



ROSATOM

STATE ATOMIC ENERGY CORPORATION "ROSATOM"

# **Russian nuclear industry development: BRICS perspective**

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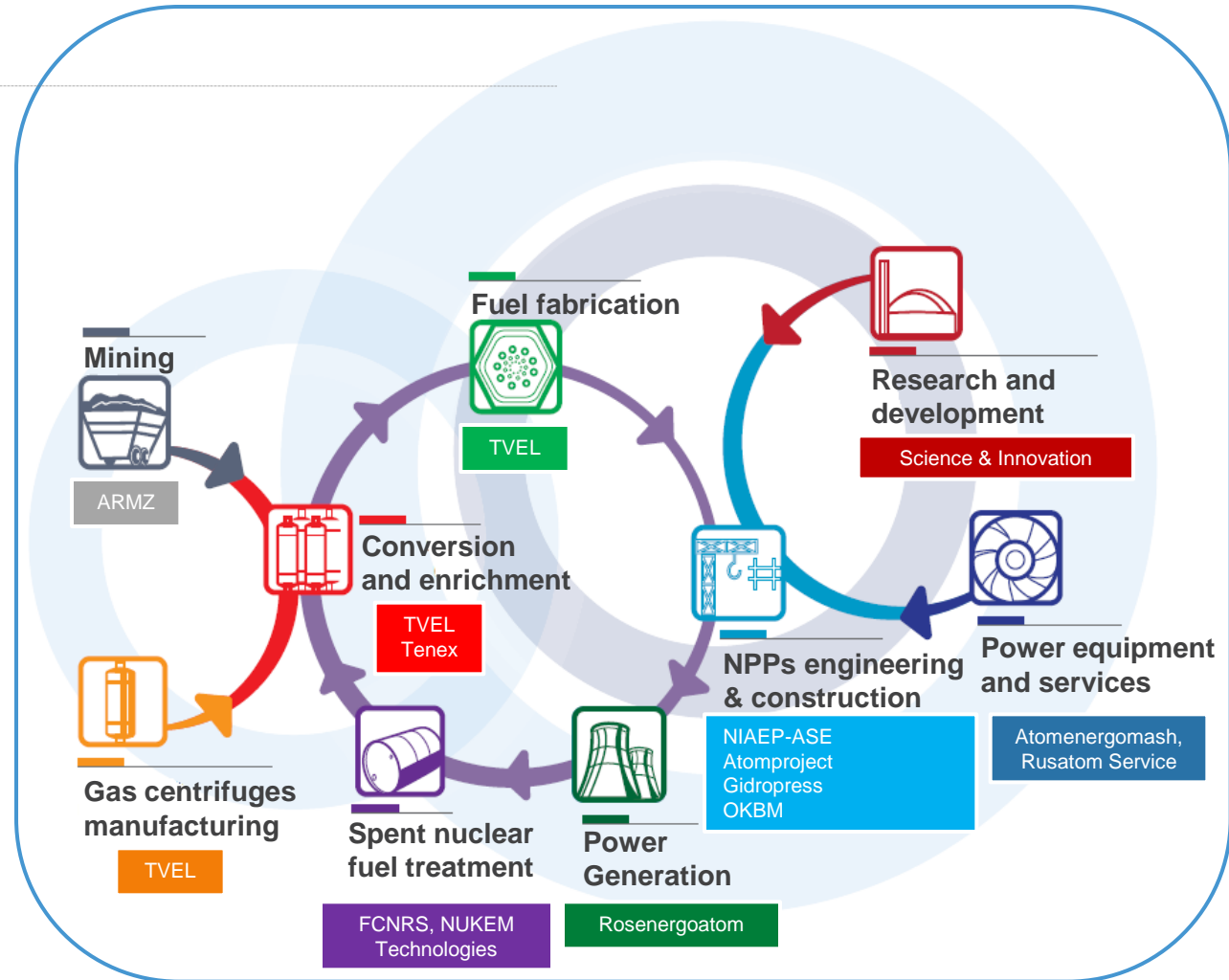
# Rosatom integrates complete solution from uranium supplies to NPP construction operation and decommissioning

