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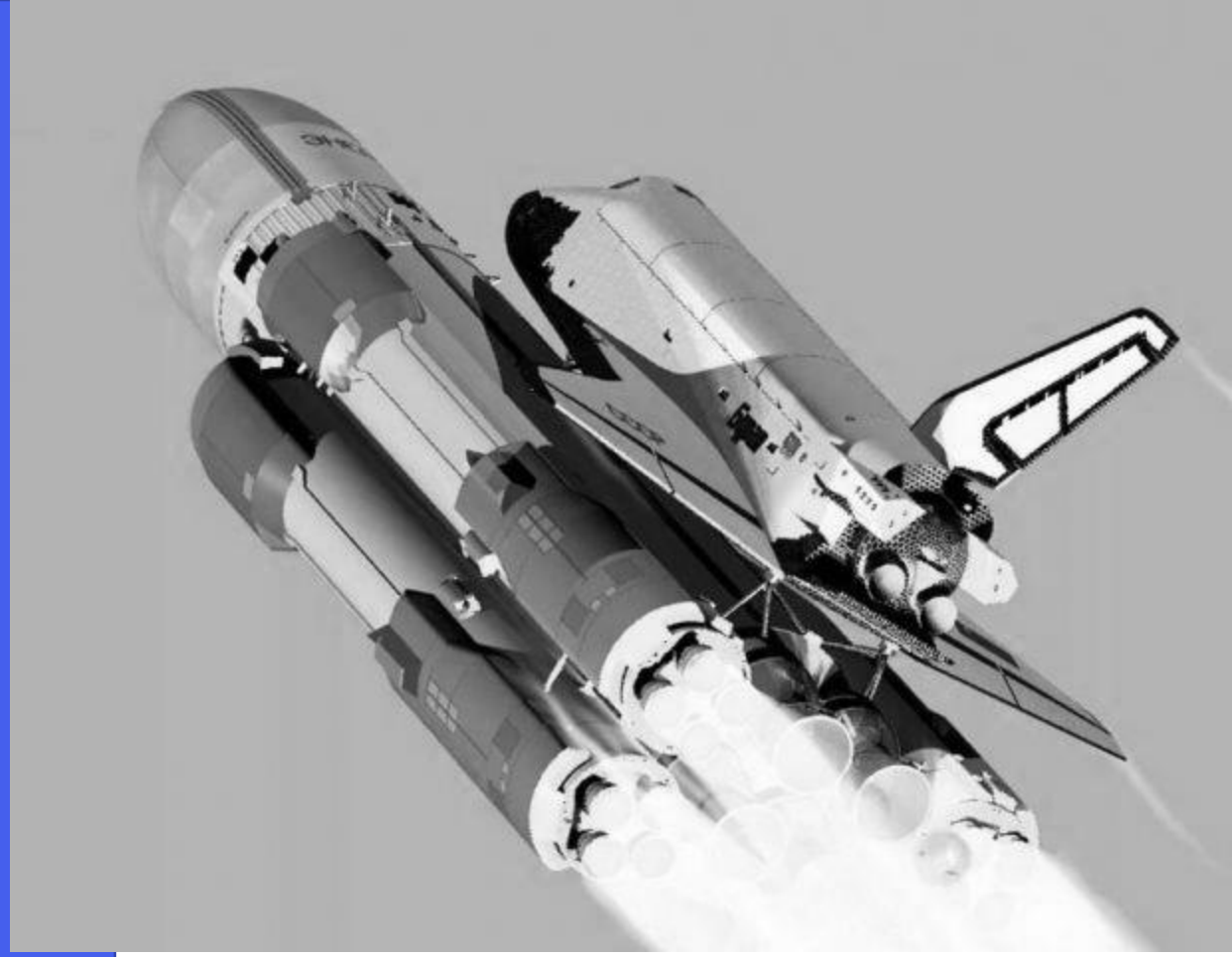
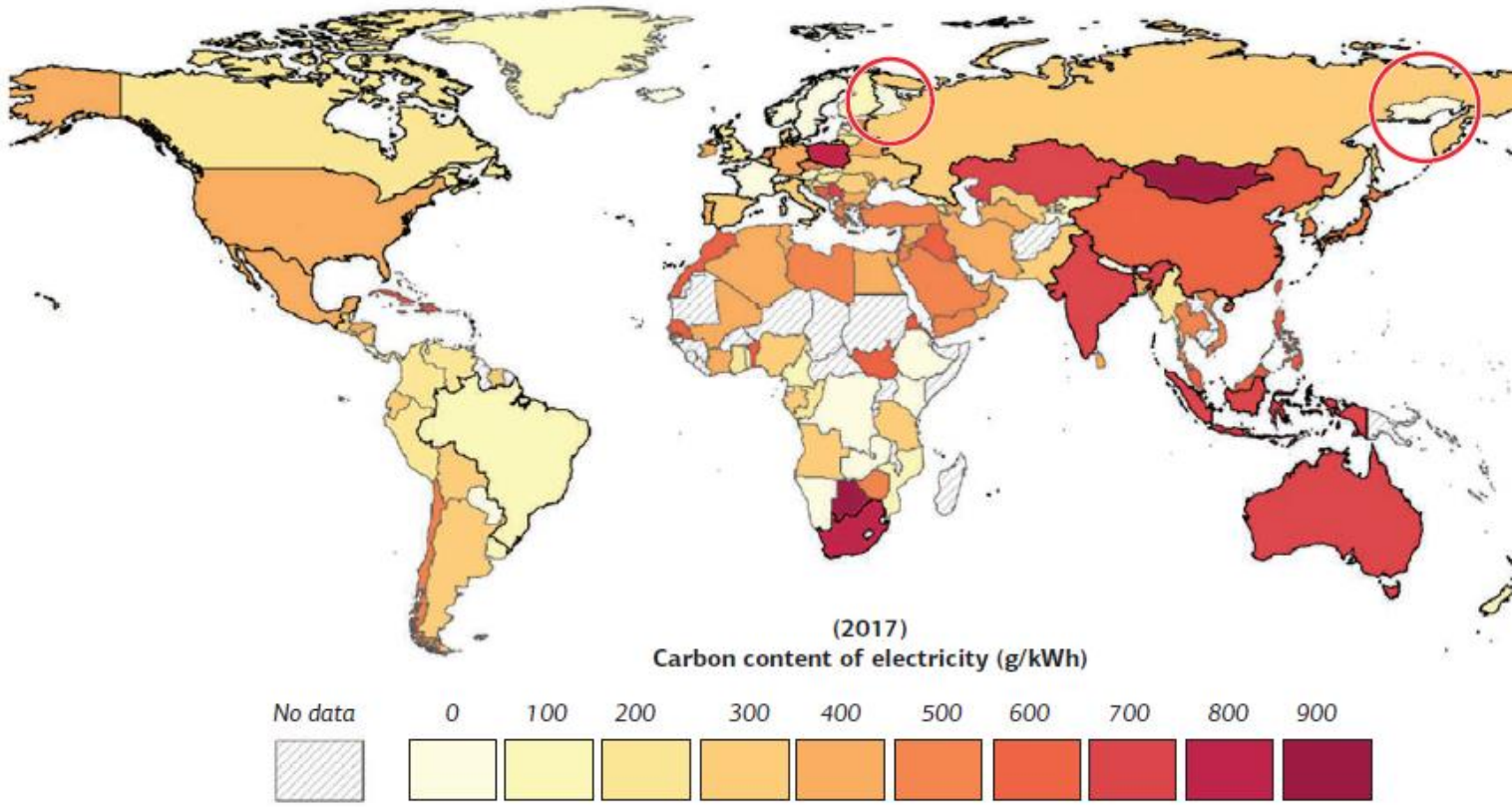


