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

<table>
<thead>
<tr>
<th></th>
<th>Favorable</th>
<th>Probable</th>
<th>Critical</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Global population</strong></td>
<td></td>
<td>9, 2 bln. by 2004</td>
<td></td>
</tr>
<tr>
<td><strong>Global GDP AAGR</strong></td>
<td>3,4%</td>
<td>2,8%</td>
<td>2,1%</td>
</tr>
<tr>
<td><strong>Geopolitical risks</strong></td>
<td>No conflicts</td>
<td>Few local conflicts</td>
<td>Many local conflicts</td>
</tr>
<tr>
<td><strong>State energy policies</strong></td>
<td>New plans and methods.</td>
<td>Partial implementation of the existing plans.</td>
<td>Current plans are not implemented.</td>
</tr>
<tr>
<td><strong>Global CO2 quotas trade</strong></td>
<td>Global trade is emerging</td>
<td>No global market, but regional trade is developing successfully.</td>
<td>No development</td>
</tr>
<tr>
<td><strong>New technologies</strong></td>
<td>No technological revolutions. Several technological breakthroughs, but only for the technologies that are being tested currently.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Technological transfer</strong></td>
<td>Unlimited</td>
<td>Limited</td>
<td>No transfer, new technologies develop only in OECD and in China</td>
</tr>
</tbody>
</table>
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.
Main liquids demand growth in non-OECD will be located not in China, but in India and in the other non-OECD Asia.

Source: Global and Russian Energy Outlook-2016, ERI RAS-AC
International fossil fuel trade is expanding mainly in Asia.
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**

- **Probable Scenario**
- **Favorable Scenario**
- **Critical Scenario**

*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