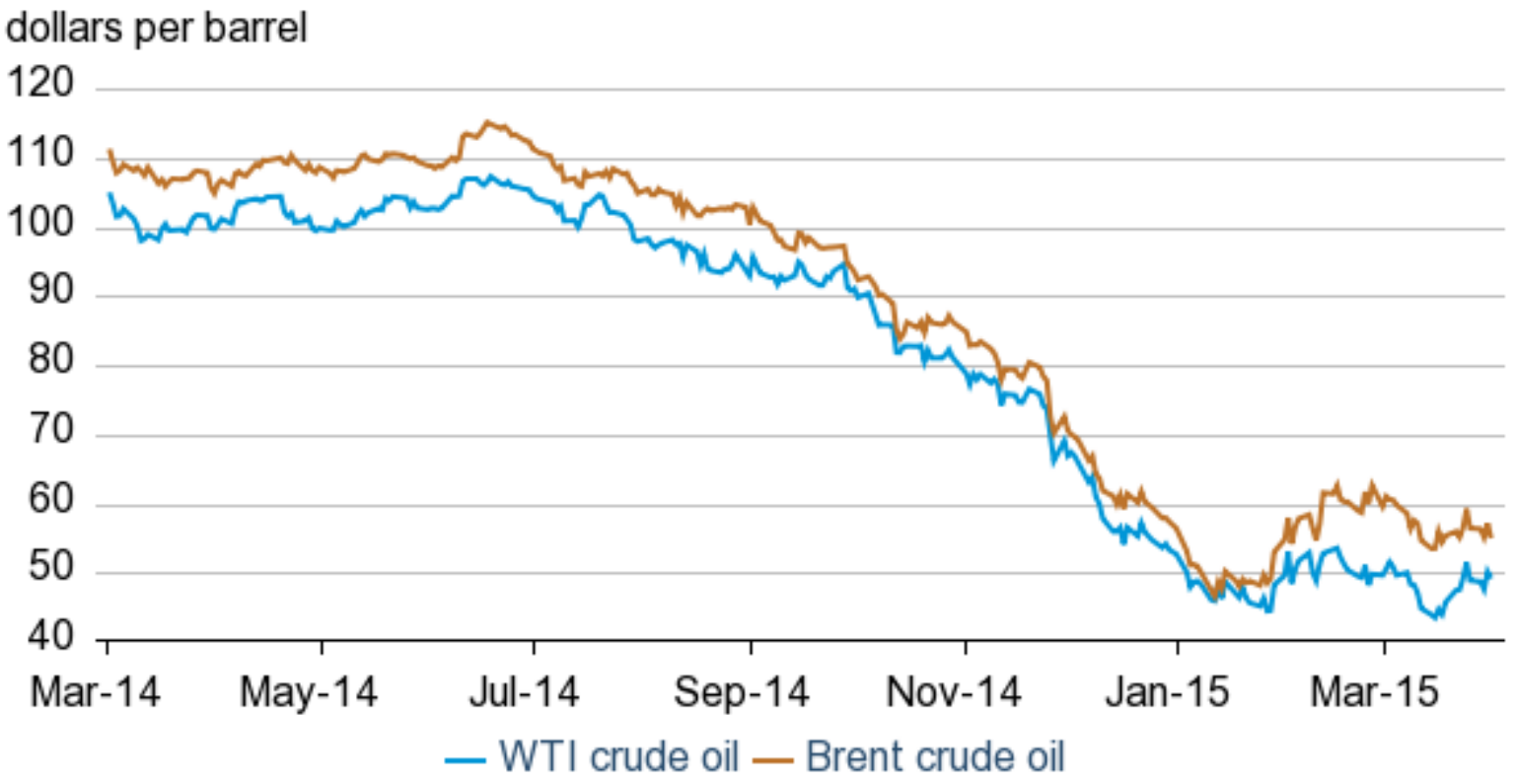
3. Outlook

Few imagined in June 2014 that a pronounced price fall was about to follow

Source	Expected price per barrel
IEA	$128 - $147
B of A Merrill Lynch	Increase $40-50
Morgan Stanley	Increase $35-70
DMS Funds	$150-160
Today Online	$140 +
Again Capital	$125 +
Japan's Astmax Investment	$125-120
WSJ Market Watch	$200
Capital Economics	$140 +

