New forces at work in oil supply and demand:

trends, implications, and the longer view

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Agenda

1. Recent trends

2. Implications

3. The longer view

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1. **Recent trends**

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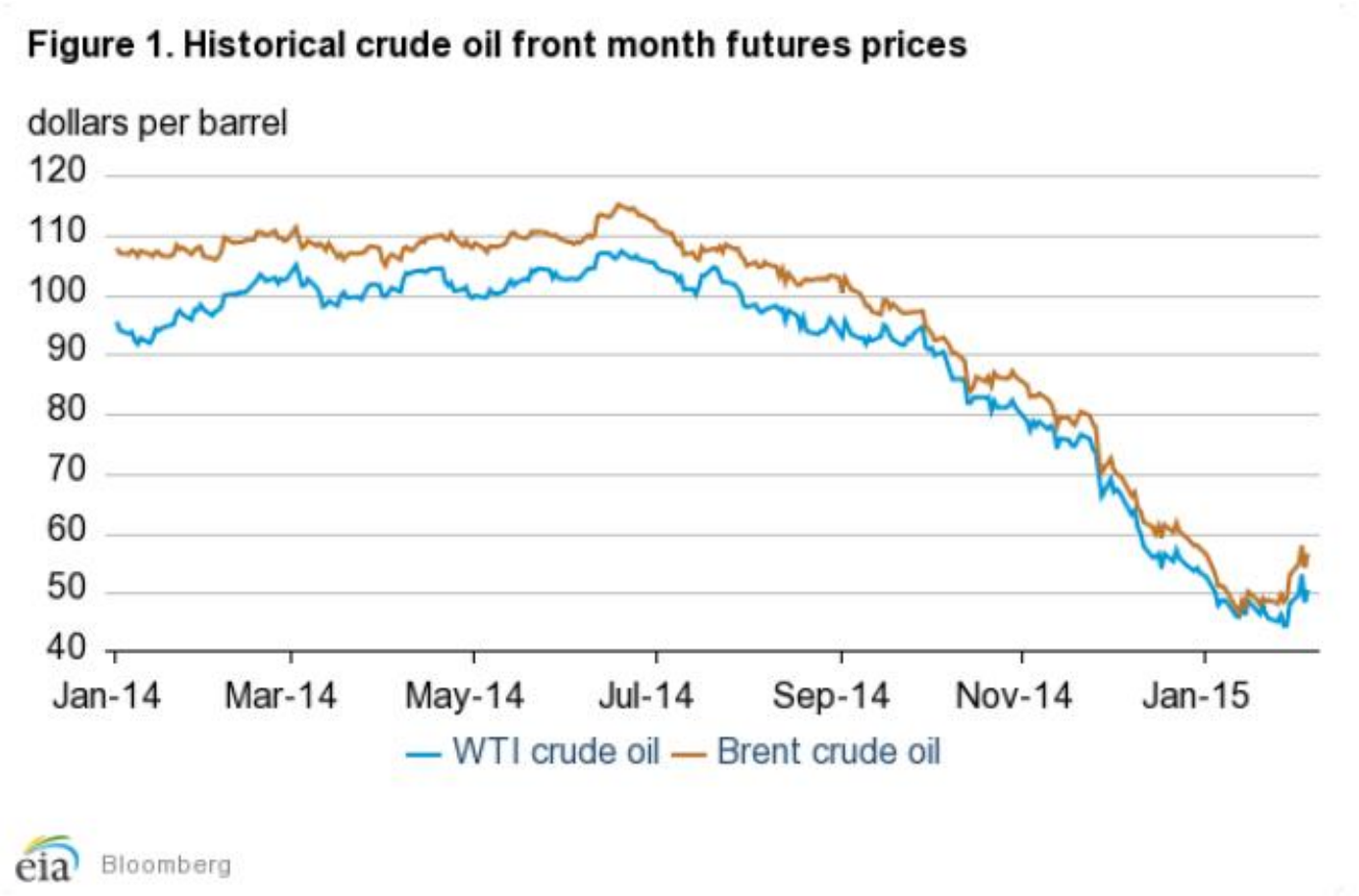
Few imagined in June 2014 that a pronounced price fall was about to follow

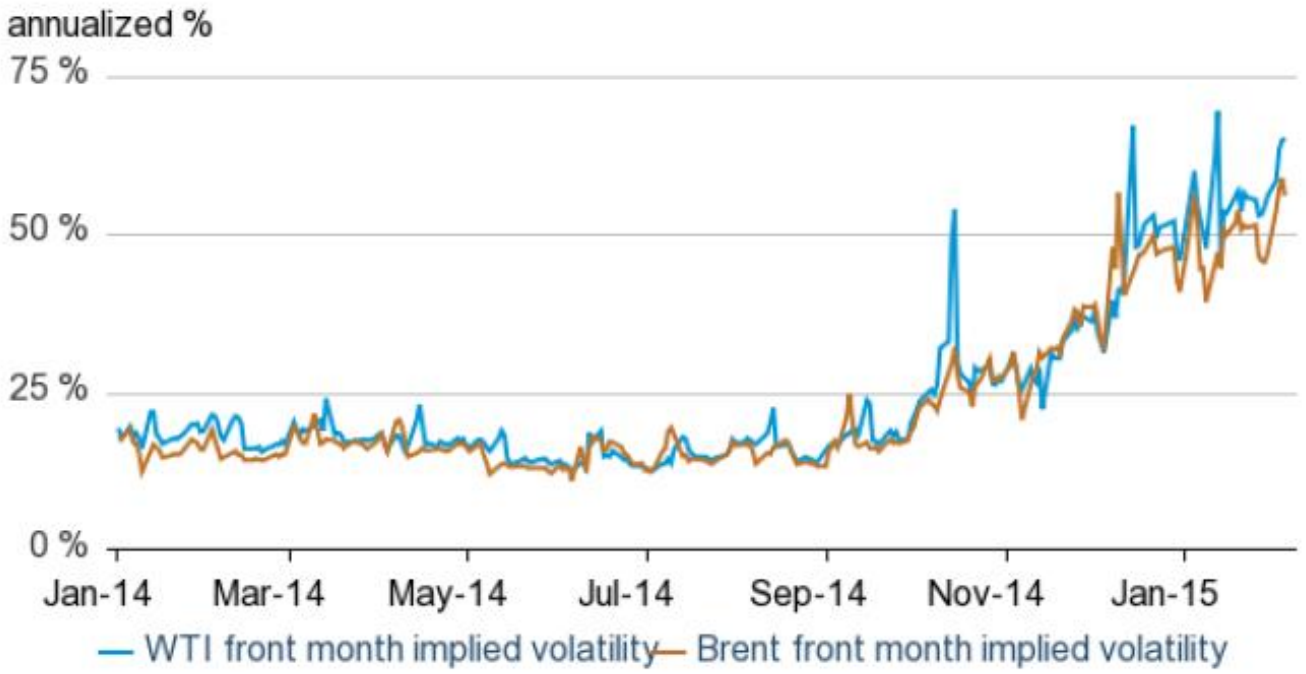
Source	Price per barrel
IEA	$128 - $147
B of A Merrill Lynch	Increase $40-50
Morgan Stanley	Increase $35-70
DMS Funds	$150-160
Today Online	$140 +
Again Capital	$125 +
Japan's Astmax Investment	$125-120
WSJ Market Watch	$200
Capital Economics	$140 +

