Volume III, Issue 4

Current News
மின் செய்திகள்

April, 2018

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

Fault in Junction Boxes: It is located in the rear side of the module where the external wires connects the internal tabbing ribbon from the interconnected PV cells. The junction box also consists of by-pass diodes. Its important to look for broken solders, broken wire or tabbing ribbon in the junction box (Fig.1). Broken wires can lead to module failure. In some cases there can be cracks in the housing, missing of continuous lid around the wire (Fig.2) which can lead to water ingress, short circuit or corrosion of metal contacts. Generally it is better to opt for the modules in which the junction boxes are completely sealed.

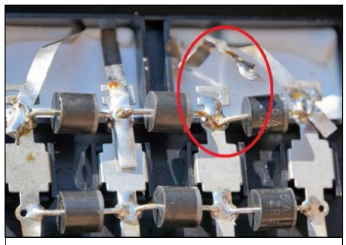

Fig.1. Broken Tabbing Ribbon

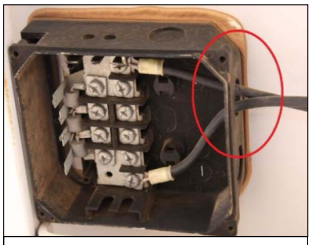

Fig.2. Missing Lid/Seal

Wiring Issues: Wires carry the generated electricity from the junction box of the module to the charge controller or the inverter. Its mandatory to look for missing wires (Fig.3), insecurely attached, and too short/too thin wires (Fig.4.). In case the wires are too thin, it could easily melt or get burnt. In order to ensure safety, all wiring connections should be kept inside a sealed enclosure.

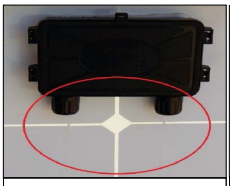

Fig.3. Missing Wire

Fig.4. Too Short Wire

Cell Metallization: Metal fingers are used to collect and conduct current from the individual cells to the bus bar (covered by tabbing ribbon). In some modules these metal fingers will not be connected to the bus bars of a cell (Fig.5). This will lead to reduction in output power of the module. Hence it is important to look for properly connected metal fingers and also whether the metal fingers are of the same pattern. Different patterns of metal fingers in the same module affects the performance characteristics of the module.

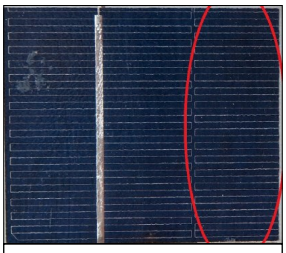

Fig.5. Disconnected

Cell Interconnection: It is important to note that at times, the tabbing ribbon will be covered in black material for aesthetic purpose, thus making it difficult to check whether interconnection is continuous or not. Power of unconnected cells does not contribute to the module output. It is also important to look for poorly soldered and excessively soldered metal fingers. While poorly soldered metal fingers will disconnect easily, excessive soldering will shade the cell area.

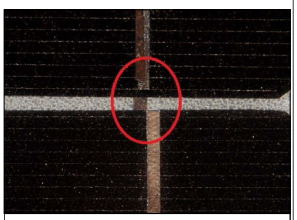

Fig.6. Discontinuous Cell

Fig.7. Burnt Backsheet

Fig.8. Decolourization

Backsheet: It's the back substrate of module and protects the module interior from external elements. Sometimes due to some catastrophic during production/ packing, the backsheet may get burnt or punctured (Fig.7). Such modules are not reliable or safe. In some cases one can see decolourization (Fig.8) on the backsheet indicating the poor reliability of the module.

(*CONCLUDED*)

INSIDE THIS ISSUE:

Please send your feedback to ecc@cag.org.in

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Tamil Nadu News

Power Consumption Peak Ahead of May

In a scenario that is soon going to be difficult for Tamil Nadu, especially Chennai, the State's overall per-day electricity consumption has risen to around 15,300 MW which usually happens only during mid-May – that is during Agni Nakshatram. Not only that, in a bid to cover up the shortage, officials are currently engaged in performing uninformed power cuts in many parts of Tamil Nadu especially in villages where it goes unnoticed.

Tamil Nadu's average daily power consumption is about 14,000 MW from the approximately 2.8 crore subscribers. Of the total usage, cities like Chennai take a larger share. Tamil Nadu's electricity supply has various sources right from the Central grid to private players in addition to the State's own sources.

