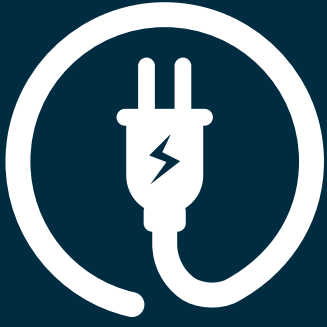




CURRENT NEWS

மின் செய்திகள்

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IS YOUR ROOFTOP SOLAR RUNNING A FEVER?

MEENAKSHI CHATURVEDI

What is a Hot Spot?

You have made the switch to clean energy and installed a rooftop solar PV system. Sunlight falls on your panels, electricity is generated, and your electricity bills are finally not burning a hole in your pocket. Yet not everything may be working as well as it appears. Over time, a single cell or group of cells within one panel may begin to overheat, its temperature climbing well above that of the surrounding cells without any visible warning. That is a hot spot, and if left unattended, it can silently eat away at your investment.

A publication from



CAG 40
Citizen consumer and civic Action Group

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A solar panel is made up of a number of tiny units called solar cells, all connected together like links in a chain. When one of these cells stops working due to shade, dirt, a crack, or a faulty component, electricity cannot flow through it normally. Instead of generating power, that cell starts absorbing power from its neighbouring cells and converting it into heat. The effect is similar to a kink in a water hose. The water (electricity) cannot pass through, pressure (heat) builds up at the blocked point, and over time the hose (cell) sustains damage that is difficult or impossible to reverse.

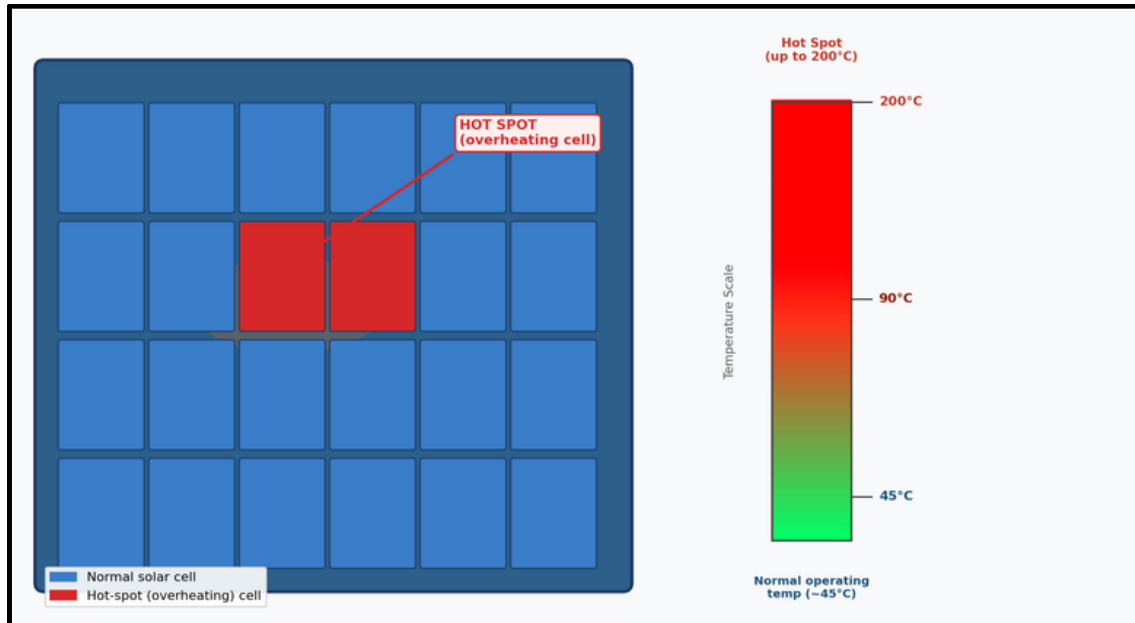


Figure 1: A hot spot occurs when one or more cells overheat (shown in red), reaching temperatures far above the rest | CAG

Why Should You Care?