The price drop has been the most long-lasting in the last four decades…



…and it has been affected by considerable uncertainty

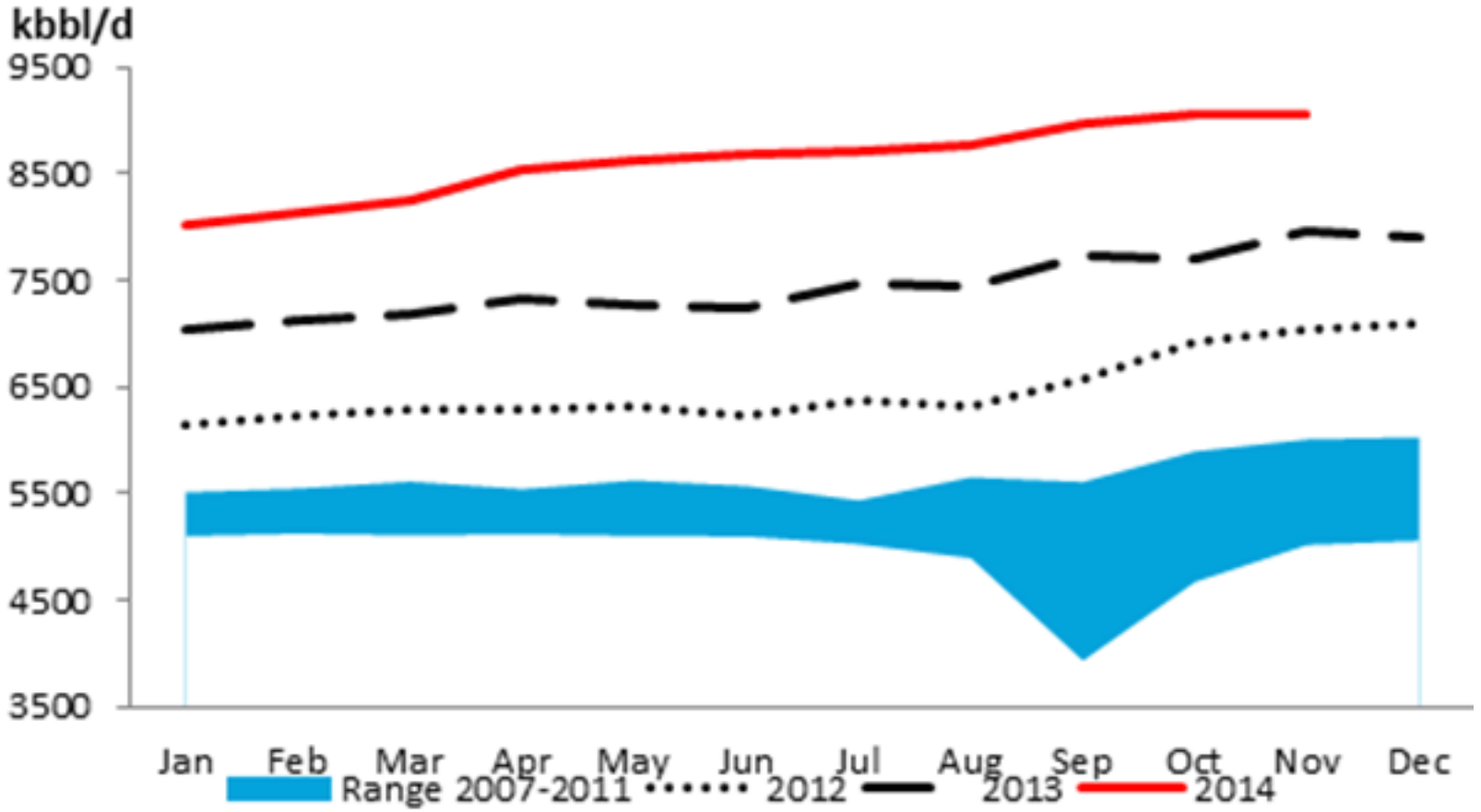
Figure 6. Crude Oil Implied Volatility



Five factors lie behind the oil price fall

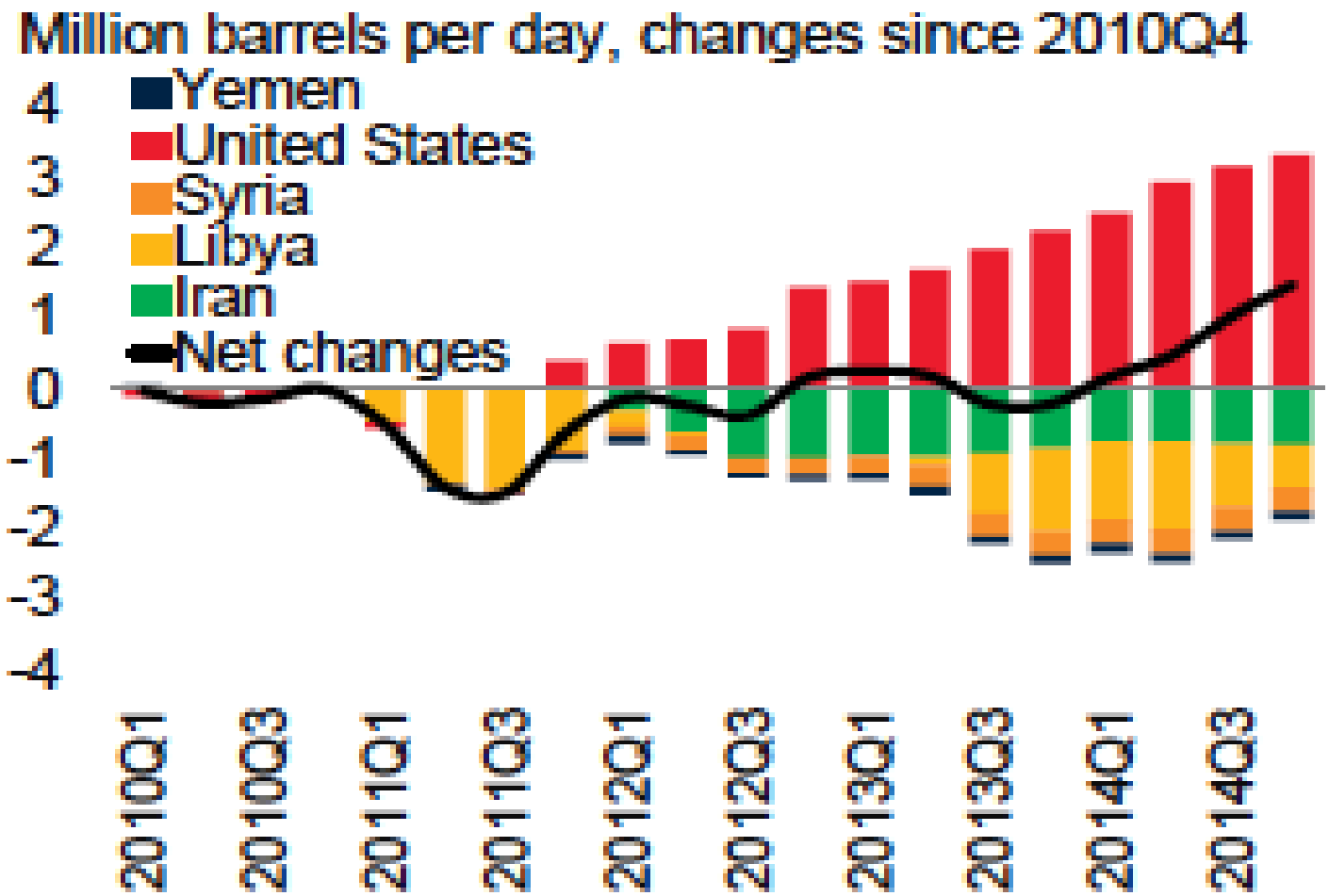
Microeconomic	**Supply**	**Greater output** from the USA, Canada, Brazil, Libya (temporarily), and Iraq
	Demand	**Weak consumption** with (unexpectedly large) downward revisions through the second half of 2014
	Agreement	**OPEC decision** not to cut production
Macroeconomic	**Exchange rate**	**US dollar**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

