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THE ENERGY RESEARCH INSTITUTE
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GLOBAL AND RUSSIAN ENERGY OUTLOOK 2016

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Three scenarios cover wide range of uncertainties

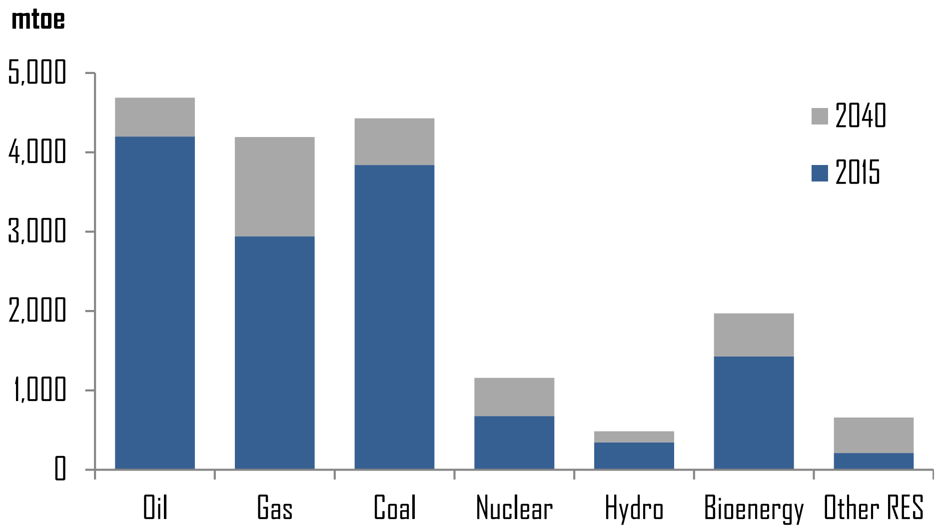
- **Favorable**(high economy, low risks, technology and capital transfer)
- **Probable** (BAU)
- **Critical** (economic slowdown, many local conflicts, increasing economic and technological gap between the countries)

Scenario Matrix

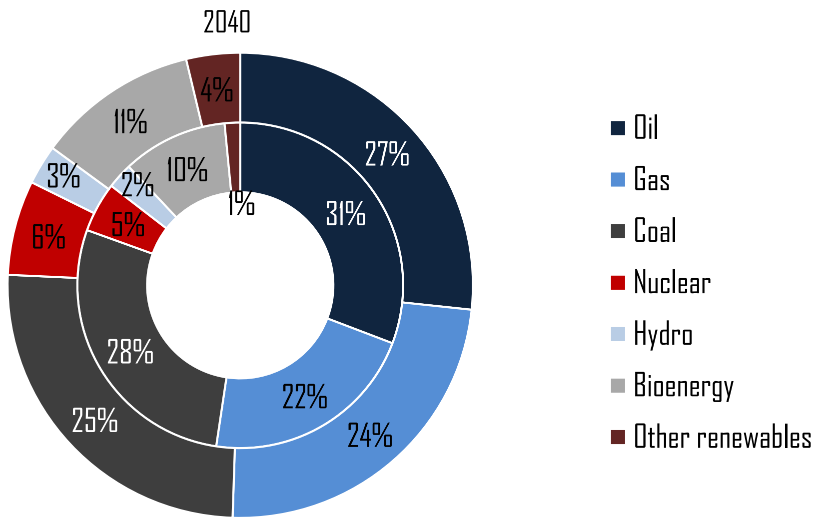
	Favorable	Probable	Critical
Global population	9, 2 bln. by 2004		
Global GDP AAGR	3,4%	2,8%	2,1%
Geopolitical risks	No conflicts	Few local conflicts	Many local conflicts
State energy policies	New plans and methods.	Partial implementation of the existing plans.	Current plans are not implemented.
Global CO2 quotas trade	Global trade is emerging	No global market, but regional trade is developing successfully.	No development
New technologies	No technological revolutions. Several technological breakthroughs, but only for the technologies that are being tested currently.		
Technological transfer	Unlimited	Limited	No transfer, new technologies develop only in OECD and in China

Fossil fuels are still dominating the fuel mix, though it is becoming more diversified: gas and RES are demonstrating the highest growth

