

# Escape Velocity

Impact at Scale

2020-21 in Review





Images: CEEW, CEEW team

Collecting Evidence ● Connecting Dots ● Communicating to Change

CEEW team as of 30 April 2022



# CEEW's Strategic Outreach

**RAJ KUMAR SINGH**, Union Cabinet Minister for Power and New and Renewable Energy, speaking at the India Event of the Ministerial Forum of the UN High-Level Dialogue on Energy 2021, organised by the Government of India and CEEW in June 2021.



Image: CEEW

CEEW'S **ARUNABHA GHOSH** (l) briefing **JOHN KERRY**, the US Special Presidential Envoy for Climate, at the high-level roundtable on 'Finance Mobilisation for India's 450 GW Renewable Energy Ambition' co-hosted by CEEW and The Rockefeller Foundation, USA, at the US Embassy in September 2021.



Image: US Embassy



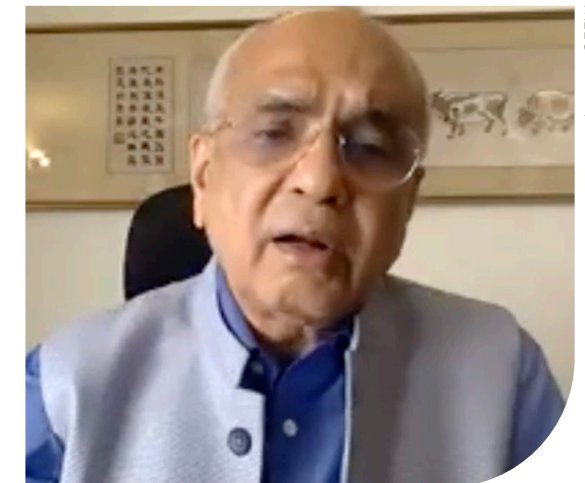
**FATIH BIROL** (extreme left), Executive Director of the International Energy Agency (IEA), in conversation with **JAMSHYD N. GODREJ**, Chairperson, CEEW, and Chairman and MD, Godrej & Boyce Manufacturing Company Limited, at the inaugural session of the CEEW Energy Horizons Leadership Dialogues in March 2021.

**BAIJAYANT PANDA**, former Member of Parliament, India, speaking at the launch of two CEEW reports based on the first-ever national-level India Residential Energy Survey (IRES) 2020, in October 2020.



**JUAN ANGULO**, Ambassador of Chile to India, was hosted at CEEW in January 2021 for a discussion on the global energy transition, with a special focus on green hydrogen and critical minerals.

**NENGCHA LHOUVUM MUKHOPADHAYA** (l), CEEW Trustee and former Ambassador of India to Indonesia, Serbia, and Lebanon; and **RAJIV KUMAR**, then Vice-Chairman, NITI Aayog, at the launch of the CEEW-FOLU study, *Sustainable Agriculture in India 2021: What We Know and How to Scale Up*, in April 2021.



Images: CEEW





**JANMEJAYA KUMAR SINHA**, CEEW Trustee and Chairman India, Boston Consulting Group, speaking at the launch of the CEEW-CEF study, *Financing India's Transition to Electric Vehicles*, in December 2020.



**KALIKESH NARAYAN SINGH DEO**, former Member of Parliament, India, speaking at the launch of the Carbon Tracker-CEEW report, *Reach for the Sun: The Emerging Electricity Market Leapfrog*, in July 2021.



**RANA ADIB**, Executive Director, REN 21, at the CEEW-IGES webinar 'How to Accelerate Asia's Renewable Energy Transition: Policies, Markets and Emerging Issues', in April 2021.



**RICHA SHARMA** (t), Additional Secretary, Ministry of Environment, Forest, and Climate Change, Government of India; and **TRACY BACH**, Co-Focal Point, UNFCCC Research and Independent NGOs (RINGO), at the launch of the CEEW study, *Unpacking Pre-2020 Climate Commitments: Who Delivered, How Much, and How will the Gaps be Addressed?*, in July 2021.



Images: CEEW

**JASMINE SHAH**, Vice Chairperson, Dialogue & Development Commission, Government of NCT of Delhi, speaking at the launch of the CEEW study, *Can Electric Mobility Support India's Sustainable Economic Recovery Post COVID-19?*, in November 2020.



