Russian Electricity Sector Reform: Status and success so far - some thoughts from one player in the market

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Our geographical presence today

Nr 1  Heat

Nr 1  Distribution

Nr 2  Electricity sales

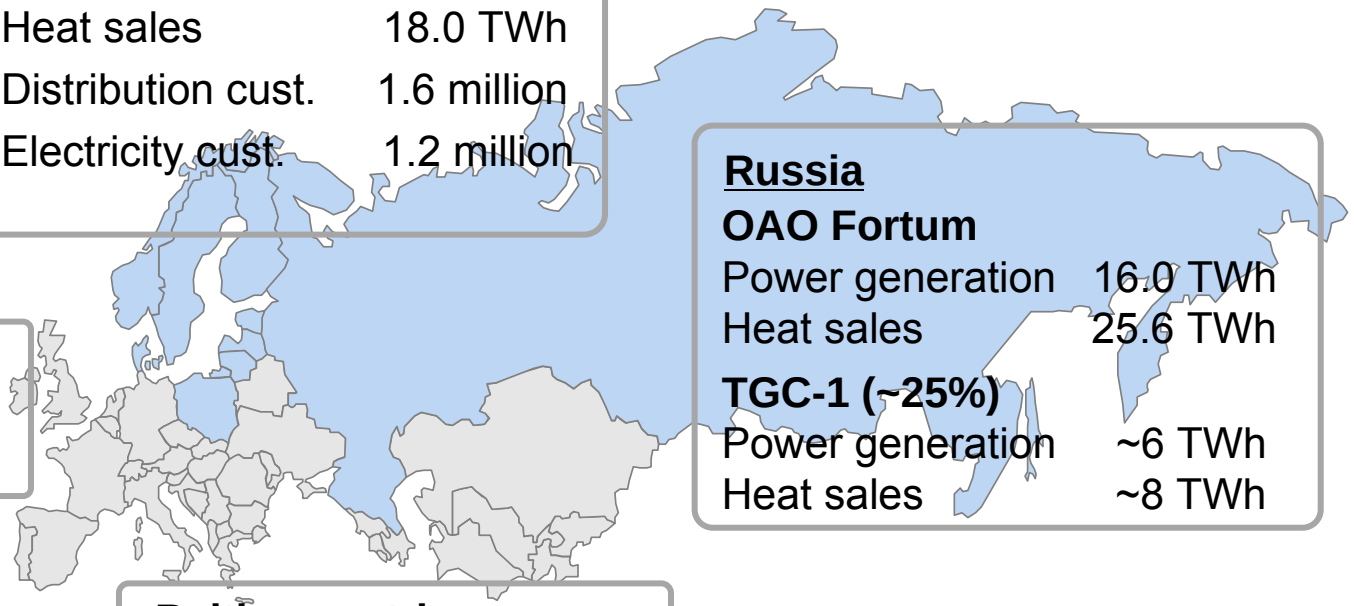
Nr 3  Power generation

Nordic countries

Generation	48.1 TWh
Electricity sales	54.9 TWh
Heat sales	18.0 TWh
Distribution cust.	1.6 million
Electricity cust.	1.2 million

Key figures 2009

Sales	EUR 5.4 bn
Operating profit	EUR 1.8 bn
Personnel	11,500



Russia

OAO Fortum

Power generation	16.0 TWh
Heat sales	25.6 TWh

TGC-1 (~25%)