## Key Activities of Rosatom\*

**Guaranteed supply**  
of complete life-cycle products  
and services

**Flexible capabilities**  
of NPP supply from  
components and services to  
turn-key and BOO projects

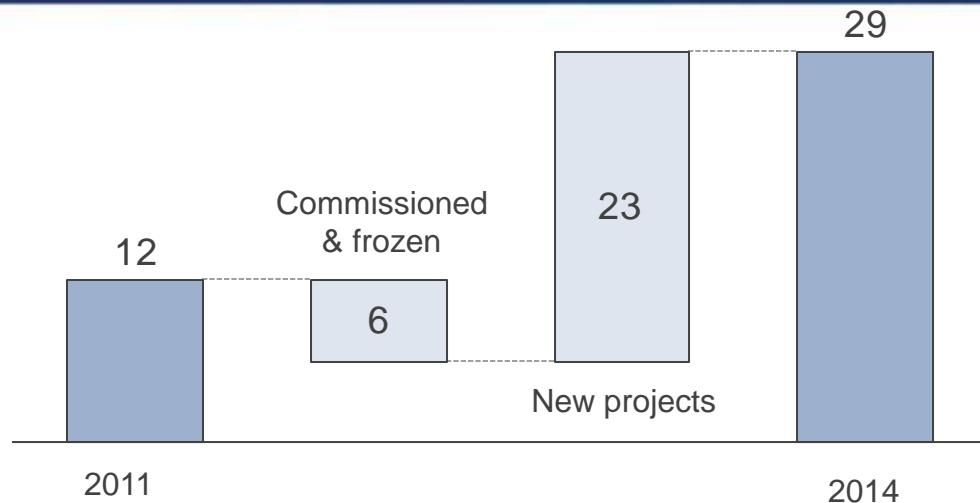
Being a state corporation  
Rosatom is taking advantage  
of unique industry  
**access to privilege  
resources**



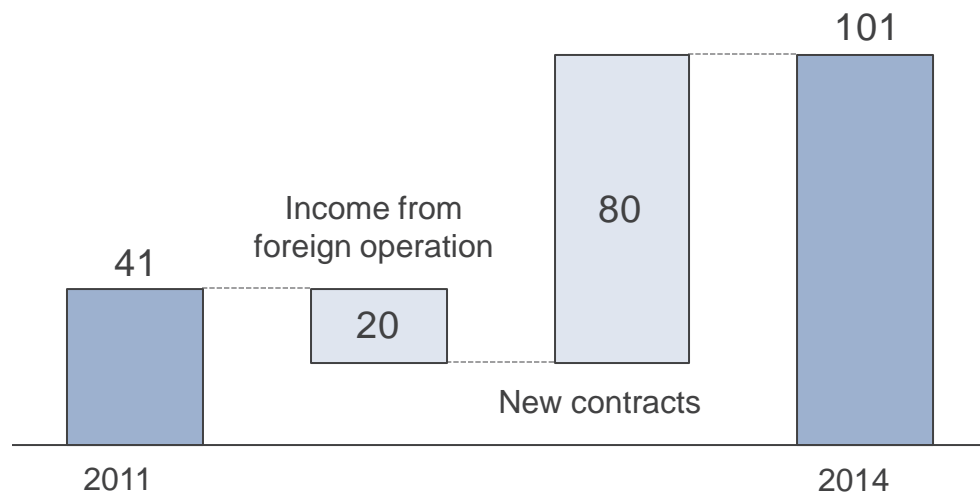
\* Boxes include names of key Rosatom's subsidiaries in the relevant sector

# Rosatom key figures: substantial growth during last 5 years

## Rosatom's portfolio dynamics (units)



## Rosatom's Backlog (bln \$, overall)



# Rosatom operating NPP fleet in Russia



<b>Balakovo NPP</b> Units in operation: 4 Capacity: 4000 MW	<b>Kola NPP</b> Units in operation: 4 Capacity: 1760 MW	<b>Kursk NPP</b> Units in operation: 4 Capacity: 4000 MW	<b>Leningrad NPP</b> Units in operation: 4 Capacity: 4000 MW	<b>Beloyarsk NPP</b> Units in operation: 1 Capacity: 600 MW	<b>Total:</b> - 34 units - 26,2 GWe
<b>Kalinin NPP</b> Units in operation: 4 Capacity: 4000 MW	<b>Novovoronezh NPP</b> Units in operation: 3 Capacity: 1880 MW	<b>Rostov NPP</b> Units in operation: 3 Capacity: 3000 MW	<b>Smolensk NPP</b> Units in operation: 3 Capacity: 3000 MW	<b>Bilibino NPP</b> Units in operation: 4 Capacity: 48 MW	

# NPP construction programme in Russia

As a responsible vendor Rosatom has been implementing since 2008 a large-scale NPP construction programme in Russia:

- To ensure reference of VVER evolutionary designs
- To achieve serial construction effect - implement projects within time & budget

