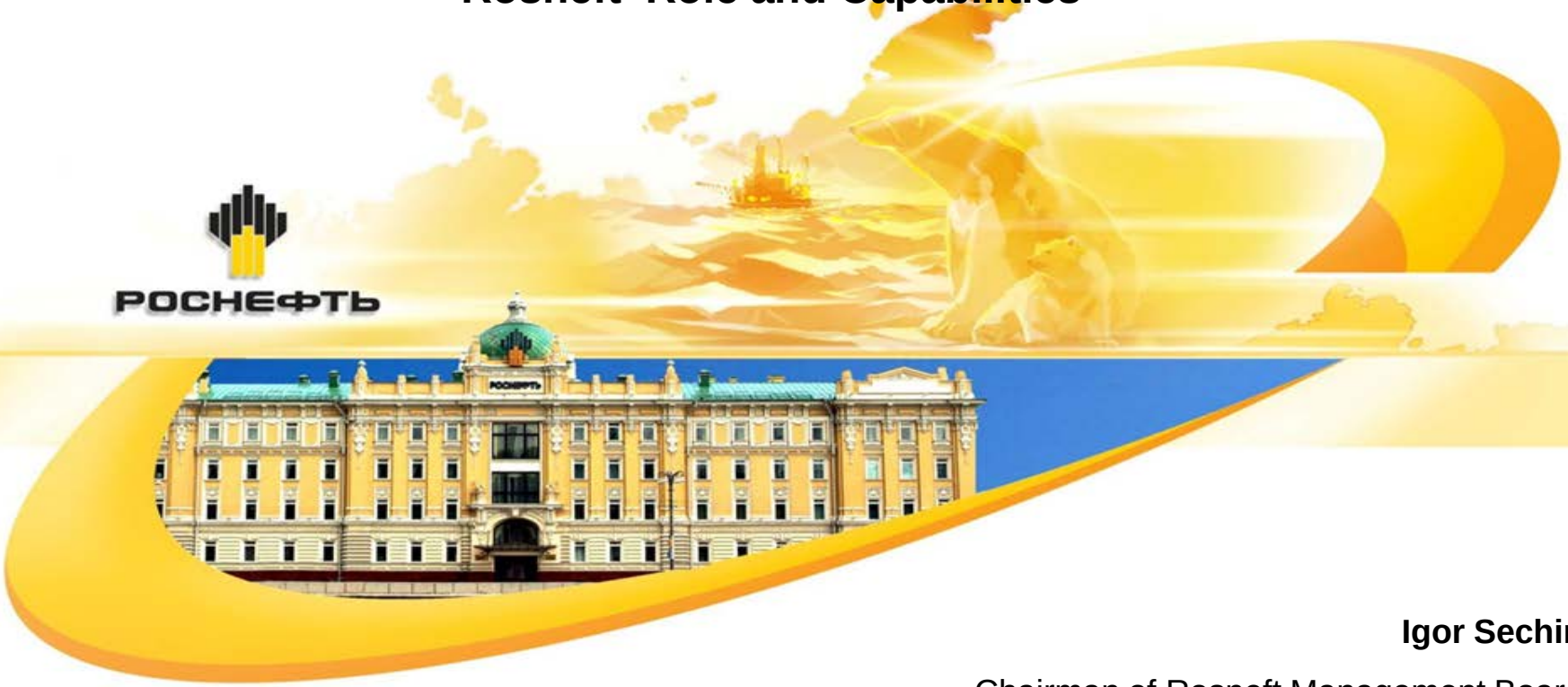
# Russia - Japan Power Bridge:
# Rosneft Role and Capabilities




**Igor Sechin**

Chairman of Rosneft Management Board

Tokyo / 06.11.2015

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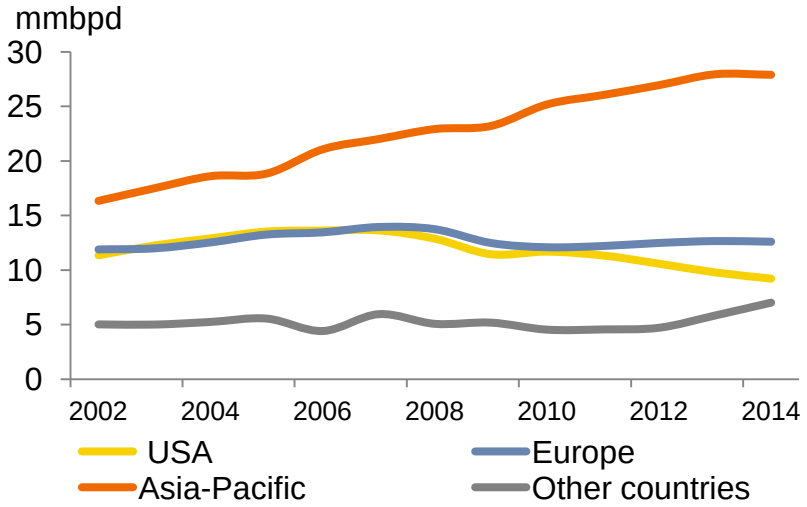
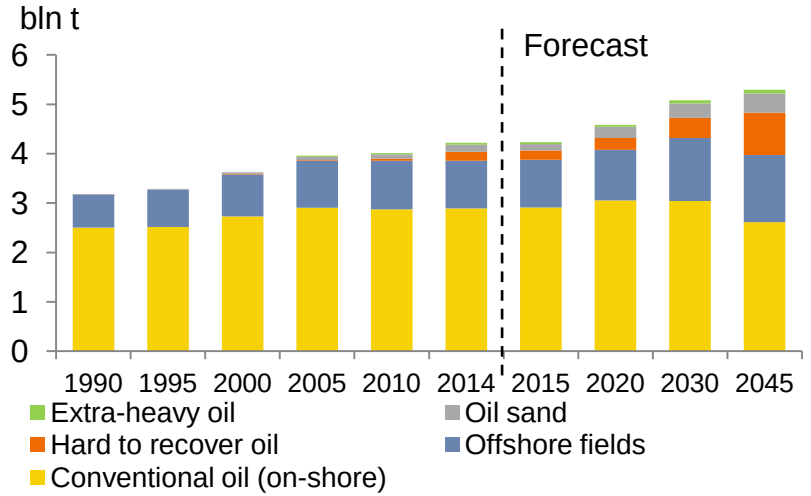
# Shale oil changes the structure of global production and export flows

