

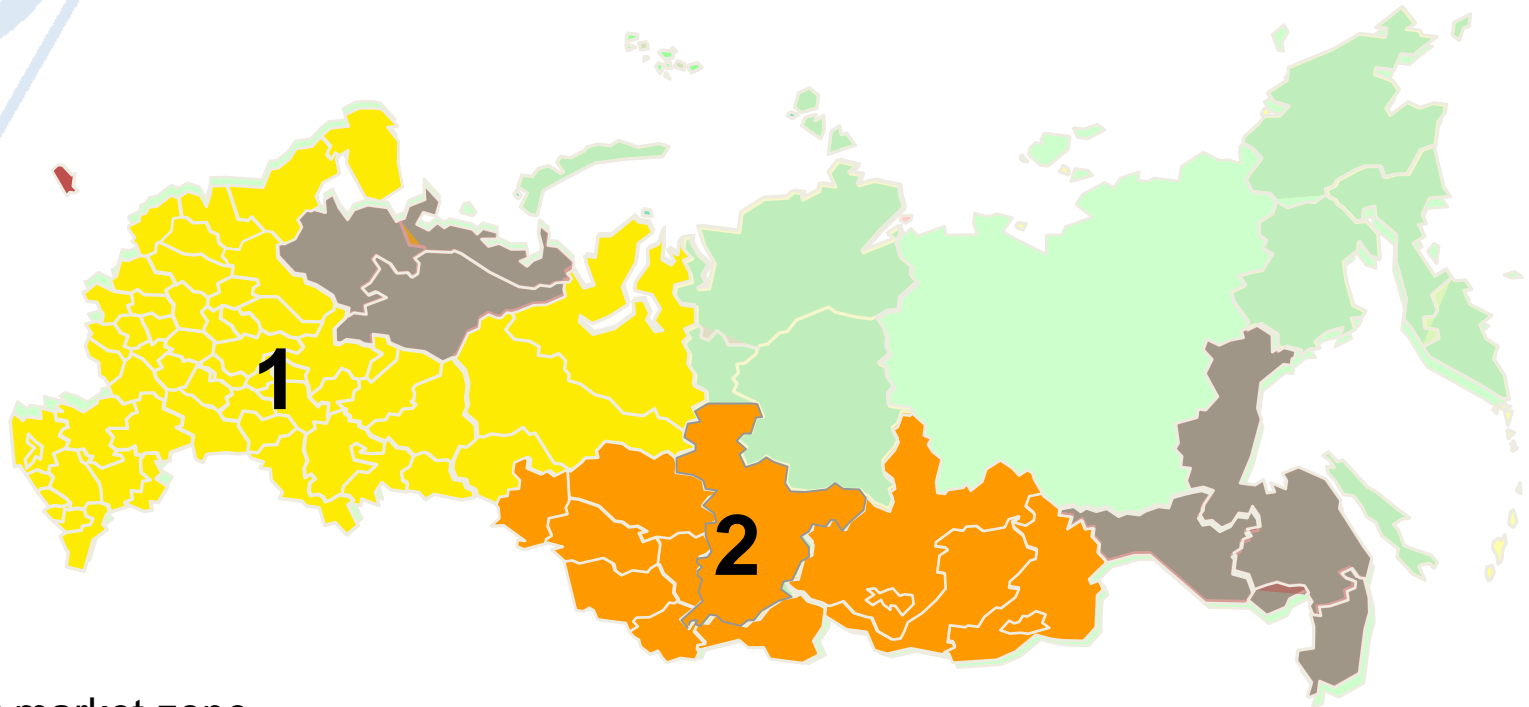


Recent Regulatory and Market Developments for RES-E in Russia

Hamburg, 25.10.2013



Russian Energy Market Zones



(1) first pricing market zone

(2) second pricing market zone

Not numbered and marked with other colors - non-pricing market zones: West Siberia, Far East, Kaliningrad and Archangelsk regions, Komi Republic.



RES Support Measures in the UES

Support measures

Key element

Features of the support measures

1

In the Wholesale Energy Market (WEM)*

Generation facilities > 5MW in the pricing zones of the WEM

Special Capacity Providing Mechanism

- Competitive selection of the RES-E projects;
- Additional RES-E support load will be proportionally spread across all the consumers in the pricing zones of the WEM;
- Transparent financial conditions of the support;
- Attractive for investors;
- Financial control of the accepted obligations of the selected investors

2

Retail Energy Market

Generation facilities < 25MW

Grid companies obligation to purchase RES-E for losses compensation based on regulated tariffs

- Additional RES-E support load will be proportionally spread across all the consumers in the region, connected to the same grid
- An opportunity to additionally motivate grid companies to decrease network losses
- Easy to implement legally

3

Isolated Energy Zones and non-pricing zones of the WEM

Set of dedicated measures

- Long-term tariffs setting for purchasing RES-E from the generators along the pay-back period.
- Extending of the energy efficiency support measures to the RES projects.
- Including RES projects into the Federal Programs.