**RASHMI SOMASEKHARAN NAIR**, Deputy Chief (Regulatory Affairs), Central Electricity Regulatory Commission (CERC) at the webinar, 'Empowering Electricity Consumers Through User-friendly Bill Design', in March 2021.



**K. V. S. BABA**, Chairman and Managing Director, Power System Operation Corporation Limited (POSOCO), speaking at the launch of two CEEW studies on thermal decommissioning in July 2021.

**SANDEEP POUNDRIK**, then Director-General, Coalition for Disaster Resilient Infrastructure (CDRI), speaking at the launch of the CEEW study, *Preparing India for Extreme Climate Events: Mapping Hotspots and Response Mechanisms*, in December 2020.



Images: CEEW



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## From the Chairman and the CEO



"It is heart-warming to see CEEW today. Its people and its leadership group have not only shaped the CEEW dynamic, but each one of them has also carved out a place for themselves. Of recognition, of a good understanding of where we are in our journey to mainstream sustainability, and of being a part of the great ambition we have for CEEW. There are many world-class institutions born outside India. But here is an institution that has been born in India and has made a name for itself, not just in India, but globally.

I want to congratulate everyone at CEEW for doing such a wonderful job."

**Jamshyd N. Godrej**  
Chairman, CEEW



CEEW is building leaders who take ownership. People who get things done. Because that is what it will take to make the planet more sustainable, to shift businesses from carrying on as usual, to make policy respond to the urgency of the triple objectives of jobs, growth and sustainability, and to ensure that citizens exercise their agency.

Our team has pushed the boundaries and made uncommon things possible. Eleven years have delivered:

**330+** research projects,  
**260+** peer-reviewed publications,  
**130+** new datasets created or improved access to,  
**860+** government engagements worldwide, and  
**410+** seminars and conferences.

**In some respects we have achieved escape velocity.** This also means that the stakes are higher, the margins for error lower, and the expectations greater. We can take pride in significant achievements and the team we have built. But we cannot become proud. **We must stay grounded and remain proximate to the people whose problems we are trying to first understand and then resolve.** Another difficult year of the pandemic gives us pause and has made us more mindful of the pace, scale and equity of transformations that the world needs. CEEW has its work cut out for itself. It must catalyse change at that scale. Now."

**Arunabha Ghosh**  
CEO, CEEW



# Championing India's Citizen-Centric Energy Transition

In 2021, India was designated a United Nations (UN) Global Champion for Energy Transition. And **CEEW was the Knowledge Partner to the Government of India for the UN High-Level Dialogue on Energy (HLDE) 2021**, the first such global effort under the aegis of the UN General Assembly since 1981.

During the year, CEEW advised the Government on the energy transition and industrial decarbonisation pathways; convened over a 100 CEOs from industry and Smart Cities for iterative consultations; and organised India's official events at the UN, including at the HLDE Ministerial Thematic Forum in June 2021.



Image: IWMI/Prashanth Vishwanathan



Images: CEEW

'Accelerating Citizen-Centric Energy Transition' was a UN HLDE Ministerial Thematic Forum discussion organised on 24 June 2021 by the MNRE, Permanent Mission of India (PMI) to the UN, and CEEW. Clockwise from top left: **T. S. TIRUMURTI**, Ambassador and Permanent Representative, PMI to the UN; **SHUVA RAHA**, Head - New Initiatives, CEEW; **AJAY MATHUR**, Director-General, International Solar Alliance (ISA); **ARUNABHA GHOSH**, CEO, CEEW; **RAJ KUMAR SINGH**, Union Cabinet Minister of Power and New and Renewable Energy, Government of India; and **INDU SHEKHAR CHATURVEDI**, Secretary, Ministry of New and Renewable Energy, Government of India.



**RAJ KUMAR SINGH**  
Union Cabinet Minister for Power and New and Renewable Energy, Government of India, at the India event, 'Accelerating Citizen-Centric Energy Transition' at the UN HLDE Ministerial Thematic Forum in June 2021.

“India's renewable energy capacity is the 4th largest in the world. Our annual RE addition has exceeded that of coal-based thermal power since 2017. The energy transition journey that we have already covered and the scale of the transition, which we are set to achieve, are both exemplary for the world.”