Yuriy Melnikov, Moscow School of Management SKOLKOVO

Hydrogen in Russian long-term energy strategy

Opportunities:

- low carbon footprint of electricity (esp. in particular regions of Russia);
- additional potential of renewables;
- existing natural gas transport infrastructure;
- proximity to EU / East Asian markets;
- 60+ years experience of H2 for space | military applications.



Source: I. Staffell, IEA

Blue **Green**

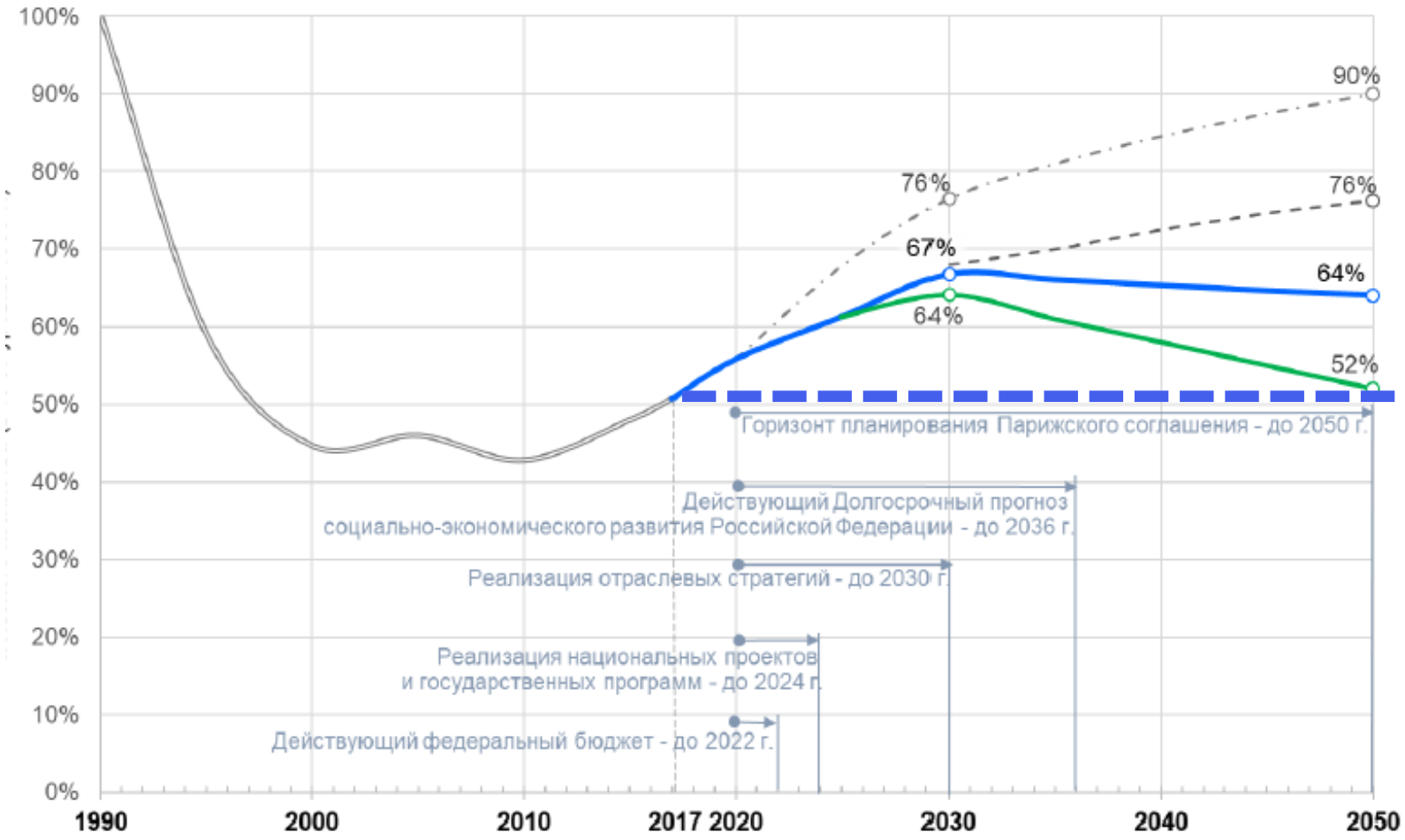
Turquoise **Yellow**

Russian Energy strategy aims to export of 2 million tons of H_2 by 2035

Incentives for the hydrogen policy development worldwide:

- decarbonization / CO_2 emission reduction;
- reduction of local air pollution by vehicles;
- demand on low-carbon energy storage due to solar/wind renewables development;
- energy security;
- economic development

What about incentives in Russia?



52% of the 1990 level

- Energy efficiency improvement is considered as the main driver of GHG emissions reduction
- Powerfuels are not the case

Source: draft of the Long-term low carbon development strategy, March 2020 (https://www.economy.gov.ru)

Anthropogenic GHG emissions targets in Russia are planned at the same level by 2050 as in 2017 (best case)

What about other incentives for H2 in Russia?

Air pollution by vehicles?

Low carbon energy storage?

Energy security?

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0,15%

share of solar+wind in 2019 electricity mix in Russia

Source: System Operator, 2020

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Energy security?

#1

energy exporter worldwide

1. Focus on H2 import, negligible local market (until technology cost reduction worldwide)?
2. Stimulating the local market, subsidies, tightening the national climate policy?

Hydrogen policy at a crossroads: choosing the best way