VVER - 1000



Commissioned since 2008: Kalinin NPP (unit 4), Rostov NPP (units 2,3)  
Rostov NPP unit 3 was commissioned ahead of schedule  
Under construction: Rostov NPP (unit 4)

VVER - 1200



Under construction: Leningrad NPP - 2 (2 units), Novovoronezh NPP - 2 (2 units), Baltic NPP (2 units)

First VVER - 1200 to be commissioned in 2015

VVER - TOI



Under construction: Kursk NPP (2 units)  
• 48 months – construction period after first concrete till physical start  
• Increased capacity  
• Enhanced economic parameters

Currently 9 VVER units + 3 units of other technologies (BN and KLT) are under construction in Russia

# Rosatom safe and mature VVER technology is one of the most referenced in the world

## VVER Global Fleet



Country	Constructed	In operation
Armenia	2	1
Bulgaria	6	2
China	2	2
Czech Republic	6	6
Finland	2	2
Germany	6	-
Hungary	4	4
Iran	1	1
India	1	1
Russia	20	18
Slovakia	6	4
Ukraine	15	15
<b>TOTAL</b>	<b>71</b>	<b>56</b>

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 – the only vendor globally implementing serial construction approach. Recent commissioned NPP EPC projects

Russia, Kalinin NPP, Unit 4  
1000 MW, 2012



Russia, Rostov NPP, Unit 3  
1000 MW, 2014



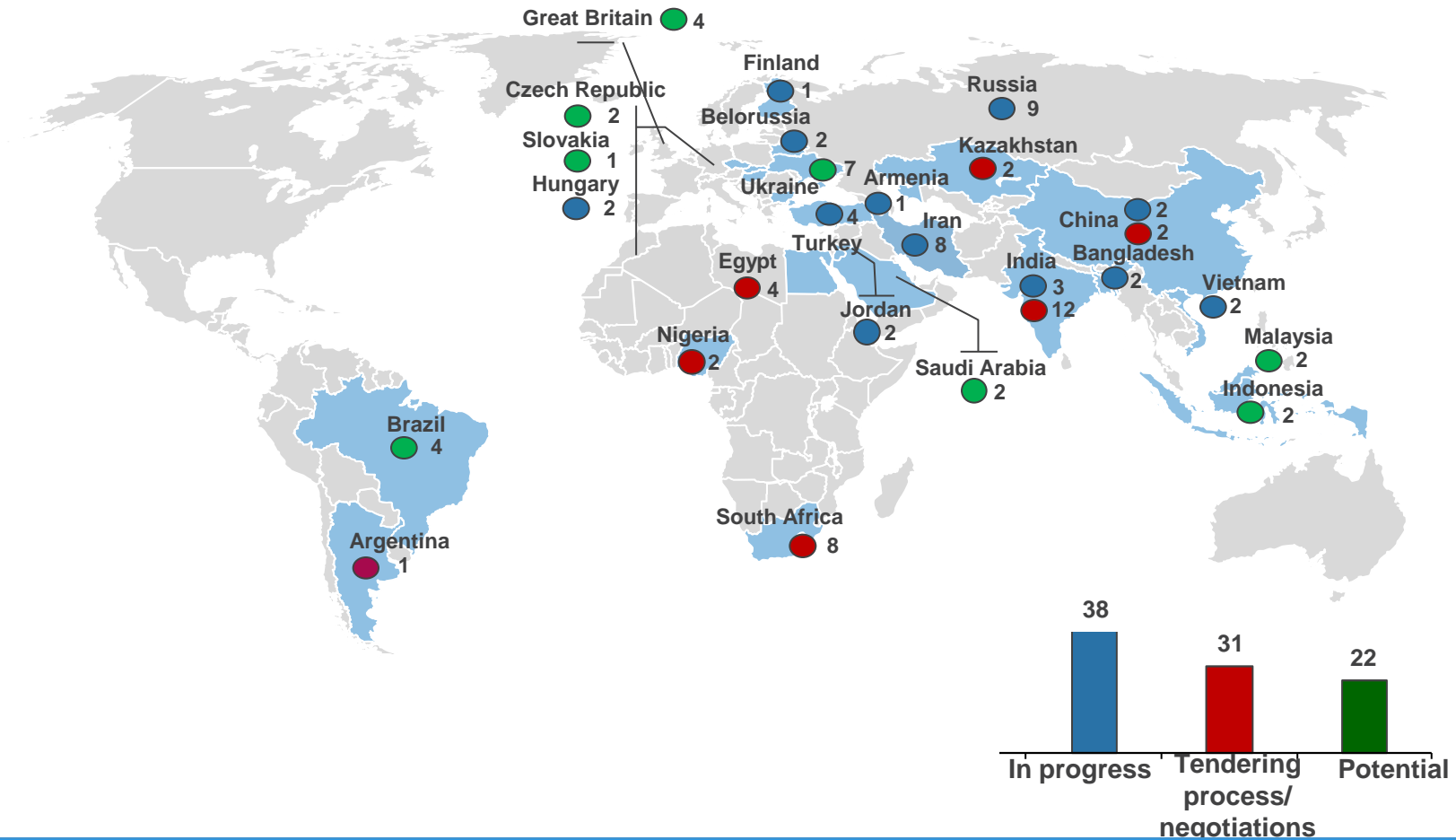
Iran, Buser NPP, Unit 1  
1000 MW, 2011



India, Kudankulam NPP, Unit 1  
1000 MW, 2013



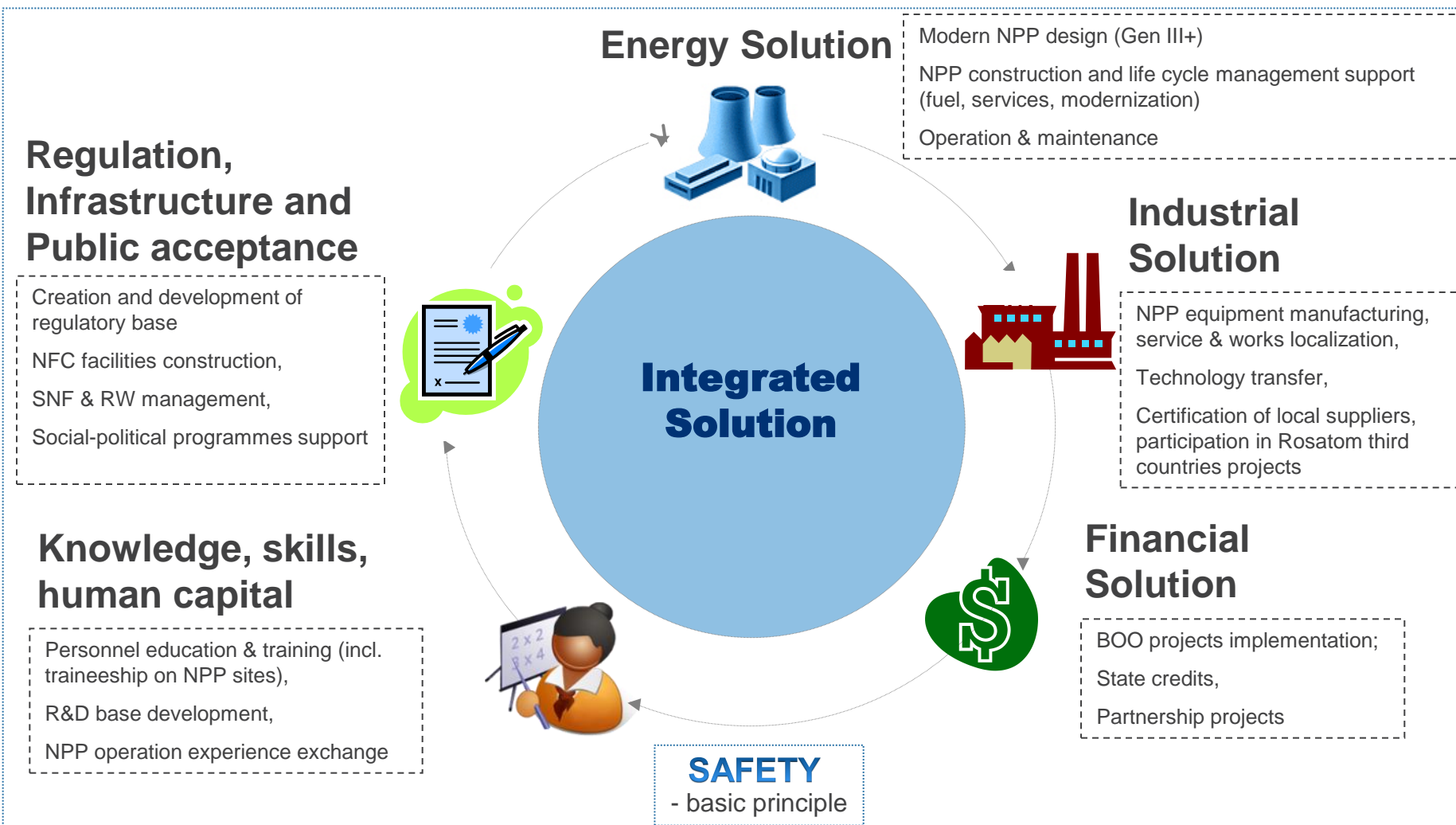
# Rosatom VVER NPPs are highly welcomed worldwide



