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Launch

CSTEP's Rooftop Evaluation for Solar Tool

Press Release

02 Sep 2020: Karnataka leads the country in terms of total installed solar capacity (~7.3 GW). However, it still has a long way to go when it comes to rooftop photovoltaics (RTPV). Six years after setting an RTPV target of 2.4 GW for 2021-22, the state has been able to install only 234 MW – a small fraction of its original goal. Meanwhile, Bangalore Electric Supply Company (BESCOM), the leading distribution company in the state, intends to install 1.2 GW of solar capacity in Bengaluru by 2022. However, the installed capacity in the city at present stands at around 140 MW only.

The sluggish uptake of rooftop solar poses a major challenge in achieving RTPV targets. Low consumer awareness on the benefits of solar, high cost of installation, and abstruse policies are some of the factors responsible for this slow growth. Further, DISCOMs' concerns about losing revenue when consumers shift to rooftop solar, has only aggravated the problem.

**POWERING ROOFTOPS:
CSTEP'S 'ROOFTOP EVALUATION FOR
SOLAR' TOOL**

DATE: 2nd September, 2020

LAUNCH OF CREST | 12:00 - 1:30 pm
POLICY IMPLICATIONS FOR ROOFTOP SOLAR | 2:00 - 5:00 PM

On Wednesday, 2nd September, Center for Study of Science, Technology and Policy launched a tool to help consumers assess their rooftops for technical

and economic viability of installing RTPV. CSTEP's 'Rooftop Evaluation for Solar Tool' (CREST) has the potential to address the aforementioned issues.

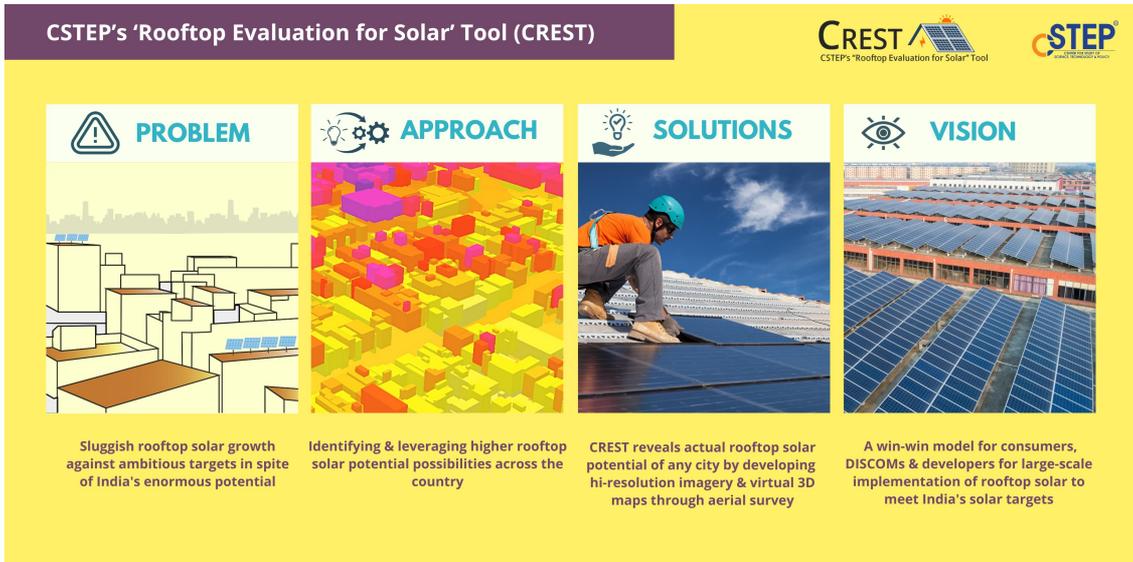
Unlike other tools that simulate the potential of rooftops, we have employed aerial imagery that uses Light Detection and Ranging (LiDAR) technology to identify rooftops with the maximum potential for installing rooftop photovoltaics. This is the first time that the LiDAR technology is being used to determine the RTPV potential of a city. Through this exercise, we have been able to identify shadow-free parts of rooftops, where RTPV can be installed for harnessing maximum solar energy.