Hot spots are not just an efficiency issue, they are a safety and financial risk. Hot spots can cause the following:

- Power loss: Even a single overheating cell can cut a panel's output by 25–85%, depending on severity.
- Panel damage: Prolonged high temperatures cause the panel's backsheet (the protective plastic layer) to discolour, blister, or crack.
- Fire risk: In extreme cases, hot spots can ignite the panel's materials or nearby roofing, especially on wooden or thatched roofs.
- Shortened life: A good solar panel should last 25 years. Hot spots can cut that lifespan significantly, costing you tens of thousands of rupees in early replacements.
- Warranty complications: Damage caused by neglected hot spots may not be covered under the manufacturer's warranty.

Researchers and field reports consistently identify hot spots as one of the leading causes of failure in solar PV modules worldwide. Even a shading ratio as small as 4% from a bird dropping or a small leaf is enough to create a hot spot exceeding 90°C. Regular inspection can catch most of these early.

What Causes Hot Spots?

Hot spots arise from five main situations. Any one of them can start the chain reaction of cell overheating.

1. Shading

A single dry leaf, a bird dropping, or the shadow of an overhead water tank on just one cell is enough to trigger a hot spot. This is the number one cause for hot spots. Because solar cells are connected in series (like the links of a chain), one blocked cell forces the others to push current through it, heating it up rapidly.

2. Physical Cracks

Micro-cracks can develop during installation (if panels are stepped on or mishandled), during transportation, or due to falling debris. These invisible fractures disrupt the flow of electricity through a cell, creating a localised hotspot at the crack point.

3. Bypass Diode Failure

Every solar panel has small safety devices inside called bypass diodes. Their job is to act as an escape route for electricity when a cell is shaded or faulty, preventing overheating. If a bypass diode itself fails, this safety valve disappears and the affected group of cells heats up uncontrolled.

4. Poor Wiring and Loose Connections

Connections between panels and to the inverter that are loose, poorly crimped, or corroded add electrical resistance. Resistance generates heat sometimes concentrated enough to cause a hot spot even at the wiring junction.

5. Cell Quality Mismatch

In cheaper panels, cells from different batches with slightly different electrical characteristics may be mixed together. This mismatch causes some cells to work harder than others, leading to localised overheating over time.

How Will You Know if Your Panel Has a Hot Spot?

Hot spots are invisible to the naked eye under normal conditions. However, your system will show signs that something is wrong.

⚠ Warning Sign	What It Means
Power output drops over months without visible reason	One or more cells may be underperforming
Inverter shows lower production than expected or gives error codes	Panel fault or mismatch detected
Visible discolouration – brown or black patches on panel surface	Cell burnout from prolonged hot spot
Blister or bubble on the panel backsheet	Severe overheating has damaged the lamination
Cracked glass on panel surface	Physical damage, possible micro-cracks inside
Burning smell near the panel or junction box	Possible fire hazard, switch off immediately and call electrician

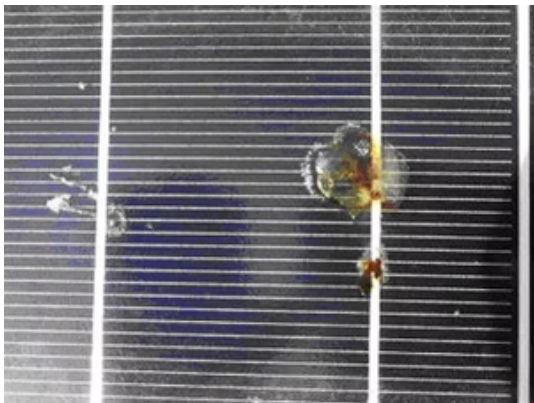


Figure 2: Solar panel with hot spot | [RenewSys](#)

If discolouration, burning smell, or blistering is noticed on any panel, switch off the solar system at the AC and DC isolators immediately. Do not attempt to investigate yourself. Instead, call your installer or a certified solar technician.

How to Prevent Hot Spots

The good news is that hot spots are largely preventable with regular care. The figure below shows what can be done to stop it from happening.



