
Electricity T&D Infrastructure and Technologies

Report & Database Edition 1, 2011

Market Intelligence

T&D networks are continuously evolving in both size and nature. They must grow in order to cope with ever rising demand. In the past where it was a matter of adding more lines, transformers and ancillary equipment, today the technology of the systems is often able to substitute increased sophistication for physical growth, or to reduce the additions required by making the system more efficient.

The smart grid has gained a lot of column inches in the two years as the panacea for all problems with the current grid system. Such as the grid's high carbon footprint, inability to integrate a high percentage of intermittent renewable energy capacity from wind and solar, and distributed, small scale energy generators, such as rooftop solar PV plants and small scale wind turbines.

To date smart grid deployment has focused on smart meters and associated communications network in most countries with the notable exception of China. The Chinese government is focussing more on installing new long-distance cabling and reducing transmission and distribution losses. The development of the smart grid in different markets is dependent upon the smart grid drivers. For example, in the US, reducing energy consumption and peak demand are key drivers therefore the market has focused on the large scale deployment of smart meters. Along with national security, so the US is currently investing heavily in cyber security.

Significant barriers to the development of the smart grid include a lack of standardisation, financing, limited incentives for utilities, limited storage capacity, lack of financing to name a few. However, the biggest barrier to the development of the grid is public perception, as the cost of smart meter deployment has been passed onto the consumer. Many smart meters have been deployed without displays showing electricity consumption and the cost of that consumption. However, to make this data more accessible Google and Microsoft have launched free online tools to that display this information online.

The Report

The PDF Report contains:

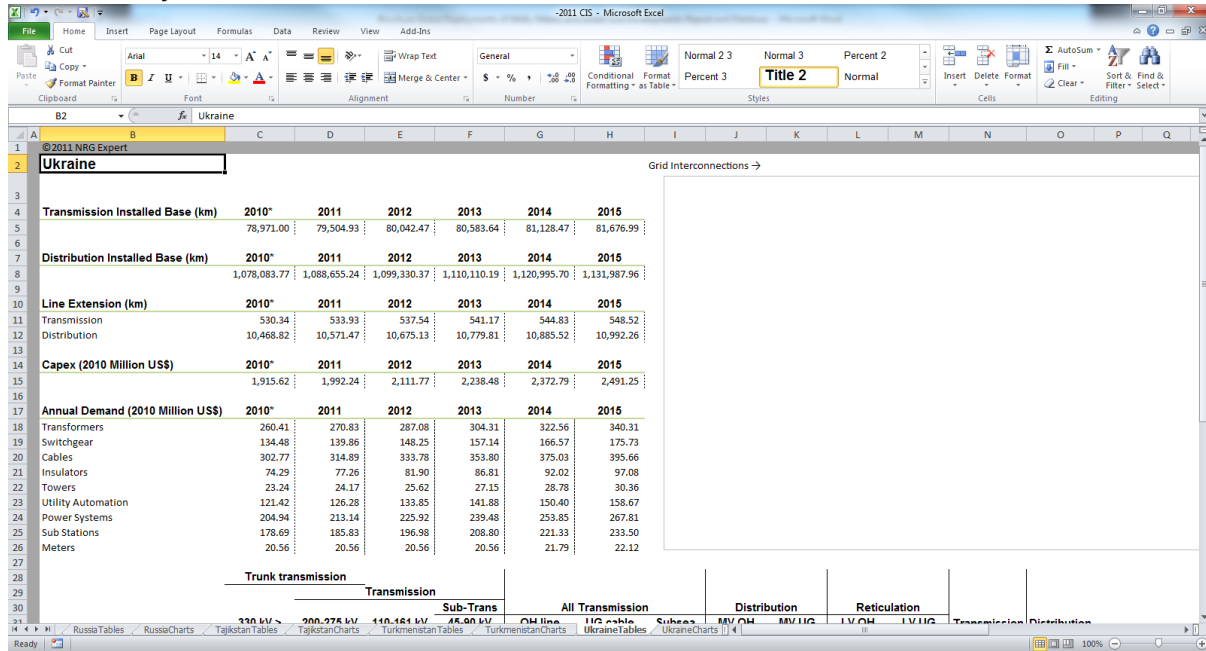
- A General overview of the T&D industry
- An Introduction to the Smart Grid, together with assessments and detailed sections on Definitions, Strategies, Security, Investment, Cost and Development Issues
- Definitions of sectors in the industry (contained in the database)
- Grid interconnections and multinational collaboration

The Database

The database contains a by-country snapshot overview of the Transmission and Distribution sector. Each region file contains a regional overview of Annual Demand, Capital Expenditure and total generating capacity by country as well as a list of details of industry companies.