## Oil import by region




- Oil import to Asia-Pacific is steadily growing. At the same time, oil import to Europe and the USA is decreasing due to decline in consumption and own production growth, respectively
- The share of Asia Pacific region in the global oil import has grown from 37% to nearly 50% in 2002-2014

## Oil production forecast by different types of reserves

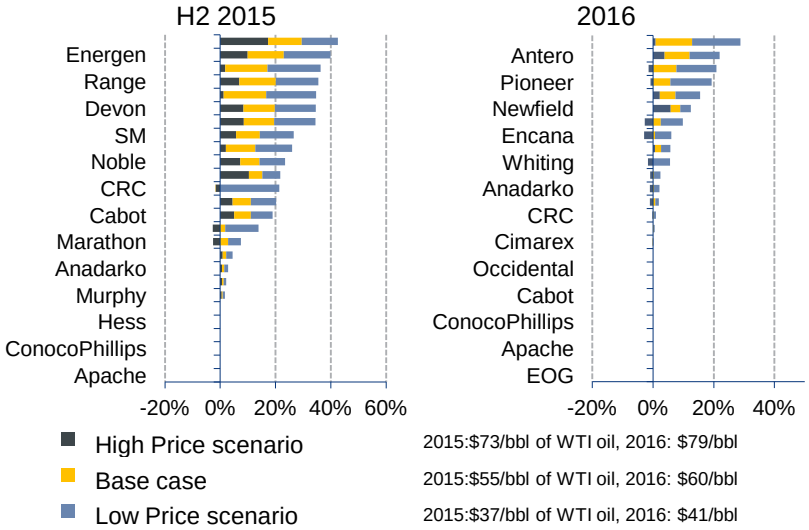



- Global oil production is expected to grow by more than 20% to 5,1 bln t by 2030
- The share of oil production from offshore fields, oil sand and hard to recover oil resources will reach up to 50% in the global output by 2045

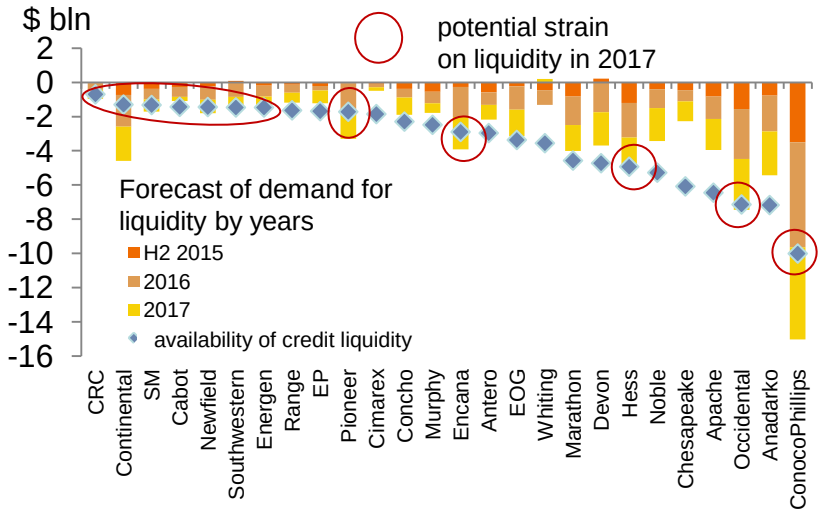
Source: Rosneft, BP

# Oil price hedging and loan availability for the American shale companies by 2017

## Expected hedging gains, % of revenues




## Loans available for the shale companies and expected demand for liquidity*



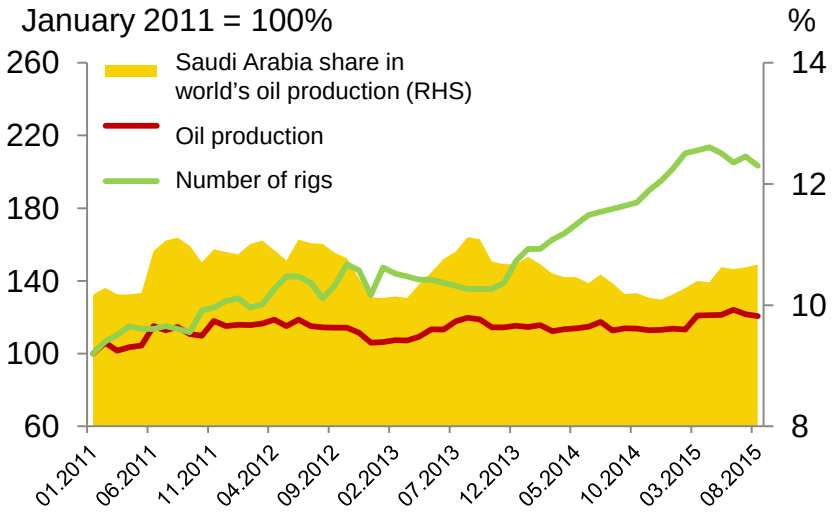

- Hedging stops being an important source of liquidity for the shale companies
- Getting loans from banks for the specific fields (RBL – Reserve Based Lending) is one of the key reasons for the shale companies "survivability»; this kind of loans can be renewed and extended on the back of pledging proven reserves
- RBL is the only chance for the small and medium-size companies to raise necessary funds to maintain the business; this financing structure will be efficient in low oil price environment until at least 2017

*scenario assumptions: $37/bbl of WTI oil and $2.4/cf (H2 2015), $41/bbl of WTI oil and $2.7/cf (2016)

