60 years of experience: Russia and the nuclear energy trends

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1954: an ambitious idea came true – the 1st NPP in the world commissioned

Built in a small town of Obninsk near Moscow, the world's first nuclear power plant successfully worked for 48 years.

Main Data:

- Reactor type: AM-1 (graphite moderated and water cooled)
- Electric capacity: 5 MW
- Thermal capacity: 30 MW
- Commissioned: 1954
- Decommissioned: 2002

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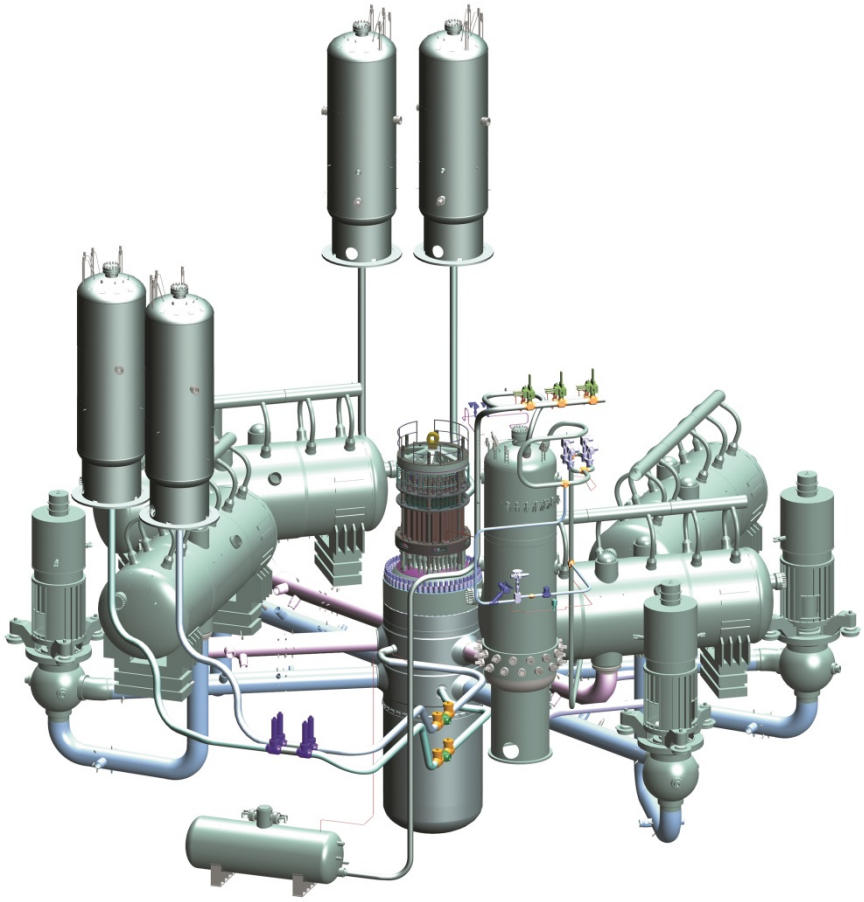

VVER – among the most successful embodiments of an idea to create a safe & effective nuclear power reactor

VVER is a pressurized water reactor, which proved its high reliability over more than 1,300 reactor-years of VVER plants operation.

First VVER reactor of 210 MW capacity was commissioned in 1964 at Novovoronezh NPP. This year it is planned to commission a 1,200 MW VVER reactor at Novovoronezh site.

EU:
Czech Republic
Slovakia
Finland
Hungary
Bulgaria

All Russian designed reactors, including 38 VVER units operating outside Russia, successfully passed stress-tests,
among those - 18 VVER units in 5 EU countries
Rosatom actively supported and is confident in the results

Russian design VVER reactors keep providing electricity throughout the world: above the Arctic Circle and at the southern tip of India

71 power units with VVER reactors have been constructed since the 1960s. At present 56 VVER reactors are in operation at 19 NPPs in 11 countries.