Figure 3: Simple steps every consumer can take to prevent hot spots | [CAG](#)

Thermal (Infrared) Inspection

The most reliable way to detect hot spots is with a thermal imaging camera also called an infrared or IR camera. This device creates a heat-map image of your panel, showing hot spots as bright yellow or red patches against the cooler blue-green background of the rest of the panel. A solar installer or a certified energy auditor can carry out an IR inspection once a year. This is increasingly being offered as part of Annual Maintenance Contracts (AMCs) for rooftop solar systems in Tamil Nadu.

What to look for in an IR report:

- A temperature difference of more than 10°C between cells in the same panel indicates a problem.
- Bright hot spots confined to a small area suggest a shading or crack issue.
- A whole row of cells overheating usually points to a bypass diode failure.
- Multiple panels showing hot spots may indicate a systemic wiring or installation fault.

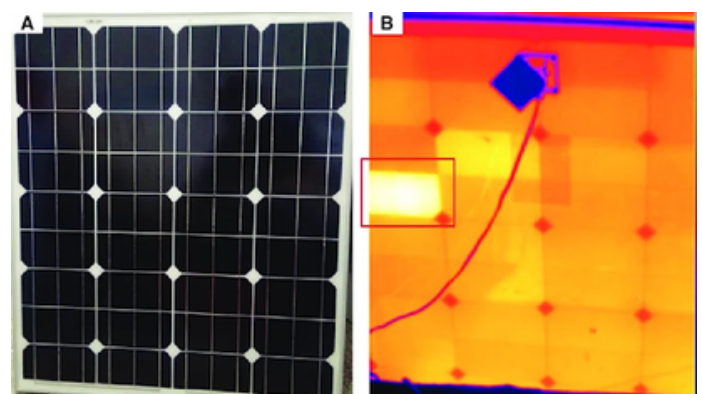


Figure 4: Solar module with hot spot (a) red-green-blue (RGB) image, (b) infrared image from the back with hot spot | [Research_gate](#)

What to Do If Your Panel Has a Hot Spot

Step 1	Do Not Panic, But Act Promptly
	Contact your solar installer or an MNRE empanelled service provider. Describe what you have noticed – visible marks, output drop, or inverter errors.
Step 2	Get the Panel Inspected
	Ask for a visual inspection and, if necessary, a thermal imaging check. Keep a record of the inspection report.
Step 3	Check Your Warranty
	Most quality panels carry a 10-year product warranty and a 25-year performance warranty. Manufacturing defects leading to hot spots are usually covered. Keep your purchase invoice and warranty card safely.
Step 4	Replace if Necessary
	If the panel is severely damaged, replacement is the safest option. Do not continue operating a panel with visible burn marks or blistering. It is a fire hazard.
Step 5	Report to TANGEDCO / TNPDCCL if Needed
	If you believe a defective product was installed under a government scheme (such as PM Surya Ghar), file a complaint with TANGEDCO/TNPDCCL or reach out to CAG for consumer grievance support.

A Quick Consumer Checklist

Monthly:

- Clean panels with a soft cloth/mop and plain water (early morning or evening).
- Check your inverter display or app, compare today's output with the same day last month.
- Look for bird droppings, leaves, or shadows from new construction nearby.

Every 3 Months:

- Walk around and visually inspect panels for cracks, discolouration, or blistering.
- Check all wiring connectors and junction boxes for signs of rust, looseness, or burning marks (with the system switched OFF).

Annually:

- Schedule a professional inspection, including thermal imaging if possible.
- Renew your Annual Maintenance Contract (AMC) with a certified installer.
- Update your record of annual energy production to catch long-term degradation trends.

CONSUMER FOCUS

The appellant, a domestic consumer, has a domestic electricity service connection (SC No. 357) in the name of her deceased father Mr. R. She stated that her father had died in 2023. Therefore, she submitted an online application for name transfer on November 18, 2025.