“In this crucial year for global action against climate change, France and India are showing the way together. We have joined forces through the 'Indo-French Year of the Environment' to boost our bilateral cooperation throughout 2021, and are working together, including on energy, to unlock ambitious commitments in view of COP26.”



**STÉPHANE CROUZAT**  
French Ambassador for Climate Change Negotiations, Renewable Energies, and Climate Risk Prevention, delivering a video message during the India event at the UN HLDE Ministerial Thematic Forum in June 2021.



“ We would like to thank CEEW for their support in the preparation for the Ministerial Thematic Forum of the High-Level Dialogue on Energy.”

**T. S. TIRUMURTI**  
Ambassador and Permanent Representative,  
Permanent Mission of India to the UN in New  
York, in a letter dated 28 June 2021.



Image: Permanent Mission of India to the United Nations

“ I am very pleased to note the extensive, multi-stakeholder process that is currently underway in India on developing an interconnected, inclusive, and just energy transition. I am also very pleased to see that our colleagues from CEEW are supporting this endeavour.”

**DAMILOLA OGUNBIYI**  
CEO and Special Representative of the UN Secretary-General for  
Sustainable Energy for All and Co-Chair of UN-Energy and  
UN HLDE 2021.



Image: Sustainable Energy for All

## Facilitating India's Energy Compacts for the United Nations High-Level Dialogue on Energy

CEEW is proud to have proposed and structured the elements of India's national Energy Compact in a rigorous four-month process that included multiple rounds of inter-ministerial dialogues led by Shri R. K. Singh, Union Cabinet Minister for Power and New and Renewable Energy.

**India's Energy Compacts worth USD 34 billion amount to over half of the UN HLDE's total received Member States' commitment of USD 73.6 billion.**

**Led by the MNRE and CEEW, India submitted 22 of the UN's approximate 150 Energy Compacts as of October 2021.**

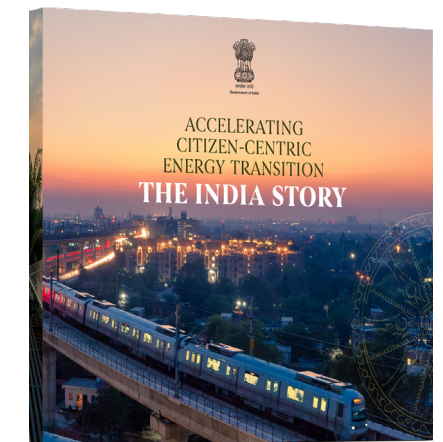


(Clockwise from top left) **DINESH D JAGDALE**, Joint Secretary, Ministry of New and Renewable Energy, Government of India and **SHUVA RAHA**, Head - New Initiatives, CEEW in conversation with industry captains during a multi-sector e-consultation on HLDE Energy Compacts in April 2021.

## Showcasing India's energy transition to the world

### MNRE-CEEW e-book and website

CEEW has also informed India's submissions to the UN Theme Report on Energy Transition as well as conceptualised, authored and produced several knowledge products such as an e-book with the MNRE and a dedicated official online repository of India's energy transition initiatives.



See the book here: <https://www.energytransition.in/india>



Log on to [energytransition.in](https://www.energytransition.in) to learn more about India's ambitions and achievements as a UN Global Champion for Energy Transition.

## Foresight team

Arunabha Ghosh, Nandini Harihar, Prayank Jain, Manpreet Kaur, and Shuva Raha.

We thank Sanjana Chhabra, Vedika Himatsingka, Spriha Pandey, Manthan Shah, and Khushboo Singh for their contribution to CEEW's Foresight team in 2020-21.



“ We are advising the Government on India's climate action trajectory and scientific/innovation policies, and engaging with several high-level multilateral forums to rethink global energy and developmental pathways. Our proposal of a Global Green Hydrogen Alliance has gained international traction, with The Quad announcing a Clean-Hydrogen Partnership. The world wants to be a part of 'The India Story' and we at The Council are the *sutradhars* (connectors).”

**SHUVA RAHA**  
Head - New Initiatives



# Transforming the Rural Economy

## with Clean Energy Solutions



CEEW's **DIVYA GAUR** interviewing a weaver at Greenwear, a facility that uses solar-powered looms and sewing machines, at Barabanki, in Uttar Pradesh.