Did you know that:

- two VVER-440 reactors in Armenia continued to operate through the 0.7g Spitak earthquake in 1988;
- Tianwan NPP in China with two VVER-1000 reactors was the 1st NPP with a core catcher

Construction and start-up of
Rostovskaya NPP Unit 3

Rosatom: Recent commissioned NPP

Iran, Busher NPP,
Unit 1 - 1000 MW, 2011

Russia, Kalinin NPP,
Unit 4 - 1000 MW, 2012

India, Kudankulam NPP,
Unit 1 - 1000 MW, 2013

Russia, Rostov NPP,
Unit 2 - 1000 MW, 2010
Unit 3 - 1000 MW, 2014

Rosatom - the only vendor globally implementing serial construction approach

Modern VVER-1200 – evolutionary ideas of the revolutionary safety

VVER-1200 (AES-2006) is based on the most recent achievements of the Russian nuclear industry. Its unique safety concept is a balanced combination of both active and passive safety systems.

VVER-1200 design is:

- under construction in Russia at Leningrad II NPP, Novovoronezh NPP II, and Belorussian NPP;
- to be implemented at Hanhikivi-1 NPP in Finland, Paks NPP Units 5-6 in Hungary, Akkuyu NPP in Turkey.

There is no separate nuclear power market - it's global energy market

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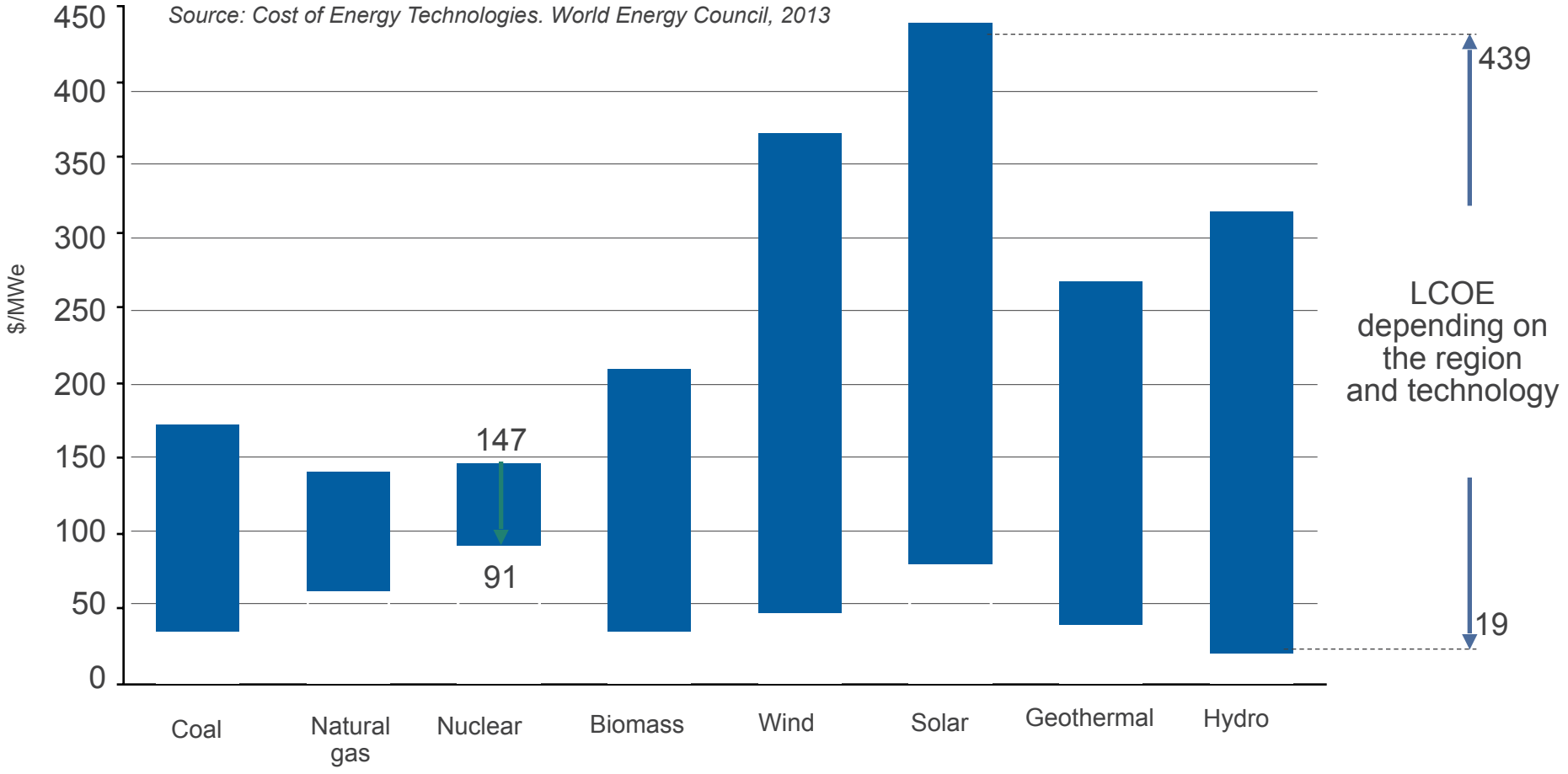
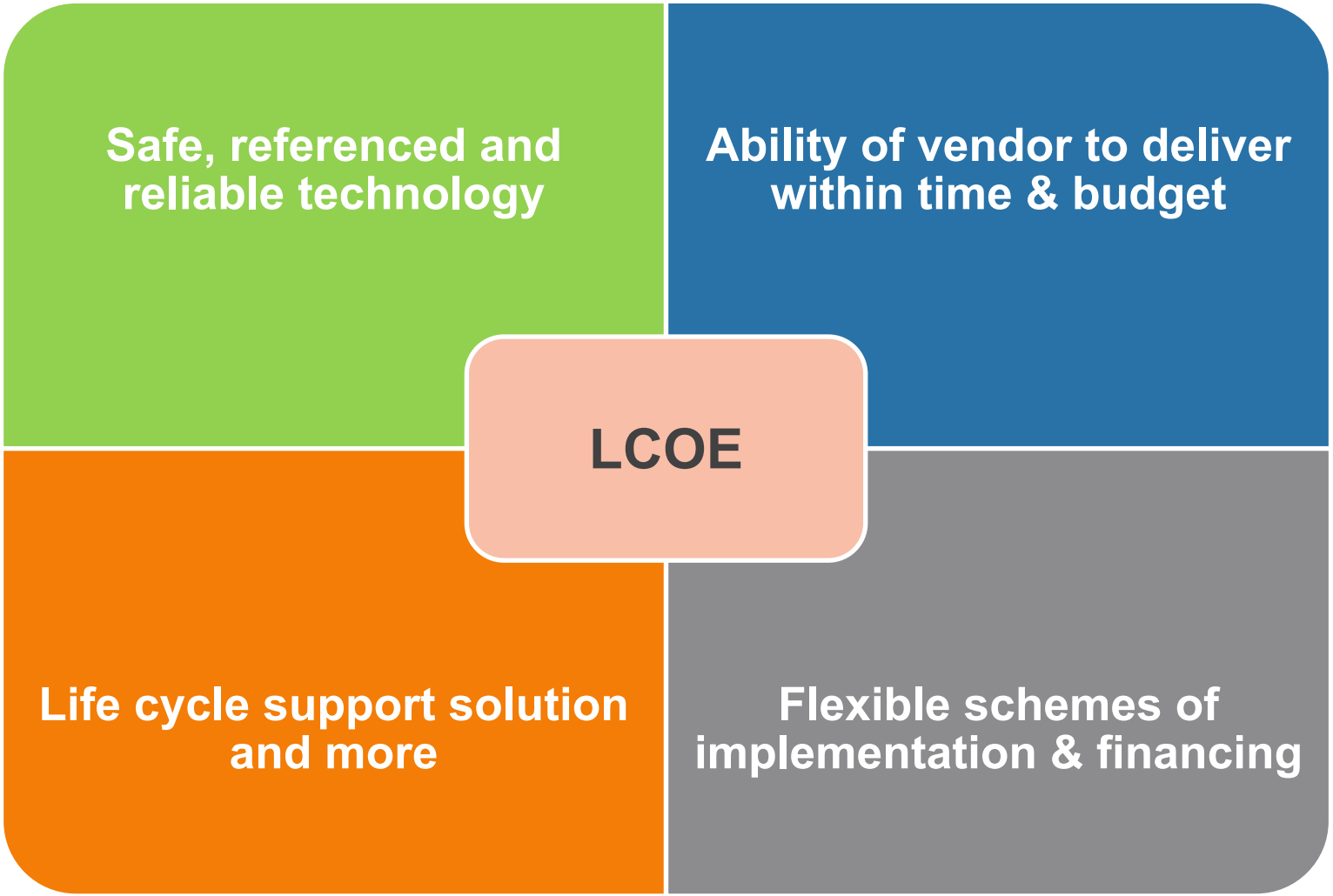
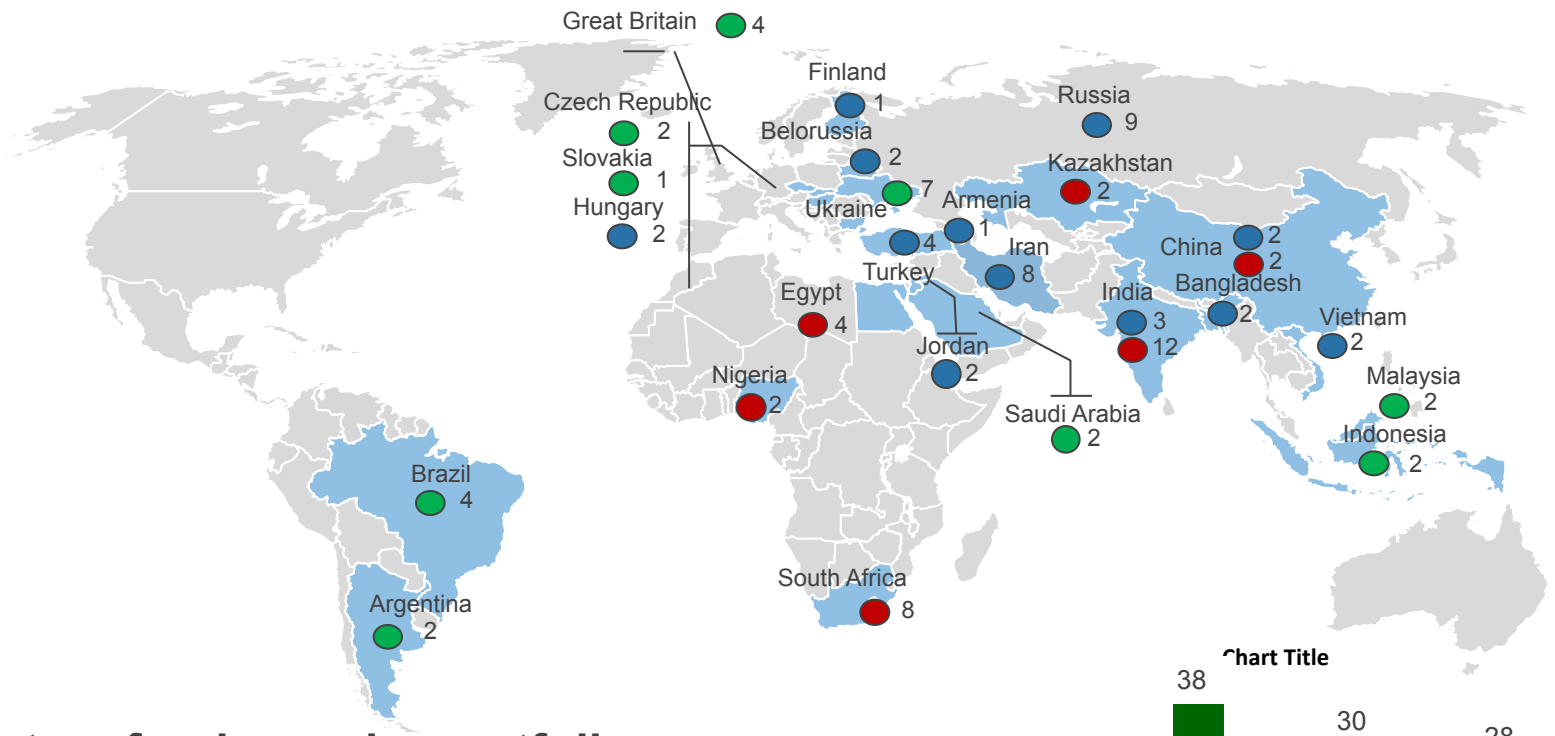
Nuclear LCOE is one of the most globally competitive and predictable