It has been a prolonged price fall…

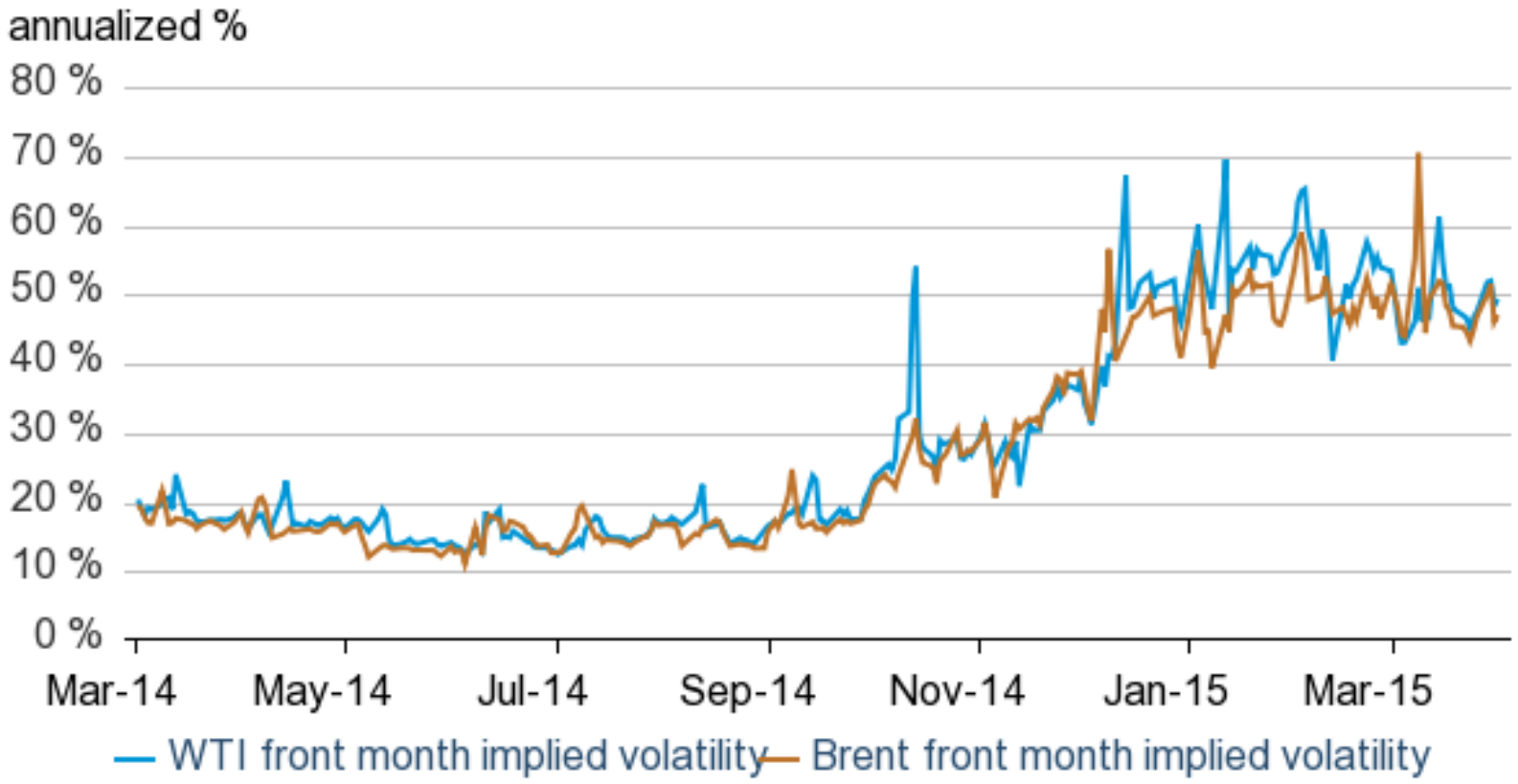
Figure 1. Historical crude oil front month futures prices



eia Bloomberg, L.P.