US output increased 1.21 mb/d in 2014



Source: JODI

US output more than compensated for production losses elsewhere in 2014



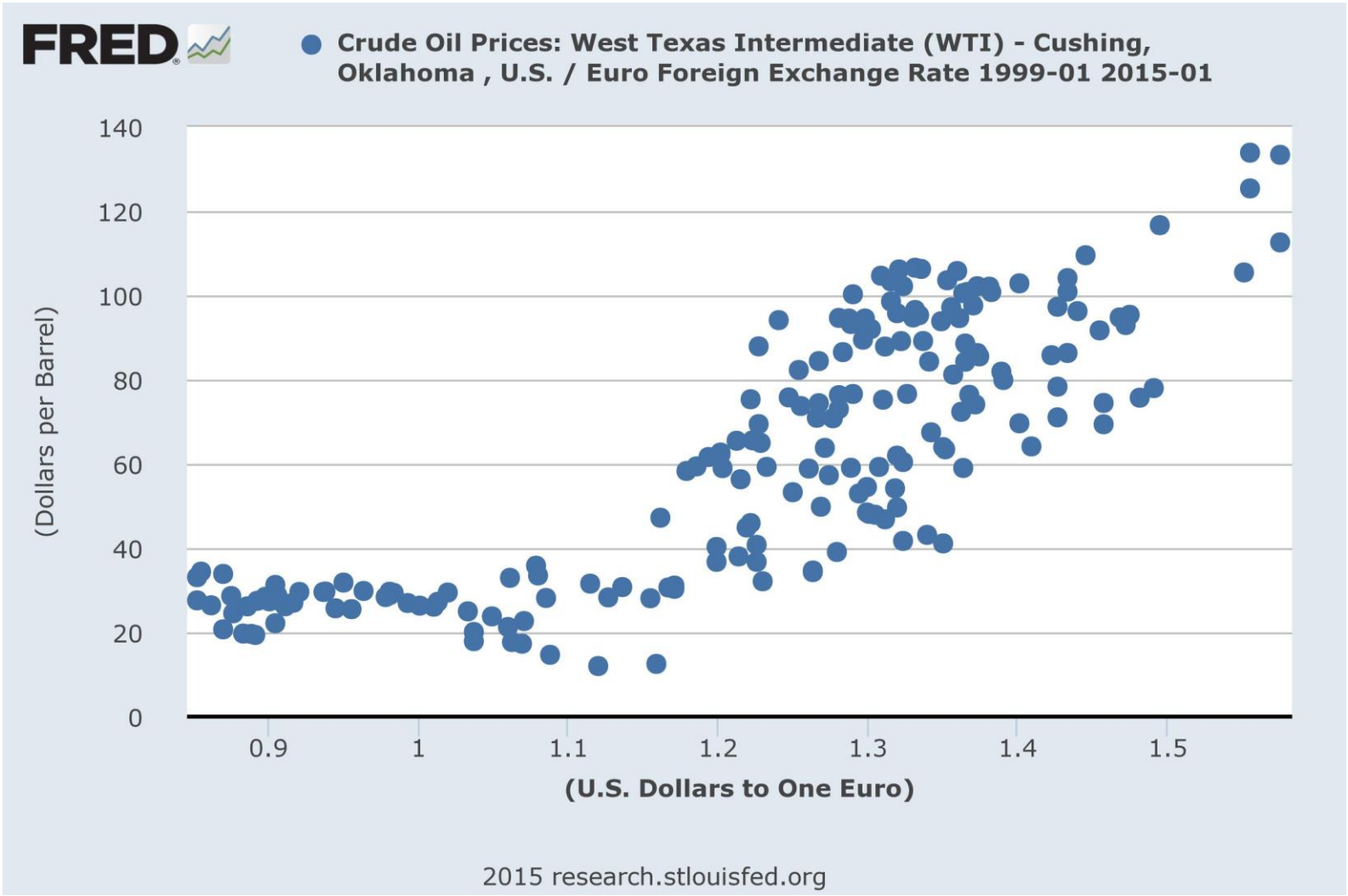
Source: World Bank

OECD members accounted for a demand drop of close to 1.2 mb/d