Primary energy demand by fuel (in 2015 and increase by 2040), Probable Scenario



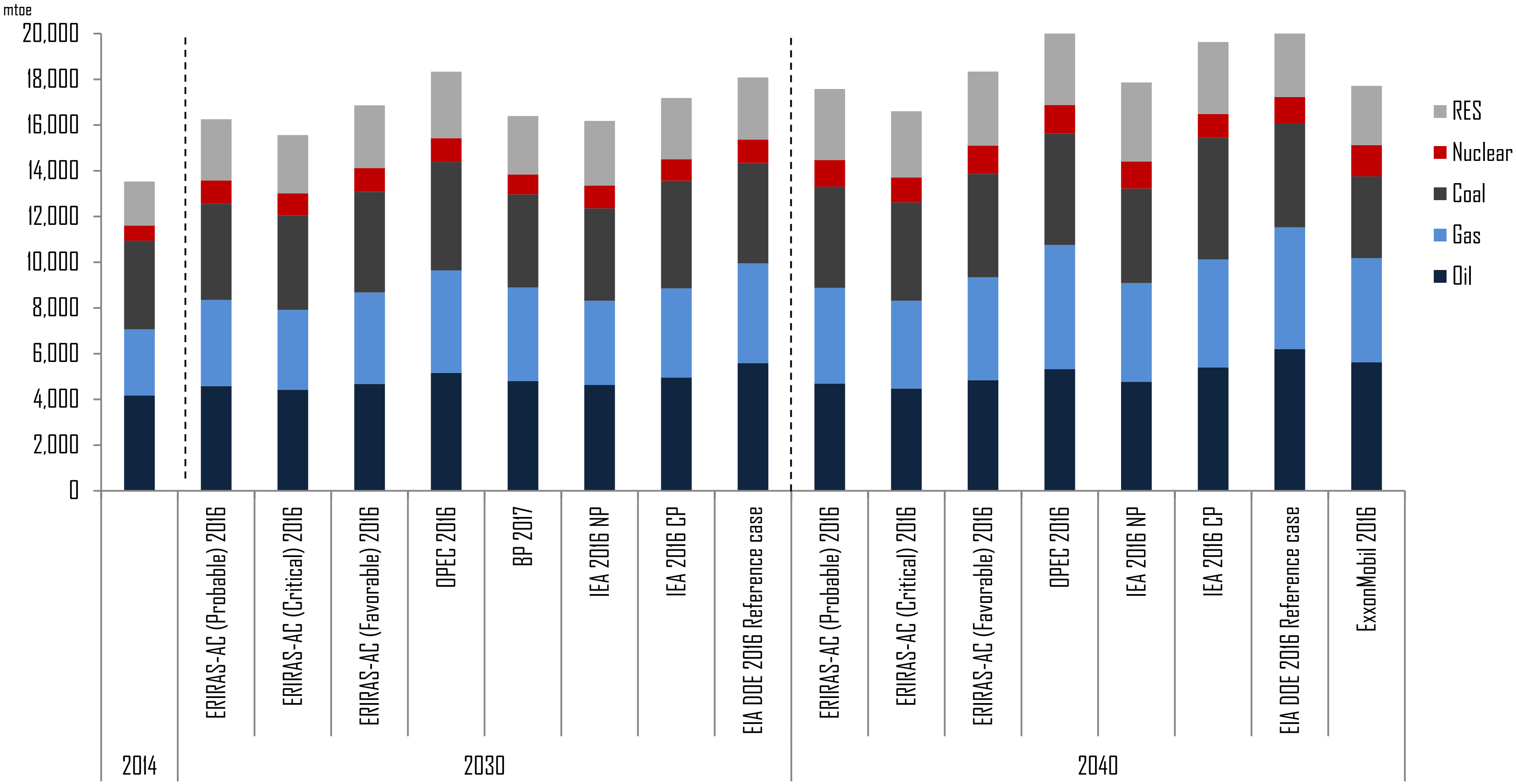
Structure of primary energy demand by fuel in 2015 and in 2040, Probable Scenario



Source: Global and Russian Energy Outlook-2016, ERI RAS-AC

ERIRAS-AC Outlook is among the lowest demand projections

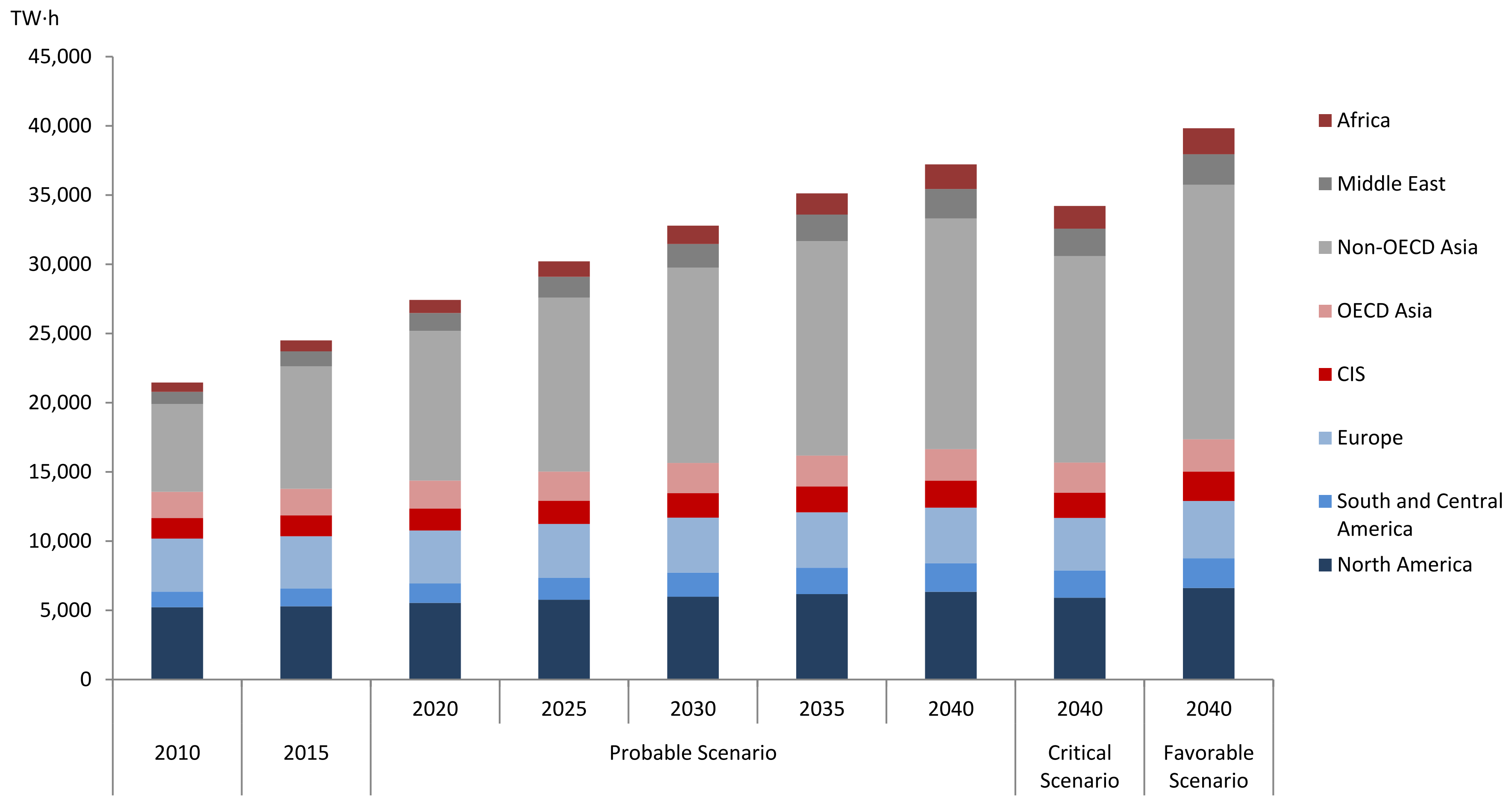
Primary energy demand scenarios comparison