Dr Jai Asundi, Executive Director, CSTEP, opined that the project was a highly novel idea. Speaking at the event, he said, "No one had thought of mapping rooftops using LiDAR before. The traditional method would have taken 2-3 years just to map rooftops, but with LiDAR we were able to do it in a few months. With this tool, we can engage with DISCOMs and consumers, and ensure a win-win situation for both of them. I am very hopeful that other cities will look at Bangalore and say that this is the model we want to follow. We hope to take this forward, not just within India, but across the world."

[MacArthur Foundation](#), who has funded the CREST project, has been instrumental in bringing CREST to a successful launch. Moutushi Sengupta, Director – India Office, MacArthur Foundation, who was present at the launch event, said that CSTEP's idea of creating an interactive tool to enable BESCO and the potential consumers get a truly representative picture of the potential of rooftop solar in the city of Bengaluru, was in line with MacArthur's commitment of supporting innovative and disruptive technology in the Indian renewable energy space to facilitate expansion of rooftop solar. This is the

reason why they supported the project despite the risks involved. “The true potential of the tool can be harnessed well if CSTEP and BESCO continue to work together on the next phase of the project as well. CSTEP has developed a first-of-its-kind tool that is freely available, and we hope that BESCO and the Energy Department can make practical use of it to harness rooftop solar,” she emphasised.



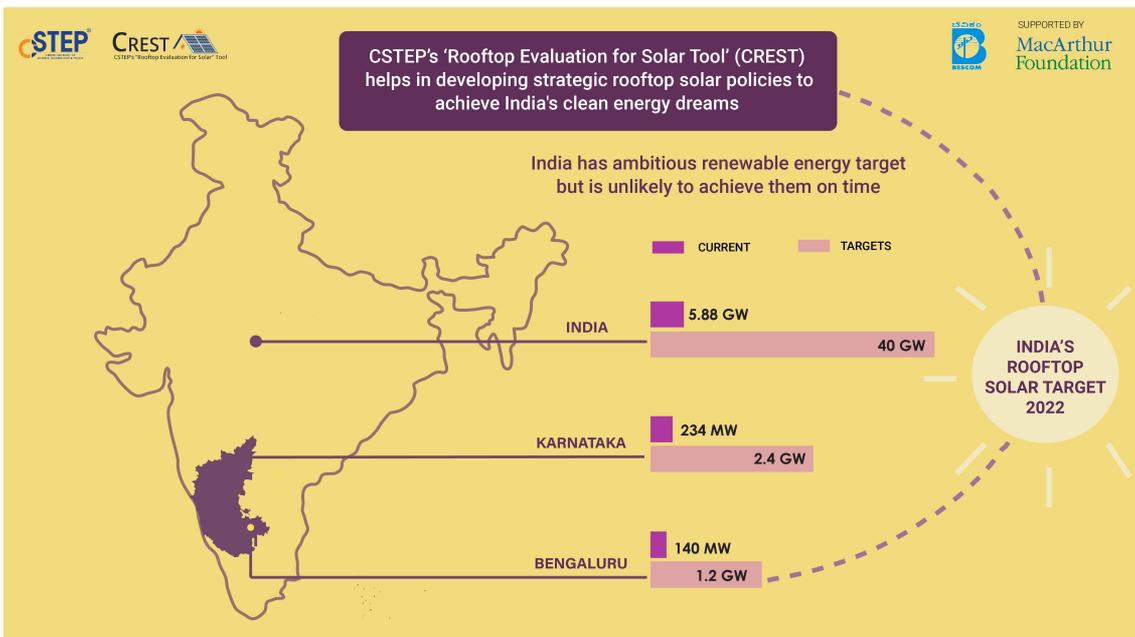
The tool was launched by Shri Mahendra Jain, Additional Chief Secretary, Energy Department (Government of Karnataka), in the presence of Shri Rajesh Gowda, MD, BESCO.