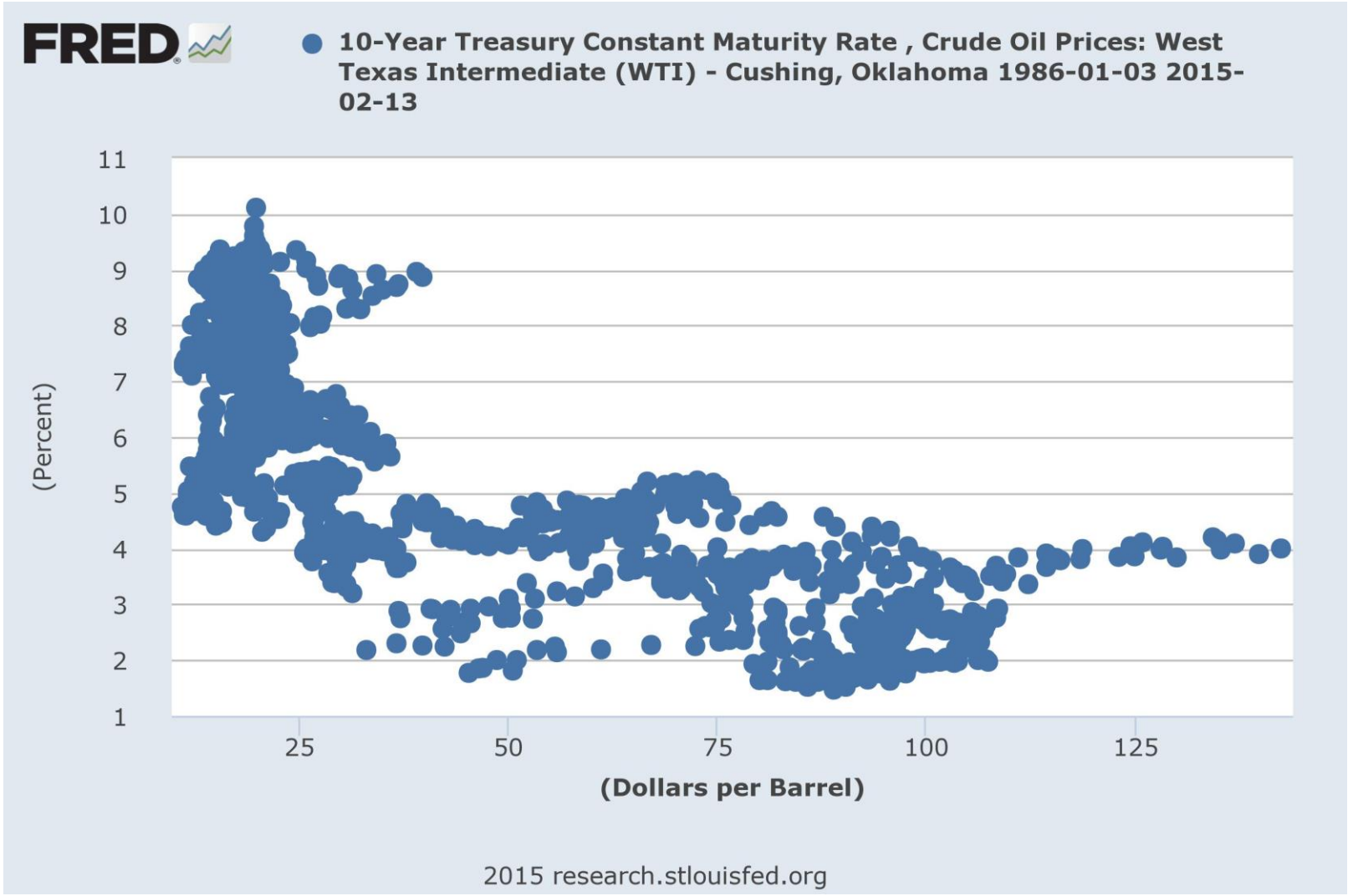
	Kb/d	
1	Japan	-592.7
2	Netherlands	-189.2
3	Nigeria	-146.0
4	France	-108.6
5	Canada	-106.1
6	China	-103.0
7	Germany	-89.7
8	Chinese Taipei	-77.4
9	South Korea	-73.7
10	United Kingdom	-66.3