Sources: Global and Russian Energy Outlook-2016, ERI RAS-AC, WEO-2016, IEO-2016, BP, ExxonMobil, OPEC

Increasing electrification and electricity demand in all regions and in all scenarios

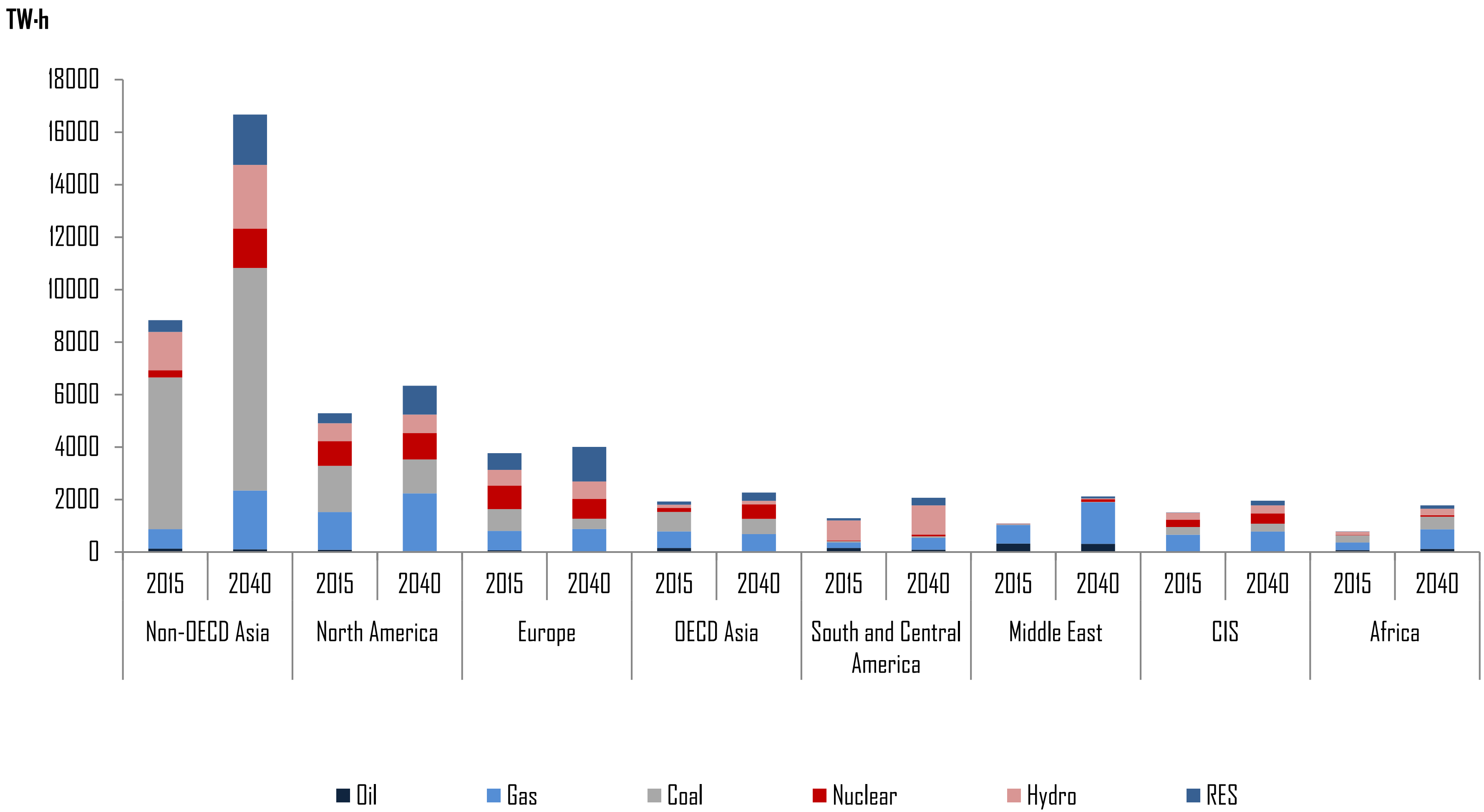
Electricity demand outlook for three scenarios