Speaking at the event, Shri Mahendra Jain said that although Karnataka is a leader in renewable energy, its achievements in the rooftop-solar segment have not met the set targets yet.

“Karnataka is a leader in renewable energy (RE). The largest solar park in the world is located in the state, in Pavagada (Tumkur). In spite of this huge achievement, in RTPV our performance has been below par. Rooftop solar has huge advantages: generation and consumption is localised, and there is greater possibility of storage which means that RE can be used during non-solar hours too. Although storage is not viable at a large scale, it is quite feasible at the smaller, rooftop level. Despite making such stupendous achievements in solar and renewable energy, it is a matter of concern that we are woefully behind on the targets we have set for rooftop solar – that of installing at least 1.2 GW (and eventually 2.4 GW) of solar capacity. So far our achievement is only about 200 MW,” he said.

Karnataka's solar potential is second to none, he added, but the state faces constraints, such as lack of information on whether the rooftop is technically and economically viable for solar rooftop. "People are at a loss as to whom to approach to install RTPV and the constraints are not financial alone, he said, adding, "CSTEP's tool CREST has mapped rooftops in the minutest detail, and put the information together in a user-friendly way. We hope that by using CREST, we can resolve a number of issues related to power supply, and eventually do away with fossil fuel and thermal power plants. If any state can dream of thermal-free electricity supply, it is Karnataka, because of our solar potential and hydel power," he said.

He noted that Karnataka Electricity Regulatory Commission (KERC) has also given the approval for developer-owned rooftops, where a third party can step in to aggregate the rooftops and after the electricity generated is consumed locally, the remaining can be sold to BESCO through a power-purchase agreement. "With this facilitation, I am hopeful that rooftop solar can receive a boost and this tool comes at an apt time," he added.



Shri Rajesh Gowda, MD, BESCO, said "CREST can be very useful for consumers and developers to understand and offer their rooftop and aggregate rooftops, respectively. We have found during stakeholder meetings that consumers need a single window to find out about costs, specifications, warranty, etc. – where somebody handholds consumers on all rooftop solar issues. In line with KERC approval, BESCO is going ahead with tenders to empanel vendors to aggregate rooftops. We hope these efforts will help in ensuring a higher deployment of rooftop solar."

CREST is a web-based tool that can help consumers identify the potential of their rooftop to yield maximum benefit through installation of RTPV. Using the tool, BESCOM can also determine the real potential of Bengaluru for RTPV implementation by identifying the most lucrative rooftops for installing RTPV, and design policies that leverage this information. Aerial imagery enables BESCOM to prepare a roadmap for RTPV uptake and design policies to target specific consumer groups or even areas in the city, depending on the solar potential of the rooftops.

“CREST was built on the basis of an aerial survey of rooftops and identified shadow-free areas of the rooftop where consumers can set up RTPV systems. With CREST, BESCOM is confident of achieving its rooftop solar target,” said Smt G Sheela, General Manager, DSM, BESCOM, at the launch of the tool.

Using CREST, CSTEP was able to determine the *real* rooftop solar potential of Bengaluru city, which stands at about 3.2 GW. Now that the best rooftops across the city have been identified, BESCOM is looking at large-scale tenders to install RTPV, which can work out to be more economical than deploying these systems on a piecemeal basis.

CREST offers a scientific approach, supported by technology, to scale up rooftop solar across the country. Although the cost of LiDAR technology is high, scaling it up to other cities with cheaper drone-based alternatives can drive down costs significantly. With CREST, achieving our rooftop solar targets looks feasible.

You may find recordings of the launch event and discussions that followed on these link.

Launch: <https://bit.ly/3IRN2U4>

Policy Implications of CREST for Rooftop Solar: <https://bit.ly/355kl08>

CREST can be accessed at <https://crest.cstep.in>

For any further queries, please feel free to contact us at cpe@cstep.in

About CSTEP

The Center for Study of Science, Technology and Policy (CSTEP) is one of India's

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