Power generation	~6 TWh
Heat sales	~8 TWh

Poland

Heat sales	3.7 TWh
Electricity sales	20 GWh

Baltic countries

Heat sales	1.3 TWh
Electricity sales	0.1 TWh
Distribution cust.	24,100

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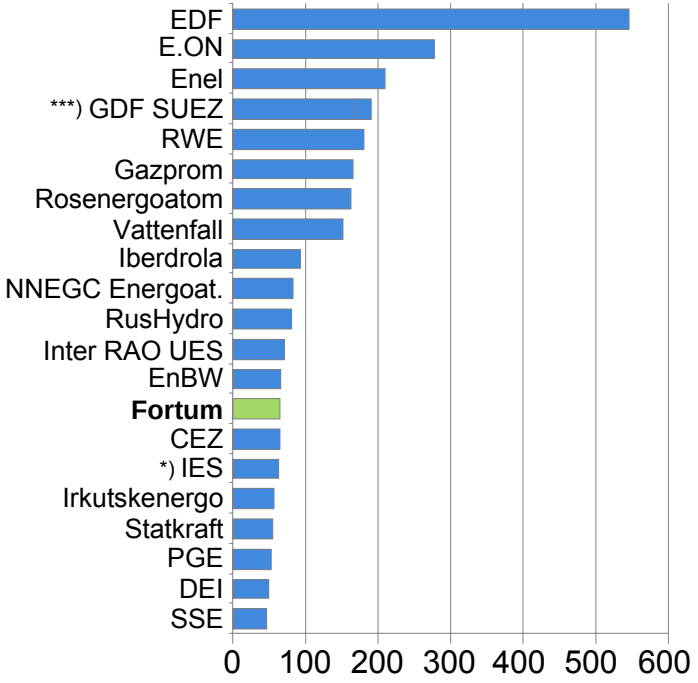
Fortum mid-sized European power generation player; Global #4 in heat

