

# Russian National Power Report 2021

*Integrating fundamentals, infrastructure, and regulations into one narrative*

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# Russian power sector ranked 4<sup>th</sup> by power output

Globally, Russia ranks fifth in terms of installed electricity capacity and fourth in electricity output. By the end of 2019, the aggregate installed electric power capacity in the Russian Federation (inclusive of isolated power systems and off-grid power plants) was 254 GW with output amounting to 1,096 TWh (terawatt hours). Naturally, fuelling Russia's power sector is of considerable importance where Russia's power sector consumes around 170 Bcm of gas and 110 million tonnes of coal.

Rank	Country	Installed Capacity (GW)	Rank	Country	Electricity output (TWh)
1	China	2,011	1	China	7,325
2	USA	1,183	2	USA	4,188
3	India	370	3	India	1,372
4	Japan	298	4	Russia	1,096
5	Russia	254	5	Japan	871

The Russian power sector is evolving quickly, as increased investments are made into the grid, conventional and renewables projects - all required independent expert interpretation to assist regional and outside companies growing their projects in Russia

## Opportunity

- Responding effectively to regulatory and policy changes (such climate change abatement)
- Renewable and infrastructural project opportunities has been growing and getting traction with requests for expert research and analysis coverage
- Digital transformation—process and benchmarking
- Outlooks and opportunities for investors, EPC/Equipment players (e.g., GE, Siemens, Schneider Electric)



# Russian Power Sector Report

*Structure and main themes*



## Main sections

### Introduction



Overview of power sector situation:

*Fundamentals, Infrastructure & Regulations*

### Fundamentals



Tracks and interprets datasets for power demand, production and pricing and provides outlooks.

### Infrastructure



Describes Russia's current asset base throughout the energy value chain and reviews how the country is responding to changes in policy and power demand.

### Regulation



Reviews Russia's policy vision and targets, and reviews the significance for Russia realising its energy efficiency goals.

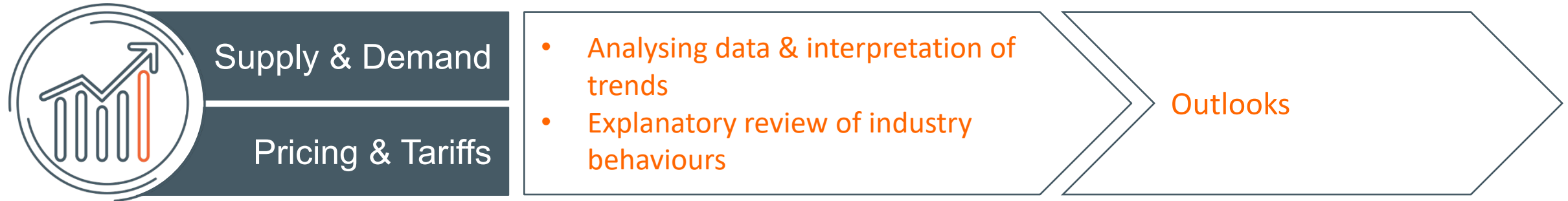
### Glossary

## Comment

## Subsections

Executive summary and introduction	Macroeconomic context	Power generating capacity developments	Review of key policies by segment	Information: Explanations, acronyms
Russian power sector vital statistics at a glance	Power demand review	Capacity outlook	Climate policy review	Energy unit conversions
Fundamentals, infrastructure, and regulations at a glance	Power consumption outlook	Power grid developments	Renewables policy review	
Sector rating <b>SEEPX Dashboard</b>	Power production review	Power grid outlook	Network tariff policy review	
	Power & capacity market review	Infrastructural developments by power system	Heat market policy review	
	Power price outlook		Digest of recently passed and ongoing regulations	
			Upcoming regulatory changes and implications	

Leveraging off our deep industry experience and extensive resources, we have an unparalleled grip on the drivers of power demand, supply, and pricing.