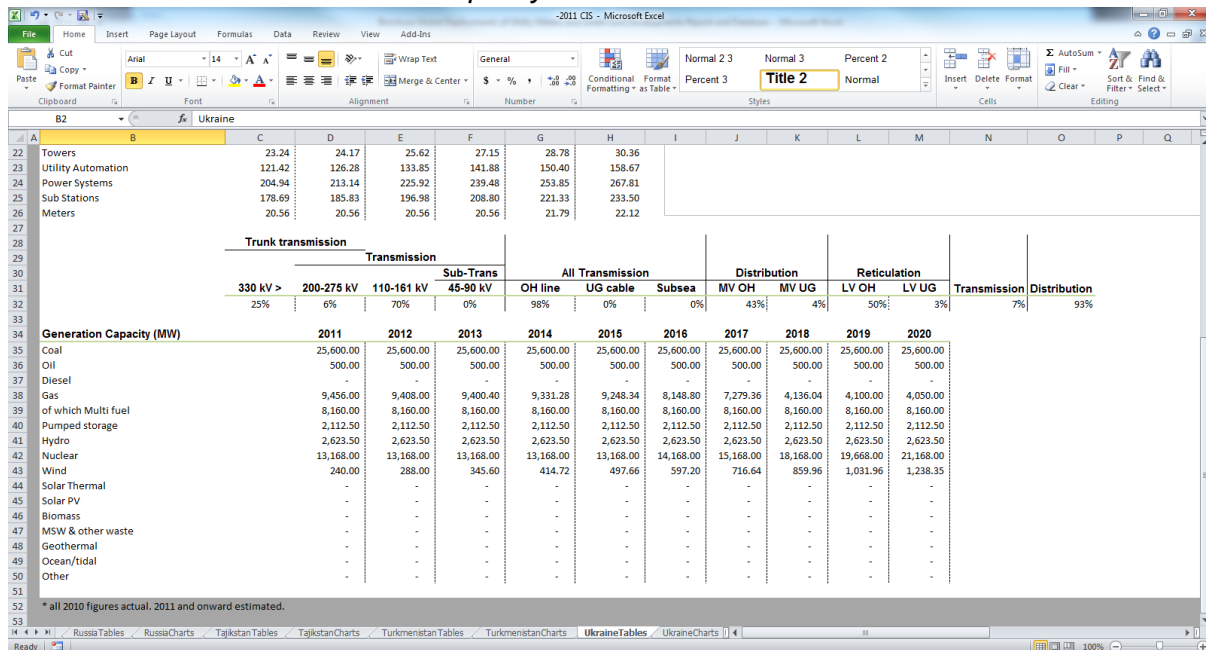
Data Sample:

Main country overview



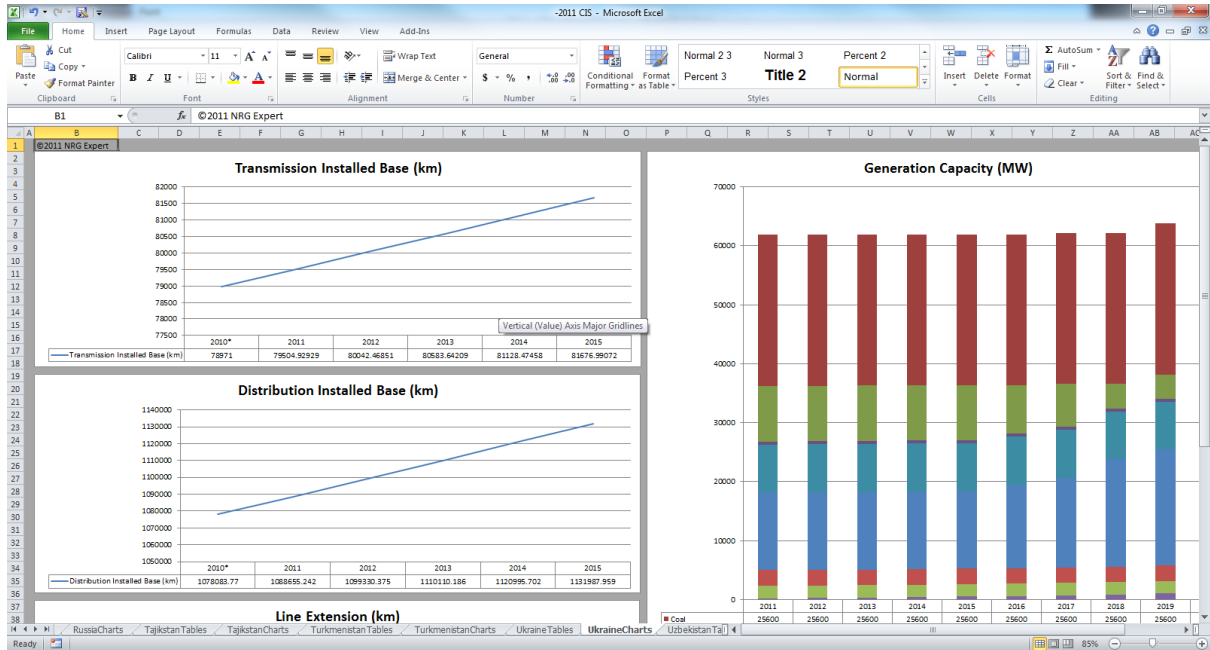
	2010*	2011	2012	2013	2014	2015
Transmission Installed Base (km)	78,971.00	79,504.93	80,042.47	80,583.64	81,128.47	81,676.99
Distribution Installed Base (km)	1,078,083.77	1,088,655.24	1,099,330.37	1,110,110.19	1,120,995.70	1,131,987.96
Line Extension (km)						
Transmission	530.34	533.93	537.54	541.17	544.83	548.52
Distribution	10,468.82	10,571.47	10,675.13	10,779.81	10,885.52	10,992.26
Capex (2010 Million US\$)						
2010*	1,915.62	1,992.24	2,111.77	2,238.48	2,372.79	2,491.25
Annual Demand (2010 Million US\$)						
Transformers	260.41	270.83	287.08	304.31	322.56	340.31
Switchgear	134.48	139.86	148.25	157.14	166.57	175.73
Cables	302.77	314.89	333.78	353.80	375.03	395.66
Insulators	74.29	77.26	81.90	86.81	92.02	97.08
Towers	23.24	24.17	25.62	27.15	28.78	30.36
Utility Automation	121.42	126.28	133.85	141.88	150.40	158.67
Power Systems	204.94	213.14	225.92	239.48	253.85	267.81
Sub Stations	178.69	185.83	196.98	208.80	221.33	233.50
Meters	20.56	20.56	20.56	21.79	22.12	

T&D breakdown and Generation capacity:



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Towers	23.24	24.17	25.62	27.15	28.78	30.36				
Utility Automation	121.42	126.28	133.85	141.88	150.40	158.67				
Power Systems	204.94	213.14	225.92	239.48	253.85	267.81				
Sub Stations	178.69	185.83	196.98	208.80	221.33	233.50				
Meters	20.56	20.56	20.56	21.79	22.12					
Trunk transmission										
Transmission										
Sub-Trans										
All Transmission										
Distribution										
Reticulation										
330 kV >	25%	6%	70%	0%	98%	0%	0%	43%	4%	50%
200-275 kV										3%
110-161 kV										7%
45-90 kV										93%
Generation Capacity (MW)										
Coal	25,600.00	25,600.00	25,600.00	25,600.00	25,600.00	25,600.00	25,600.00	25,600.00	25,600.00	25,600.00
Oil	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00
Diesel	-	-	-	-	-	-	-	-	-	-
Gas	9,456.00	9,408.00	9,400.40	9,331.28	9,248.34	8,148.80	7,279.36	4,136.04	4,100.00	4,050.00
of which Multi fuel	8,160.00	8,160.00	8,160.00	8,160.00	8,160.00	8,160.00	8,160.00	8,160.00	8,160.00	8,160.00
Pumped storage	2,112.50	2,112.50	2,112.50	2,112.50	2,112.50	2,112.50	2,112.50	2,112.50	2,112.50	2,112.50
Hydro	2,623.50	2,623.50	2,623.50	2,623.50	2,623.50	2,623.50	2,623.50	2,623.50	2,623.50	2,623.50
Nuclear	13,168.00	13,168.00	13,168.00	13,168.00	13,168.00	14,168.00	15,168.00	18,168.00	19,668.00	21,168.00
Wind	240.00	288.00	345.60	414.72	497.66	597.20	716.64	859.96	1,031.96	1,238.35
Solar Thermal	-	-	-	-	-	-	-	-	-	-
Solar PV	-	-	-	-	-	-	-	-	-	-
Biomass	-	-	-	-	-	-	-	-	-	-
MSW & other waste	-	-	-	-	-	-	-	-	-	-
Geothermal	-	-	-	-	-	-	-	-	-	-
Ocean/tidal	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-

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