Source: JODI

Oil prices are low when the dollar is strong



Expectation matter: Oil prices are low when interest rates are high



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Question 1

Is this a crisis?

It depends on how you understand energy security

1. Oil and gas **flows remain undisrupted**

2. Oil and gas **availability is sufficient to meet demand**

3. Oil and gas are now more **affordable**

It depends on where you stand

1. **Consumers** are benefiting differently from lower prices
   - Subsidies
   - Taxes
   - Import bill

1. **Producers** are being affected differently according to:
   - Cost structures
   - Budget's reliance on oil revenues
   - Reserve fund availability
   - Financial market access

Question 2

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

Supply and demand appear to be more elastic

1. **Supply**
   - More non-OPEC producers in more regions
   - Faster (implied) output response
   - But input costs are higher!

2. **Demand**
   - Consumers can source oil and gas from more suppliers
   - Energy efficiency gains in OECD
   - Fuel switching is a more viable option

Other things equal, prices are more likely to be constrained

Question 3

How much spare capacity is necessary?

It depends on:

1. Your estimate of the **size of the "average" disruption**

2. Whether you think the **low-cost or the high-cost producer** must provide it

3. Who can **respond to a drastic fluctuation faster and in a cost-effective way**

Question 4

How must international energy cooperation address the current situation?

The answer depends on:

1. Your **objectives**
2. Your **instruments**
3. Your **information**

What's your objective? Why?

1. Higher prices?
2. Lower volatility?
3. Higher revenues?
4. Domestic and/or international political objectives?
5. Understanding the current situation?

What are your instruments?

	Supply	Demand	Other market processes
National policies	• Production subsidies • Regulation • Spare capacity • Strategic reserves • Diversification	• Consumption taxes • Energy efficiency • Regulation	• Competition and anti-trust policies • Hub-pricing vs. other pricing mechanisms • Hedging • Regulation

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International cooperation	• Production quotas • Strategic reserves • Producer-Consumer Dialogue • Research • Experience- sharing • Peer reviews	• Agreements to reduce greenhouse-gas emissions • Producer-Consumer Dialogue • Research • Experience- sharing • Peer reviews	• Negotiation of energy trade and investment treaties • Data transparency initiatives • Evaluation of price-reporting and other components of price formation • Experience- sharing • Peer reviews

Where the IEF adds value

	Supply	Demand	Other market processes
National policies	• Production subsidies • Regulation • Spare capacity • Strategic reserves • Diversification	• Consumption taxes • Energy efficiency • Regulation	• Competition and anti-trust policies • Hub-pricing vs. other pricing mechanism • Hedging • Regulation
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Focus of the IEF: improving information available to decision-makers

1. Ministerial dialogue

2. Promotion of **data transparency through JODI**

3. Comparative analysis of **energy outlooks**

1. Analysis of the interaction between **physical and financial markets**

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Where the action is:

- **Asian demand**
- **North American unconventional oil**, except in the Middle East
- Trade shifting from the Atlantic to the Pacific

Figure 16.
OECD and Non-OECD Shares of Liquids Demand in 2013 and Outlook for 2040