Renewable Development in the Pricing Zones of the Energy Market

Support system in the pricing zones of the WEM has to provide such a development that would create a market large enough to stimulate local equipment manufacturing in the country

- ▶ Competitive selection of the RES-E projects with a Capex cap which has to provide socially acceptable and economically viable limits of the energy price growth for the end-consumers based on the competitive selection of the RES-E projects to support
- ▶ Higher support level for the RES-E projects with the higher local content indicators confirmed
- ▶ Support will be provided only to the newly developed RES-E projects
- ▶ Easy-to-go type of support mechanism considering the existing market rules and regulation as well as hardware and software platforms at the market.



Recommended RES-E New Generation Volumes, MW/year

RES Technologies	2013	2014	2015	2016	2017	2018	2019	2020	Total
Wind farms	0	100	250	250	500	750	750	1 000	3 600
Small Hydro	0	17	26	124	124	141	159	159	750
Solar PV	0	120	140	200	250	270	270	270	1 520
Total:	0	237	417	574	874	1 161	1 179	1 429	5 870

- These volumes were proposed for an open tender after the Governmental Decree #449
- First tender was held in August-September 2013
- The pre-selection for the tender is provided based on:
 - ▶ The bidder is a member of the WEM trading system
 - ▶ The bidder is a member of the Market Council
 - ▶ The bidder has registered (based on a special procedure) a conditional Group of Supply Points for the future RES-E facility
- Tendering is going around a full Capex indicators (incl. grid connection costs), proposed by the pretending investors, but not higher than the announced Capex cap
- The bidders can apply for four years ahead but the volumes can not be switched between technologies and years
- The generation volume will encounter by 2020 ~2% of the energy balance and 1.7-2% of the end consumer price.



Yearly Structure Of The Tenders

Selection year	Comissioning years						
2013	2014	2015	2016	2017	2018	2019	2020
2014	X	2015	2016	2017	2018	2019	2020
2015	X	X	2016	2017	2018	2019	2020
2016	X	X	X	2017	2018	2019	2020

Results Of The 2013 Tender

Selection year	Comissioning years						
2013	2014	2015	2016	2017	2018	2019	2020
Wind farms	0/100*	15/250	90/250	0/500			
Small Hydro	0/17	0/26	0/124	0/124			
Solar PV	35/120	115/140	149/200	100/250			
Total:	35/237	130/416	239/574	100/874			

*0/100 – selected (0) at the tender out of the total annual volume (100) in this year





Major Conclusions on the 2013 Tender

- We can announce a birth of a new industry that will appear in Russia: solar PV
- Small HPPs tender is a total disaster
- In wind the volume «selected» is only 105MW out of 1100MW without any competition
- Main reasons:
 - High level of the local content requirements for wind from the very beginning
 - Proposed in a rush a system of financial guarantees was not very effective
 - For small HPPs – longer then expected time to prepare the projects



Genesis of the Local Content Indicators

Wind industry “suffered” the most

RES-E technologies	Comissioning year	(1) Local content	(2) Local content	(3) Local content	New proposal
Wind farms	2014	0%	20%	35%	20%
	2015	0%	20%	55%	20%
	2016	20%	35%	65%	35%
	2017	35%	45%	65%	45%
	2018	45%	55%	65%	45%
	2019-2020	45%	55%	65%	65%
Solar PV	2014-2015	50%	-	50%	50%
	2016-2020	70%	-	70%	70%
Small HPPs	2014-2015	20%	-	20%	20%
	2016-2017	45%	-	45%	45%
	2018-2020	65%	-	65%	65%





What Is On Its Way In RES Legal And Normative Development

- Retail market regulation for RES-E support
- Isolated and non-pricing zone regulation for RES
- Change in local content requirements for the wind energy equipment
- Development of biomass and biogas WtE plants support
- Development of RES-E generators grid connection rules as well as their dispatch in the system
- Type-approval and certification of the RES-E equipment in Russia both locally produce and imported
- Analysis of the first results achieved and the assessment of the future development plans in the country





Thank you for your attention!

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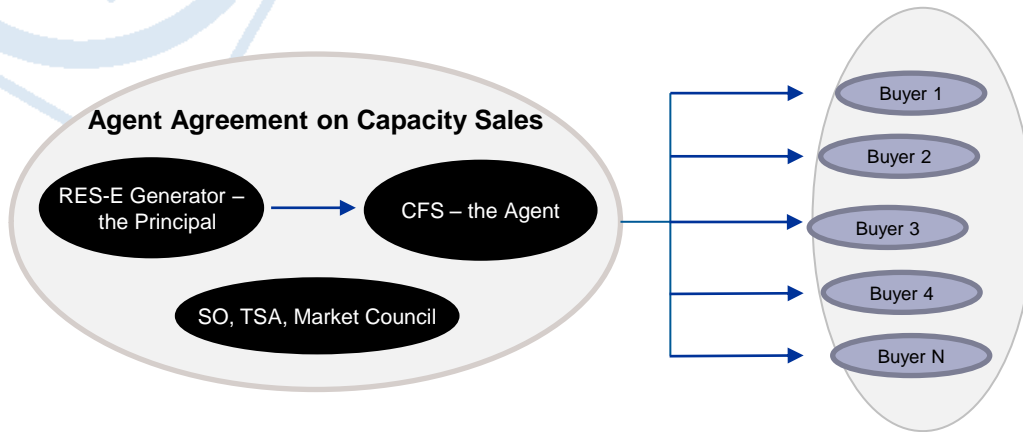