…affected by considerable uncertainty

Figure 6. Crude Oil Implied Volatility



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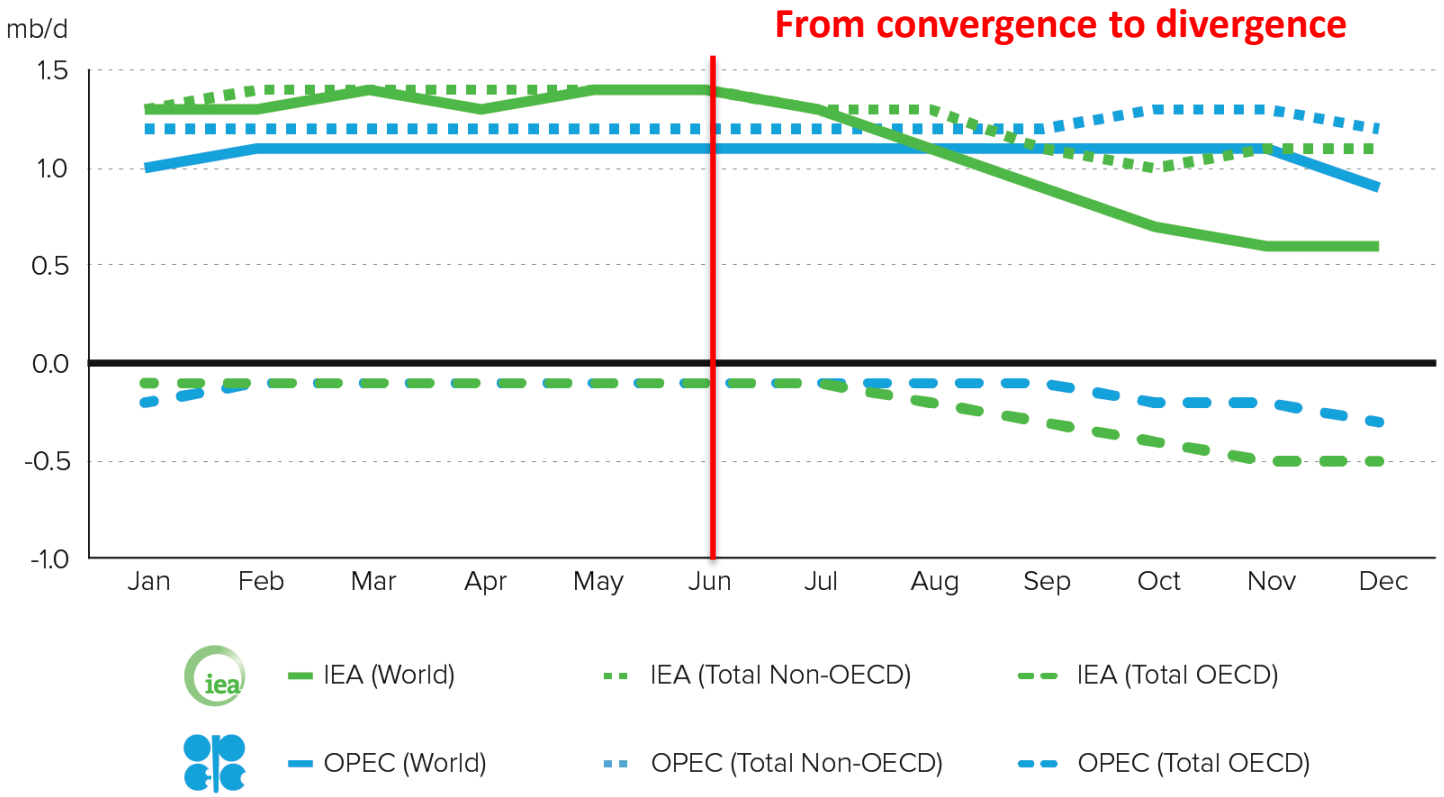
Factors behind the oil price fall

Microeconomic	**Supply**	**Greater output** from the USA, Canada, Brazil, Libya (temporarily), and Iraq
		OPEC decision not to cut production
	Demand	**Weak consumption** with unexpectedly large downward revisions through the second half of 2014
Macroeconomic	**Exchange rate**	**US dollar** appreciation
	Interest rate	**US interest rate** expectations