Images: CEEW



“Running Powering Livelihoods — a programme that drives on-ground action — has not been easy in a pandemic-hit economy amidst waves of lockdowns. But both the programme and its enterprises have shown significant resilience. Despite trying times, all programme enterprises achieved revenue growth, impacting more rural livelihoods than ever before.”

**ABHISHEK JAIN**  
Fellow & Director - Powering Livelihoods

## Powering Livelihoods (PL)

'Powering Livelihoods', a USD 3 million CEEW-Villgro initiative to mainstream clean energy in rural livelihoods, celebrated its first anniversary on 26 August 2021. It is currently supporting six cohort enterprises and 11 affiliate enterprises to scale up the commercial deployment of decentralised renewable energy (DRE) solutions, including RE-powered food processors, solar-powered pumps, textile machinery, and off-grid DC refrigerators.

CEEW's **WASE KHALID** visiting the end users of solar deep freezers in Udaipur, Rajasthan.



Image: Reshamsutra

### Key achievements under PL

Supported the Ministry of New and Renewable Energy's policy on DRE for livelihoods



**5,313** livelihoods enabled using clean energy-powered solutions  
(June 2020–August 2021)

Source: CEEW - Villgro



**4,823** new clean energy-based livelihood installations supported  
(June 2020–August 2021)



**31%** increase in cumulative revenue of programme enterprises  
(FY19-20 to FY20-21)

### #CEEWParishad

## Evaluating the performance of solar irrigation pumps (PM-KUSUM)

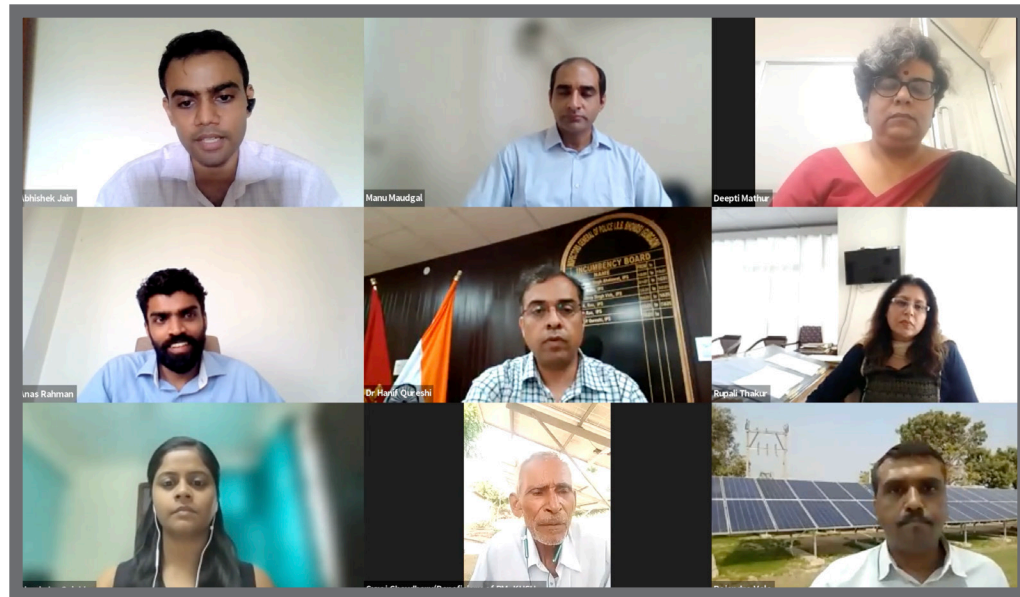
“Haryana's solar pump installations picked up when PM-KUSUM was launched. We observed that the demand for solar pumps is largely from those who are using diesel pumps and those with large land holdings.”

**HANIF QURESHI**  
Director-General, Department of New and Renewable Energy, Government of Haryana, at a CEEW Parishad session, 'Unleashing the Power of PM-KUSUM', in August 2021.



Image: CEEW





At the session on 'Unleashing the Power of PM-KUSUM', clockwise from left: **ABHISHEK JAIN**, Fellow, CEEW; **MANU MAUDGAL**, Director—Clean Power Programme, Shakti Sustainable Energy Foundation; **DEEPTI MATHUR**, Executive Engineer, Jaipur Vidyut Vitran Nigam; **RUPALI THAKUR**, CEO, HIMURJA, Himachal Pradesh Government Energy Development Agency; **RAJENDRA VALA**, Superintendent Engineer, Gujarat Urja Vikas Nigam Limited; **SURAJ CHAUDHARY**, PM-KUSUM beneficiary; **AKANKSHA GOLCHHA**, Programme Manager – Electric Utilities, Shakti Sustainable Energy Foundation; **ANAS RAHMAN**, former Programme Associate, CEEW; and **HANIF QURESHI** (c), Director-General, Department of New and Renewable Energy, Government of Haryana.



