

Brief Overview of Renewable Energy Status in Japan and Russia

For seeking out new business opportunity

October 30, 2014

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Today's topics

- ◆ Brief overview of renewable energy status in Japan as a whole
- ◆ Brief overview of renewable energy status and specific features of Niigata Prefecture
- ◆ Brief overview of renewable energy status in Russia
- ◆ Seeking out business opportunity

1. Brief overview of renewable energy status in Japan as a whole

Ratio of renewable energy power generation in total generated electricity during past 10 years

Year	Electricity generated (100 million kWh)	Composition of annual electricity generated (%)					
		Nuclear	Coal	LNG	Oil etc.	Hydro	Renewable energy (excluding hydro)
2004	9,705	29.1	24.7	25.7	9.7	10.0	0.9
2005	9,889	30.8	25.6	23.7	10.8	8.2	0.9
2006	9,958	30.5	24.5	25.9	9.1	9.1	0.9
2007	10,305	25.6	25.3	27.4	13.1	7.6	1.0
2008	9,915	26.0	25.2	28.3	11.7	7.8	1.0
2009	9,565	29.2	24.9	29.4	7.1	8.3	1.1
2010	10,064	28.6	25.0	29.3	7.5	8.5	1.1
2011	9,550	10.7	25.0	39.5	14.4	9.0	1.4
2012	9,405	1.7	27.6	42.5	18.3	8.4	1.6
2013	9,397	1.0	30.3	43.2	14.9	8.5	2.2

Source: The Federation of Electric Power Companies of Japan

1. Brief overview of renewable energy status in Japan as a whole

Newly Introduced renewable energy power generating facilities under FIT scheme (after July 1, 2012) as of end of June 2014

- Total Capacity of introduced facilities: 19,897,939 kW ※
- Number of introduced facilities: 1,923,973 ※
- Total capacities of approved facilities: 71,783,180 kW

Remarks: 1) The above figures include solar power for residential use with unit capacity of less than 10 kW.
2) ※ Existing facilities shifted to FIT scheme are included.

Reference

Purchase prices and periods of the FIT scheme in Japan (2014 fiscal year)

Energy source	Procurement category	Purchase rate (Yen/kWh, tax exclusive)	Purchase period (Year)
Solar	10kW or more (Non-residential)	32	20
	Less than 10kW (Residential)	37	10
Wind power	20kW or more	22	20
	Less than 20kW	55	
Offshore wind power		36	
Geothermal power	15MW or more	26	15
	Less than 15MW	40	
Small and medium hydropower	1MW or more, but less than 3MW	24	20
	200kW or more, but less than 1MW	29	
	Less than 200kW	34	
Small and medium hydropower utilizing existing headrace tunnels	1MW or more, but less than 3MW	14	20
	200kW or more, but less than 1MW	21	
	Less than 200kW	25	
Biomass	Biogas	39	20
	Timber from forest thinning	32	
	Other woody materials and agricultural wastes	24	
	Recycled wood	13	
	Wastes excluding woody materials	17	

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2. Brief overview of renewable energy status and of Niigata Pref.

Newly introduced renewable energy power generating facilities under FIT scheme (after July 1, 2012) as of end of June 2014

- Total capacity of introduced facilities: 149,502 kW
- Number of introduced facilities: 12,154 ※
- Total capacities of approved facilities: 502,263 kW ※

Remarks: 1) The above figures include solar power for residential use with capacity of less than 10 kW.
2) ※Existing facilities shifted to FIT scheme are included.

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Examples of major renewable energy power stations in Niigata Pref.

No.	Name of Power Station	Owner/Operating Organization	Location	Installed Capacity (MW)	Plant Area (Hectar)	Start of Operation
1	Niigata Snowy–Region Mega–solar Power Station No.1	Government of Niigata Pref., Showa Shell Sekiyu K.K.	Niigata City	1.00	3.5	October, 2010
2	Niigata East Solar Power Station (No. 1 Block)	Government of Niigata Pref.	Agano City	1.00	3.2	October, 2011
3	Niigata East Solar Power Station (No. 2 Block)	Government of Niigata Pref.	Agano City	1.00	3.2	July, 2012
4	Mega–solar TSUBAME site	PVP Japan	Tsubame City	1.00	4.0	August, 2012
5	Niigata Tainai MS Power Station	West Hodings Corporation	Tainai City	1.50	N/A	November, 2012
6	IMPEX Mega–solar Joetsu Power Station	Impex Corporation	Joetsu City	2.00	4.6	April, 2013
7	Niigata East Port Mega–solar Power Station	The Trans Value Trust Company Ltd.	Seiromachi	1.50	2.7	October, 2013
8	Hirose Mega–solar Power Station	Hirose Co., Ltd.	Tsubame City	1.00	1.3	August, 2013
9	Hokuriku Gas East Port Mega–solar Power Station	Hokuriku Gas Co., Ltd.	Seiromachi	1.50	2.7	October 2013
10	Hirose Mega–solar Joetsu Power Station	Hirose Co., Ltd.	Joetsu City	2.00	3.7	November, 2013
11	Sinko Kyogase Mega–solar Power Station	C Energy Co., Inc.	Agano City	2.50	3.5	December, 2013
12	Niigata Snowy–Region Mega–solar Power Station, No.2	Showa Shell Sekiyu K.K.	Niigata City	6.00	9.2	March 2014
13	Niigata Kohirakata Mega–Solar Power Station	Nozawa Corporation, Honmagumi, The Trans Value Trust Company Ltd.	Niigata City	1.00	2.0	August, 2014
14	Senami Biomass Energy Plant (Food waste)	Kaisei	Murakami City	2.50	N/A	2012
15	Summit Myojo Itoigawa Biomass Power Station (Wood waste)	Sumitomo Corporation, Myojo Cement	Itoigawa City	50.00	N/A	2005

