Volume III, Issue 3

Current News
மின் செய்திகள்

March, 2018

Solar Panel Quality Defects—Visual Inspection (*Part – I)*

One of the important factors that affect the growth of Indian solar market is the penetration of counterfeit and poor quality solar products in the market. Many consumers and retailers are not aware of these poor quality solar PV products in the market that may limit the performance or lead to product failure. Generally a good quality solar PV products should last for 25 years or more. Most of the defects in the solar PV cell are visually detectable but it's not guaranteed that the visually inspected products will last for more than 25 years. Although visual inspection cannot trace all the defects, it can be used as a screening test to identify the poor quality and counterfeit products. The following are some of the methods to identify the faulty and fake PV modules:

*Fig.*1 Missing Label

Label: The PV modules should have the label adhered to the rear side of the module displaying the manufacturer details. The label should give panel information like maximum power, current and voltage at maximum power, short-circuit current, open-circuit voltage, manufacturer name, model number and serial number. The label should be water resistant and heat resistant and it should be properly adhered to the module. Missing of the label or the technical information in the label is a potential safety issue.

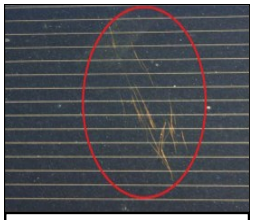

Fig. 2 Scratches

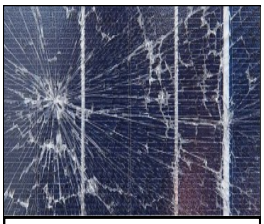

*Fig.*3 Cracks

Cracks and Scratches in front glass: A major quality issue are scratches on the glass cover of the solar panels. Through the cracks water can ingress and affects transmission of light to the underlying cells and thus leads to output power degradation. This indicates poor mechanical handling of the module during manufacturing process.

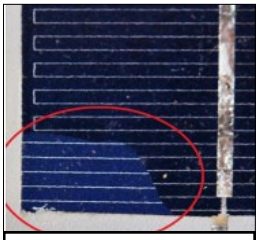

*Fig.*4 Dummy Cells

Fake and Dummy Cells: Instead of using active materials for cells, printed paper images will be used in some fake PV modules. This can be evident by looking into the white space between the fake cells, where the edge of the paper can be seen. And in some cases dummy cell fragment or dark paper will be placed under the active cell in order to hide the broken cell. These kinds of fraudulent materials will not produce power but customers pay for it by mistake.

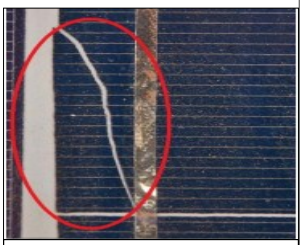

*Fig.*5 Crack on the cell

Scratches and Cracks in Cells: There can be cracks in cell. Cracks maybe partial or all the way across the cell. The white back sheet may be visible through the cracks and it can be identified. There can be scratches in the surface of the cell from poor handling during module assembly. These scratches and cracks in cells can affect the power output to a great extent and deep scratches can even risk shorting the cell.

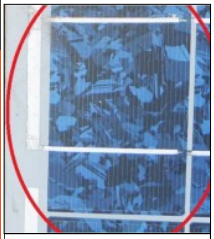

*Fig.*6 Shiny Cells

All Cells Very Shiny: In some modules the cells will look very shiny this could reflect the incoming sunlight instead of absorbing, thus reducing the power output of the module. The shiny cells are less efficient when compared to the darker cells. Hence it's better to avoid such cells. Retailers selling such fake modules at higher cost to uninformed consumers who think "shiny panel" is more efficient, is a fraudulent practice.

(*TO BE CONTINUED…*)

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- Call center—1912
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- RTI—TANGEDCO
- TNERC & Ombudsman: 044-28411376, 28411378, 28411379
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Please send your feedback to ecc@cag.org.in

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Tamil Nadu News

TN power regulator for curbs on wind power banking as discom losses mount

Captive wind power generators including the mills in Tamil Nadu are likely to face restrictions on banking their excess production with the discoms, as the power regulator has proposed limiting generation to no more than the annual average consumption.

Of the 7,900 Mw of wind power capacity in Tamil Nadu almost 70 per cent or around 5,500 Mw is under captive generation.

The banking of excess power generated by wind power producers was a measure the government adopted years ago to promote clean energy, but with the State becoming energy surplus, the government-owned discom TANGEDCO says it is bearing losses due to the additional cost in banking. The Tamil Nadu Electricity Regulatory Commission (TNERC) is now considering a new tariff order for wind energy, based on this submission by TANGEDCO.

TANGEDCO has often stated that banking is detrimental to its finances and has caused heavy losses due to power purchase cost in the non-wind season and additional expenditure in the form of integration cost in the process of accommodating wind energy by backing down and surrendering power. The WEGs have been contending that banking is necessary and should be continued, and that there is no financial loss to TANGEDCO. They have also approached various legal forums against the orders on banking.