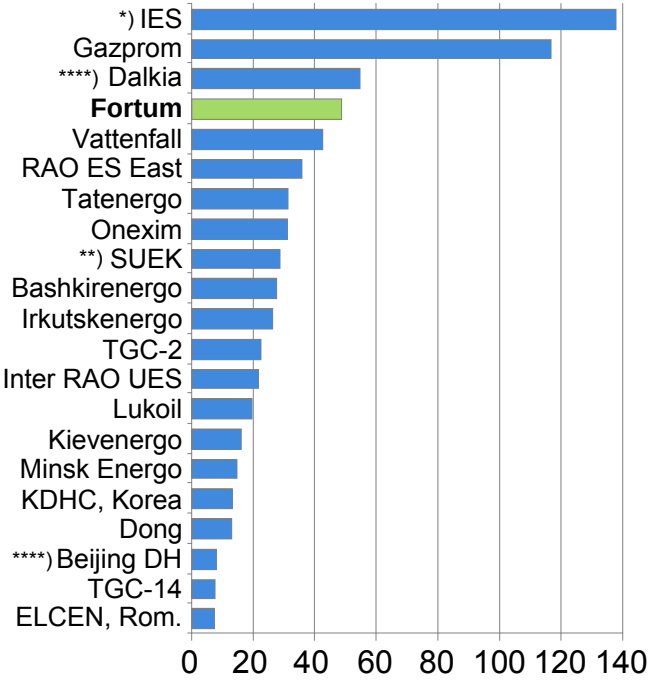
Power generation

Largest producers in Europe and Russia, 2009 TWh



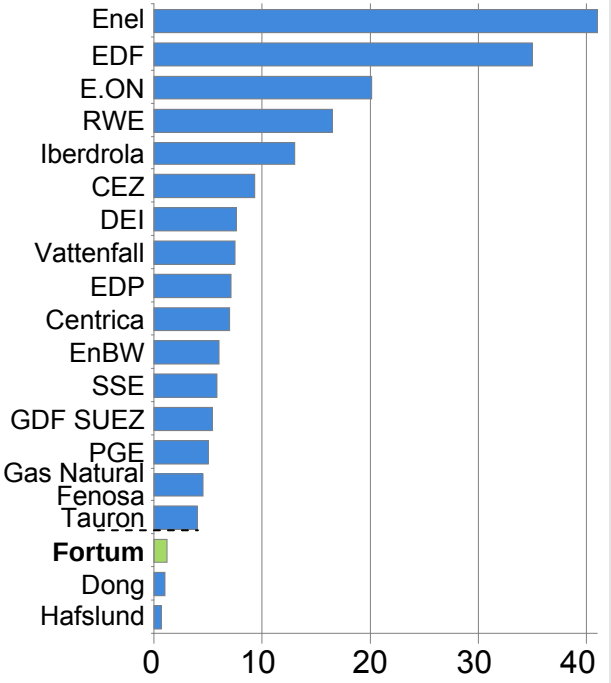
Heat production

Largest global producers, 2009 TWh



Customers

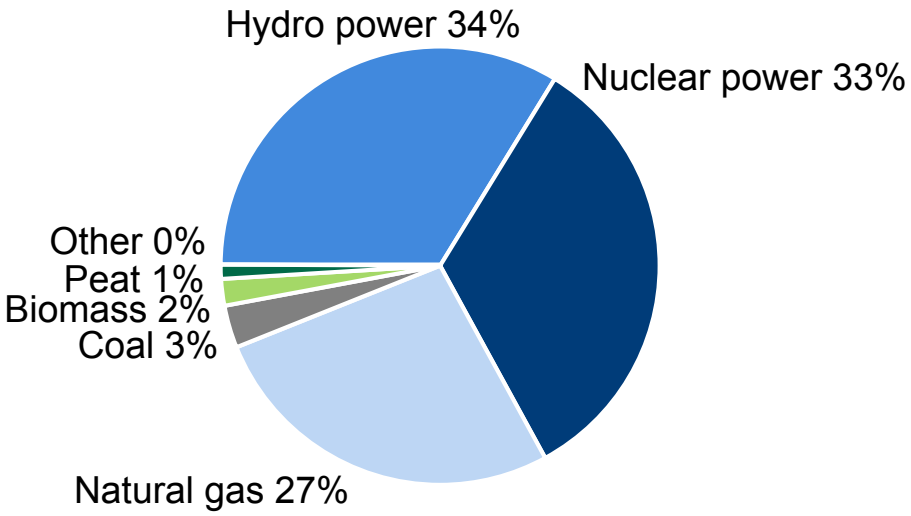
Electricity customers in EU, 2009 millions



* incl. TGC-5, TGC-6, TGC-7, TGC-9, ** incl. TGC-12, TGC-13. *** incl. International Power
Source Company information, Fortum analyses, 2009 figures pro forma, **** 2007

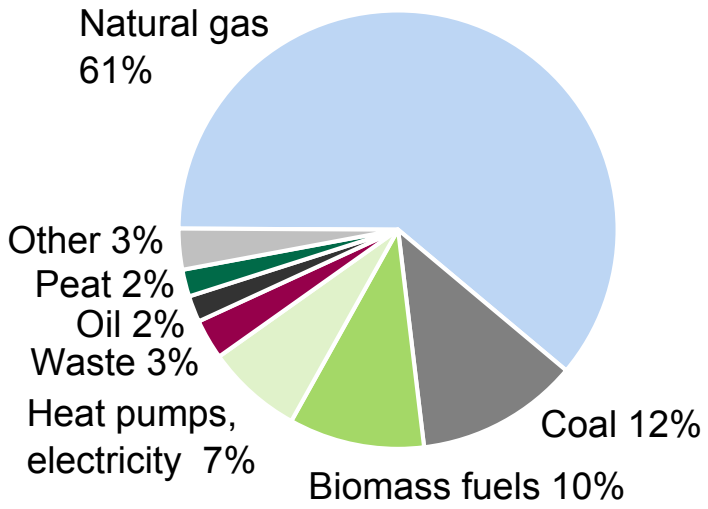
A portfolio of hydro, nuclear and energy efficient CHP*
– CHP using mainly natural gas in Russia

Fortum's power generation in 2009



Total generation 65.3 TWh
(Generation capacity 13,940 MW)

Fortum's heat production in 2009



Total production 48.8 TWh
(Production capacity 24,330 MW)