Source: Wood Mackenzie

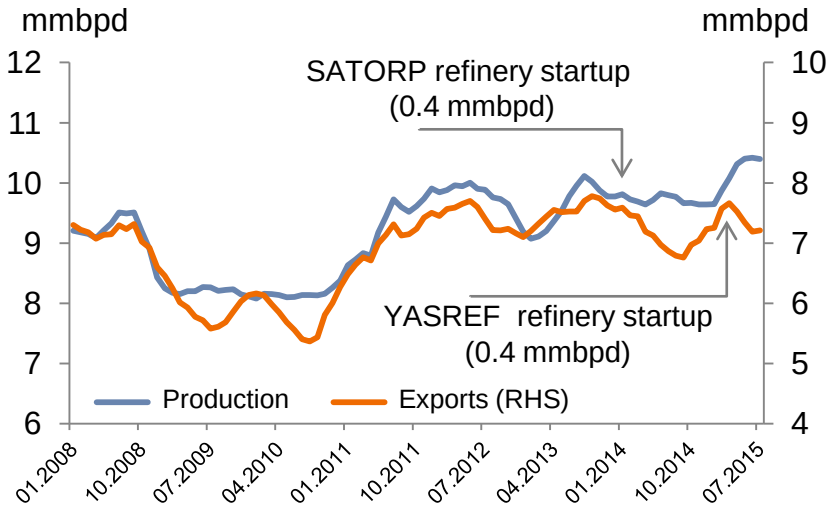
# Saudi Arabia keeps ramping up its oil output

## Number of rigs, oil production, and share of Saudi Arabia in global oil production




- Saudi Arabia drilling activity started to grow back in autumn 2013, or more than 6 months before oil prices collapsing
- In September 2015 Saudi Arabia crude oil production grew up to 10.2 mmbpd, exceeding the previous year levels by 0.5 mmbpd

## Saudi Arabia oil production and export*



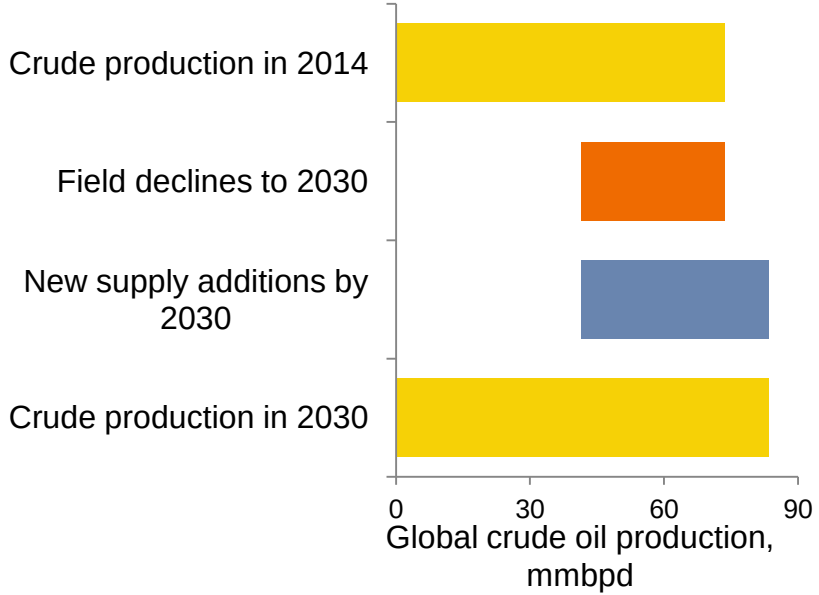

- Higher 2015 oil output from Saudi Arabia results not only in growing crude oil export volumes, but also in additional throughput at two major refineries at 0.8 mmbpd launched in 2014-2015