Source: Global and Russian Energy Outlook-2016, ERI RAS-AC

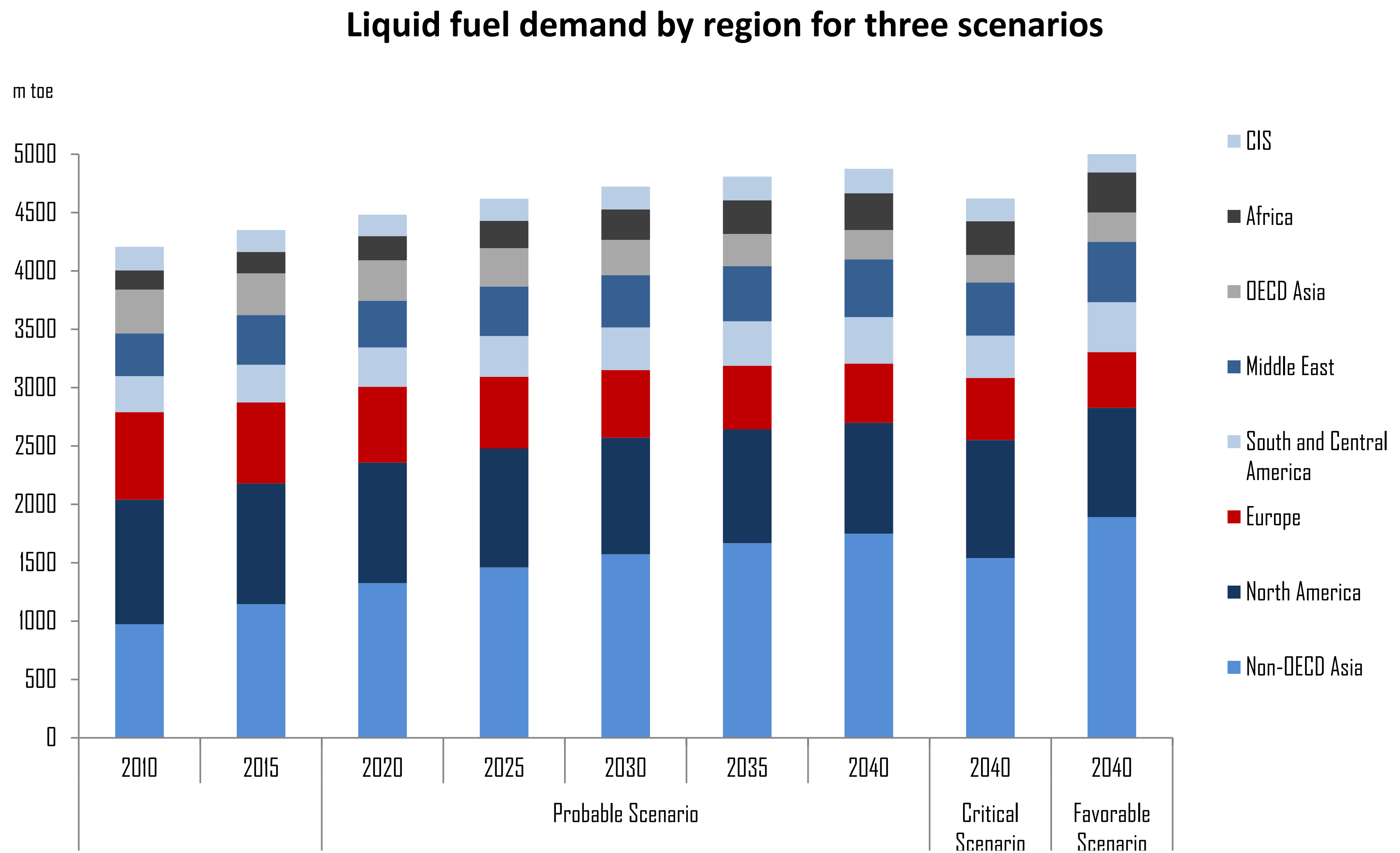
Huge regional differences in the electricity generation fuel mix will increase

Electricity generation by region and by fuel in 2015 and in 2040, Probable Scenario



Source: Global and Russian Energy Outlook-2016, ERI RAS-AC

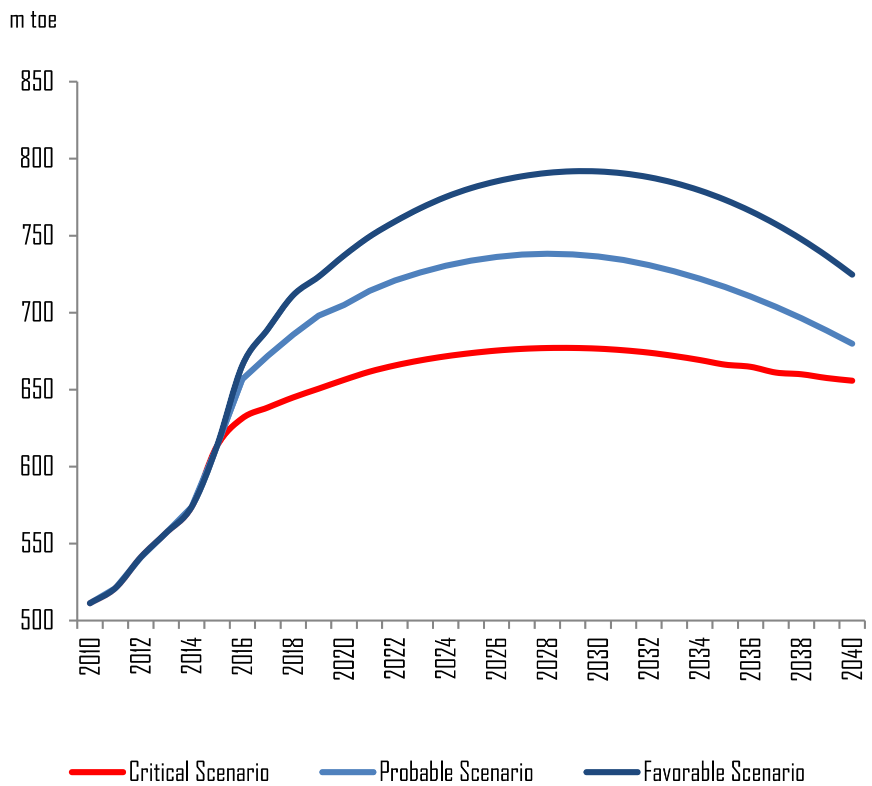
In all scenarios global demand for liquids is increasing, driven by non-OECD countries, but the growth is very slow