## 0.54 INR per unit of electricity

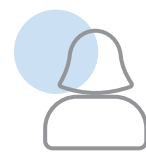
net benefit for a state like Karnataka from solarising agriculture feeders under Component A of PM-KUSUM

All data points: CEEW analysis



55%

share of urban slum households in Bihar, Jharkhand, Uttar Pradesh, Rajasthan, Madhya Pradesh, and Chhattisgarh who use LPG exclusively



54%

share of women-led micro-enterprises in the clean-energy powered livelihood sector that are unregistered

## Enabling access to clean cooking energy for the urban poor



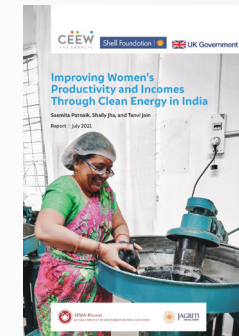
Image: YouTube/Nidhi Prabha Tewari

“The Pradhan Mantri Ujjwala Yojana has brought out a big change in rural LPG penetration. This time around, with the additional one crore LPG connections (PMUY 2.0), the thinking is to prioritise the urban poor.”

**NIDHI PRABHA TEWARI**

Senior Social Specialist, UJJWALA, Ministry of Petroleum and Natural Gas, Government of India, at a CEEW Parishad, 'Enabling Access to Clean Cooking Energy for the Urban Poor', in March 2021.

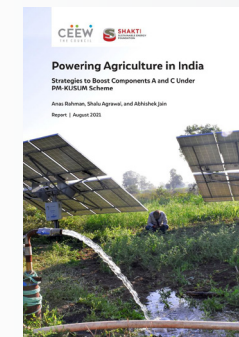
## Key publications



**Improving Women's Productivity and Incomes Through Clean Energy in India**  
Report | July 2021



**Are India's Urban Poor Using Clean Cooking Fuels?**  
Issue Brief | March 2021



**Powering Agriculture in India: Strategies to Boost Components A and C Under PM-KUSUM Scheme**  
Report | August 2021



**Enhancing India's Milk and Meat Production: Is Hydroponics Green Fodder the Answer?**  
Market Opportunity Analysis  
Report | June 2021



**Solarvastra: Is Renewable Energy-Powered Sustainable Fashion a Real Market Opportunity?**  
Report | April 2021

## #CEEWPride



Image: CEEW

CEEW's **ABHISHEK JAIN** appointed to the 'Technical Working Group on Innovation, Technology, and Data', for the UN High-Level Dialogue on Energy.

## The team

**Shalu Agrawal, Divya Gaur, Angarika Gogoi, Abhishek Jain, Shaikh Wase Khalid, Sunil Mani, and Prachi Singhal.**

We thank Sanskriti Agrawal, Richa Ahuja, Nikita Bankoti, Anshi Bhalla, Tanvi Jain, Shaily Jha, Shruti Jindal, Sasmita Patnaik, Garvit Sahadev, Anas Rahman, Arpan Thacker, and Rithima Warriar for their contribution to CEEW's Energy Access research in 2020-21.



# Supporting India's Renewables Revolution



As part of the Solarise Delhi campaign, CEEW's **AKASH GUPTA** and **SELNA SAJI** (former colleague) visited homes with rooftop solar to convince families to become 'Solar Champions' for their neighbourhoods.

CEEW's **RISHABH JAIN**, **HARSHA V. RAO** and **L. S. KURINJI** (1st, 3rd and 6th from left) on a visit to evaluate bio-energy plants. A total of five such visits took place between October 2020 and January 2021.



Images: CEEW



"To scale up rooftop solar adoption, we combined targeted virtual campaigns with in-person briefings across homes in south Delhi. We connected with ~15,000 families through the Solarise Delhi campaign within a ten-week period."

