



ROSATOM

Russian nuclear energy development and support to overseas countries

UNECE – National approaches to nuclear power
deployment. Webinar.

September 24, 2020

Yaroslav Mozdakov

Director for Communications and International Affairs,
REIN

Contribution of nuclear energy to UN sustainable development goals

NPP construction contributes to at least 6 UN SDGs

- ✓ Operation of all Russian-design NPPs in the world **saves of CO2 emissions ~ 210 mln tonnes/year**, including **107 mln tonnes/year** in Russia *
- ✓ For instance, a two-unit VVER-1200-based NPP provides 2400 MW of **low-carbon energy** with **stable supply for 60 years** – enough to power on average 1.8 mln homes**
- ✓ Creates about **3,000 of new jobs at the NPP** and more than 10,000 indirect jobs**
- ✓ Brings **USD 3-4 bln of orders to local industries** during construction period**



Rosatom at a glance



140.0 Bn USD
10-YEAR PORTFOLIO OF
OVERSEAS ORDERS

17.8 Bn USD
REVENUE

RUSSIAN DESIGNED NPPs
AVOID
210 M tonnes of CO₂eq
on average per year

36 UNITS
IN IMPLEMENTATION
ABROAD

R&D INVESTMENT
4.5% of revenue

0 INES
LEVEL-2 INCIDENTS

250 000
EMPLOYEES

GLOBAL FOOTPRINT -
over **50** countries



Integrated offer



NUCLEAR
INFRASTRUCTURE
DEVELOPMENT



PUBLIC
ACCEPTANCE

BACK END



OPERATION &
MAINTENANCE



FUEL
SUPPLY



HUMAN
RESOURCES
DEVELOPMENT



INDUSTRIAL
SOLUTION
LOCAL INDUSTRY
INVOLVEMENT



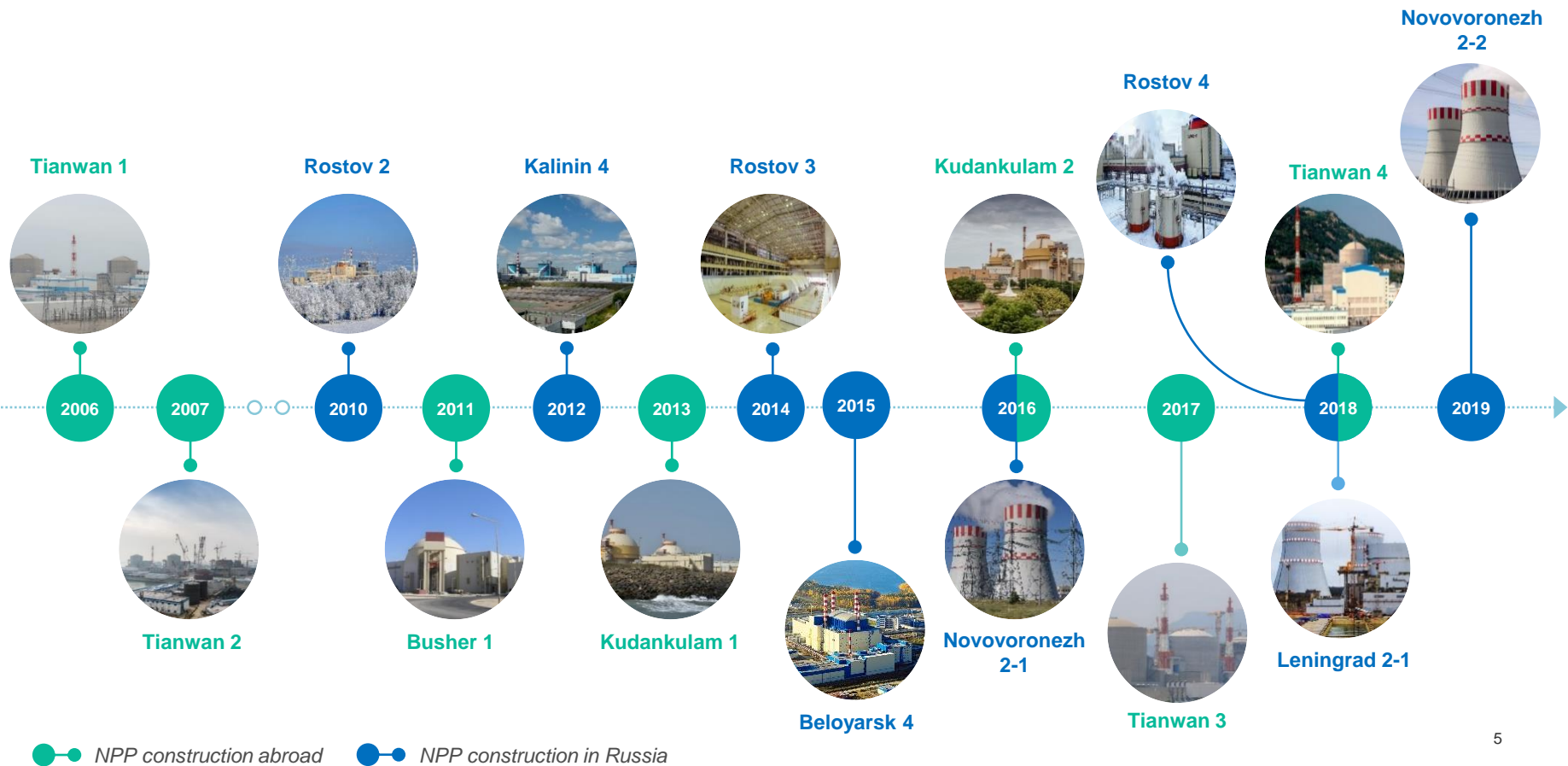
ENERGY /
NON-ENERGY
SOLUTION



The only company implementing serial NPP construction globally



15 NPP UNITS IN 14 YEARS CONNECTED TO THE GRID



Rosatom international portfolio



ROSATOM
SUCCESS
STORY:

36 IN IMPLEMENTATION