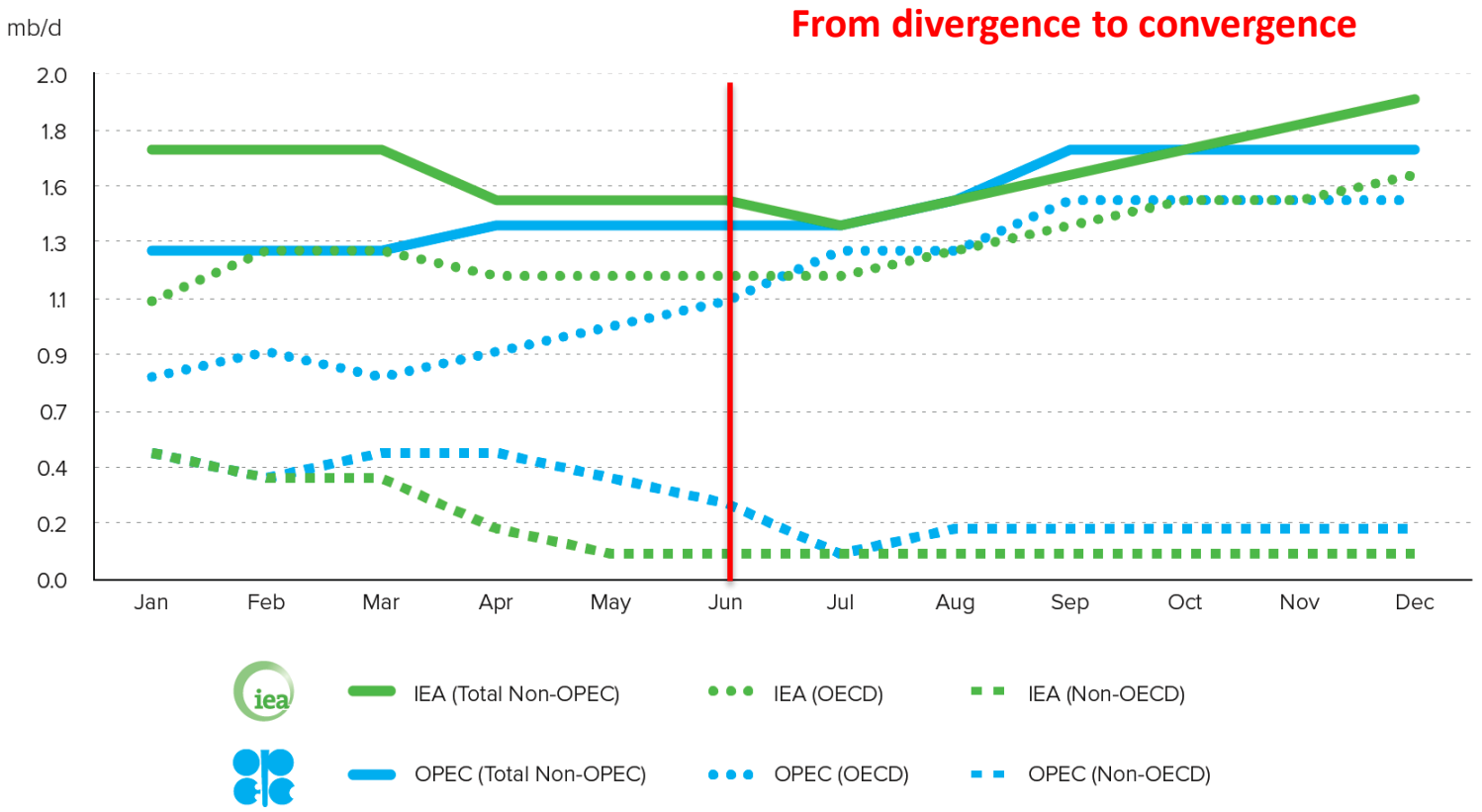
Demand estimates for both the IEA and OPEC were stable until June 2014, when expectations began to change