**NEERAJ KULDEEP**  
Programme Lead

"In 2020, India's renewable energy sector was exposed to climate-induced risks for the first time. We assessed the impact of monsoon anomalies on the wind energy sector and developed risk-proofing strategies to ensure that India's energy transition continues with resilience."

**DISHA AGARWAL**  
Programme Lead



## How can emerging markets leapfrog to clean electricity?



“When we talk about climate change and RE policies, we tend to look at it from a very macro level. But until it's picked up as an issue by the local villager, by small villages in India's hinterland, the issue will never be politically strong enough to find mainstream voices.”

**KALIKESH NARAYAN SINGH DEO**  
Former Member of Parliament, at the launch of the Carbon Tracker-CEEW report, *Reach for the Sun: The Emerging Market Electricity Leapfrog*, in July 2021.

The launch of the Carbon Tracker-CEEW report, *Reach for the Sun: The Emerging Market Electricity Leapfrog*, in July 2021. Clockwise from left: **XAVIER GARCÍA-CASALS**, Energy Transition Senior Expert, Policy Unit, International Renewable Energy Agency (IRENA); **KINGSMILL BOND**, Energy Specialist, Carbon Tracker; **ARUNABHA GHOSH**, CEO, CEEW; **JEMMA GREEN**, Co-Founder and Chairman, Power Ledger; **MILAN KOEV**, CEO, Hexagon Peak; and **KALIKESH NARAYAN SINGH DEO**, former Member of Parliament, India.

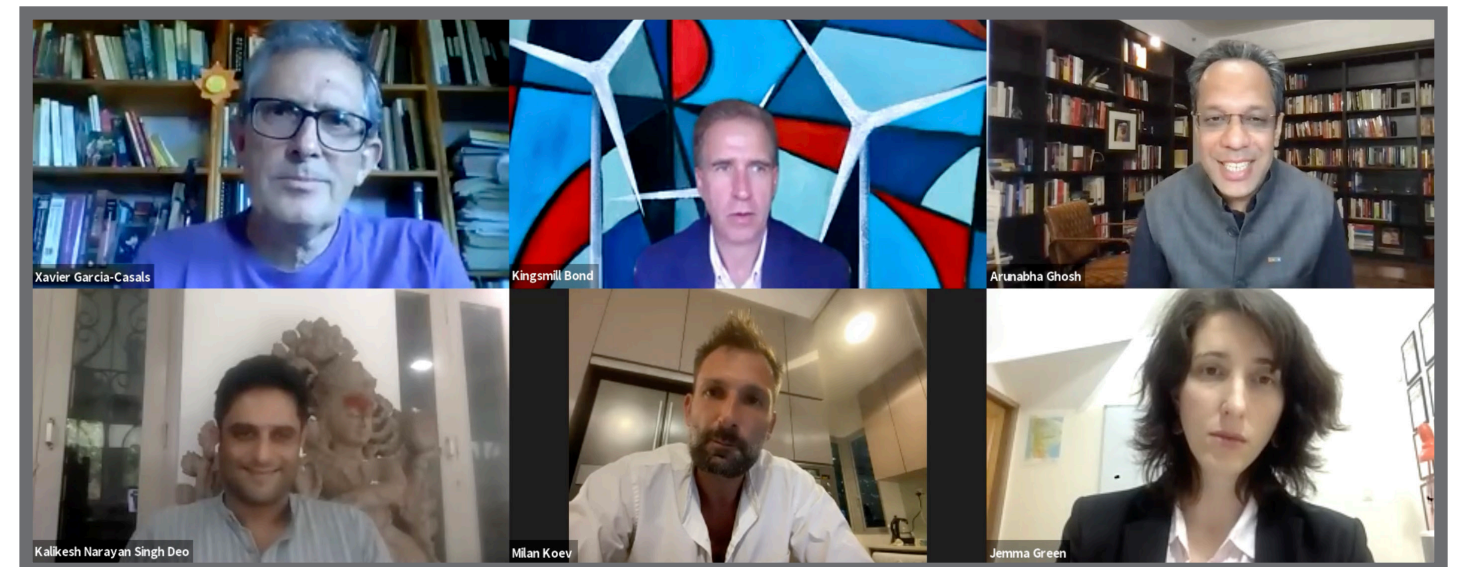


Image: CEEW



# Unlocking the economic potential of rooftop solar in India

An IEA-CEEW-MNRE Workshop



Image: IEA

“ Rooftop solar capacity addition is a critical element of our plans to achieve our (RE) targets. In this sector, costs have declined very steeply in the last few years. Solar rooftop generation costs today in several states are lower than commercial and industrial retail tariffs, and the electricity generated could be sold or banked with distribution companies.”