Risk assessments & important signposts	Critical influences
<ul style="list-style-type: none"> <li>• Economic context and indicators                             <ul style="list-style-type: none"> <li>&gt; GDP, Industrial production</li> </ul> </li> <li>• Changes in the type of demand                             <ul style="list-style-type: none"> <li>&gt; Types of consumers and changes in power diet</li> </ul> </li> <li>• Power production                             <ul style="list-style-type: none"> <li>&gt; Generation by technology</li> </ul> </li> <li>• Wholesale power and capacity market</li> <li>• Fuel tariffs &amp; infrastructural development</li> </ul>	<ul style="list-style-type: none"> <li>• Changes in regulation or policy</li> <li>• Choice of fuels</li> <li>• Congestion or excess line capacity</li> <li>• Changes in generating capacity</li> <li>• Alternative energy schedules                             <ul style="list-style-type: none"> <li>&gt; Renewables</li> <li>&gt; Nuclear</li> </ul> </li> <li>• Hydro resources availability</li> <li>• Heat energy supply schedules</li> </ul>

To meet power demand we analyse generating and grid capacity. We have built a comprehensive database of Russia's power sector infrastructure, and mapped it out on the ground.



Generating Capacity

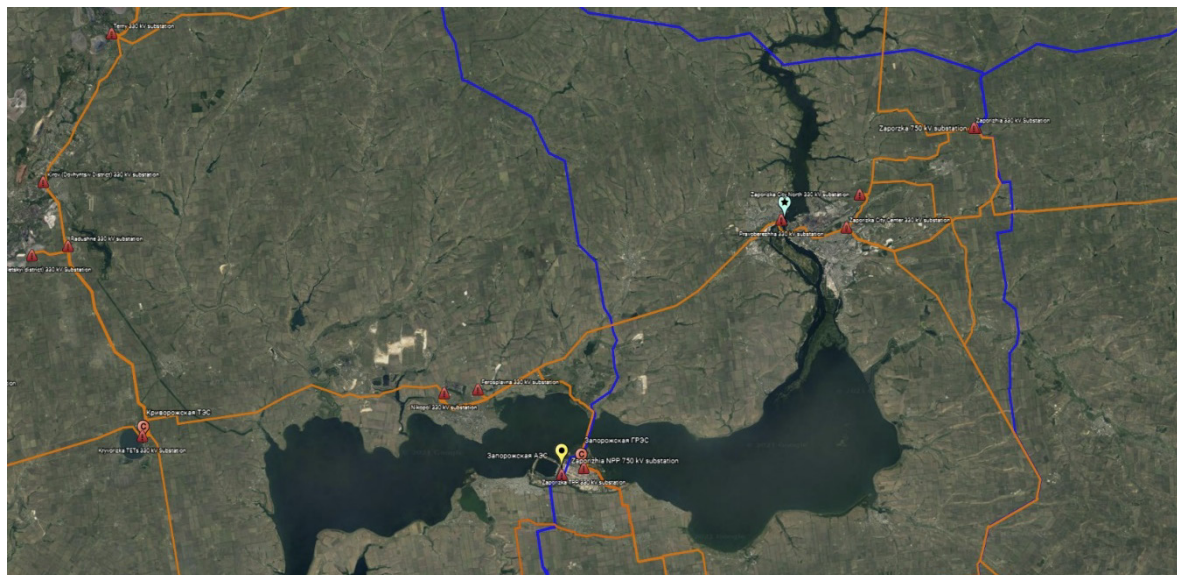
Grid Capacity

- Data collection
- Current capacity and grid, and developments
- Local content requirements and capabilities
- Regional asset structure

Outlook

We research in detail, mapping composition of power assets with structural analysis (constraints or excess)

Review the role for leading technologies and potential impact, such as, but not limited to:



- Investments schemes
- Low carbon policy influences
- Growth of renewable energy sources
- Domestic manufacturing capabilities
- Nuclear power penetration, rise of *Generation III+ and IV* reactors
- Clean coal power technologies
- Power transmission and distribution technologies (measurement and monitoring, communications and data management, reactive power, digitalisation)

We track and analyse regulatory issues and explore how international best practices might improve investment predictability and sustainability (observing political sensitives and economic realities).