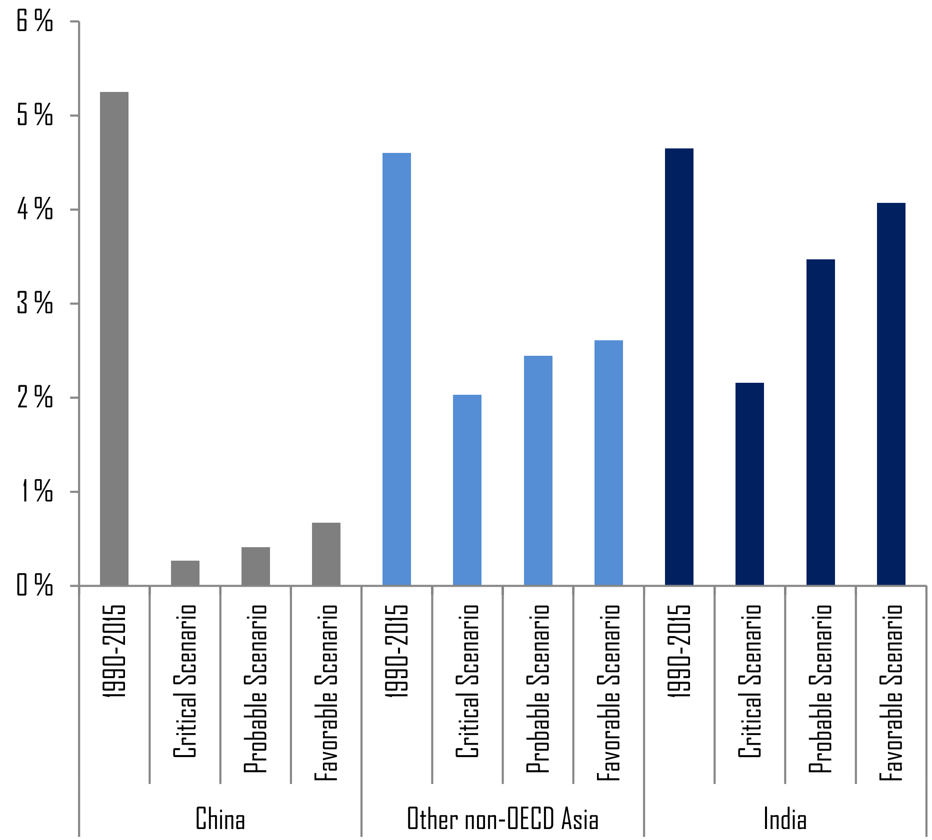
Source: Global and Russian Energy Outlook-2016, ERI RAS-AC

Main liquids demand growth in non-OECD will be located not in China, but in India and in the other non-OECD Asia

