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Subsidies alone will not scale-up solar pumps: CEEW

New Delhi (18 January 2018) – The government must target marginal farmers, who are deprived of electric pumps, with smaller solar pumps, sub-HP to 3HP, according to independent research released today by the Council on Energy, Environment and Water (CEEW). Such farmers would find solar pumps attractive at even 30 per cent subsidy, provided affordable financing is available. However, only a subsidy-led approach may not be sufficient to achieve the government target of 1 million solar pumps by 2021. A 30 per cent capital subsidy on 1 million solar pumps would entail an outlay of nearly INR 135 billion, twice the MNRE annual budget. Shri Amitabh Kant, CEO, NITI Aayog, delivered the keynote address at the National Dialogue 'Solar for Irrigation in India,' organised by CEEW, the Shakti Sustainable Energy Foundation and the Swiss Agency for Development and Cooperation. He released three CEEW studies on solar pumps at the Dialogue.

Shri Kant said, "Access to reliable and affordable irrigation is one of the most important enablers to increase agricultural productivity and incomes for farmers. Solar pumps can strengthen Indian agriculture by fulfilling unmet irrigation needs while reducing the burden of subsidies on the government and increasing farmers' resilience to climate change. To scale-up solar pumps, we must strive to create bottom-up demand by focusing on technology demonstration and raising awareness levels among farmers. I congratulate CEEW and Shakti Sustainable Energy Foundation on the release of these studies. These are policy pertinent research studies and present actionable recommendations."

Lack of reliable irrigation access is a key obstacle for Indian farmers. Despite the existing 19 million electrical pumps and about 9 million diesel pumps, 53 per cent of India's net sown area remains unirrigated. CEEW research, based on a primary survey of 1600 farmers across ten districts in Uttar Pradesh, found that even farmers using pumps are dissatisfied due to unreliable power supply, depleting water tables, and high expenditure on diesel. Forty per cent of these farmers, especially diesel pump owners, were willing to switch to solar pumps to avail benefits such as zero operational costs, ease of use throughout the day, and cost savings on diesel.

In India, 1,42,000 solar pumps have been deployed till date. More than 50 per cent of the solar pumps have been deployed in Andhra Pradesh, Chhattisgarh, Uttar Pradesh, and Rajasthan.

Abhishek Jain, Senior Programme Lead, CEEW, said, "Solar pumps hold the potential to enhance irrigation access, advance low-carbon agriculture, reduce burden of electricity subsidies on governments, and improve resilience of farmers against a changing climate. To scale-up solar pumps, the government must adopt context-specific deployment strategies, improve targeting of its subsidies, adopt a customer-centric approach, work with enterprises to bring down costs of the pumps, and focus on improving awareness about the technology. In Uttar Pradesh, we found that only 27 per cent farmers had heard of solar pumps, less than 15 per cent had seen a solar pump in reality or on television, and only 2 per cent had heard of government schemes related to solar pumps. Deploying five solar pumps in each block of the country, prioritising areas with good groundwater situation, would have a significant demonstration effect on farmers to generate bottom-up demand for the technology."

Financing to scale-up solar pumps

CEEW research also found that limited awareness among financiers, particularly field-level staff, about the economic benefits of solar pumps and their long-term viability hinders access to credit for farmers. The government and the industry must make efforts to build financier confidence through field visits, periodic monitoring of past solar pump installations, sharing farmers' experiences, and enforcing service warranties. Further, banks must work with enterprises and government to design financial products suitable for farmers to adopt solar pumps. Bank officials should also simplify and standardise processes, and provide pro-active customer support during loan-application, documentation, and credit-disbursal processes.

CEEW research also recommended promoting solar pumps through interest rate subvention, rather than only capital subsidy. This approach would support the government's ambition of rapid pump deployment but would depend on financier willingness to provide long-term loans.

CEEW research also found that connecting solar pumps to the electric grid is costly for the government and benefits farmers less than the subsidies given for purchase of solar pumps. The government would incur approximately equal expenditure in the two scenarios. However, despite revenues from feed-in-tariffs, the farmer's cost under the capital subsidy scenario is 53 per cent lesser than that in the grid-connected case.

Innovative deployment strategies

Innovative deployment strategies, catering to local conditions are essential for rapid and sustainable deployment of solar pumps, especially among marginal and small farmers. Water-as-a service by village-level entrepreneurs is a promising model for improving the utilization of solar pumps while providing irrigation access to marginal farmers. According to CEEW research, more than three-fourths of farmers in Uttar Pradesh expressed willingness to buy water from solar pumps, if available at competitive prices. In areas with a dominance of diesel pumps for renting or selling water, solar-based water-as-a-service model could have a payback of two to four years.

Nearly 40 per cent of potential solar pumps adopters in Uttar Pradesh were also interested in a joint ownership model. Encouraging pump sharing could be an opportunity for the government to increase the use of solar pumps as well as the impact of government support, while creating a market-based solution to ensure efficient and judicious use of the groundwater.

About CEEW

The Council on Energy, Environment and Water (<http://ceew.in/>) is one of South Asia's leading not-for-profit policy research institutions. CEEW uses data, integrated analysis, and outreach to explain – and change – the use, reuse, and misuse of resources. It prides itself on the independence of its high-quality research, develops partnerships with public and private institutions, and engages with wider public.

In 2017, CEEW was once again been featured extensively across nine categories in the '2016 Global Go To Think Tank Index Report', including being ranked as South Asia's top think tank (14th globally) with an annual operating budget of less than US\$5 Million for the fourth year running. In 2016, CEEW was also ranked 2nd in India, 4th outside Europe and North America, and 20th globally out of 240 think tanks as per the ICG Climate Think Tank's standardised rankings. In 2013 and 2014, CEEW was rated as India's top climate change think-tank as per the ICG standardised rankings. Twitter @CEEWIndia.