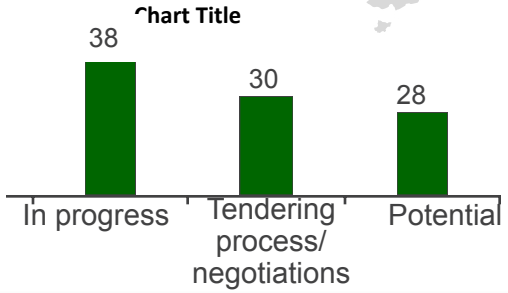
Customer requirements while developing nuclear projects globally



Rosatom VVER NPPs are highly welcomed worldwide

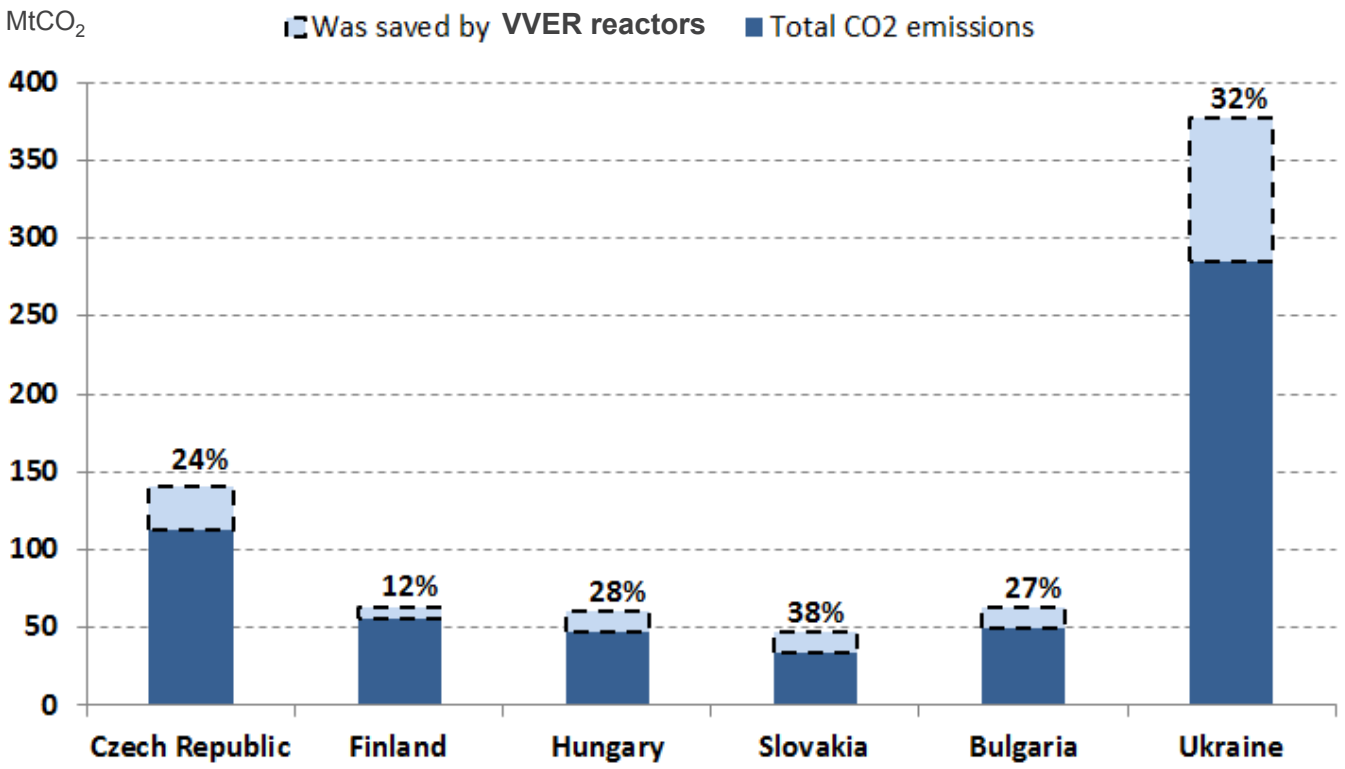


Rosatom foreign order portfolio
for the next ten years
exceeded **$100 billion**



Rosatom NPP construction perspective backlog – more than 90 units

CO2 emission from fuel combustion in 2013



During 60 years of Rosatom NPPs operation worldwide emissions were reduced by

15 344 $MtCO_2$

(equivalent of 38 electricity plants with unit installed capacity of 1000 MWh operating on coal during 60 years)

In Russia, the emission reduction by 168 $MtCO_2$ - 10% of total yearly CO_2 emission from fuel combustion