* the chart shows three-month moving averages of production and export volumes

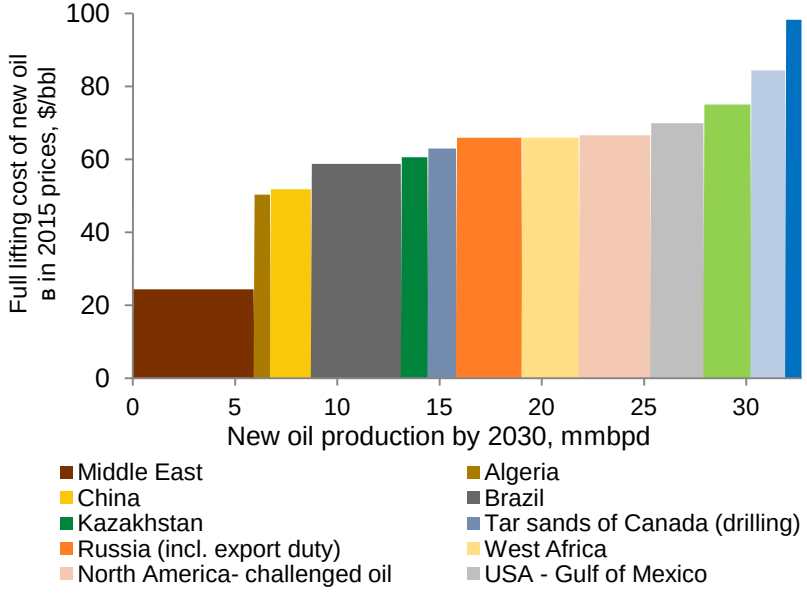
Sources: Baker Hughes, JODI

# Expected changes in global oil production and greenfield costs

## Expected changes in global crude oil production by 2030




## Total cost curve for new oil projects by 2030*

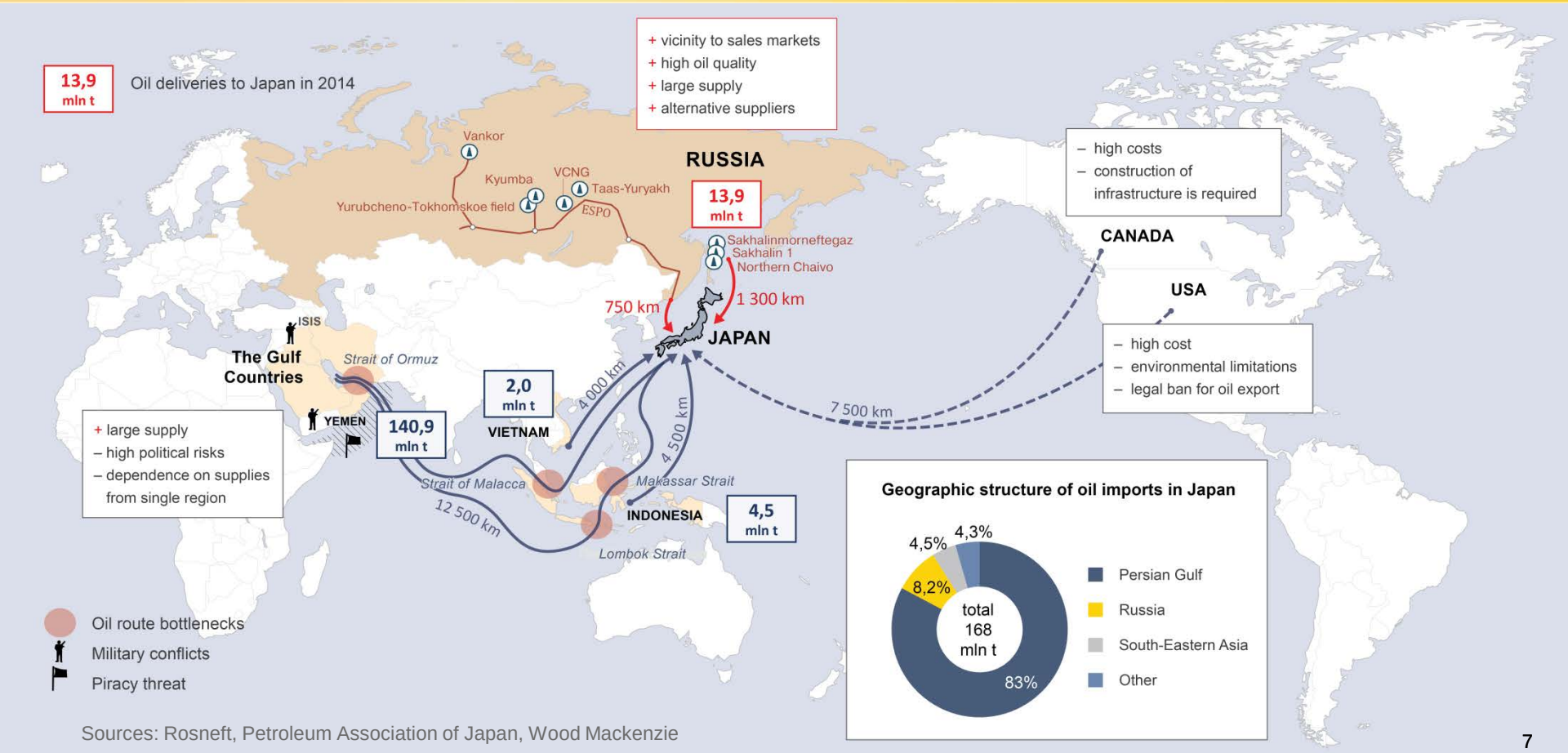



- Cost analysis for c. 75% of new oil output expected by 2030 (around 33 mmbpd) demonstrates that only 3 mmbpd of production might be break-even at more than $85-98/bbl. The costs for the rest of the output is unlikely to exceed $75/bbl in 2015 prices