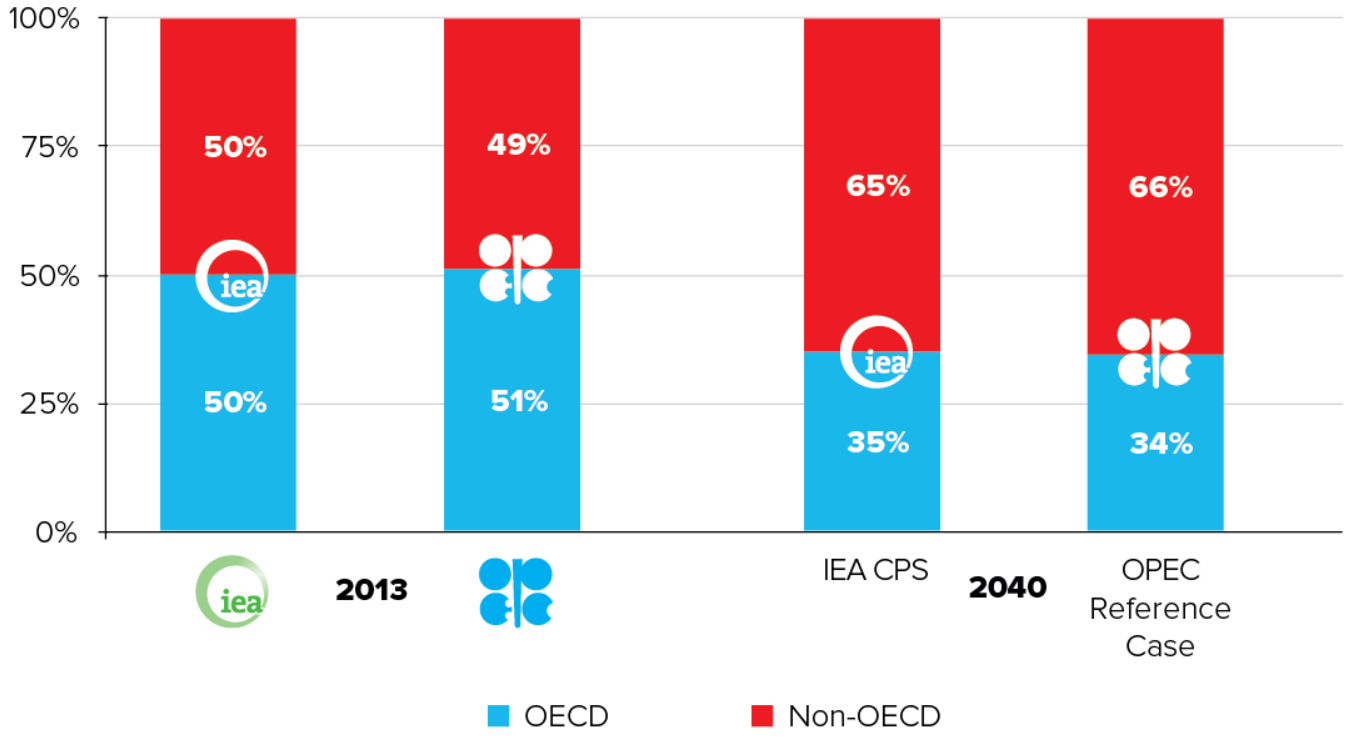


Figure 15
World Primary Energy Fuel Shares in 2010 and Outlook for 2040

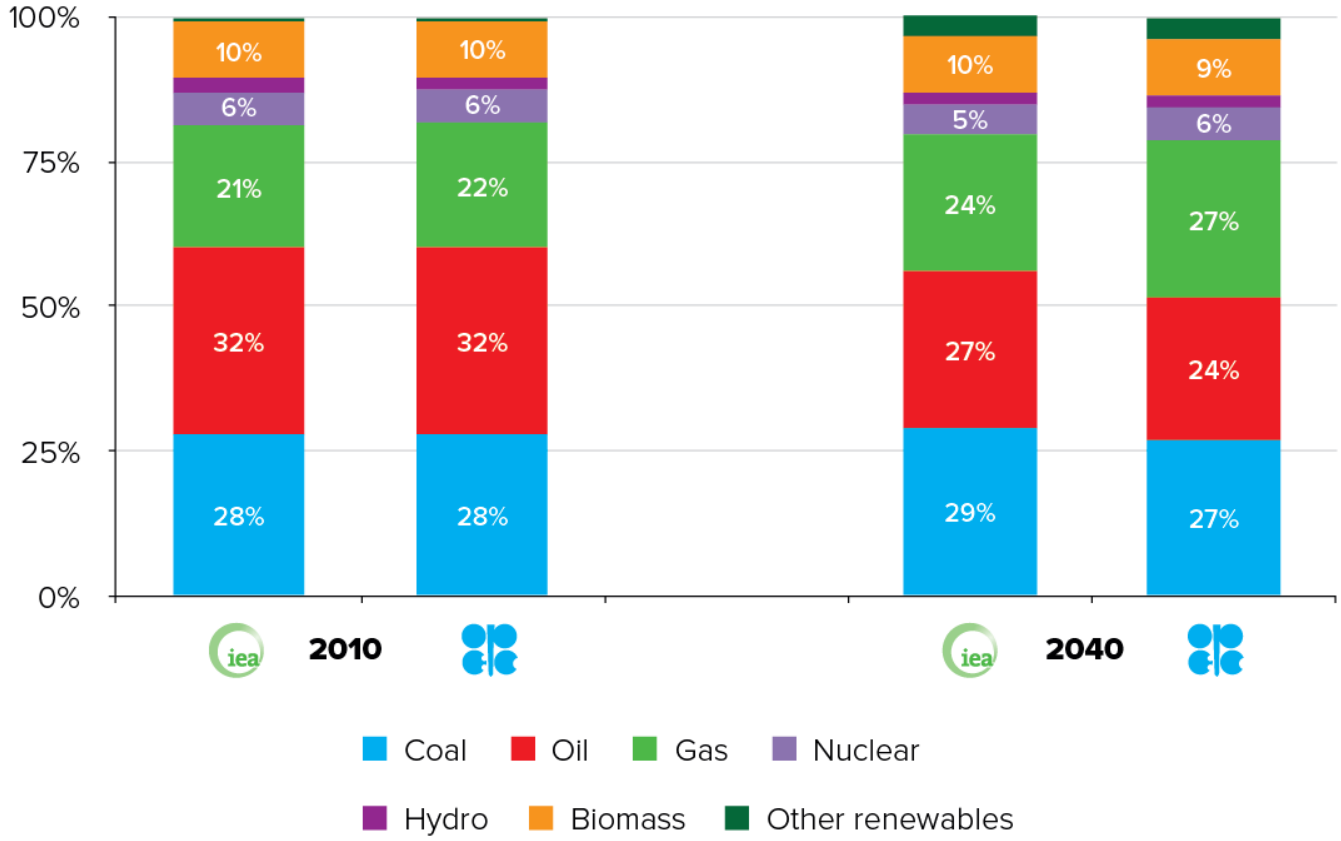


Figure 17.1
World Liquids Demand Projections in Various Scenarios: 36.8 mb/d range