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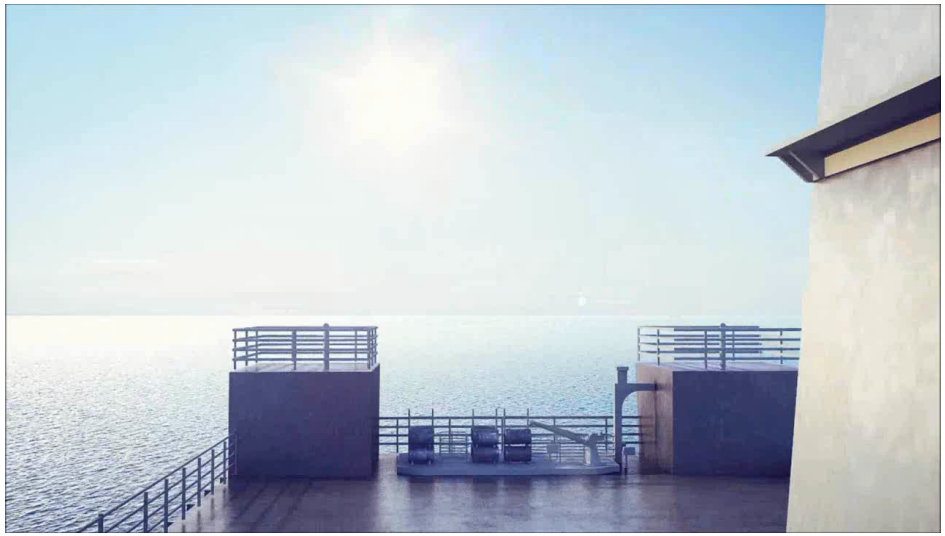

Floating NPP – the idea to bring clean energy where it is most needed.

The ROSATOM Floating Nuclear Power Plant is aimed at provision of stable and secure energy supply to industry, infrastructure and resident sector in remote areas.

Main features:

- Reactor type: 2 x KLT-40S
- Electric capacity: 70 MW
- Thermal capacity: 150 MW
- Displacement: 21,000 t
- Aircraft crash resistance: up to 400 t
- Construction timing: 4 years
- Service life: 40 years

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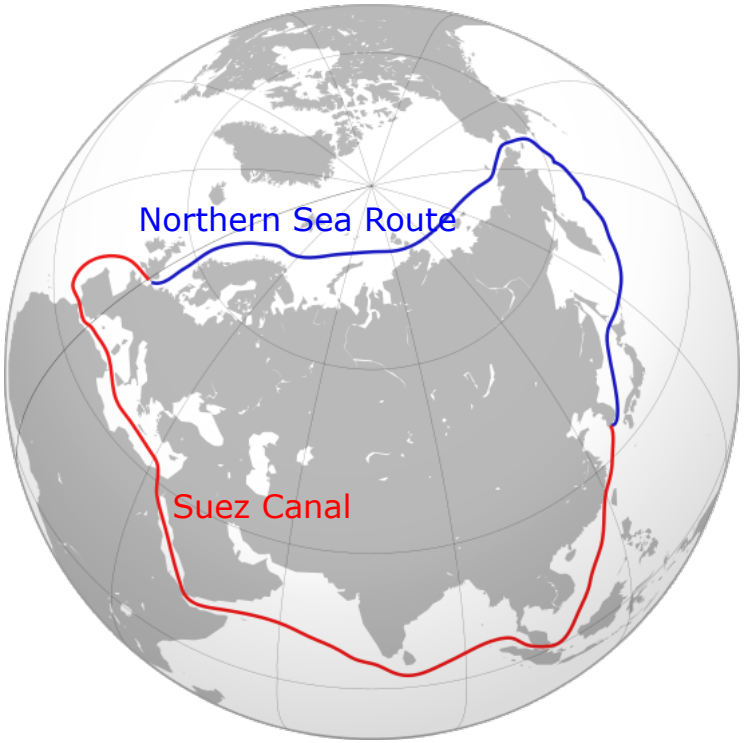


Nuclear icebreakers and the Northern Sea Route –boosting the world trade & economic development

Only from Yamal peninsula it is planned to annually export 17.6 mln t of LNG. Icebreaking and navigation services will be essential for the operation of 16 LNG-carriers.