* ~ 75% of expected new oil production

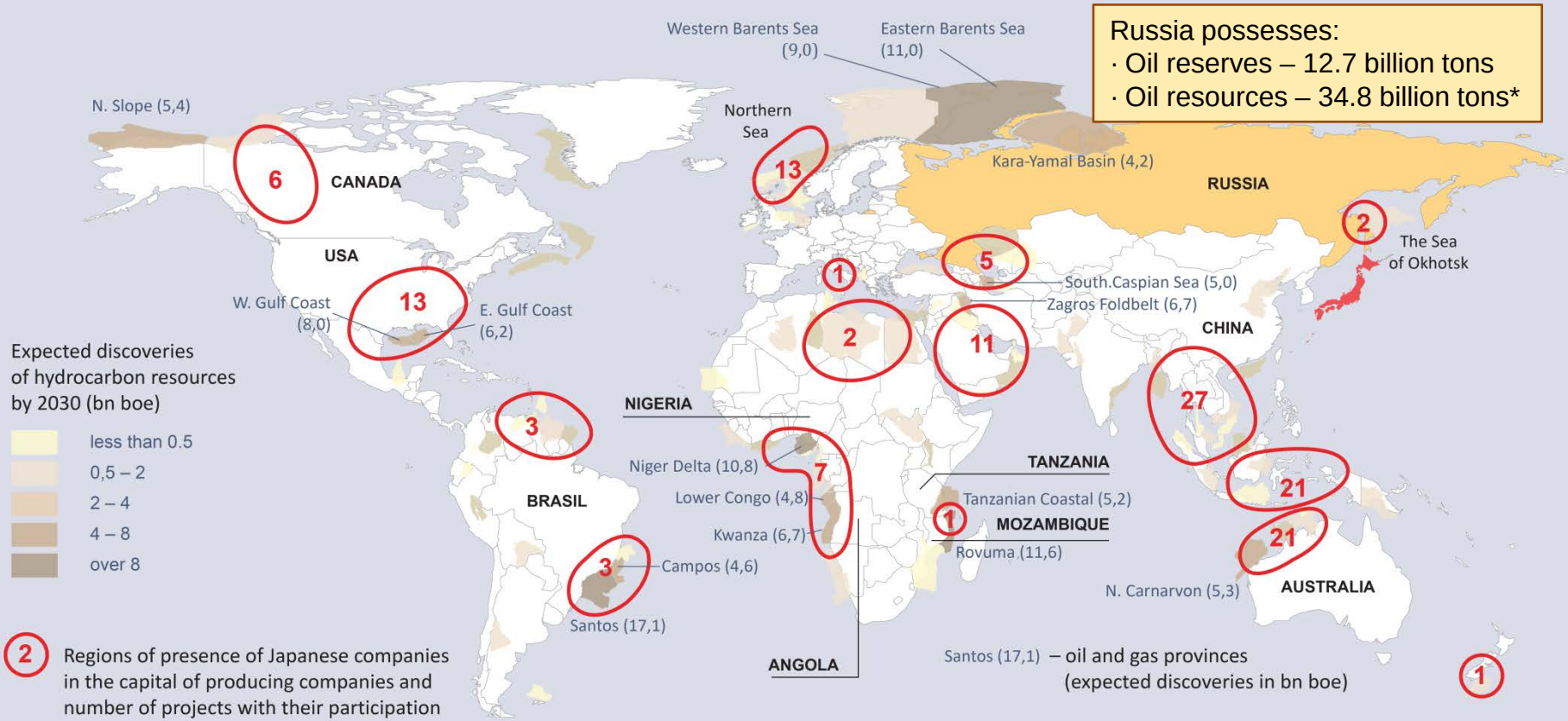
Source: IHS

# Russian logistical advantages as an oil supplier to Japan




Sources: Rosneft, Petroleum Association of Japan, Wood Mackenzie

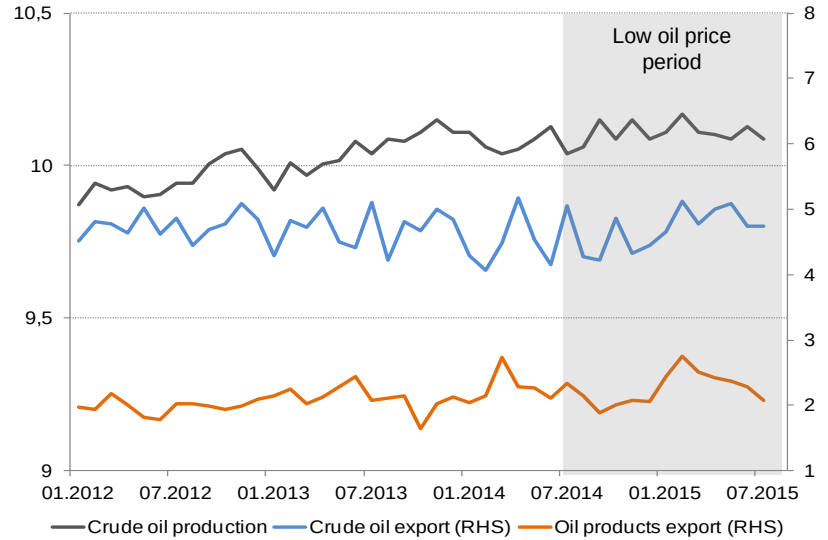
# The potential for Russia/Japan partnership is huge




*according to «Energy Study 2014. Reserves, Resources and Availability of Energy Resources» (BGR)
Sources: Rosneft, Petroleum Association of Japan, trademap.org

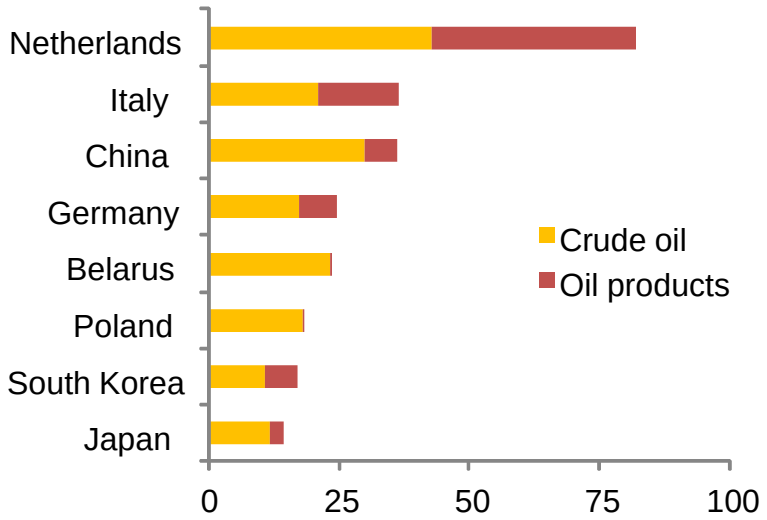
# Russian oil sector demonstrates sustainable improvements

## Russian production and exports of oil and petroleum products, mmbpd




- Russian crude oil production, as well as export volumes keep growing
- Russian petroleum product export was up considerably (by 5.7%) in January-July 2015

## Key routes for Russian crude oil and petroleum product exports, 2014, mmt

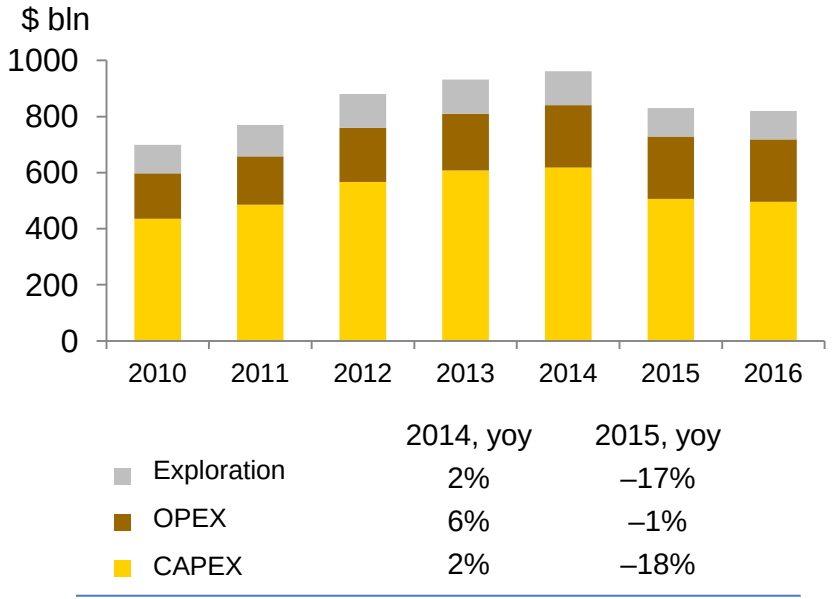



- Japan is the eighth largest route for Russian crude oil and petroleum product exports