The appellant stated that the online application portal did not have a specific option to upload the Legal Heir Certificate. She added that the Assistant Engineer/TNPDCL subsequently contacted her and asked her to produce the original documents for verification.

However, on November 21, 2025, the Junior Engineer/TNPDCL issued a defect notice requiring the appellant to submit the latest property tax receipt to proceed with the name-transfer application. Subsequently, the name-transfer application was cancelled on the ground that the property tax receipt had not been enclosed.

The appellant filed a complaint with the Consumer Grievance Redressal Forum (CGRF), seeking transfer of the service connection to her name. During the CGRF proceedings, she stated that the department had introduced a new reason for rejection by stating that the Legal Heir Certificate had not been submitted. She further contended that she had already produced the Legal Heir Certificate to the Assistant Engineer for verification. The appellant argued that rejecting the application on a ground that was not communicated in the original defect notice was procedurally unfair.

TNPDCL stated that the appellant was required to submit either the current year's Property/House Tax Receipt or the Legal Heir/Ownership Certificate. Since the required documents were not uploaded, the application was kept on hold, and the appellant was given the prescribed period to rectify the deficiencies. As the deficiencies were not rectified within the stipulated period, the application was cancelled. The Respondent therefore requested that the appellant be directed to submit a new application with all prescribed documents.

After hearing both sides, the Consumer Grievance Redressal Forum directed the Executive Engineer/O&M to provide the necessary communication and guidance to the appellant, stating that this guidance should include all the documents required under Regulation 5(7) of the TNERC Supply Code for effecting the name transfer. Dissatisfied with the CGRF's decision, the appellant filed an appeal petition before the Electricity Ombudsman.

The Electricity Ombudsman noted that the central issue was not a dispute over ownership of the premises or competing claims among legal heirs. Rather, the issue was whether

- a) the appellant's application for transfer of the existing electricity service connection had been properly processed and
- b) whether the procedural deficiencies communicated to the appellant justified cancellation of the application.

Based on the submissions of both parties and the records placed during the Ombudsman hearing, the following were observed :

- The Ombudsman referred to Regulation 5(7)(i) of the TNERC Supply Code, which governs transfer of name following the death of a consumer. The provision requires the application to be accompanied by a Legal Heirship Certificate from the Tahsildar or proof of ownership such as the latest local body tax receipt, along with other prescribed documents, including a No Objection Certificate or indemnity bond wherever applicable.
- The Ombudsman noted a factual dispute as to whether the appellant had produced the Legal Heir Certificate before the Assistant Engineer. The Respondent denied receiving it, while the Appellant stated that she had produced the original for verification.
- The Ombudsman noted the defect notice referred only to producing the latest Property Tax Receipt and did not identify any deficiency considering the Legal Heir Certificate. TNPDCCL should have clearly communicated at the initial stage, and its failure to do so resulted in avoidable confusion.
- Although the CGRF directed the Executive Engineer to inform the appellant of all the documents required under Regulation 5(7) of the TNERC Supply Code, TNPDCCL could not establish that such communication had actually been issued pursuant to the CGRF's direction.
- The Ombudsman noted that the consumer had already submitted the online application, paid the fees, and provided necessary certificates. Since the request was merely to transfer an existing service connection without any disputes, the Ombudsman found it unnecessary to require a new application or additional fees. While acknowledging the mandatory requirements under Regulation 5(7) of the TNERC Supply Code, insisting on a fresh application would cause unnecessary hardship to the consumer.

Based on these findings, the Ombudsman partly allowed the appeal. Instead of directing an immediate name transfer without verification, the Respondent was directed to restore and process the Appellant's earlier online application. TNPDCCL was required to verify the prescribed documents, including the Legal Heirship Certificate or proof of ownership, together with the other documents required under the Supply Code.

If the documents were found to be in order and there was no rival claim, TNPDCCL was directed to effect the name transfer of Service Connection No.357 in favour of the consumer without insisting on a fresh application or forfeiting the application fee already paid. The exercise was to be completed within 15 days from receipt of the order or submission of the required documents, whichever was later.