"The rise in captive installations is a cause for concern with respect to the facility of banking of energy," TNERC observed. "The Commission proposes that the captive wind power plants shall restrict the installed capacity such that there is no excess generation beyond the annual average consumption, say taken for two or three years."

The Commission also draws comparisons with other renewable energy-rich States such as Andhra Pradesh, Gujarat, Maharashtra, Rajasthan and Karnataka. It says they have all placed much larger restrictions on banking of wind energy than Tamil Nadu.

TNERC has suggested various options, including doing away with the facility of banking, but with deemed purchase of excess generation, or banking facility with a restriction on timing from one month to 12 months, with various riders and charges. It also recommends removal of banking of energy for third party power purchases.

Source: Business Standard, March 26, 2018.

India News

Now, India is the third largest electricity producer ahead of Russia, Japan

India's electricity production grew 34% over seven years to 2017, and the country now produces more energy than Japan and Russia, which had 27% and 8.77% more electricity generation capacity installed, respectively, than India seven years ago. India produced 1,160.10 billion units (BU) of electricity–one BU is enough to power 10 million households (one household using average of about 3 units per day) for a month–in financial year (FY) 2017. Electricity production stood at 1,003.525 BU between April 2017-January 2018, according to a February 2018 report by India Brand Equity Foundation (IBEF), a trust established by the commerce ministry.

With a production of 1,423 BU in FY 2016, India was the third largest producer and the third largest consumer of electricity in the world, behind China (6,015 BU) and the United States (4,327 BU).

With an annual growth rate of 22.6% capacity addition over a decade to FY 2017, renewables beat other power sources–thermal, hydro and nuclear. Renewables, however, made up only 18.79% of India's energy, up 68.65% since 2007. About 65% of installed capacity continues to be thermal. As of January 2018, India has installed power capacity of 334.4 gigawatt (GW), making it the fifth largest installed capacity in the world after European Union, China, United States and Japan. The government is targeting capacity addition of around 100 GW–the current power production of United Kingdom–by 2022, as per the IBEF report.

Electricity generation grew at 7% annually India achieved a 34.48% growth in electricity production by producing 1,160.10 BU in 2017 compared to 771.60 BU in 2010–meaning that in these seven years, electricity production in India grew at a compound annual growth rate (CAGR) of 7.03%.

Generation capacity grew at 10% annually Of 334.5 GW installed capacity as of January 2018–up 60% from 132.30 GW in 2007–thermal installed capacity was 219.81 GW. Hydro and renewable energy installed capacity totaled 44.96 GW and 62.85 GW, respectively, said the report. The CAGR in installed capacity over a decade to 2017 was 10.57% for thermal power, 22.06% for renewable energy–the fastest among all sources of power–2.51% for hydro power and 5.68% for nuclear power.

Growing demand, higher investments will drive future growth Growing population and increasing penetration of electricity connections, along with increasing per-capita usage would provide further impetus to the power sector, said the report.

Power consumption is estimated to increase from 1,160.1 BU in 2016 to 1,894.7 BU in 2022, as per the report. Increasing investment remained one of the driving factors of power sector growth in the country.

Power sector has a 100% foreign direct investment (FDI) permit, which boosted FDI inflows in the sector. Total FDI inflows in the power sector reached $12.97 billion (Rs 83,713 crore) during April 2000 to December 2017, accounting for 3.52% of FDI inflows in India, the report said.

Source: Business Standard, March 26, 2018.

Consumer Focus

FACTS

The consumer has two solar connection at his premise. He is exporting the energy to the grid but these do not appear not been shown in the consumer portal. When this complaint was made in the consumer portal no action was taken. Therefore the petitioner approached the Forum in order to take action for recording in the consumer portal the gross reading, export and net reading.

CONTESTATIONS

Appellant: The petitioner has stated that he has two solar connections. In the consumer portal of TNEB only Gross meter reading and units used are seen in the portal without recording the number of units exported during the period. Unless all the readings, gross, export and net units recorded in the portal, the correctness of the calculation made cannot be ensured. Hence he requested to make proper provision in the portal.

Respondent: The respondent has stated that the details of Export, Import, Gross reading particulars of solar services are incorporated in the LT billing module for billing calculation. Competent authorities will be addressed to incorporate the details in online portal.

OBSERVATIONS AND JUDGMENT

The Petitioner did not turn up for hearing to discuss the issue raised by the petitioner. The request of the petitioner is to incorporate the details of Import, Export, Gross & Net energy details of their Solar services in the Consumer Online portal so as to ensure the billing calculation.

The respondent has stated that the export, import, energy details of solar services are incorporated in the LT billing module and action will be taken to incorporate the same in the Consumer Online Portal as shown in the LT billing module. At this juncture, Forum concluded that the respondent has to take early action to incorporate the solar services reading details in online portal as shown in the LT billing module.