* Combined heat and power production

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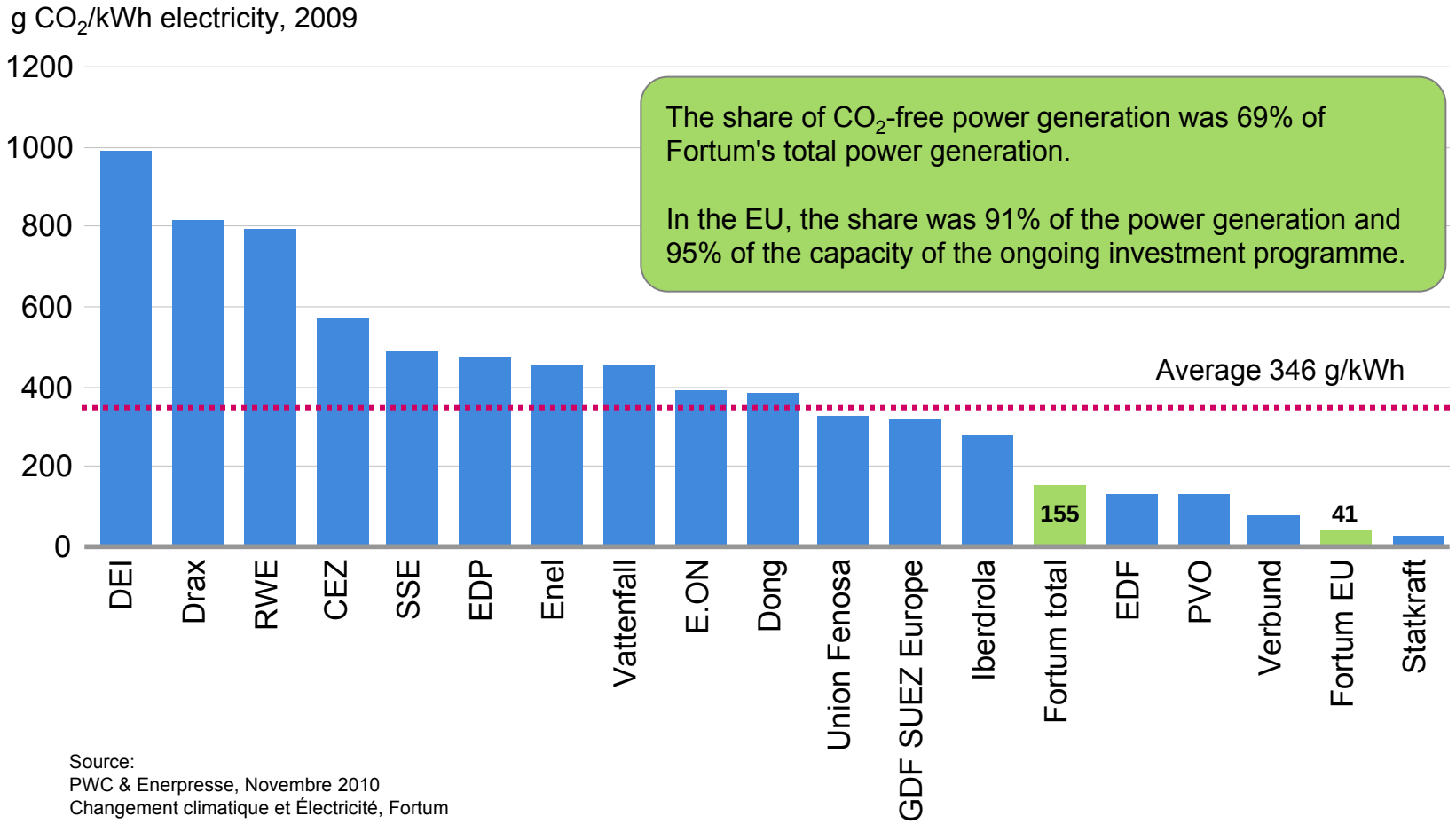
Fortum's carbon exposure among the lowest in Europe



Source:
PWC & Enerpresse, Novembre 2010
Changement climatique et Électricité, Fortum