Figure 1. Revisions of 2014 World Liquids Demand Growth Estimates

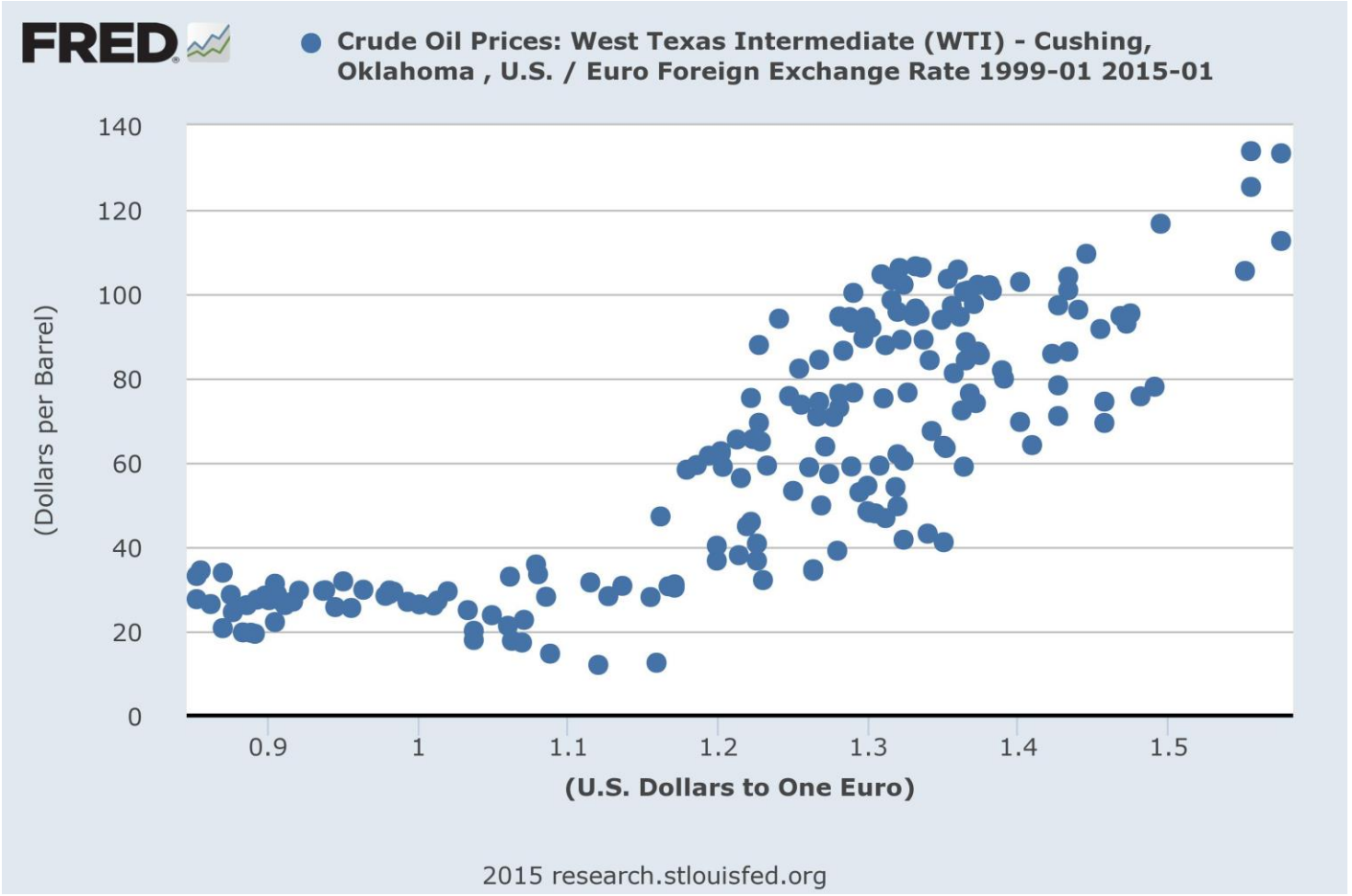


Supply growth estimates converged by the second half of the year

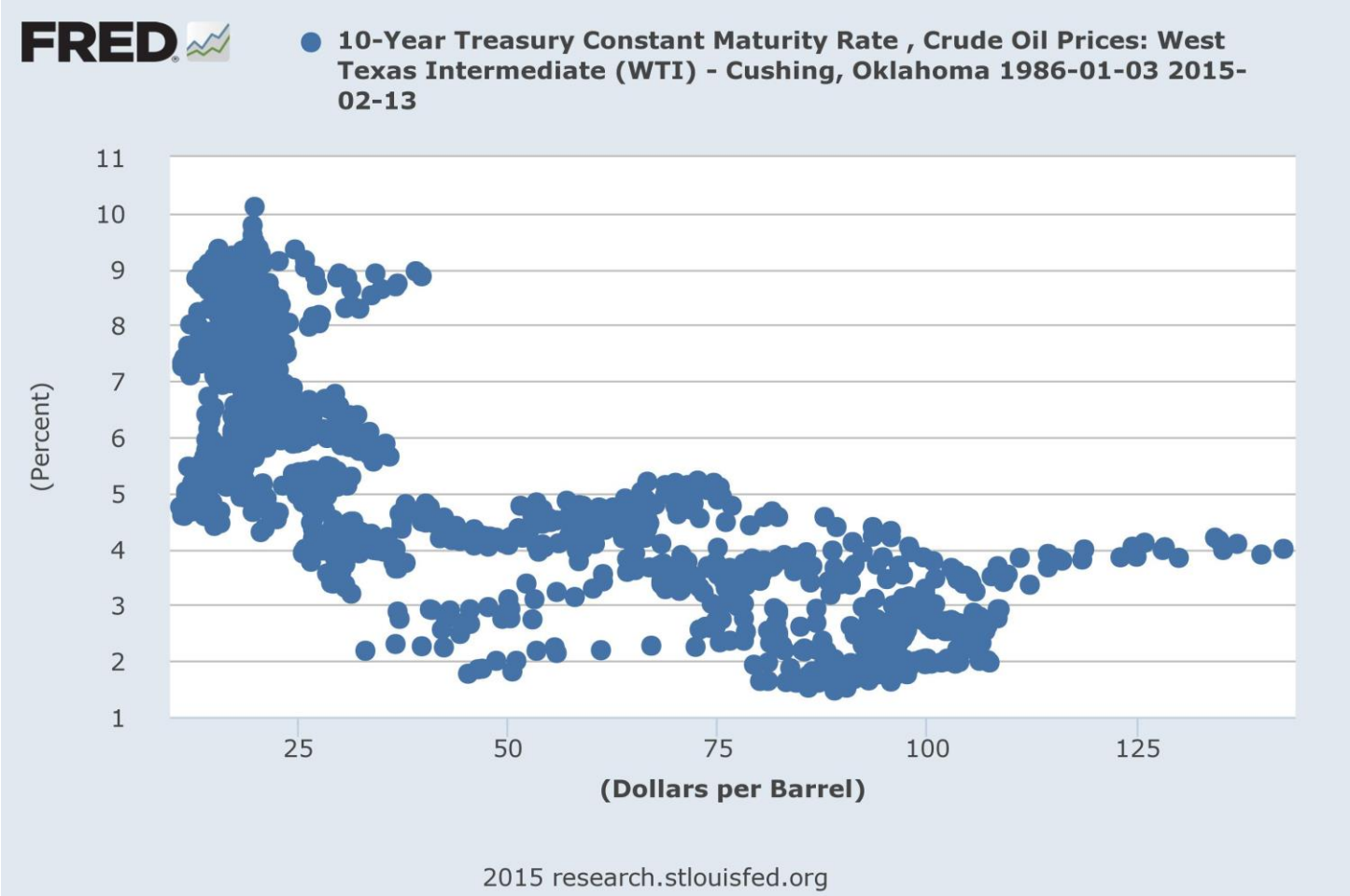
Figure 4. Forecast Revisions of 2014 Non-OPEC Liquids Supply Growth



Oil prices are low when the dollar is strong



Oil prices are low when interest rates are high



Flow

1. Trends

2. **Questions**

3. Outlook

Question 1

Is this a crisis?

It depends on how you understand energy security

Oil and gas **availability is sufficient**

Oil and gas are now more **affordable**

**But energy access for all remains an unfulfilled goal*

It depends on where you stand

Factors affecting **consumer** perspectives

- Subsidies
- Taxes
- Import bill

It depends on where you stand

Factors affecting **producer** perspectives

- Cost structures
- Budget's reliance on oil revenues
- Reserve fund
- Financial market access

Question 2

Is this the birth of a new global oil market structure?

Supply appears to be more elastic

- More **non-OPEC production** in more regions
- Faster (implied) **output response** to price changes
- But **input costs** are higher!

Demand appears to be more elastic

- Consumers have **more options** to find suppliers
- OECD economies are more **energy efficient**
- **Fuel switching** is a more viable option

Question 3

How much spare capacity is necessary?

It depends on:

- Your estimate of the **size of the "average" disruption**
- Whether you think the **low-cost or the high-cost producer** should provide it
- Who can **respond** to drastic market fluctuations **faster and cost-effectively**

Question 4

How must international energy cooperation address the current situation?

It depends on:

- Your **objectives**
- Your **instruments**
- Your **information**

What's your objective? Why?

- A **price** target?
- Lower **volatility**?
- Higher **revenues**?
- A **strategic** gain?
- **Understanding** the current situation?

The IEF is working to improve information available to decision-makers

- **Ministerial dialogue**
- Promotion of data transparency through **JODI**
- Comparative analysis of **energy outlooks**
- Analysis of the interaction between **physical and financial energy markets** and its implication for policy

Raising awareness about new issues: cybersecurity

IEF-PILLSBURY ROUNDTABLE: CYBERSECURITY IN THE GLOBAL ENERGY SECTOR

AN INTERNATIONAL ENERGY FORUM PUBLICATION

9 OCTOBER 2014

Raising awareness about new issues: cybersecurity

- Private information, intellectual property, industrial property and energy networks are all vulnerable to cyber-attacks.