Attachments



Legal Scheme of the Transactions



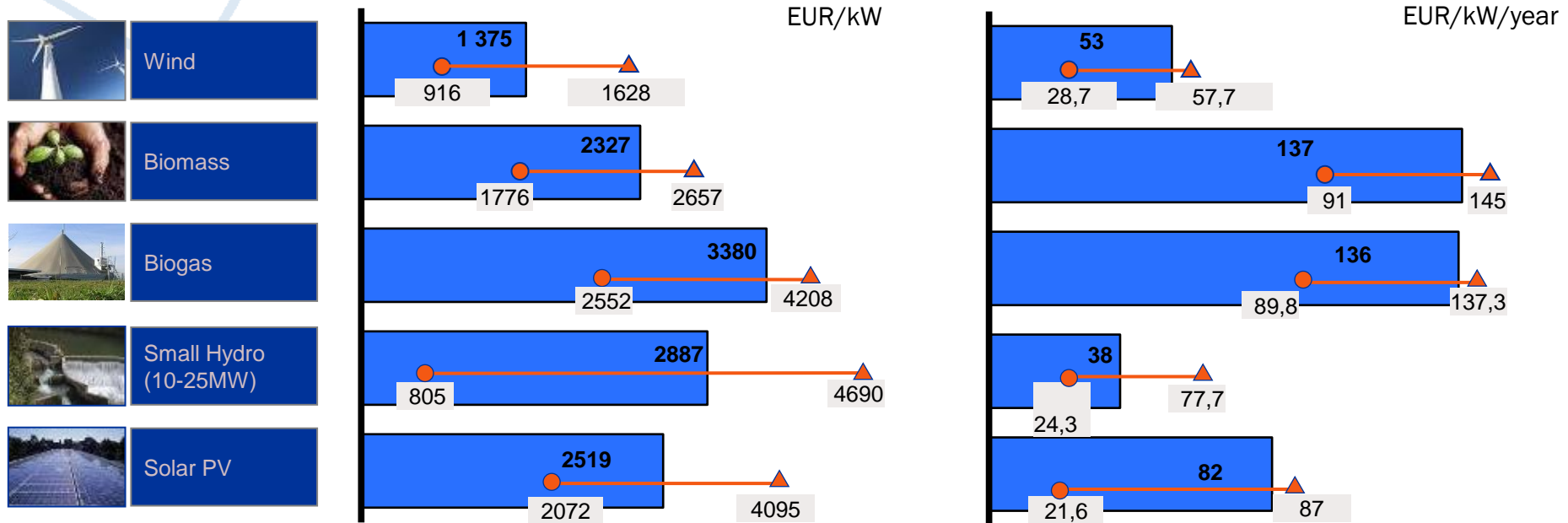
- ▶ RES-E generator signs an agent's type of agreement with the Center for Financial Settlements (CFS - part of the market infrastructure);
- ▶ CFS on behalf of the Generator signs Capacity Delivery agreements with all the buyers in the WEM;
- ▶ The other parties of the Agreements are: System Operator, Trading System Administrator, Market Council.

- **Subject of the Agreement:** sales of a capacity from RES-E generators
- **The volume of the capacity delivered** is calculated by the TSA and is spread among all the market participants
- **Capacity delivery period** is defined in the agreement based on the decision of the Government 10 (?) years
- **Penalties:** as set by the agreement, incl. late delivery (over 12 months), non-delivery (total or a part of), non-compliance with the LC requirement, etc.
- Monthly capacity payment will compensate only part of the overall cost, the rest has to be covered by the **revenue from the energy market**
- **WACC** considered was 14%, if the Russian bonds yield deviates from 8.5% than re-calculation is possible

“Typical” Cost Indicators Per Technology Considered

Recommended typical Capex cost, EUR/kW/ in 2012 prices

Recommended typical Opex cost, EUR/kW/year in 2012 prices



● Min indicator identified in the survey

▲ Max indicator identified in the survey

- Cost indicators are considering international experience and localized cost elements.
- Recommended costs are considering Russian structure of the cost, climate and seismic conditions (average only)
- The Capex cost cap will include grid connection cost (?)
- The Capex cost cap is supposed to be +15%, e.g. **€1581 per kW for wind** not including grid connection cost (TBD)
- The consequent cost caps will consider: learning curve influence, yearly inflation, previous results of the tenders