**INDU SHEKHAR CHATURVEDI**  
Secretary, Ministry of New and Renewable Energy, Government of India, at an IEA-MNRE-CEEW workshop on rooftop solar in India, held in October 2020.

“ I urge all industries and all stakeholders to come together to create a platform to forecast medium-term and long-term generation, not just for wind but solar too.”

**K. BALARAMAN**  
Director-General, National Institute of Wind Energy, Ministry of New and Renewable Energy, Government of India, at a CEEW Parishad session, 'Assessing and Planning for Variability in India's Wind Resource', held to mark Global Wind Day in June 2021.

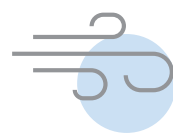


Image: CEEW



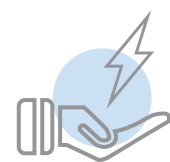
**88%**  
of global electricity demand growth between 2019-2040 to come from emerging markets

Source: Carbon Tracker-CEEW analysis



**24%**  
lower wind energy generation took place in June-September 2020 compared to the same period in 2019

Source: CEEW-REConnect Energy analysis



**20%**  
of the growth in electricity demand expected from emerging markets by 2040, will come from India

Source: Carbon Tracker-CEEW analysis

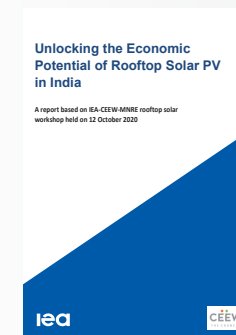
## Key publications



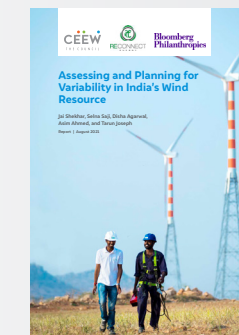
**How India's Solar and Wind Policies Enabled its Energy Transition: A Decade in Review**  
Report | April 2021



**Reach for the Sun: The Emerging Market Electricity Leapfrog**  
CarbonTracker-CEEW Report | July 2021



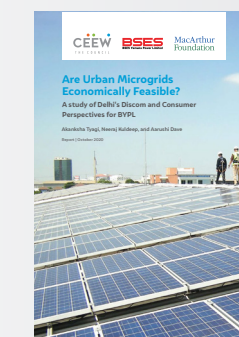
**Unlocking the Economic Potential of Rooftop Solar PV in India**  
IEA-CEEW Report | May 2021



**Assessing and Planning for Variability in India's Wind Resource**  
CEEW-REConnect Energy report | August 2021



**Renewed US-India Climate Cooperation: Mobilising Foreign Capital for a Green Transition in India**  
Center for American Progress-CEEW Report | February 2021



**Are Urban Microgrids Economically Feasible?**  
A study of Delhi's Discm and Consumer Perspectives for BYPL Report | October 2020

#CEEWPride



सत्यमेव जयते  
Ministry of New and Renewable Resources



CEEW appointed by the Ministry of New and Renewable Resources as Technical Adviser to draft India's *National Bioenergy Mission*.

## The team

Disha Agarwal, Ashwani Arora, Arunabha Ghosh, Akash Som Gupta, Neeraj Kuldeep, Debanjan Mukherjee, Arvind Poswal, Harsha V. Rao, Arushi Relan, Akanksha Tyagi, Bhawna Tyagi, and Sachin Zachariah.

We thank Syed Yasir Ahmad, Rohan Singh Barad, Rishi Chandak, Kanika Chawla, Ananya Dhanuka, Tanisha Kamat, Debangsu Kashyap, Ankit Nagarwal, Almas Naseem, Ellie O'Shaughnessy, Preshita Pandey, Neha Rana, Parvej, Selna Saji, Payal Saxena, Jai Shekhar, Sharayu Prasad Shejale, Gandhar G. Ukidve, and Chayan Vohra for their contribution to CEEW's Renewables research in 2020-21.