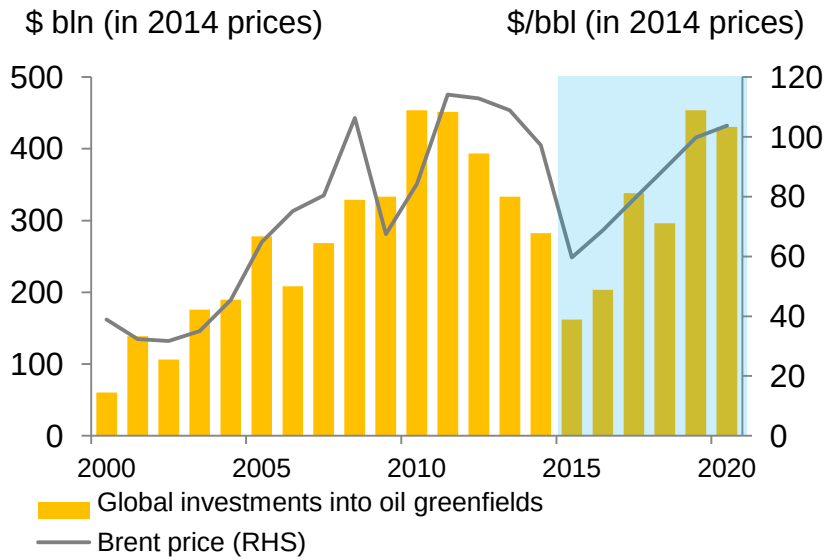
Sources: JODI; FCS

# The oil industry investment cuts

## Global exploration and production costs



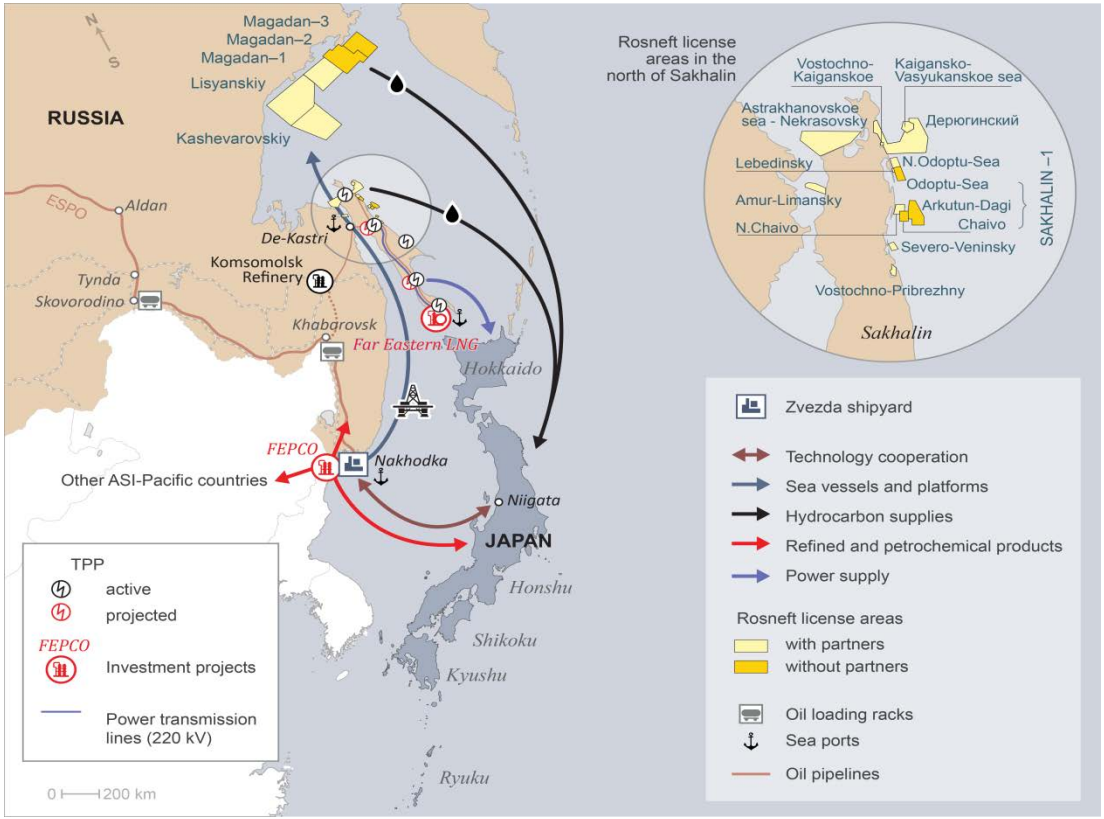

## Global investments into oil greenfields




- According to Rystad Energy study, global exploration and production costs will be cut by $200 bln in 2015
- Total capex will be reduced by almost 20% with investments into new projects declining by 40%