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Examples of major renewable energy power stations in Niigata Pref. (continued)

Hydro power stations owned/operated by Niigata Pref. Government (Bureau of Public Enterprise)

No.	Name of Station	Location	Max. Capacity (kW)	Effective Head (m)	Start of Operation
1	Miomote	Murakami City	30,000	64.51	1952
2	Saruta	Murakami City	21,800	77.09	1955
3	Okumiomote	Murakami City	34,500	102	2001
4	Tainai No.1	Tainai City	11,000	161.7	1962
5	Tainai No.2	Tainai City	3,600	31.7	1959
6	Tainai No.3	Tainai City	2,000	14.01	1983
7	Tainai No.4	Tainai City	2,600	44.6	under construction
8	Takouji	Gosen City	7,100	70.8	1978
9	Kasabori	Sanjo City	7,200	64.5	1964
10	Kariseta	Nagaoka City	1,100	47.3	1990
11	Hirokami	Uonuma City	1,600	40.2	2011
12	Takada	Takada City	11,500	195.5	1968
13	Shintakada	Takada City	2,500	198.41	1984

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3. Brief overview of renewable energy status in Russia

Total Installed power generation capacity in 2012

- 239.7 mil. kW

Total electric power generation in 2012 - 1,069 bil. kWh

(Source) Russian Federation Federal State Statistics Service

Ratio of renewable energy power generation:

- In installed power generation capacity: 1% ? (assumed)
- In total electric power generation: 0.5% ? (assumed)

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Recent development of renewable energy support scheme in Russia

Introduction of New Capacity-based Renewable Energy Support Scheme in Russia

- Decree No. 449 of May 28, 2013 on the “Mechanism for the Promotion of Renewable Energy on the Wholesale Electricity and Capacity Market”
- Mechanism of competitive bid for selection of investors started in 2013

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Plan of new Installations

Target capacity of renewable energy power generation
to be introduced in Russia toward 2020

(unit 1,000 kW)

Resolution of the Government of RF No. 861-r of May 28, 2013

Type	2014	2015	2016	2017	2018	2019	2020	TOTAL
Solar	120	140	200	250	270	270	270	1,520
Wind Power	100	250	250	500	750	750	1,000	3,600
Small Hydro	18	26	124	124	141	159	159	751
TOTAL	238	416	574	874	1,161	1,179	1,429	5,871

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Summary of conducted bids

Source: Announcement of Trading System Administrator, Russia

Competitive Bid	Type	Number of approved projects	Capacity to be introduced (1,000kW) in each year					TOTAL
			2014	2015	2016	2017	2018	
First Bid (September 2013)	PV Solar	32	35	115	149	100	0	399
	Wind Power	7	0	0	15	90	0	105
	Small Hydro	0	0	0	0	0	0	0
	TOTAL	39	35	115	164	190	0	504
Second Bid (July 2014)	PV Solar	33	0	25	40	155	285	505
	Wind Power	1	0	51	0	0	0	51
	Small Hydro	3	0	0	0	21	0	21
	TOTAL	37	0	76	40	176	285	577

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Plan in the Far East of Russia toward 2020

Source: From the materials published at the International Conference “Renewable Energy of the isolated Systems of the Far East of Russia” at Yakutsk in June 2014

No.	Region	PV power		Wind power		TOTAL	
		Number of plant	Total capacity (MW)	Number of plant	Total capacity (MW)	Number of plant	Total capacity (MW)
1	Sakha (Yakutia) Republic	132	43.1	9	8.3	141	51.4
2	Primorsky Krai	7	1.2	4	2.2	11	3.4
3	Kamchatskiy Krai	0	0	11	16.2	11	16.2
4	Khabarovsk Krai	0	0	1	1.4	1	1.4
5	Sakhalin Region	0	0	3	5.0	3	5.0
6	Chukotka Autonomous Region	0	0	7	8.8	7	8.8
TOTAL		139	44.3	35	41.9	174	86.2

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4. Seeking out business opportunity

These circumstances should provide us with new business opportunity for this Russian market in various ways:

- Supply of advanced equipment/components and materials
- Participation as an EPC contractor
- Direct investment as an independent power producer
- Financial service
- Operation & maintenance service etc. etc.

With conditions to take into consideration:

- severe climate condition of the site
- high local content requirement
- keen competition

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4. Seeking out business opportunity

ERINA has been conducting the survey of potential participants-companies in Niigata area for renewable energy market in Russia. Till now around 60 companies have been identified as potential participants, which are classified in the following sectors:

- Solar energy 23
- Wind power 4
- Small hydro power 8
- Biomass 4
- Others 17

It is highly required to know and understand the actual demand of the market and mutual interest through business contacts.