Fortum is today a major player in the Russian power and heat industry

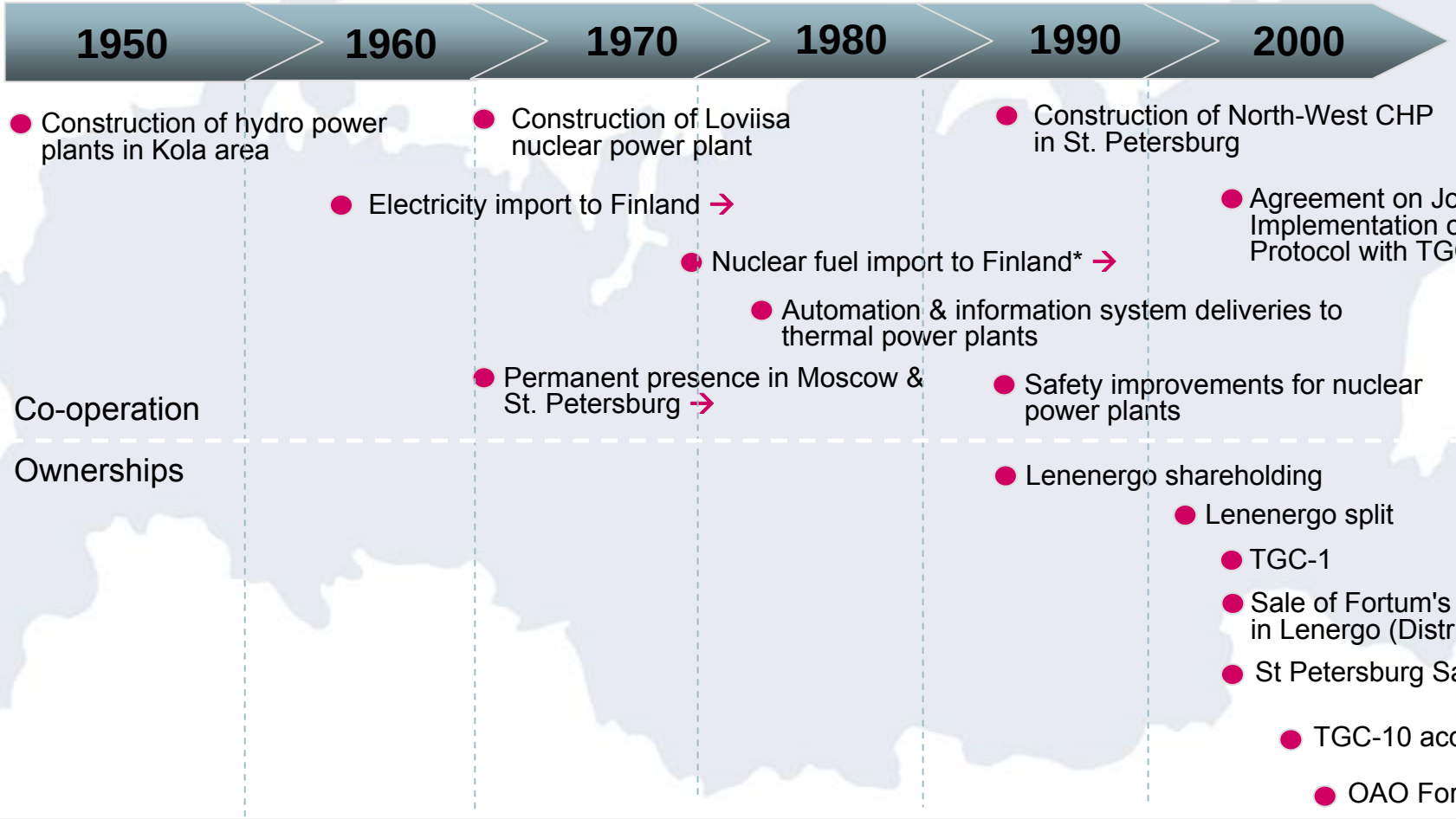
OAO Fortum (former TGC-10)

- Operates in the heart of Russia's oil and gas producing region, fleet mainly gas fired CHP capacity
- 16 TWh power generation, 26 TWh heat production in 2009; more than Fortum's Nordic heat sales
- Investment programme to add 85%, almost 2,400 MW to power generation capacity

TGC-1

- Slightly over 25% ownership of territorial generating company TGC-1 operating in north-west Russia, adjacent to Finnish boarder
- ~6,350 MW electricity production capacity (~50% hydro), ~27 TWh/a electricity, ~31 TWh/a heat

Fortum has long experience of successful co-operation with the Soviet Union and Russia



*) Including single largest purchase agreement of uranium with TVEL

OAO Fortum today

- Regional power and heat company with eight plants
- Region's largest heat provider
- About 4,090 employees (2009)
- Annual production volumes
  - 16 TWh electricity and
  - 26 TWh heat
- Most of the production is co-generated (both electricity & heat)
- Primarily natural gas as fuel