Source: Rystad Energy

# Power Bridge Russia - Japan: resource and infrastructure channel




## Potential annual volumes of energy resources supply:

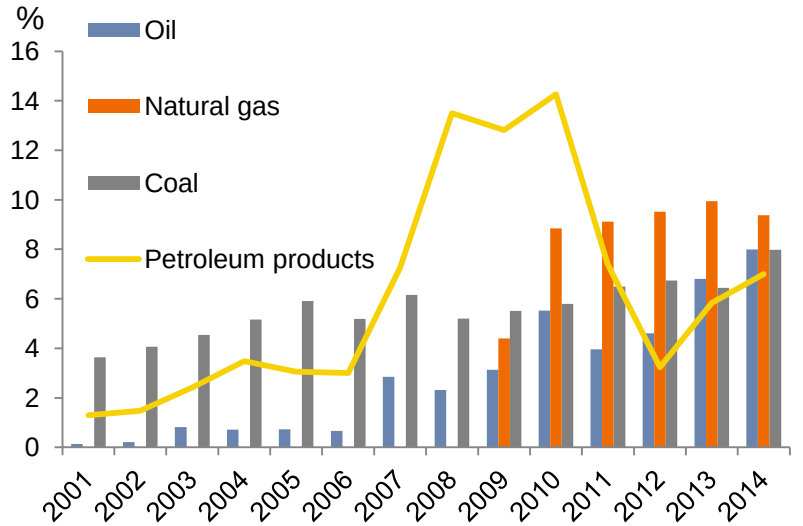
- Crude oil – up to 25 mmt
- Refining and petrochemical products – up to 5 mmt
- LNG – up to 12 mmt
- Power sustain – up to 3 GW
- Electric power supply – up to 20 bln kW*h

**Potential investment capacity – up to $100 bln**

Source: Rosneft

# Russia's share in import of energy resources to Japan and FEPCO project

## Russian share in the import of energy resources by Japan




- Supplies of oil, gas and coal from Russia to Japan were growing steadily in the recent years, reaching 8-9% of Japanese import volumes in 2014
- Share of Russian petroleum products returned to 7% of Japan import after considerable jump in 2008-2010

## FEPCO Project — high-tech refining and petrochemical complex

- FEPCO is located near major markets (Primorsky Krai – more than 50% of the demand for fuel in Far Eastern Federal District; Asia-Pacific)
- Phase 1: oil refining – **12 mmtpa**
- Phase 2: petrochemical capacity – **3.4 mmtpa**
- Production of motor fuel:
  - Phases 1, 2 – **8.5 mmtpa**
- Petrochemicals output:
  - Phases 1, 2 – **3.0 mmtpa**
- **Status of the project** – preparation of design documentation for Phases 1 and 2 of the project, engineering surveys. Work completion in 2016
- Cooperation opportunities – attracting a partner into the project

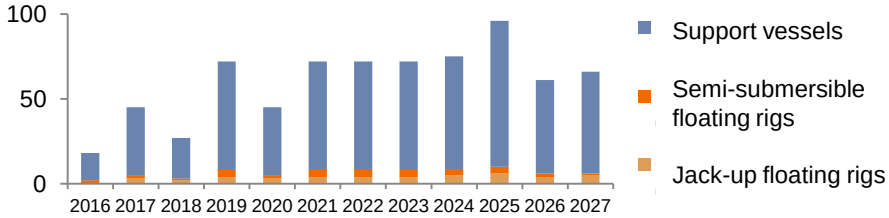
Sources: trademap.org; Rosneft

# Technological cooperation and localization of production on the example of Zvezda shipyard

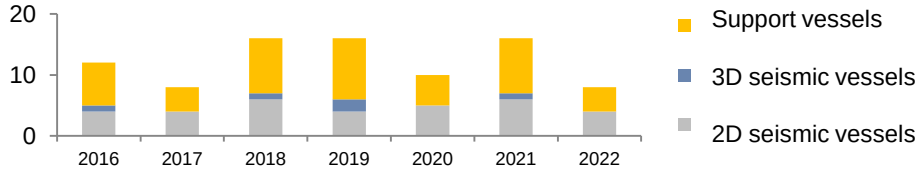
| Construction of a united ship-building complex located in bays Big Rock and Five Hunters | |
|---|---|
| 1st phase of construction<br>2012 – 2019<br>in Big Rock bay | Medium capacity shipbuilding sites |
| 2nd phase of 2018 – 2022 construction in Big Rock bay | Large capacity shipbuilding site |
| 3rd phase of construction<br>2021 – 2024<br>in Five Hunters bay | Offshore shipbuilding site |
| **Project cost: 145.5 bln rubles** | |
| **Key customers of the vessels and marine equipment:** | |
| Russian oil and gas companies and maritime companies:<br>Rosneft, Gazprom, Sovkomflot, NOVATEK, etc. | |
| **Expected new jobs: ~ 7,500 people** | |