Peak Chinese liquids demand

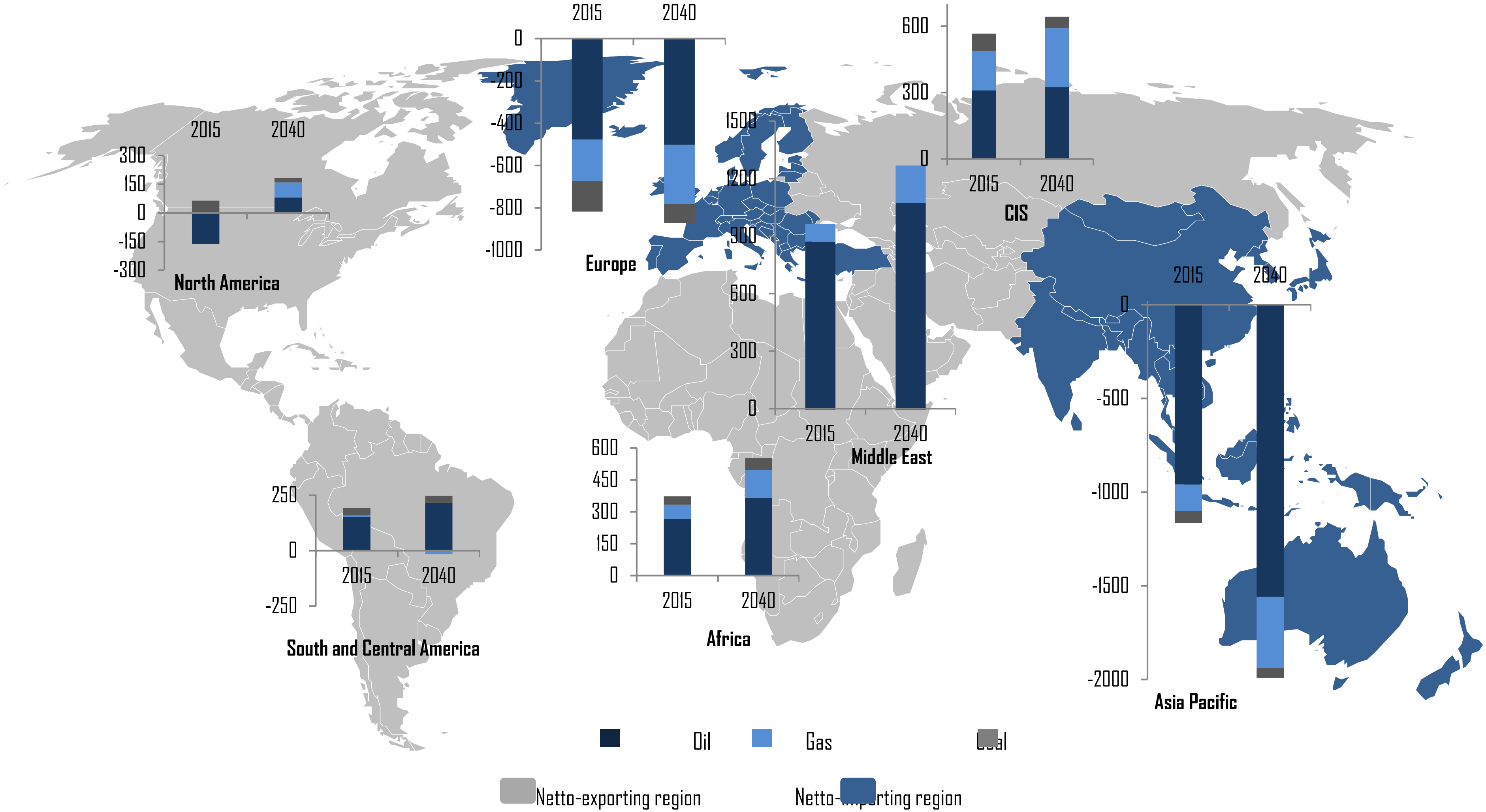


Liquids demand growth in non-OECD Asia



Source: Global and Russian Energy Outlook-2016, ERI RAS-AC

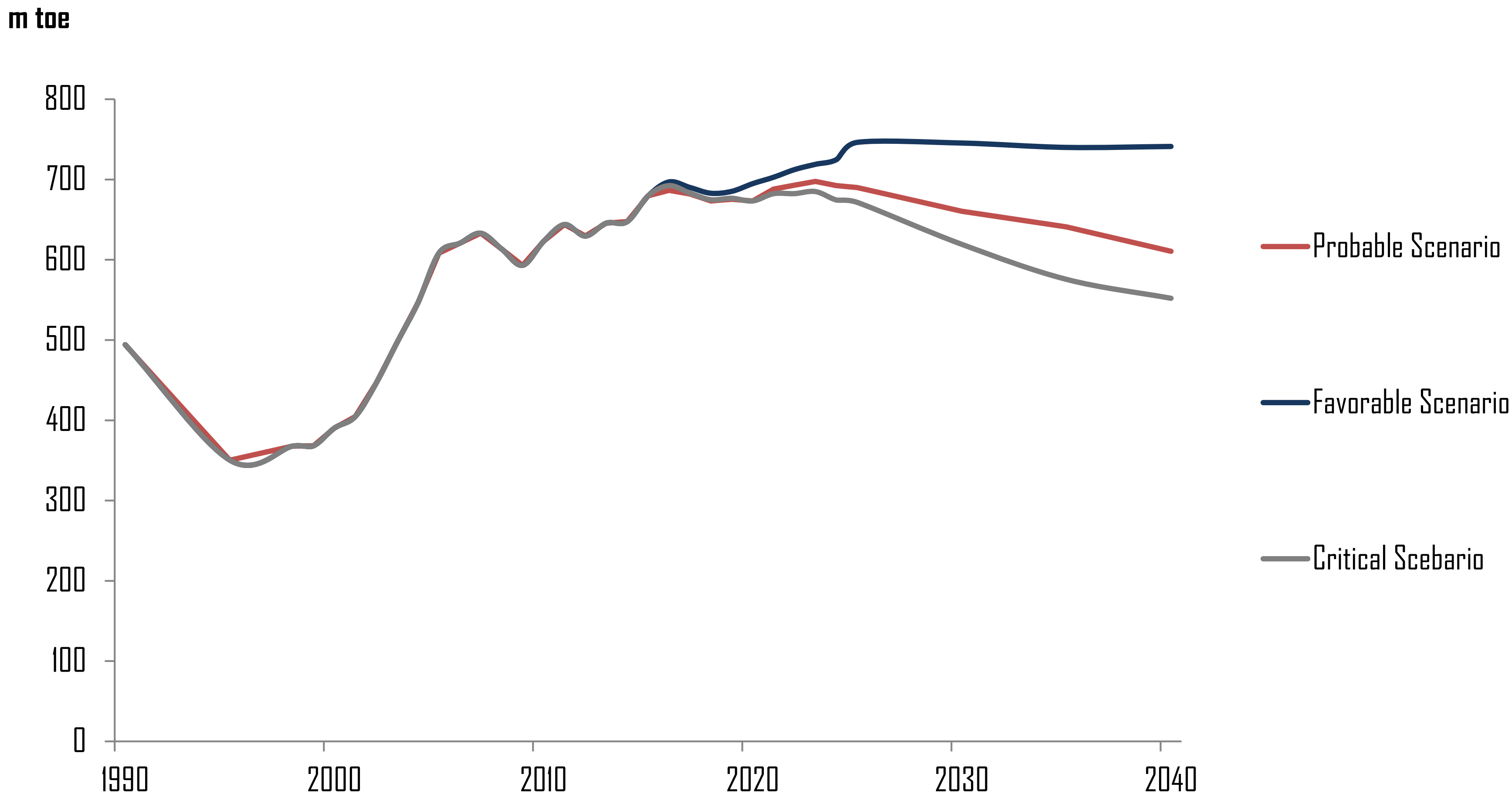
International fossil fuel trade



Source: Global and Russian Energy Outlook-2016, ERI RAS-AC

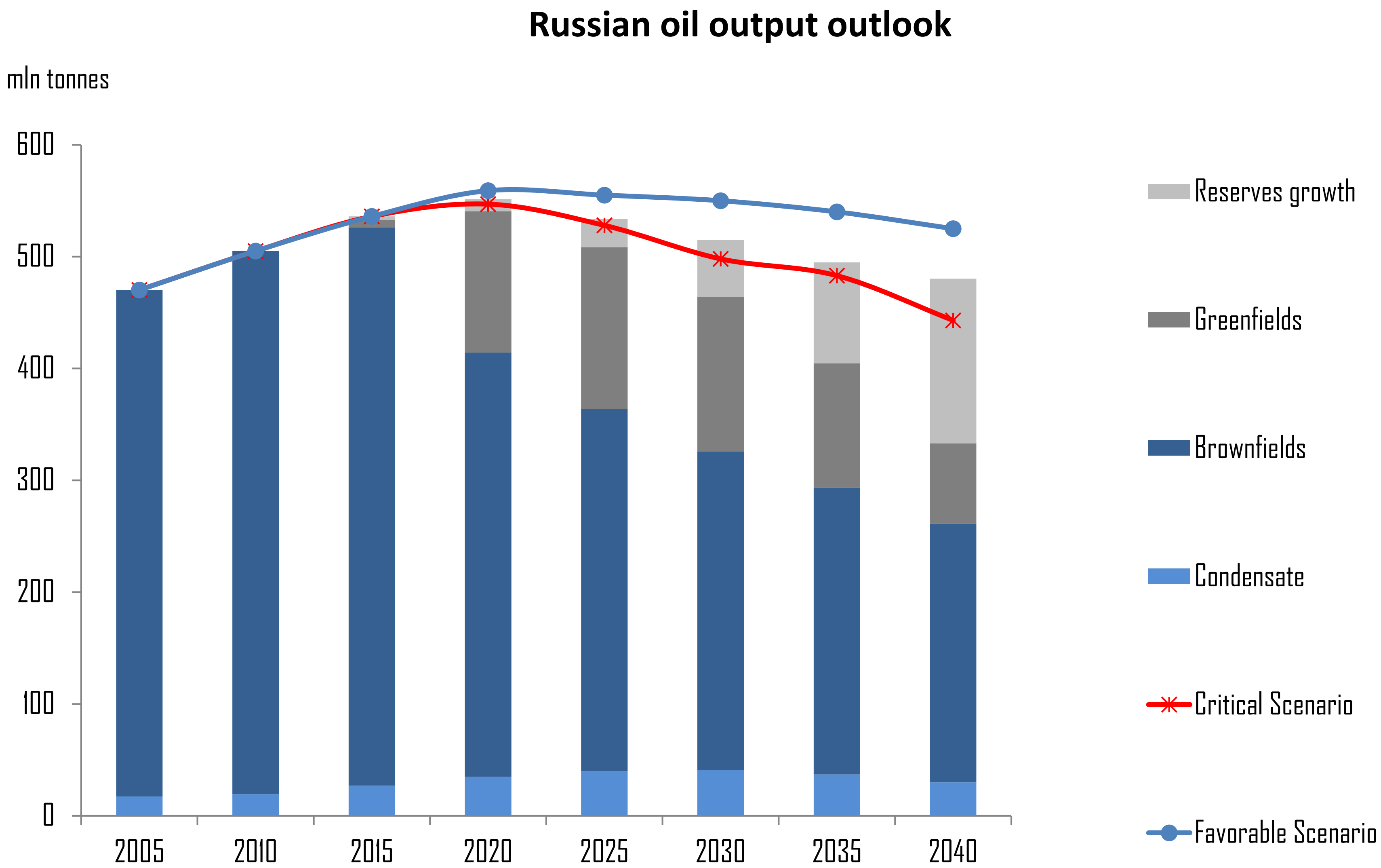