12 COUNTRIES



Finland
Hanhikivi-1 NPP
VVER-1200



Turkey
Akkuyu NPP
VVER-1200



Belarus
Ostrovets NPP
VVER-1200



China
Tianwan NPP
VVER-1200



Hungary
Paks NPP
VVER-1200



Egypt
El-Dabaa NPP
VVER-1200



Bangladesh
Rooppur NPP
VVER-1200



India
Kudankulam NPP
VVER-1000

NPP construction effects for customers



NPP brings long-term positive effects for the customer

Construction phase



Operation phase



Economic effects

Multiplier effect on economy

- ✓ Local industry income
- ✓ GDP growth



Budget effects

Tax revenues increase

- ✓ Income tax
- ✓ Dividend tax



Social effects

Employment increase

- ✓ Direct and indirect
- ✓ R&D employees

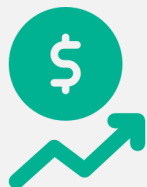


Ecological effects

Emissions reduction and sustainability

- ✓ Reduction up to equivalent annual emissions of 294 mln cars

NPP Benefits



\$1 invested in an NPP
of Rosatom design
results in



1.9 in local industry income



4.3 in GDP growth



1.4 in tax revenue



New jobs

3000 on site

10000 in the nuclear infrastructure



Throughout its 60-year lifecycle, an
NPP with two VVER-1200 reactors
boosts the GDP by ~ **\$40-60%* bln.**

Rosatom integrated offer

Support at every stage of nuclear program implementation

from the introduction of the nuclear
option into the national power strategy to
the decommissioning of the last nuclear
facility

Nuclear infrastructure development in the customer-country

preparation for nuclear facility operation

Public relations

increasing public awareness of nuclear
power benefits

Personnel training

for national nuclear program
management and safe and efficient
operation of nuclear units