- The nature of cyber-threats changes constantly, presenting an unprecedented challenge in terms of complexity and potential response strategies.

- Contrary to the intuitive focus on information technologies, it is often the people working inside organisations that are at the core of vulnerabilities in the digital realm.

Flow

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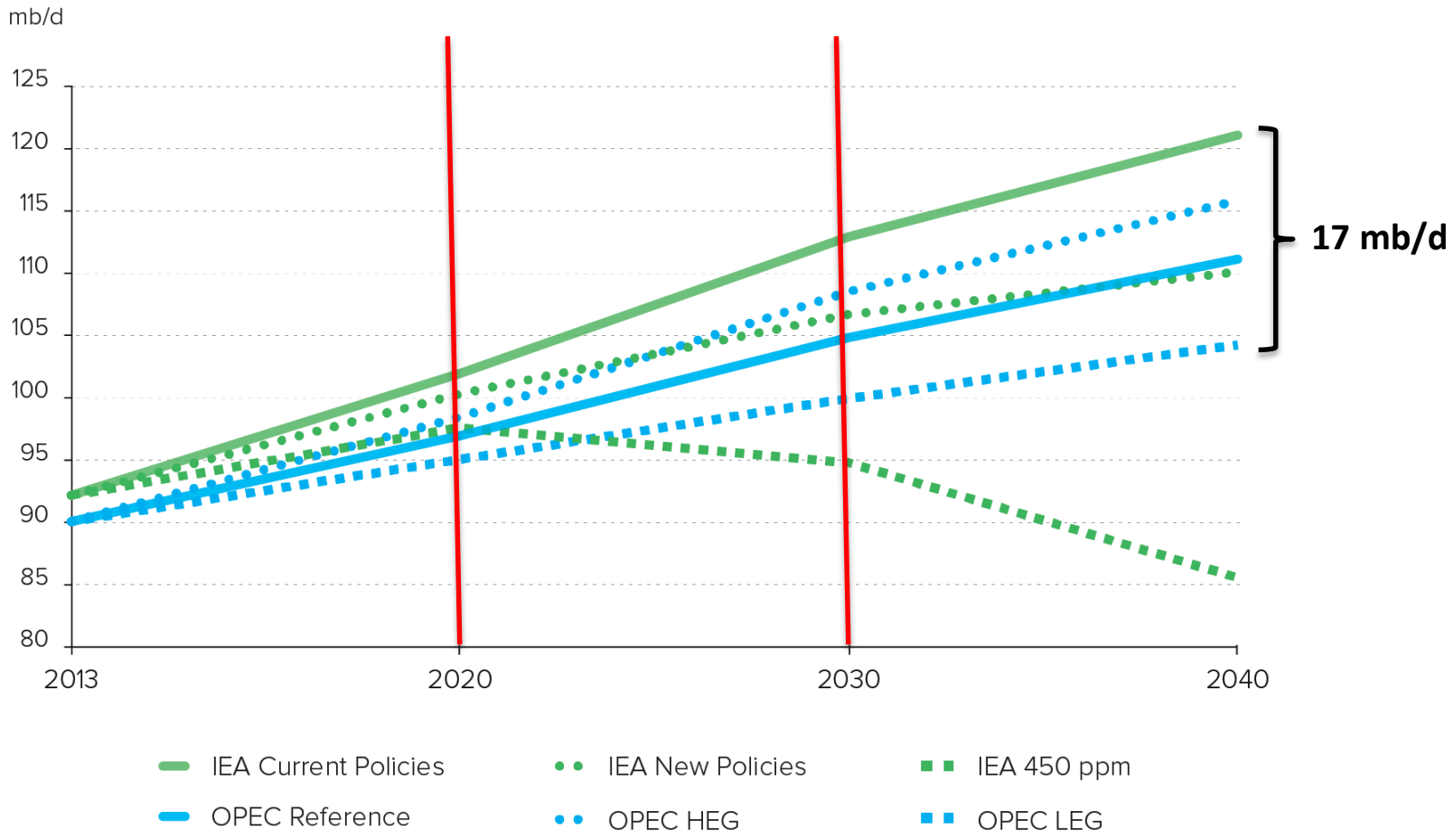
Demand estimates depend on assumptions about regional economic growth, technological change, and the policy framework