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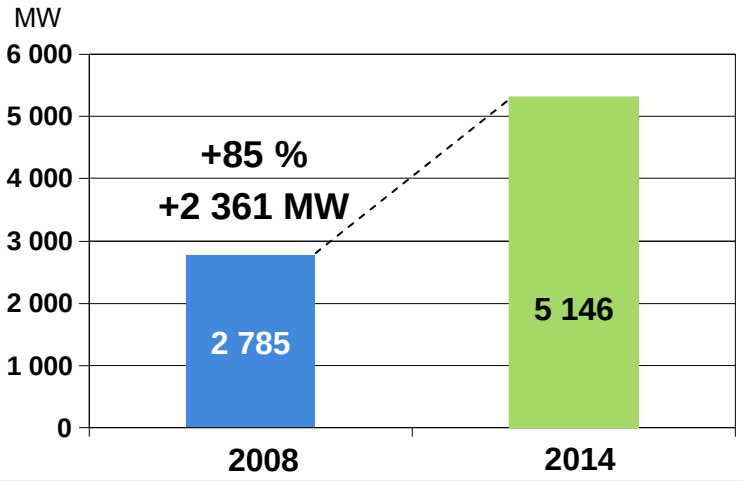
Extensive investment programme in OAO Fortum

- Total amount of investments EUR 2.5 billion
  - Of which EUR 1.7 billion still to be invested (as of Oct. 2010)
- Increasing capacity by almost 85% by the end of 2014
  - More than any other Russian generating company
- First new unit in commercial operation during Q1/2011



Despite the economic crisis, the Russian power market reform has progressed as planned

2003	2006	2007	2008	2010	2011
Transitional model of electricity market starts functioning.	Launch of current model of electricity market, buying/selling at market prices only missing or excessive electricity volumes.	Start of deregulation of electricity volumes being purchased/sold .	Launch of transitional model of capacity market. Start of deregulation process of capacity volumes being purchased/ sold.	Adoption of long-term capacity market rules.	100% purchased/ sold volumes are supplied at unregulated prices, except for supply to households, North Caucasus and some other exceptions. Launch of target model of long-term capacity market.

Day ahead (spot) wholesale market

Deregulation of electricity volumes

5-10% 15-25% 30-50% 60-80% **100%**

Capacity market

Deregulation of capacity volumes

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Russian power sector reform on schedule, but still something to do

A Nordic/Western analogy

Unbundling of businesses by type of activity	
Competitive businesses	**Regulated monopolies**
▪ Generation ▪ Sales	▪ Transmission ▪ Distribution

Market liberalisation in competitive businesses
Pricing model reform – from tariff regulation to competitive pricing

Key steps in the reform

- "Power industry law" approved
- Restructuring of regional energos (Power and Heat companies)
- Formation of new companies
- Establishment of Russian power exchange (ATS)
- Launch of the free-trade sector of the wholesale market
- Launch of balancing power market
- Capacity market (transitional model)
- Capacity market (target model)
- Financial derivatives market launched 21st of June 2010
- Competitive market of ancillary services
- Gradual liberalisation of the retail market

Some issues still pending

- All cross subsides are not yet removed and heat market rules still developing
- Further investments in transmission needed
- Capacity market rules still much to improve and post-2020 regime still open