Industry solution

involving local suppliers

Power solution

NPP design, construction and
commissioning

Fuel solution

continuous fuel supply throughout the
entire lifecycle

Service solution

safe and efficient NPP operation

SNF and RAW management

decommissioning without any
environmental damage

REIN JSC projects effects



NPP Akkuyu

- Largest foreign direct investment in Turkey (**20 bln. USD**).
- Est. **50 bln. USD in GDP** growth for Turkey on the entire lifecycle of the project.
- Construction personnel will exceed **13,000** at peak construction, majority – Turkish citizens
- Local population growth – up to **30 000** people.
- **40%** of works & supplies to be **localized** during construction. **Above 350** Turkish companies applied to be included on Akkuyu suppliers list.
- More than **500** Turkish companies attended Rosatom and Akkuyu seminars for suppliers since 2018.
- At present **6000 people** work at construction site, 80% of them are Turkish citizens
- Personnel at operation stage - **3500**, Turkish engineers – above **700**
- **600 Turkish students** will complete higher education in nuclear sciences at Russian universities, of that **143 Turkish students graduated already** and took up jobs at Akkuyu
- Training program launched at **Turkish technical colleges, Training Center** for construction workers to be set up at construction site area



NPP Hanhikivi-1

- **7 bln EUR** of direct investments
- **1.8–2.7 bln EUR** localization in construction phase covered by Finland/EU companies. More than **680 companies** already registered to participate in H1 since 2015. **620** of these are from Finland, half of that - from local regions
- **80%** amount of preparatory works on site – by companies from Finland
- Up to **45 bln EUR** input in GDP growth
- **20 bln EUR** fiscal/taxation effects
- **9.6 TWh** of electricity annually to satisfy ~10% of Finland's energy demand by the late 2020s – decrease of electricity imports dependence and related decrease of electricity prices for domestic consumers
- **1.1-1.7 bln EUR** contribution to Regional Added Value at construction stage
- **120-150 mln EUR** per annum contribution to Regional Added Value at operation stage
- **20 000** qualified personnel to be employed at the project during the construction phase
- **4 000** people to work on site at the peak of construction
- **400-500** people to be working at NPP in operation phase
- 1 job on site generates **5–5,5** new jobs beyond the site during the construction phase and 5,2–6,2 jobs in supporting industries during NPP operation.
- Jobs on site will encourage up to **2 600** jobs in supporting services, **1 700** of them in Northern Ostrobothnia, and **800-900** in other regions of Finland

Contribution to climate saving

32,8

mln hectares of forest

WILL ABSORB THE SAME
AMOUNT OF CO₂ IN A YEAR

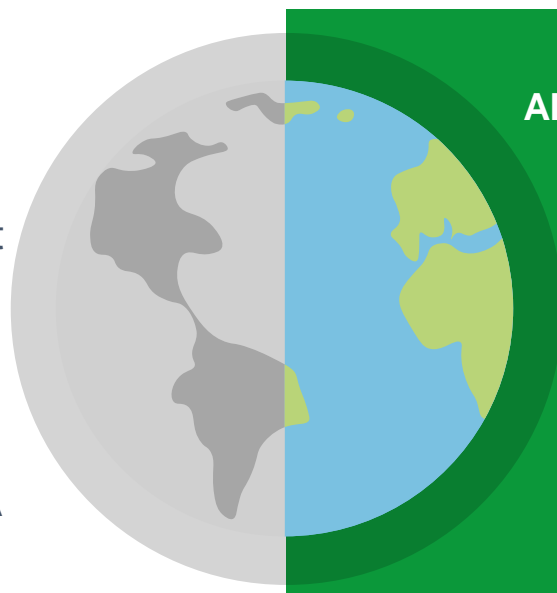
11% OF FOREST AREA
IN THE USA

and

3 TIMES MORE THAN
TOTAL FOREST AREA IN
GERMANY



Source: IPCC



ALL RUSSIAN-DESIGNED NPPs SAVE:

210

 MLN TONNES CO₂eq
on average per year

107 MLN TONNES CO₂eq
DOMESTIC

+

103 MLN TONNES CO₂eq
ABROAD

LIFECYCLE EMISSIONS OF SELECTED ELECTRICITY
SUPPLY TECHNOLOGIES (gCO₂eq / kWh)