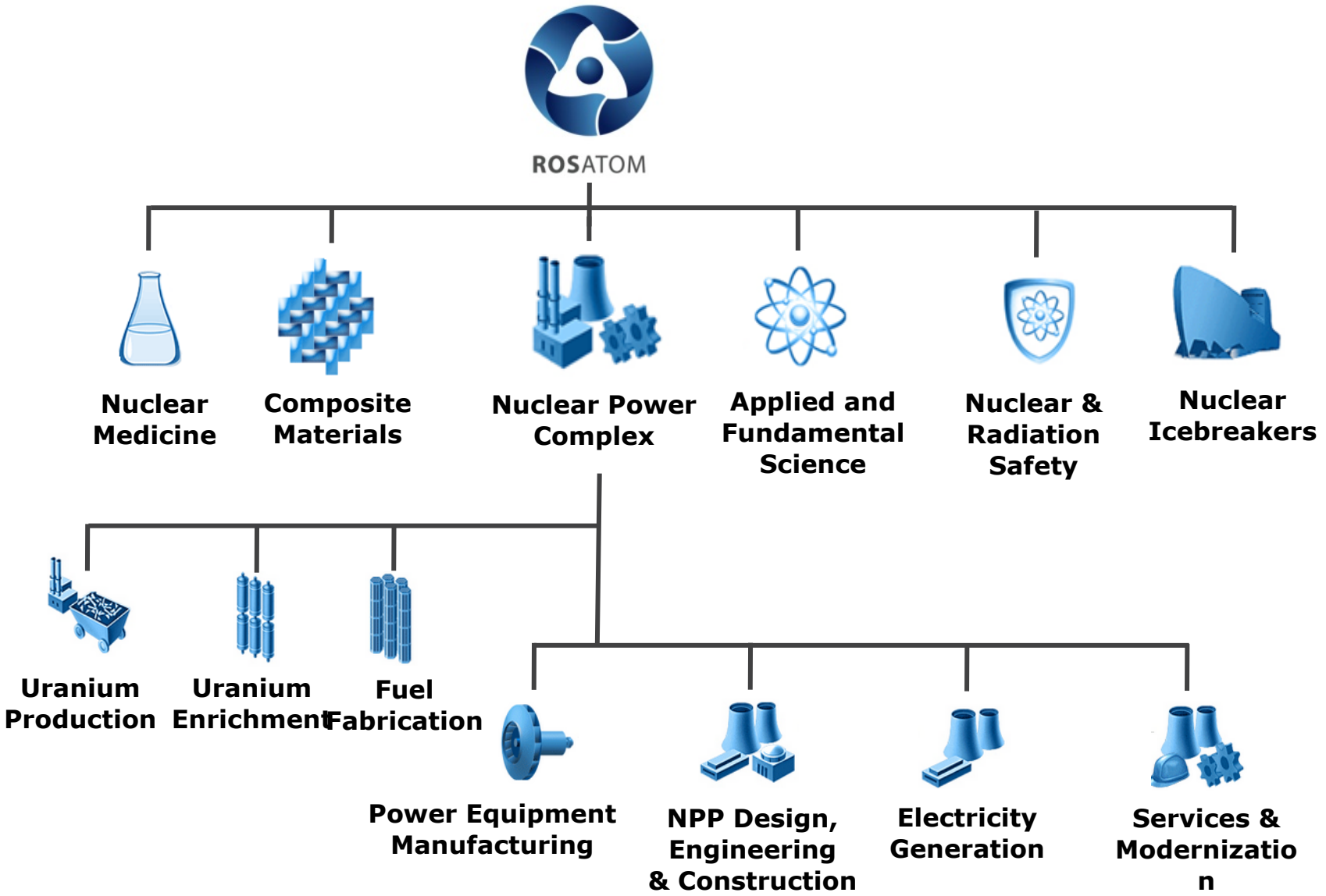
For such purposes new generation of icebreakers is planned. Construction of the new LK-60 icebreaker is already underway. With the displacement of 33,540 tones its will be the world's largest nuclear-powered icebreaker, which may be used both in the open sea and on rivers.

Nuclear medicine – a life-saving idea

In medicine the atom is also taking on the most complex challenges. It is used for diagnosis and therapy of the severest illnesses, including cancer.

Did you know:

- cancer causes about 20% of all deaths in developed countries and 10% in developing countries;
- radiopharmaceuticals consumption annually increases by 10-15%;
- 1 USD invested in the national nuclear medicine development helps to safe up to 2.5 USD in other healthcare



350+ companies / 256,000 employees / 33 reactors in operation / 21 reactor projects under implementation / 4.4 billion USD EBITDA

/ 98 billion USD foreign orders portfolio / 5 % R&D share in

www.rosatom.ru