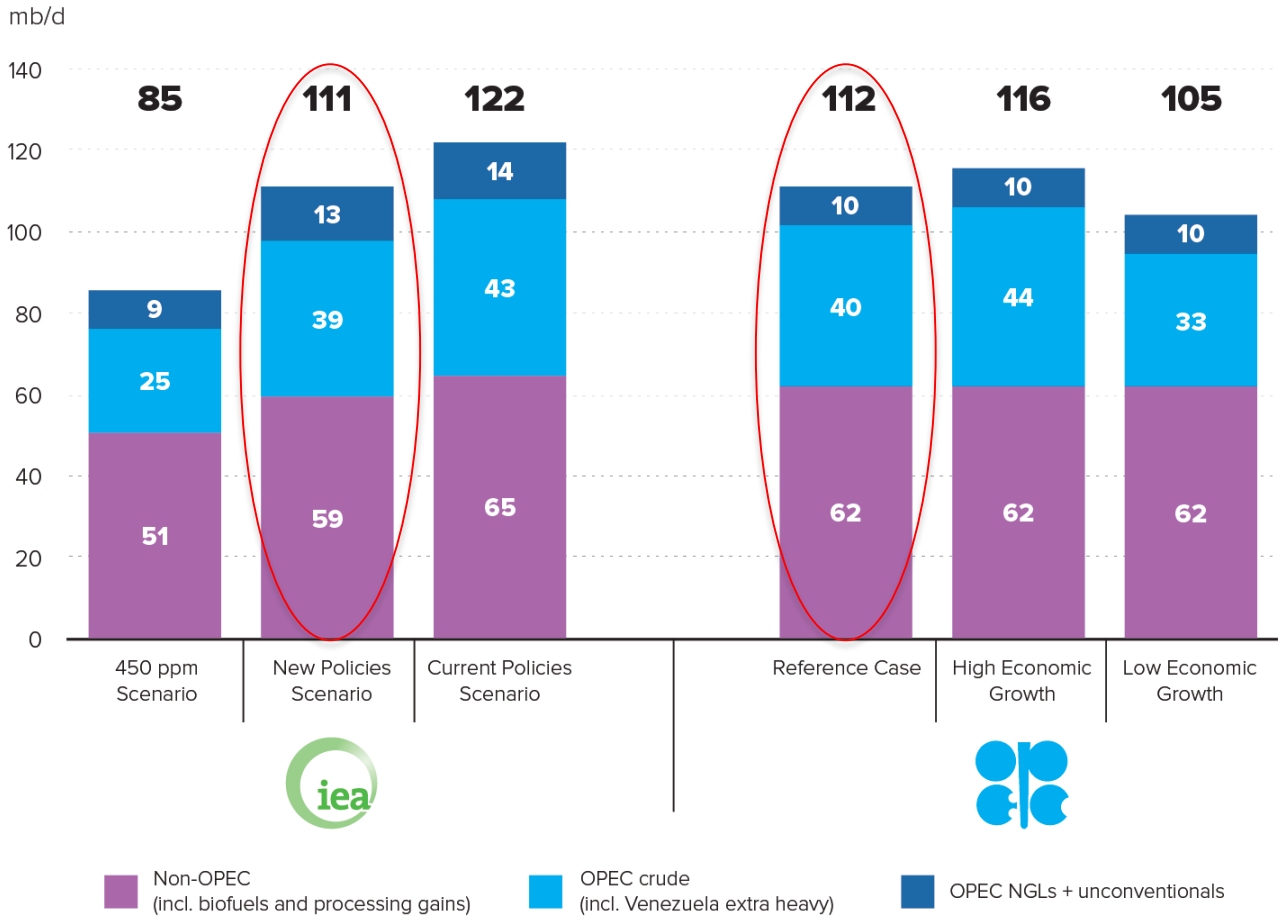
Figure 16. World Liquids Demand Projections in Various Scenarios



OPEC sees its crude making up for the demand not covered by Non-OPEC; the IEA sees more variation in both supply sources

Figure 20. Shares of Liquids Supply by Types in 2013 and Outlook for 2040

	Central scenarios (mb/d)		
Supply origin	OPEC	IEA	OPEC-IEA
OPEC	50	52	-2
Non-OPEC	62	59	+3
Total	112	111	1



Food for thought

- How far will **investment** be constrained by rising costs and lower prices?
- Will more renewables and nuclear enter the **energy mix**?
- Will **Asian demand** compensate for lower **OECD demand**?
- What can we expect for **oil supply beyond the US**?
- Is **spare capacity** necessary in a world of more flexible North American supply?

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