The new conjuncture of the external energy markets does not allow Russia to increase energy exports by more than 10%

Total Russian energy export in 1991-2040



Source: Global and Russian Energy Outlook-2016, ERI RAS-AC

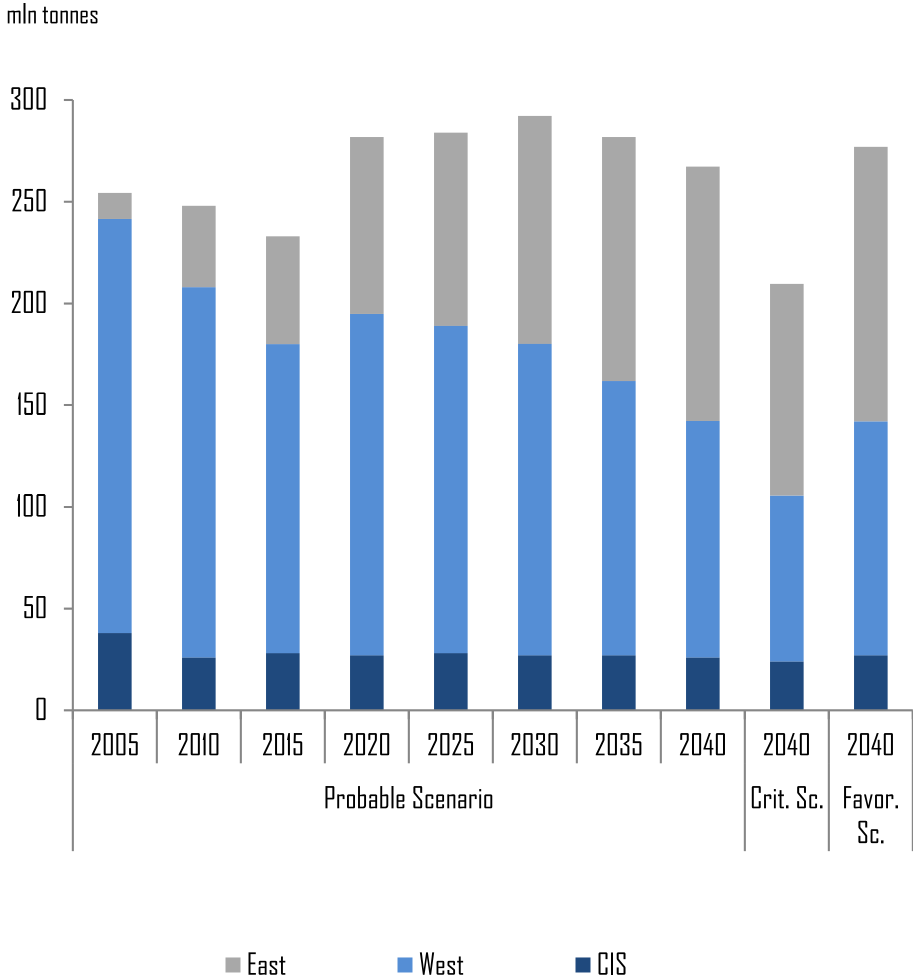
Russian oil output will decline in all scenarios post 2020