Consumer takeaway

This case highlights the importance of clearly communicating all deficiencies in an electricity service application. While consumers are required to submit the documents prescribed under the TNERC Supply Code, the distribution utility also has a responsibility to clearly communicate any deficiencies and provide the consumer an opportunity to rectify them. In this case, the Ombudsman found that requiring the consumer to submit a fresh application and pay the charges again would cause avoidable hardship when the earlier application could be restored and processed.

SOURCE: OMBUDSMAN CASE

NEWS FROM **TAMIL NADU**

TN sets new July record with 475.45MU daily power consumption

The extended summer-like weather seems to have ended on a high note for the Tamil Nadu Power Distribution Corporation (TNPDC), as the state consumed 475.447 million units (Mu) of electricity on Friday, recording the new all-time high per-day power consumption in July in the history of the discom. This is in contrast to the regular pattern of Tamil Nadu recording new highs in power demand and consumption in the months of April and May when the summer is at its scorching peak. On April 29, Tamil Nadu's peak power demand reached an unprecedented 21,307MW, while per-day consumption reached the new high of 471.456MU, after which those numbers remained untouched, though the peak power demand and consumption in the State continued to be on the higher side this July compared to last year. As unpleasant weather prevailed due to poor southwest monsoon, the peak power demand went on to set new milestones crossing 21,700MW on Thursday. Similarly, per-day power consumption too crossed the peak-summer levels and reached a new high on Friday. TNPDC officials said that they were able to meet the demand due to positive wind and solar power generation as they together produced 150MU of power on a daily basis. Wind power generation has crossed 100MU for 15 days so far for the first time. TNPDC officials said that the electricity demand would subside from Saturday as there is a forecast for widespread rains across the State.

SOURCE: THE TIMES OF INDIA, 19 JULY 2026

NEWS FROM ACROSS THE **COUNTRY**

Power Ministry discusses parallel distribution licensing framework to give consumers choice of electricity supplier

The Consultative Committee of the Ministry of Power discussed a proposed framework for parallel distribution licensing aimed at promoting consumer choice, improving service quality and ensuring efficient utilisation of electricity distribution infrastructure. The meeting was chaired by Union Minister for Power and Housing & Urban Affairs Manohar Lal and attended by Minister of State for Power Shripad Yesso Naik, Members of Parliament who are part of the Consultative Committee, the Secretary of the Ministry of Power and senior officials of the Ministry. Addressing the meeting, the Union Minister said the Electricity Act, 2003, had successfully introduced competition in electricity generation, transmission and trading, while electricity distribution continues to remain the only major segment where competition is limited. He said that as India progresses towards the vision of Viksit Bharat @2047, consumers will increasingly expect a reliable, affordable and high-quality electricity supply comparable to global standards. During the discussions, it was noted that the existing legal framework permits more than one distribution licensee in the same area. However, each licensee is currently required to establish its own distribution network, leading to duplication of poles, power lines and substations. According to the Ministry, this increases capital expenditure, discourages fresh investment and results in inefficient utilisation of resources. To address this, the Committee discussed a proposed framework that seeks to enable competition in electricity supply without requiring duplication of the physical distribution network. Under the proposal, existing distribution licensees will continue to own, operate and maintain their networks. New distribution licensees will be allowed to use the existing network by paying regulated wheeling charges, while retaining the option to develop their own network wherever permitted by the concerned State Electricity Regulatory Commission. Minister of State for Power Shripad Yesso Naik thanked the Members for their constructive inputs and reaffirmed the government's commitment to carrying forward reforms that place consumers at the centre of India's power sector while ensuring efficiency, transparency and sustainable growth.