## Key focal points include:

- Climate change abatement
  - > The shift to net-zero carbon
- Markets
  - > Electricity and capacity wholesale market
  - > Renewables
  - > Heat energy market
- Tariff methodologies for natural monopolies
  - > National grid, power distribution, heat energy distribution
- Consumer tariffs (by type [industry, commercial, population])
  - > Cross subsidisation, mark-ups

## SEEPX Dashboard, rating power sector issues

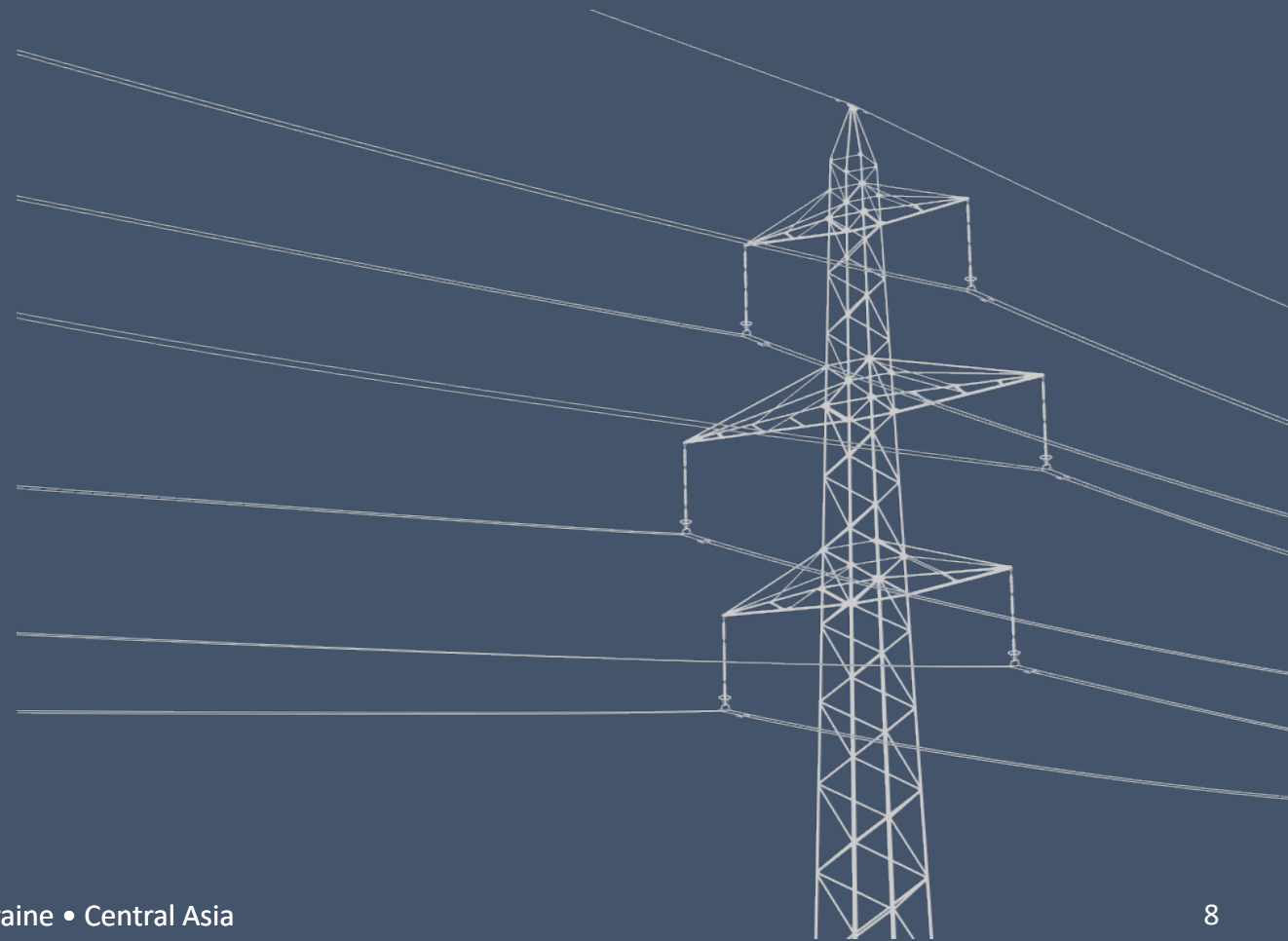
Benchmarked against global trends out rating measures change and speed of change, and provides commentary for a dynamic and digestible sector snapshot on issues such as:

- Energy security & adequacy,*
- Power system flexibility and digitalisation,*
- Climate change response & sector sustainability,*
- Ease of market access & emergence of new participants,*
- Investment planning & investment climate*



# Research mission

*Who needs our research and why*





## What is it?

Regular regional power sector and topic-driven reports, datasheet outlooks, and client steered consultancy.

## Who is it for?

- Financial institutions
- Equipment manufacturers and vendors (inclusive of digital solutions)
- Insurance companies
- Energy intensive consumers (metallurgy, chemicals etc.)
- Policymakers

## Why do you need it?

- Sizing up power sector infrastructural layout and analysing location risk
- Measuring investment opportunity and exposure
- Responding effectively to regulatory and policy changes
- Developing a decision roadmap
- Planning a route-to-market strategy



# About SEEPX Energy



SEEPX Energy is an impartial source for power sector intelligence specialising in Russia, Ukraine, and Central Asia's power sectors.

Since 2005, SEEPX Energy has specialised in the CIS power sector. Our experts have followed the Russian, Ukrainian, and Central Asian power market developments, from central planning to today's situation where the power sector in each country has evolved somewhat differently.

SEEPX Energy has supported directly or through its collaboration with IHS Markit of up to 160 organisations, typically power utilities, large consumers, oil and gas majors, and financial institutions. Our profound understanding and long experience of the region's overall performance and practices affords us unique insight to each country power sector fundamentals, infrastructure, and regulations.

Our evidence-based research is derived from multiple sources and ongoing fieldwork. With that we produce lucid country power sector reports, specific topic driven reports, detailed sector maps based on geospatial charting, crisp graphs and diagrams, detailed asset databases, and comprehensive outlooks.

Whilst we are proud of our local knowledge, our global power sector perspective adds conciseness to our findings, research, and benchmarking of policy and regulatory practices.

Our goal is to pursue clarity and sharpness in every piece of work we produce.





## Background

Co-founder and Director of SEEPX Energy, specialising in power sector policy and regulation, and infrastructure in Russia, Ukraine, and Central Asia.

*SEEPX provides research & advisory services.*

- Independent power sector expert on policy, regulation, and industry's ESG for Russia, Ukraine, and Central Asia.
- An independent consultant for benchmarking global power sector best practices and policies including the power and capacity markets' operation, renewable support, and sustainable investment and development.

## Previously

- AES Corporation (Russia, Ukraine, Kazakhstan, and Georgia).
- MBA from Dowling College of New York (USA), an IPR Diploma in Public Relations from IPR (UK), and a Bachelor of Arts from Moscow State Linguistic University.

## Industry experience and focus

- 21 years of FSU power sectors experience.
- Power sector policy and regulation.
- Sustainable investment into power sector.