Usually, the consumption surges a little beyond 15,000 MW during May as residents' air-conditioner and refrigerator usage is high during this time. But shockingly, this year, it's not even mid-April now and Tamil Nadu's power consumption has already risen beyond 15,000 MW and is inching closer to 15,300 MW. For example, on 6 April, the overall usage recorded was 15,287 MW. Moreover, on all days prior to that the consumption was still high and very close to the 15,000 MW mark.

An EB official said, "This year is quite different from others as the consumption has gone beyond the usual limits. Increase in use of air-conditioners among people can be attributed as the prime reason for this unusual hike this year. Usually, as a precautionary measure, we monitor the functioning of transformers, EB lines, sub-stations and the plants for uninterrupted power supply. But, as the numbers have risen exponentially this year, we will give additional attention to the State's thermal units and will make sure they have adequate raw materials like coal and water in stock."

Tambaram resident Rajkumar said, "These numbers are shocking and give us a picture of how this May is going to be. So, it's time to increase the ventilation of our house and adopt various techniques like washing the floors to keep the rooms cool. Construction of false ceiling can also bring the heat under control to a certain extent."

The EB official also informed that consumption is likely to go beyond 16,000 MW in the coming days and that the government was planning to buy additional power from private players to tackle the demand. He also advised residents to limit the usage of air-conditioners for the overall welfare of the State.

India News

India says 100 % of Villages have Electricity. Millions of People Remain in Dark.

The Indian government says it has reached a key milestone: Every one of the country's 600,000 villages now has access to electricity. "We fulfilled a commitment due to which the lives of several Indians will be transformed forever!" Prime Minister Narendra Modi said on Twitter. "I am delighted that every single village of India now has access to electricity."

"In reality, a large chunk of the population still lacks reliable access to power," said Shilan Shah, a senior India economist at Capital Economics. "For those that are connected, there is also the significant issue of reliability of supply." The Indian government considers a village to be electrified when 10% of its households or public institutions are connected to the power grid. The government claims that 18,000 villages have been connected over the past three years. Yet according to the International Energy Agency, nearly 240 million Indians lacked lack access to electricity in 2017. One out of every five people around the world without access to power lives in India.

Abhishek Jain, a senior researcher at the think tank Council on Energy, Environment & Water, said that conditions in villages have not changed despite the government's announcement. "It doesn't change the material lives on the ground significantly," said Jain. "It doesn't mean that households are connected, and just having the connection, doesn't mean you're getting good supply."

Many of India's state-owned utility companies are heavily indebted, and unable to provide consistent service. Their troubles, combined with theft, corruption and poor infrastructure, leave many Indians without access to reliable, around the clock, power. Analysts say the more important government goal is one that calls for every household to be connected to the grid by the end of 2018, even those that cannot afford to pay for the necessary infrastructure to be installed.

The government is also working to boost electrification though the aggressive promotion of renewable energy. India relies on coal for about two-thirds of its electricity production, but renewable sources account for about 60% of those who gain access to power, according to IEA.

How quickly the rest of the country can be electrified will have major implications for the economy.

"The poor provision of electricity will make it difficult for India to develop a competitive manufacturing sector, without which the economy will struggle to meet its potential," the economist Shah said in a research note.

Electricity reached 82% of the population in 2016, up from 43% at the turn of century, according to the International Energy Agency. The government has said all of India's rural Indian households will have electricity by 2019. And about 83% have electricity as of now, according to its real-time progress tracker.

Source: CNN Money, April 30, 2018.

Consumer Focus

FACTS

The petitioner has stated that the distribution transformer (DT) is very far away from the village and also its located in a funeral ground. The petitioner has requested for shifting the distribution transformer within the village also, any defects in the transformer has to be rectified immediately without any delay.

CONTESTATIONS

Appellant: The enquiry on the above petition has been conducted by the CGRF/CEDC/North on 26.10.13. but the petitioner has not attended the meeting.

Respondent: Electricity is supplied to the village through a 100 KVA distribution transformer. The normal supply voltage is maintained and there is no low voltage complaint in the above area. Further, the existing distribution transformer capacity is adequate to meet the load connected at present. However, if there is increase in load in future, necessary action will be taken for erection of new distribution transformer in the village.

OBSERVATIONS AND JUDGMENT

Based on the enquiry with the TANGEDCO officers, the CGRF/CEDC/North has arrived to a conclusion that, the normal supply voltage is maintained in the above village and there is no low voltage complaint in the above area. Further, the existing distribution transformer capacity is adequate to meet the load connected at present. As there are no tree branches over the LT line, leading breakdown due to tree fault in the above area. However, if any break down occurs, the same is being attended to immediately by TANGEDCO with supply is restored immediately. Hence, there is no necessity for shifting of DT from the existing location to a place within the village. However, if there is an increase in load in the future, necessary action will be taken by the TANGEDCO officers for erection of a new DT in the Village.