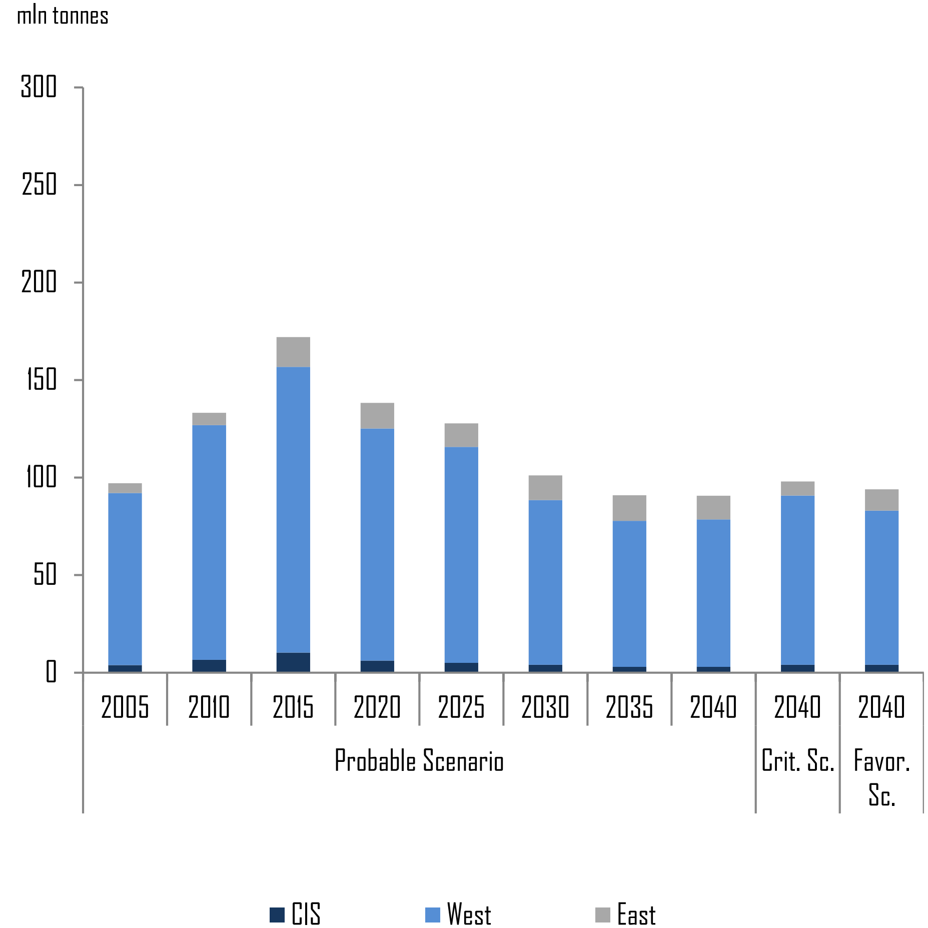
Source: Global and Russian Energy Outlook-2016, ERI RAS-AC

Russian oil exports are driven by the Asian expansion

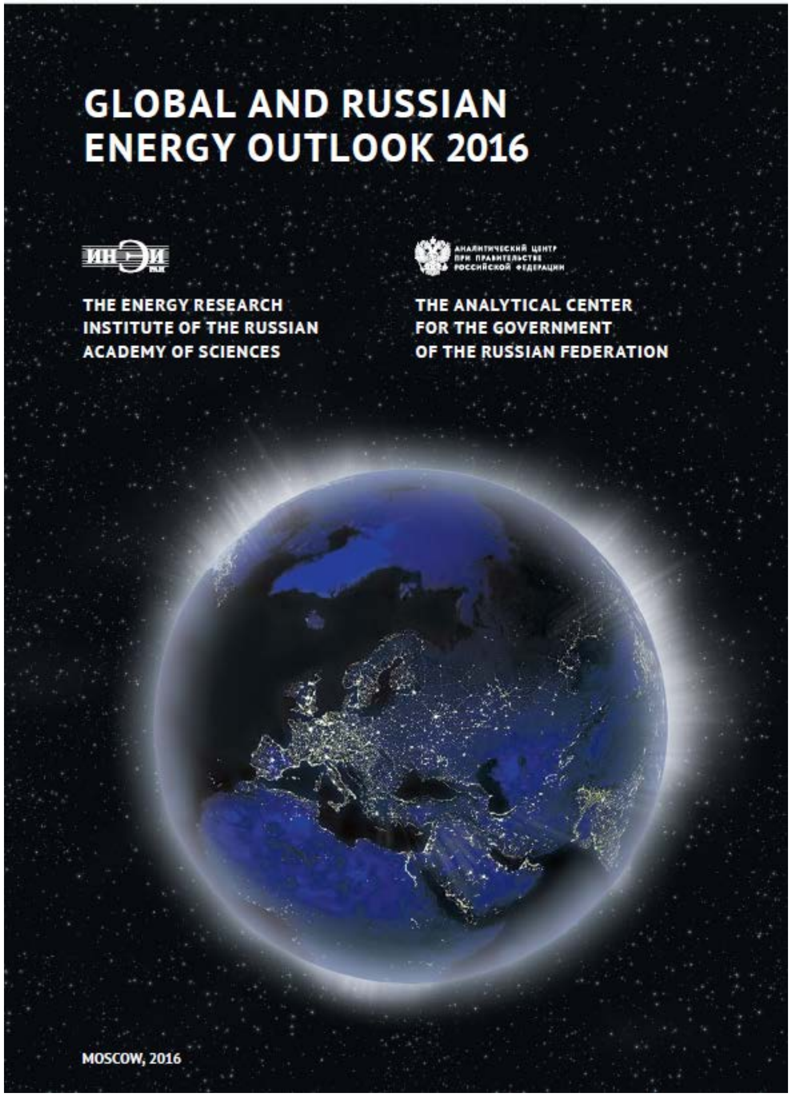
Russian oil exports by destination



Russian petroleum product exports by destination



Source: Global and Russian Energy Outlook-2016, ERI RAS-AC



Global and Russian Energy Outlook 2016

http://www.eriras.ru/files/forecast_2016.pdf