**Rosneft demand in drilling rigs and support vessels for offshore drilling in Russia**

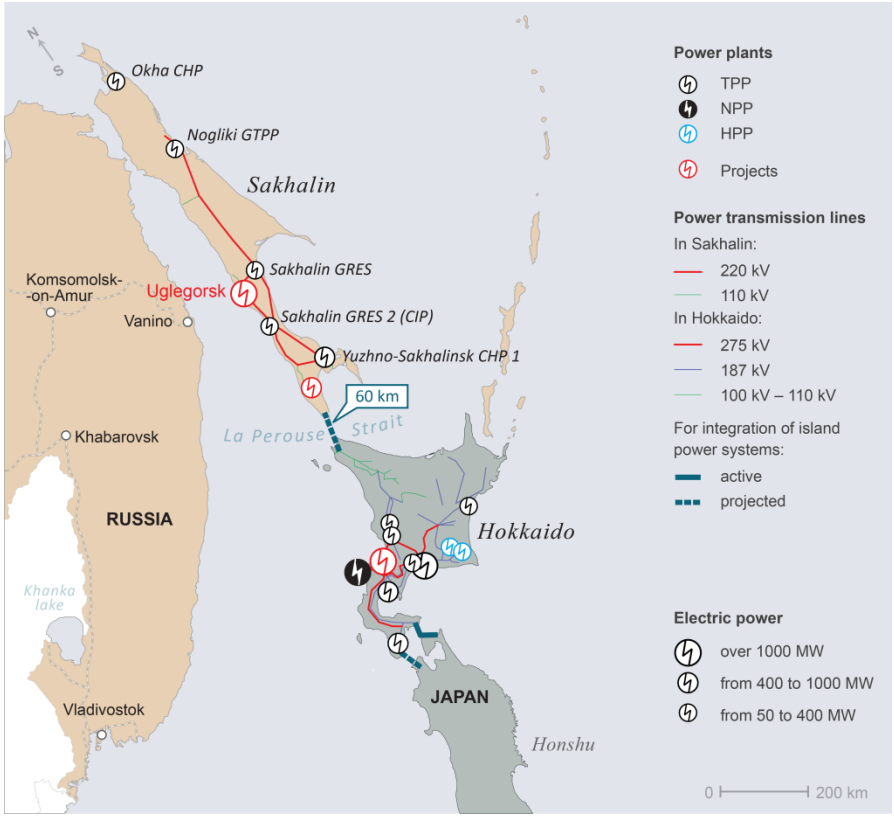



**Rosneft demand in seismic survey and support vessels**

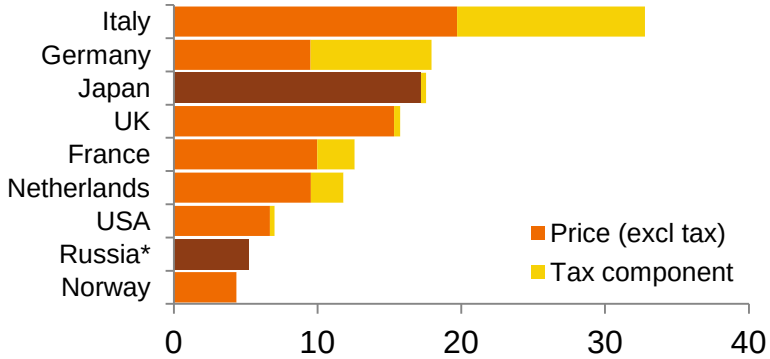



Source: Rosneft

# Power Bridge Project: Sakhalin - Hokkaido




## Electricity prices for the industry, cent/kW*h (2014)




The **Power Bridge** envisages the construction of generating capacities up to **3 GW** at Sakhalin with possible future export of the generated power up to **20 bln kW*h** to Hokkaido Island

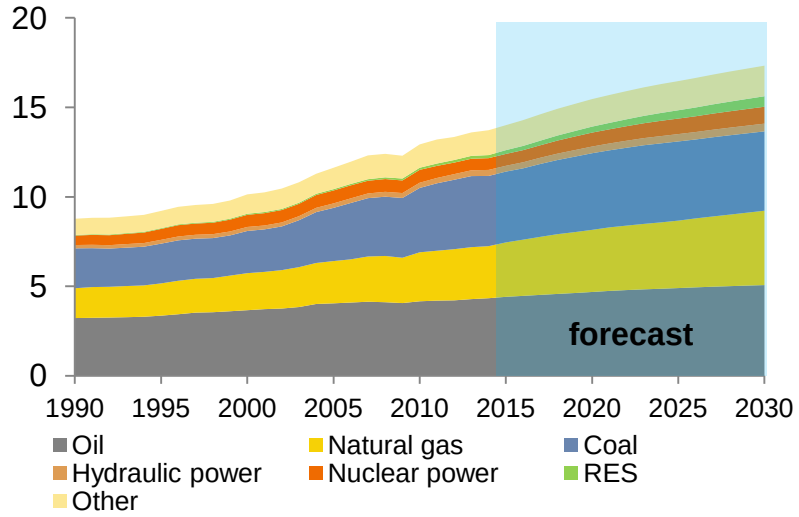
| Sakhalin Region | Hokkaido |
|---|---|
| Area - 87,100 km$^2$ | Area - 79,400 km$^2$ |
| Population - 0.5 mln | Population - 5.5 mln |
| GRP per capita - $42,100 * | GRP per capita - $41,700 ** |
| Power gen. 4 bln kW*h | Power gen. 30 bln kW*h |

*price of electric power supplied from Russia to China in 1st half 2015, including taxes; **2012 data; *** 2011 data

Sources: Rosneft, IEA, Rosstat, Economy Ministry of Russia, Administration of Sakhalin Region, HEPCO, Statistics Bureau of Japan

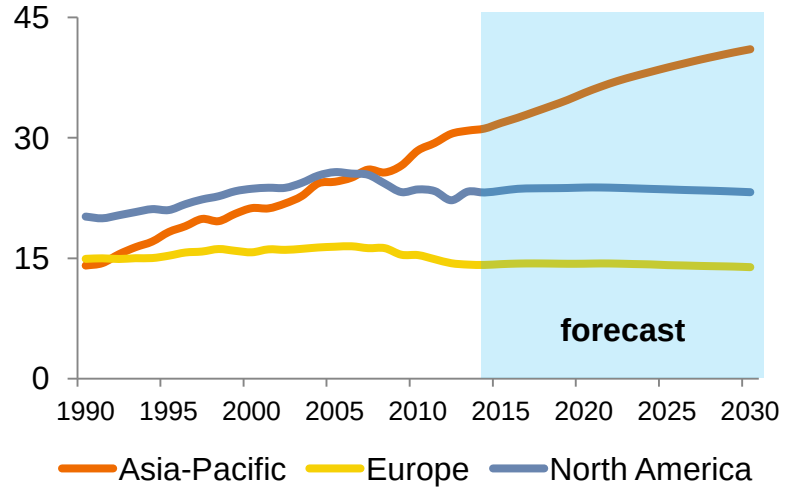
# Forecasts of world energy and oil consumption

## Consumption of primary energy by fuel type, bln toe




- By 2030, the total consumption of primary energy in the world will grow by 26% to 17.3 bln toe
- The energy balance will continue to be dominated by hydrocarbons, which will account for 53% of global primary energy consumption

## Oil consumption in the Asia-Pacific region, Europe and North America, mmbpd




- Oil consumption in the Asia-Pacific region in 2014 reached 31.1 mmbpd, i.e. more than 1/3 of world consumption
- Already in 2025 it is expected that oil consumption in the Asia-Pacific region will exceed total consumption in Europe and North America

Source: IHS, Energy Outlook, July 2015, Rivalry scenario

Thank you for your attention!

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06.11.2015