**Rosatom NPP construction perspective backlog – more than 90 units**



# Rosatom integrated NPP construction solution



# Cooperation with BRICS countries: history and current status

## India



- Kudankulam NPP 1,2 construction
- Fuel supply for Kudankulam NPP 1,2
- Kudankulam NPP 3,4 construction project
- Supply of pellets for Tarapur NPP (BWR) & PHWR reactors
- Education & training

## Brazil



- Mo-99 supply
- Interaction with Brazilian nuclear industry on cooperation opportunities
- Membership in ANDRA
- Education & training

## China

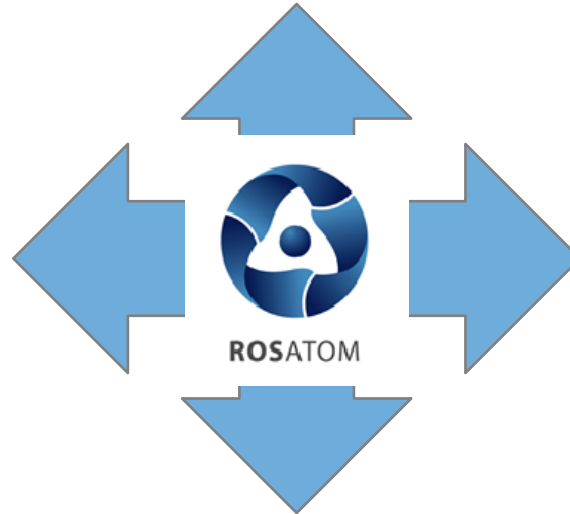


- Tianwan NPP 1,2 construction
- Fuel supply for Tianwan NPP 1,2
- Service of Tianwan NPP
- Tianwan NPP 3,4 construction project
- CEFR construction
- Cooperation in NFC infrastructure creation
- Backend solutions supply
- Education & training

## South Africa



- EUP supply for Koeberg NPP
- Radioisotopes production & supply
- Construction of PBMR fuel plant
- Membership in NIASA
- Education & training



**Rosatom is enjoying extensive mutual beneficial cooperation with BRICS countries.  
This forms good basis for new level of cooperation**

# Cooperation with BRICS countries: prospects

## Brazil



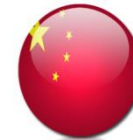
- New VVER NPPs construction
- Supply of NFC goods & services
- Service & modernization of VVER NPPs
- Industrial cooperation
- Backend solutions supply
- Applied radiation technologies
- Education of students and specialists

## India



- Serial construction of VVER NPPs (at least 12 units in 20 years)
- Fuel supply for Kudankulam NPP and other VVER NPPs
- Service and modernization of VVER NPPs
- Applied radiation technologies
- Education & training

## China

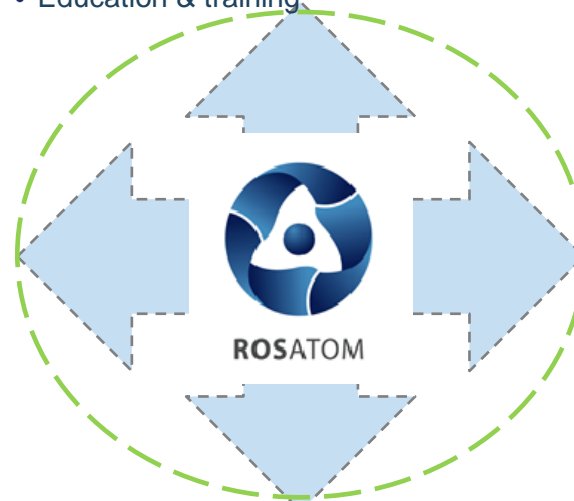


- New VVER NPPs construction
- Fuel supply for VVER NPPs
- Service and modernization of VVER NPPs
- Floating NPP fleet construction & operation
- Fast reactors construction
- Education and training

## South Africa



- 9,6 GWe of VVER NPPs construction
- Multipurpose research reactor construction
- Supply of NFC goods & services
- Industrial cooperation
- Education & training



**BRICS, uniting countries actively developing and promoting nuclear energy, could be a significant mechanism for nuclear energy development all over the world. Rosatom will be proud to contribute to such collaboration!**

# Thank you for your attention!

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