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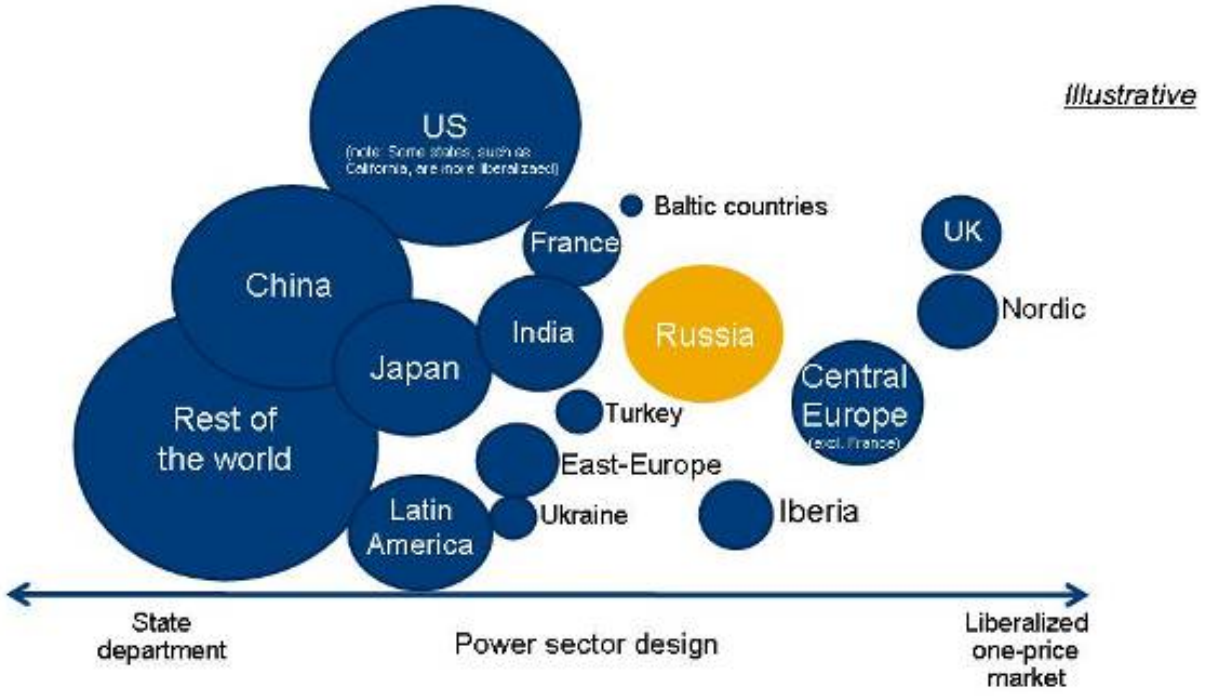
UPI WP: “How to Succeed a Thousand TWh Reform ? – Restructuring the Russian Power Sector” by Laura Solanko

- A good and thorough description of the Russian power sector reform
- Russia is the largest power sector ever privatized and liberalized with one single reform. Russia was a latecomer with its ambitious reform, but conducted it very quickly. Reform not yet finalized
- Reform driven by three targets: Ensure enough investments in power generation, create competition and secure efficient power prices for customers
- The reform was a typical text book reform, with unbundling of generation, transmission and distribution and privatization of assets. Also dual power market model (wholesale & capacity market) was created, in order to ensure plant availability and sufficient investment in new generation. Competition exists in wholesale market and financial trading is evolving. Heat (cross subsides still an issue) and consumers price liberalization pending. Capacity market rules should still be developed
- Theoretical problem with capacity markets: how to guarantee that new capacity (with high CAPEX) is reimbursed. Some sort of FIT, CSA or other support scheme necessary for a transition period, especially if planner want to encourage notable new investments.
- The market model chosen is perhaps not from a market efficiency point of view alone the most efficient, but in fact a fairly suitable for the Russian power sector in light of the reform’s targets

Global power market liberalisation is still in its infancy, but evolving – Russia sets an encouraging example

- Significant capital needed to:
  - Meet demand growth
  - Replace retiring capacity
  - Cover high-cost renewable targets
- Lack of public financing drives liberalization and development of competitive power markets



Note: Circle size illustrates electricity consumption in 2007 (Source: IEA key world energy statistics)

Key take-aways

- The Russian power sector reform was ambitious and fairly successful. Many details still pending. Heat and consumer price liberalization should be pushed next. Capacity market rules improved.
- The Russian power sector reform is an encouraging example of global power market liberalization
- The Russian power sector reform is an encouraging example in creating incentives for private (foreign) investments in Russia. Russia is also able to liberalize other sectors of its economy.
- Fortum is committed to Russia. Our power generation capacity will increase by 85% through the ongoing investment programme. In addition earnings improvement are targeted through the efficiency improvement programme.

A new 230-MWe unit was inaugurated at Fortum's Tyumen CHP-1 in December 2010. Commercial operation will begin in Q1/2011.


Thank you!