ECC Voice

தயார் நிலை கட்டணபட்டியல்

வீட்டு உபயோகத்திற்கான மின் கட்டணம் விபர அட்டவணை 1(A) 23-05-2016 **முதல்** (60 **நாட்களுக்கு/** BI MONTHLY)

100 **யூனிட் வரை உபயோகபடுத்தும் பொது**

யூனிட்	நிலை	விலை	ரூ. பை.
0-100	30	2.50	விலை இல்லை

501 **யூனிட் வரை உபயோகபடுத்தும் பொது**

0-100	50	2.50
101-200		3.50
201-500		4.60
501& ABOVE		6.60

200 **யூனிட் வரை உபயோகபடுத்தும் பொது**

0-100	30	2.50
101-200		

201-500 **யூனிட் வரை உபயோகபடுத்தும் பொது**

0-100	40	0
101-200		2
201-500		3

Units	Rate	Units	Rate	Units	Rate	Units	Rate	Units	Rate	Units	Rate
10	0	210	260	410	860	610	2506	810	3826	1010	5146
20	0	220	290	420	890	620	2572	820	3892	1020	5212
30	0	230	320	430	920	630	2638	830	3958	1030	5276
40	0	240	350	440	950	640	2704	840	4024	1040	5344
50	0	250	380	450	980	650	2770	850	4090	1050	5410
60	0	260	410	460	1010	660	2836	860	4156	1060	5476
70	0	270	440	470	1040	670	2902	870	4222	1070	5542
80	0	280	470	480	1070	680	2966	880	4288	1080	5608
90	0	290	500	490	1100	690	3035	890	4354	1090	5674
100	0	300	530	500	1130	700	3100	900	4420	1100	5740
110	35	310	560	510	1846	710	3166	910	4486	1110	5806
120	50	320	590	520	1912	720	3232	920	4552	1120	5872
130	65	330	620	530	1978	730	3298	930	4618	1130	5938
140	80	340	650	540	2044	740	3364	940	4684	1140	6004
150	95	350	680	550	2110	750	3430	950	4750	1150	6070
160	110	360	710	560	2176	760	3496	960	4816	1160	6136
170	125	370	740	570	2242	770	3562	970	4882	1170	6202
180	140	380	770	580	2308	780	3628	980	4948	1180	6268
190	155	390	800	590	2374	790	3694	990	5014	1190	6334
200	170	400	830	600	2440	800	3760	1000	5080	1200	6400

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Initiative of

CAG
Citizen consumer and civic Action Group

Citizen consumer and civic Action Group (CAG) is a non-profit, non-political and professional organization that works towards protecting citizen's rights in consumer and environmental issues and promoting good governance processes including transparency, accountability and participatory decision making.

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World News

Current News

Global carbon emissions hit record high in 2017

Global energy-related carbon emissions rose to a historic high of 32.5 gigatons last year, after three years of being flat, due to higher energy demand and the slowing of energy efficiency improvements, the International Energy Agency (IEA) said.

Global energy demand rose by 2.1 percent last year to 14,050 million tonnes of oil equivalent, more than twice the previous year's rate, boosted by strong economic growth, according to preliminary estimates from the IEA.

Improvements in energy efficiency slowed last year. As a result of these trends, global energy-related carbon dioxide emissions increased by 1.4 percent in 2017 to 32.5 gigatons, a record high.

Carbon dioxide emissions are the primary cause of global average temperature rise, which countries are seeking to curb to avoid the most devastating effects of climate change.

"Global emissions need to peak soon and decline steeply to 2020; this decline will now need to be even greater given the increase in emissions in 2017," the IEA said in its report.

The IEA said Asian countries accounted for two thirds of the global increase in emissions. China's emissions rose by 1.7 percent to 9.1 gigatons, limited by renewables deployment and more rapid switching to gas from coal.

Most major economies saw an increase in carbon emissions, though Britain, the United States, Mexico and Japan experienced declines.

The IEA said oil demand grew by 1.6 percent, or 1.5 million barrels a day, more than twice the average annual rate over the past decade, driven by the transport sector and rising petrochemical demand.

Natural gas consumption grew by 3 percent - the most of all fossil fuels - with China alone accounting for nearly a third of the growth. This was largely due to abundant and relatively low-cost supplies, the IEA said.

Coal demand was 1 percent higher last year, reversing declines over the previous two years, due to rises in coal-fired electricity generation, mostly in Asia.

However, renewables-based electricity generation rose by 6.3 percent, due to the expansion of wind, solar and hydropower. Renewables had the highest growth rate of any energy source, meeting a quarter of world energy demand growth, the IEA said.

Source: Reuters, March 22, 2018.

Publications/Regulations

- Global Energy & CO_2 Status Report 2017, March 2018, Click here
- Energy Statistics, March 2018, Click here

Global Energy & CO_2 Status—2017

Global Energy Related CO_2 Emissions