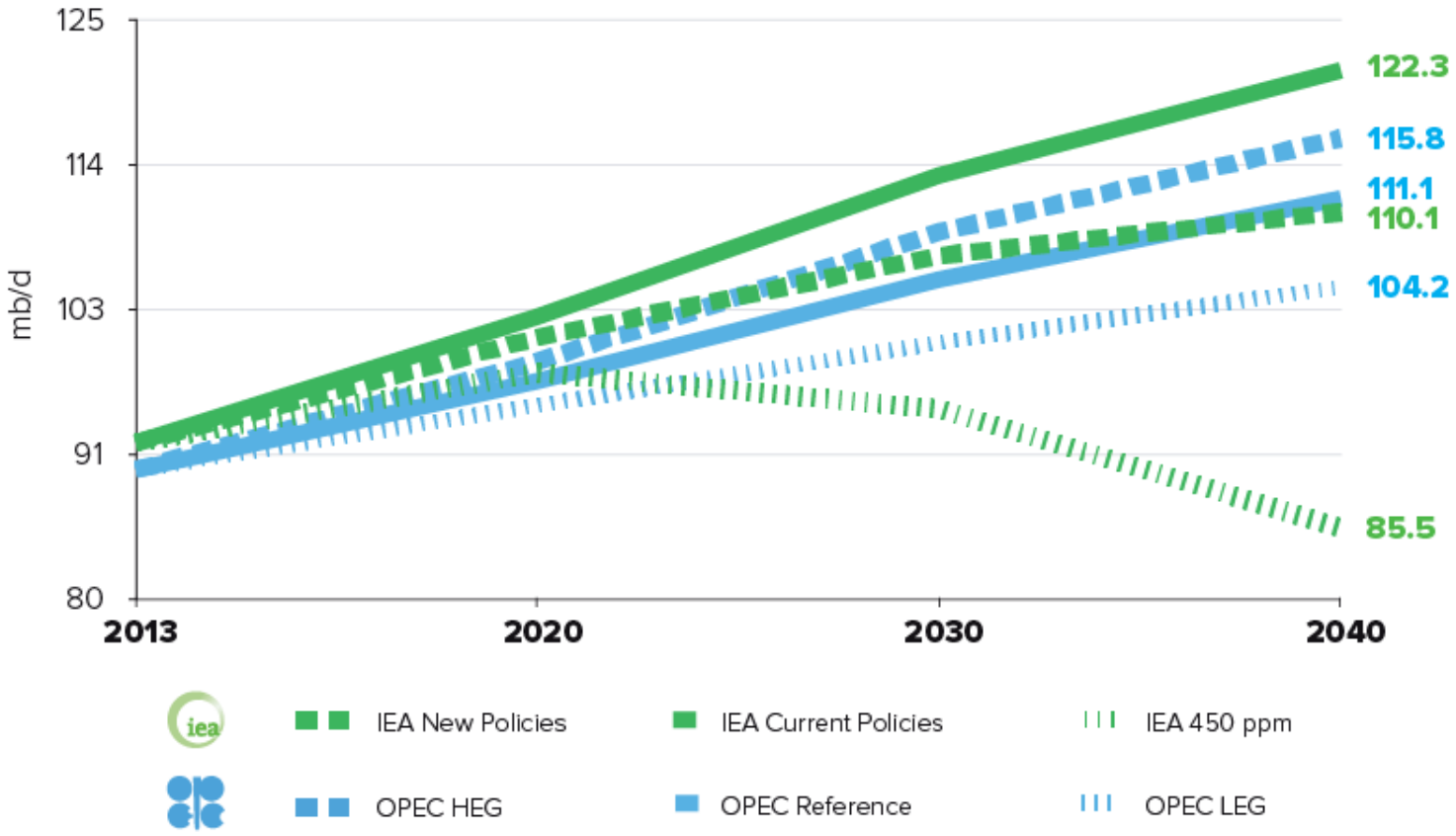
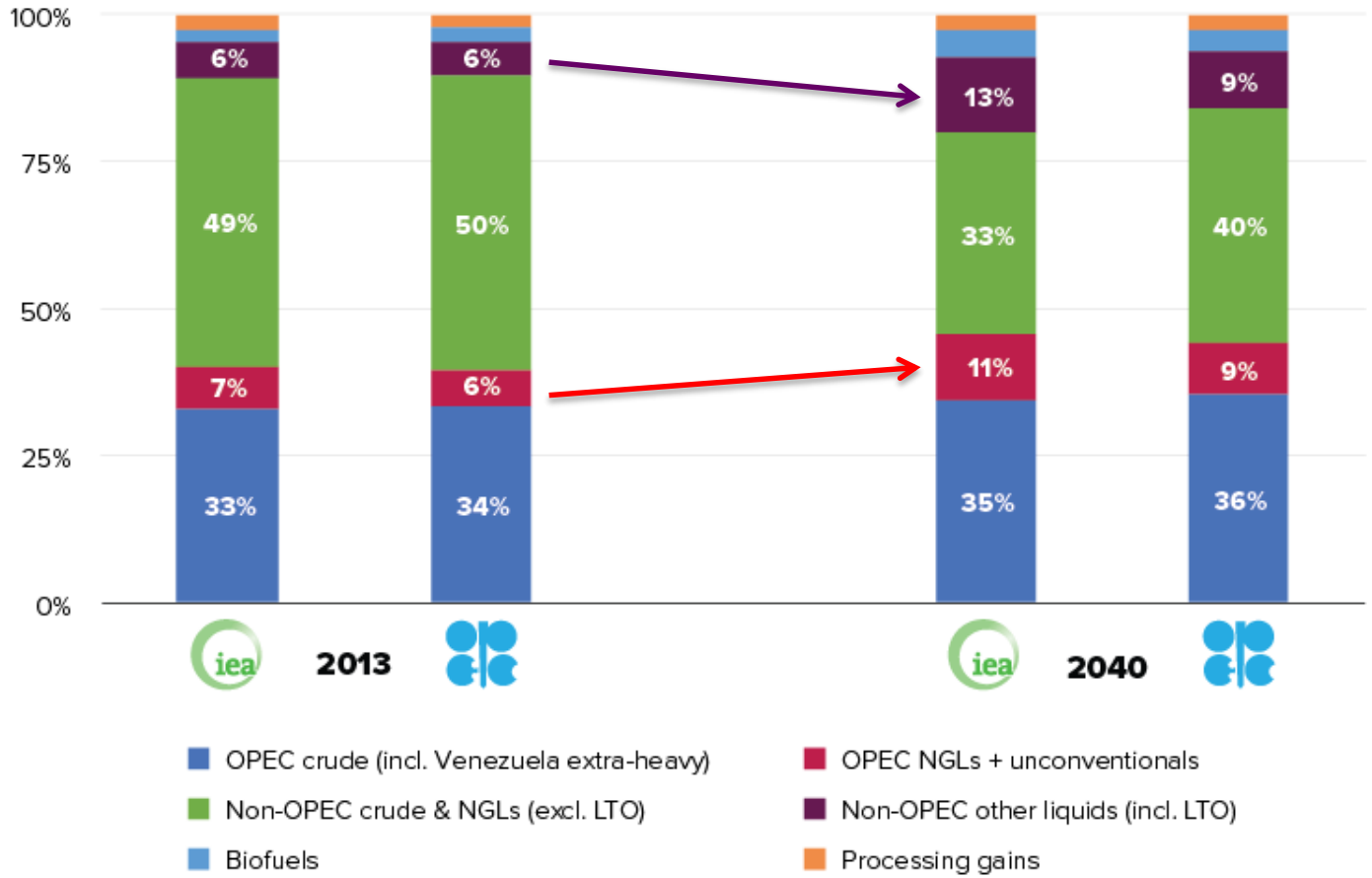
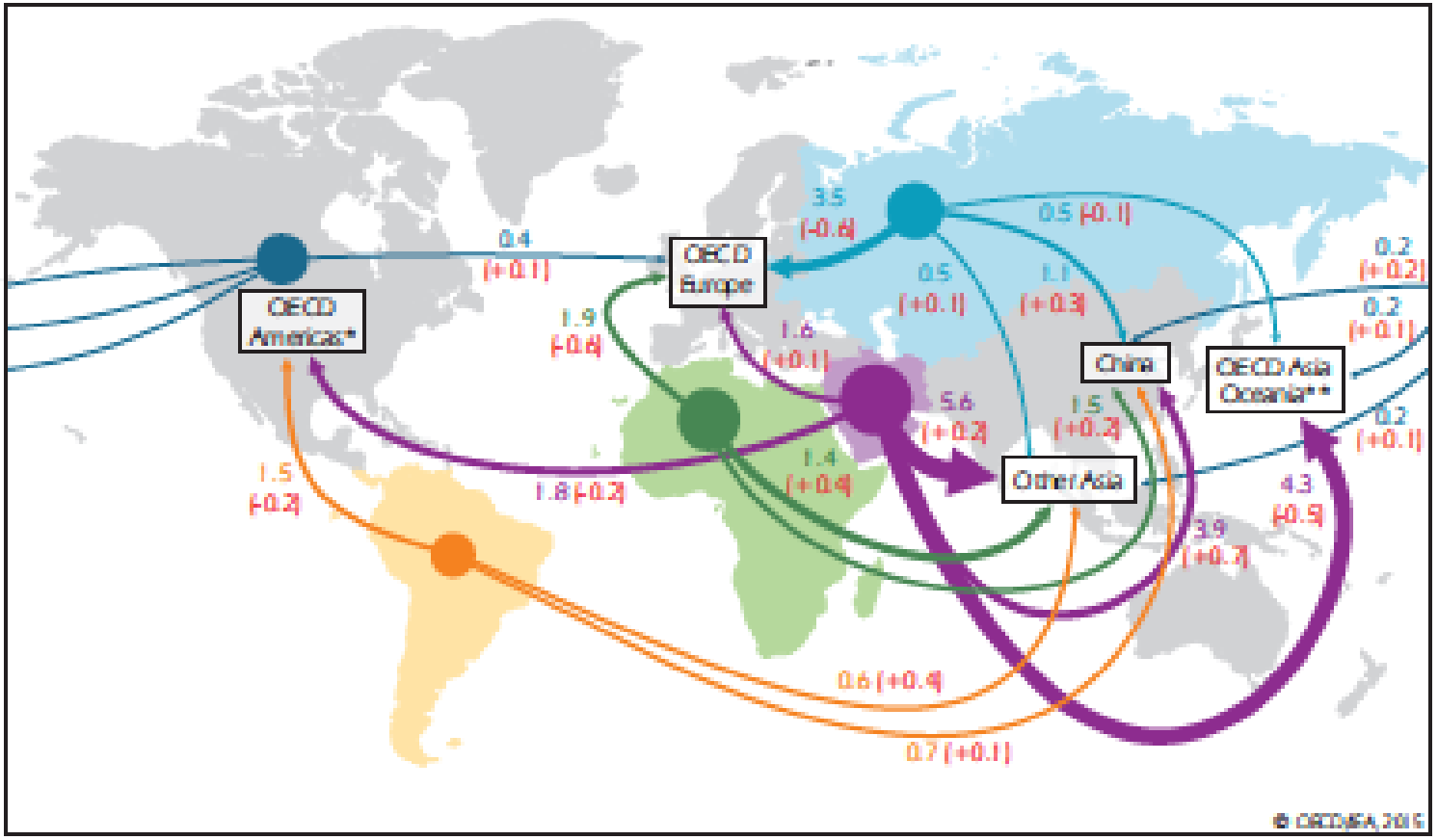


Figure 19.
Shares of Liquids Supply by Types in 2013 and Outlook for 2040



Energy trade is moving to Asia

Map 3.1 Crude exports in 2020 and growth in 2014-20 for key trade routes



This map is without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

Food for thought

- 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**?
- **Beyond the US** output rise, what can we expect for **oil supply elsewhere**?
- Will North America take (implicitly) the role of **swing producer** from Saudi Arabia?
- **Is spare capacity necessary** in a world of flexible North American supply?