ECC Voice

விவசாயிகளின் கவனத்திற்கு

- ஐ.எஸ்.ஐ. முத்திரையிட்ட மின் சாதனங்களையே உபயோகிக்கவும்.
- பழைய / துருப்பிடித்த ஜி.ஐ. குழாய்களை அகற்றி பி.வி.சி. குழாய்களை பொருத்தவும்.
- பழுதடைந்த மற்றும் தரம் குறைந்த புட் வால்வுகளை ஐ.எஸ்.ஐ. முத்திரையிட்ட புட் வால்வுகளாக மாற்றம் செய்யவும்.
- பழைய தரம் குறைந்த மின் பம்பு செட்டுகளுக்கு பதிலாக நவீன மின்சக்தி சேமிப்பு திறன் மிக்க பம்பு செட்டுகளை உபயோகிக்கவும்.
- சரியான அளவிலான பம்பு செட்டு மற்றும் துணை சாதனங்களை பயன்படுத்தவும்.
- பம்பு செட்டுகளில் பவர் பேக்டர் கபாசிட்டர்களை பொருத்துவதோடல்லாமல் அவற்றை சரியானபடி பராமரிக்க வேண்டும்.
- குறைந்த மின் அழுத்தம் இருக்கும் போது பம்பு செட்டுகளை பயன்படுத்துவதை தவிர்க்கவும்.
- பம்பு செட் மற்றும் துணை சாதனங்களை தகுதி பெற்ற மின் பணியாளர் மூலம் நிறுவச் செய்யவும்.
- பம்பு செட்டுகளை இயக்கும் போது போதிய அளவு தண்ணீர் இருக்கிறதா என்பதை சரி பார்க்கவும்.
- பழுதடைந்த மோட்டார்களில் ரீ-வைண்ட் செய்வதை தவிர்க்கவும்.
- மின் சாதனங்களில் ஏதாவது பழுது ஏற்பட்டால், அதனை நாமே சரி செய்ய முயற்சிக்காமல் அந்த துறையில் தேர்ச்சி பெற்ற வல்லுனர்களைக் கொண்டு பழுது நீக்கும் பணிகளையும் மற்றும் பராமரிப்பினையும் மேற்கொள்ள வேண்டும்.

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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

Sweden Built the World's First Stretch of Electric Road

The world's first electrified road that recharges the batteries of cars and trucks driving on it has been opened in Sweden.

About 2km (1.2 miles) of electric rail has been embedded in a public road near Stockholm, but the government's roads agency has already drafted a national map for future expansion. Sweden's target of achieving independence from fossil fuel by 2030 requires a 70% reduction in the transport sector. The technology behind the electrification of the road linking Stockholm Arlanda airport to a logistics site outside the capital city aims to solve the thorny problems of keeping electric vehicles charged, and the manufacture of their batteries affordable.

Energy is transferred from two tracks of rail in the road via a movable arm attached to the bottom of a vehicle. The design is not dissimilar to that of a Scalextric track, although should the vehicle overtake, the arm is automatically disconnected.

The electrified road is divided into 50m sections, with an individual section powered only when a vehicle is above it. When a vehicle stops, the current is disconnected. The system is able to calculate the vehicle's energy consumption, which enables electricity costs to be debited per vehicle and user.

The "dynamic charging" – as opposed to the use of roadside charging posts – means the vehicle's batteries can be smaller, along with their manufacturing costs. A former diesel-fuelled truck owned by the logistics firm, PostNord, is the first to use the road.

Hans Säll, chief executive of the eRoadArlanda consortium behind the project, said both current vehicles and roadways could be adapted to take advantage of the technology.

"If we electrify 20,000km of highways that will definitely be enough," he added. "The distance between two highways is never more than 45km and electric cars can already travel that distance without needing to be recharged. Some believe it would be enough to electrify 5,000km". At a cost of €1m per kilometer, the cost of electrification is said to be 50 times lower than that required to construct an urban tram line. National grids are increasingly moving away from coal and oil and battery storage is seen as crucial to a changing the source of the energy used in transportation.

Source: The Guardian, April 12, 2018. (*edited*)

Publications/Regulations

- Rooftop Revolution: Unleashing Chennai's Solar Potential, April 2018, Click here.
- Renewable Energy Policies in a Time of Transition, April 2018, Click here.

Global Annual Installed Wind Capacity 2001—2017

Global Wind Report—2017