SOURCE: ENERGYECONOMICTIMES, 25 JULY 2026

WORLD NEWS

China generates less than half of its electricity from coal for the first time

China, the world's largest coal consumer, generated less than 50% of its electricity from the fossil fuel in the six months to June, marking a first for the country, which has been promoting the use of renewable energy, officials said. Coal's share of the power mix was 49.7%, Xing Yiteng, deputy director general of the energy administration's development and planning office, told a press conference on Thursday. That share was well down from 65.5% in 2016, previous NEA figures showed. Renewable energy's share grew to 41.2% – topping 40% for the first time – and of that wind and solar accounted for 24.6%, Xing added. Wind and solar's share was up from 9.7% in 2020. Natural gas and nuclear make up the balance. Despite coal's shrinking share, analysts say China might still use more of it this year than last as power demand rapidly climbs. More Chinese are switching to electric cars, data centres for AI are being built out, and exports continue to grow. Planners have set a deadline for coal consumption to peak no later than 2030. China's targets call for increasing wind and solar to 30% of its power mix by 2030, but Gao Yuhe, Greenpeace East Asia's project manager, says that goal could be hit by 2028, helped by more rooftop solar-plus-battery deployment. "Storage, together with demand response and more flexible electricity markets, will enable much higher penetration of distributed solar and help meet growing electricity demand with renewable energy rather than fossil fuels," she said. China's coal power share is much higher than some other large economies in part because it has abundant coal reserves and comparatively little natural gas. For example, coal made up just 17% of U.S. utility-scale power generation in 2025 while 41% was from natural gas. However, China's coal dependence is lower than coal-rich India, where coal and lignite accounted for 69% of power generation last year.

SOURCE: REUTERS, 30 JULY 2026

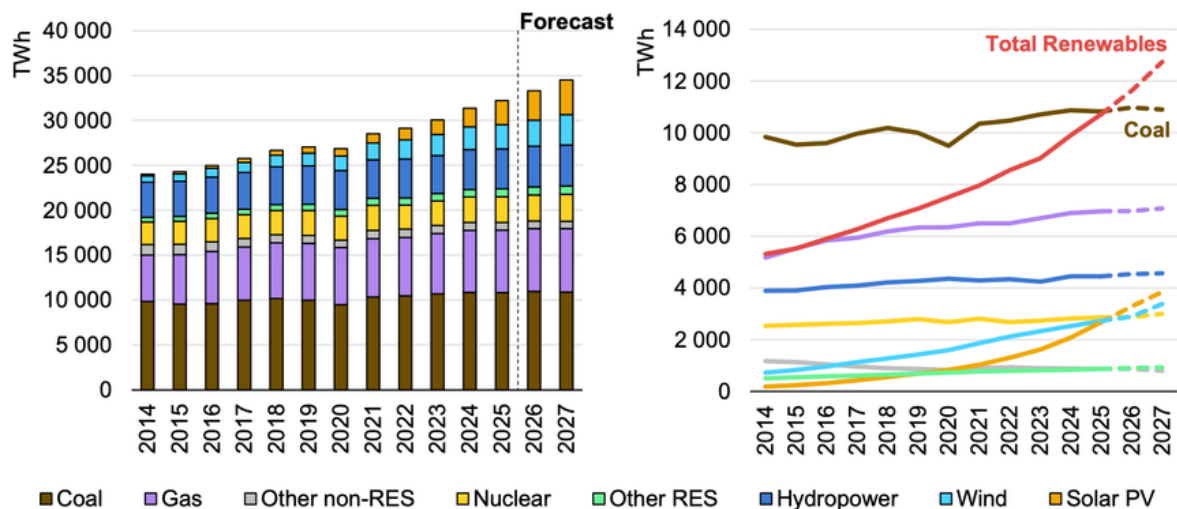


PUBLICATIONS

- **Electricity Mid-Year Update, IEA, 2026**
- **Renewable Energy Statistics 2026, IRENA, 2026**
- **How can India Create a Demand Flexibility Market?, CEEW, 2026**
- **Advisory on safe and judicious use of electricity in view of El Niño conditions or otherwise, CEA, 2026**
- **Asian Development Outlook, ADB, 2026**



GLOBAL ELECTRICITY GENERATION MIX: RENEWABLES VS COAL 2015-2026



IEA. CC BY 4.0.

Note: RES = renewable energy sources; "Other non-renewables" include oil, waste and other non-renewable energy sources.

SOURCE: IEA

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