## Selected experience

- Russian National Power Sector Report 2021. Comprehensive, explanatory report covering *Fundamentals, Infrastructure and Regulations, with outlooks to 2040*.
- KazEnergy's Kazakh National Energy Report 2019 update – covering the power sector fundamentals, technology and regulation, outlooks and recommendations.
- SEEPX Energy power sector reports, analysing Russian, Central Asia, and Ukrainian power sector topics (e.g., *Fundamentals, Infrastructure and Regulations*). Author of *Russia Power Sector Quarterly* <https://www.seepx.com/>
- Foresight 2 project 2017 – detailed analytical report and recommendations on electric power market and regulatory development to 2050 for Kazakhstan's Association of Mining and Metallurgical Companies (AGMP).
- KazEnergy's Kazakh National Energy Report 2017 update – covering power sector fundamentals, technology and regulation, with recommendations (partnered with IHS Markit).
- Russian power sector Industry Report 2017 for Russia's largest independent vertically integrated generating company and major global financial institutions (IPO raising \$1.5 billion on LCE). Included deep analytics of power sector fundamentals and power and capacity price forecasts.
- Conducted benchmarking review of Ukraine's incentive based tariff (RAB) methodology for power distribution Association, providing recommendations to business leaders and government in 2016 (partnered with IHS Markit).
- Kazakhstan's 2015 National Energy Strategy Report power and renewable energy analysis and recommendations until 2040, steered by KazEnergy, the Kazakh Ministry of Energy, and ExxonMobil (partnered with IHS Markit).
- Provided in-depth study of Russian power sector with selected regions for a large Russian financial institution. Analysed regional supply and demand and power pricing dynamics in addition to regulatory and political background.
- Advised working group setting up the Moscow Power Exchange (MosEnEx).
- Developed a Russian power market route-to-market strategy for RBS Sempra: client workshops and peer analysis.
- Independent advisor to largest Russian Utility Fund Management Company (\$1 billion to target \$5 billion).
- Advised one of Russia's largest independent oil and gas companies on power trading and portfolio management and converting associated gas to power in Russia.
- Advised major Siberian power utility optimising 4,000 MW generation fleet and how to restructure its departments for trading in a deregulated market: the scope covered legal, regulatory, wholesale power, and asset optimisation.



### Background

Co-founder (15 years) and advisor of SEEPX Energy, focusing on the power sector fundamentals, and infrastructure in Russia, Ukraine, and Central Asia.

*SEEPX provides research & advisory services*

### Previously:

- 10 years Senior Director and Advisor, at IHS Markit (CERA).
  - Head of Russian and Caspian power service.
  - Global power team (focus on Australia, CIS, and Europe).
- Headed UK and European power derivatives brokerage team, trading electric power forwards, swaps, and options for producers, suppliers, and traders. Conducted business and advised clients during the critical collapse of Enron and the transitional period of the Pool Purchasing Price to the UK New Electricity Trading Arrangement.

### Industry experience and awards

- 22 years power sector experience.
- Accomplished energy strategy writer and advisor.
- Power sector fundamentals and infrastructure analyst.
- Power and gas trade negotiator, (broker), structured deals, power asset optimisation.
- Awarded Kazakhstan's state medal for professional contribution to the development of energy industry.

### Selected experience

- Russian National Power Sector Report 2021. Comprehensive, explanatory report covering *Fundamentals, Infrastructure and Regulations, with outlooks to 2040.*
- Published numerous Russian, Ukrainian, Kazakh (and Central Asia) strategic insight papers for IHS Markit (CERA) covering power sector topics in fundamentals, infrastructure, and regulations (e.g., strategy, legislation, nuclear, renewables, supply and demand, market, and outlooks).
- Austrian power sector country report for IHS Markit.
- Author of Kazakhstan's 2017 National Energy Strategy Report power sector section covering fundamentals, infrastructure and legislative recommendations, steered by KazEnergy.
- Analysed and reviewed Russia and Ukraine's installed generating capacity and detailed outlook for major power equipment vendor.
- Conducted benchmarking review of Ukraine's incentive-based tariff (RAB) methodology for power distribution association, providing recommendations to business leaders and government.
- Author of Kazakhstan's 2015 National Energy Strategy Report power and renewable energy analysis and recommendations until 2040, steered by KazEnergy, the Kazakh Ministry of Energy, and ExxonMobil.
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- CASA-1000 (Central-South Asia power export): business development on behalf of Russia's Inter RAO, involving World Bank and Pakistan Government.