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ESG-compliance challenge for nuclear energy

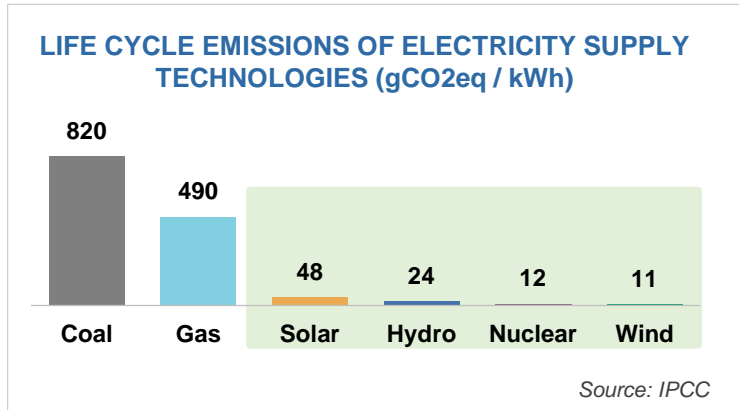
Polina Lion

Chief Sustainability Officer,
State Atomic Energy Corporation Rosatom

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Nuclear energy role in fight with climate change



- World electricity sector is responsible for about 25% of all global GHG emissions, **without nuclear this share will be 3-4 p.p. higher.**

- All NPPs in the world help to **save 2 bn tons of GHG emissions per year** – the same amount that all forests on the planet absorb annually.



- In Russia **nuclear is the largest low-carbon source of electricity** with 20.3% share in generation structure and up to 40% in European part of Russia.



Nuclear energy is an important instrument to reach climate goals

Russian Taxonomy (project of July 2021)

Two documents for green (8 sectors) and transitional (5 sectors) projects



Green: energy sector

- Renewable energy generation and **low-carbon sources** (solar, wind, geothermal energy, biofuels, hydropower, hydrogen, nuclear energy)
- Improving the energy and environmental efficiency of energy facilities
- Creation and modernization of infrastructure for the disposal and processing of waste products of the energy industry
- CO₂ capture technologies



Transitional: energy sector

- Modernization of extraction facilities (gas, oil)
- Construction of new, modernization or replacement of existing energy facilities, including the installation of gas cleaning equipment
- Disposal of waste from the energy industry, etc.



Energy					
ELECTRICITY & HEAT PRODUCTION					
	Asset type	Asset specifics	2 degree compliant	Screening indicator	Certifiable
MARINE RENEWABLES	Infrastructure	Dedicated transmission infrastructure	●		●
		Dedicated supporting facilities, such as transmission terminals and transformers, grid connections, dedicated facilities for supporting vessels, equipment storage and onshore assembly	●		●
NUCLEAR	Generation facilities	Power plants	●		
		Dedicated supporting infrastructure	●		
	Mining facilities	Uranium mining	●		

There is an intensive work on national climate regulation in Russia, and nuclear is considered as an instrument to ensure low-carbon economic performance

Practical example: ESG-linked financing for Akkuyu NPP



	Mersin province, TURKEY
Reactor	VVER-1200
Capacity	4 units x 1200 MW
Highlights	<ul style="list-style-type: none"> 7 AFFORDABLE AND CLEAN ENERGY 13 CLIMATE ACTION 14 LIFE BEHIND WATER 15 LIFE ON LAND <ul style="list-style-type: none">1st NPP in TurkeyWill cover up to 10% of Turkey's electricity needs.



2 credits: \$800 mln total

Deal closed: March 2021

Period: 7 years

Special terms: annual reduction of interest rate in case of ESG-covenants fulfillment



AKKUYU NUCLEAR
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Time and budget management for NPP construction

Besides ESG-compliance it is crucial for NPP construction to guarantee time and budget risks, that is common requirement and commercial constraint for large infrastructure projects.

Olkiluoto NPP 3rd unit (Finland)

Planned construction period: **5 years**

Actual construction period: **16 years**

Planned budget: **3 bn euros**

Actual budget: **8.5 bn euros**



Airport Willy Brandt (Germany)

Planned construction period: **5 years**

Actual construction period: **14 years**

Planned budget: **1.5 bn euros**

Actual budget: **8 bn euros**



Zenit Arena (Russia)

Planned construction period: **4 years**

Actual construction period: **10 years**

Planned budget: **6.7 bn rubles**

Actual budget: **43 bn rubles**