# Financing the Energy Transition



Image: CEEW

CEEW-CEF team members, **MEGHNA NAIR**, **SIDHARTHA MAHESHWARI**, former colleague, and **RISHABH JAIN** in the field studying EV charging infrastructure in the Delhi-NCR region in July 2021.



“ Together with the Central Electricity Authority (CEA), CEEW-CEF developed a unique RE dashboard to track daily generation of electricity through renewable sources at the state, regional, and national levels. To have developed this tool that makes RE generation and asset data accessible, in a year fraught with uncertainties for the sector, is a proud milestone for us. Capital to power the energy transition remains a challenge, not because it is not flowing, but because of the scale of India’s ambitions. Getting capital to flow at pace and scale lies at the heart of what CEEW-CEF is all about.”

**GAGAN SIDHU**  
Director, CEEW-CEF



At the CEEW-CEF-ISA ‘solinar’ on ‘Financing utility-scale renewables in emerging economies,’ clockwise from top left, **CÉCILE MARTIN-PHIPPS**, former Chief of Unit – Communication, Events and International Partnerships, International Solar Alliance; **ARJUN DUTT**, Programme Lead, CEEW-CEF; **SURBHI GOYAL**, Senior Energy Specialist, World Bank; **DILEEPA KARUNARATHNA**, Assistant Director, Public Utilities Commission of Sri Lanka; **UPENDRA TRIPATHY**, former Director General, International Solar Alliance; **LUCILA ARBOLEYA**, Energy Economics and Financial Analyst, International Energy Agency; and **KULJIT SINGH POPLI**, Advisor, International Solar Alliance, in January 2021.

## India Renewables Dashboard unveiled

A CEEW-CEF and Central Electricity Authority (CEA) collaboration

The first-of-its-kind India Renewables Dashboard is a one-stop resource for downloadable source-wise daily renewable energy (RE) generation data at the state, region and national levels.

The dashboard is accessible at [www.renewablesindia.in](http://www.renewablesindia.in)



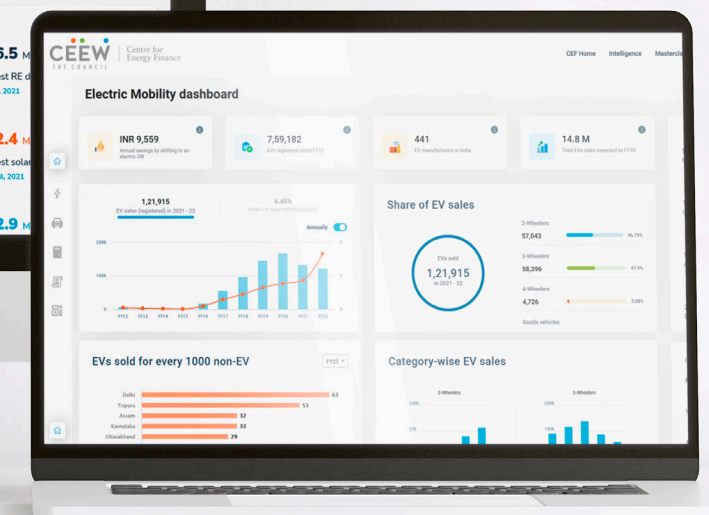
## CEEW-CEF Dashboard for EVs 2.0

Our revamped Electric Mobility Dashboard provides a holistic view of India’s EVs journey. For instance, two-wheeler sales shot up from 24,839 units sold in FY20 to 40,837 units sold in FY21. Two and three-wheelers combined made up 96 per cent of all EV sales in FY21. Uttar Pradesh, Bihar, and Karnataka reported the highest number of EVs sold in FY21 – comprising nearly 43 per cent of all EV sales in India.

To solve range anxiety and increase access to charging infrastructure, the dashboard also maps the public charging stations (PCS) in India.

The tool helps project developers and corporate electricity consumers to determine open access charges and tariffs for different modes and fuels.

Explore the dashboard here: <https://cef.ceew.in/solutions-factory/tool/electric-mobility>







“ I am sure that the launch of the India Renewables Dashboard will help in accelerating the deployment of renewable power, infrastructure planning, efficient system operation, and efficient forecasting in the future.”

**SANDESH KUMAR SHARMA**  
Former Member (Planning), Central Electricity Authority, at the launch of the CEA-CEEW-CEF India Renewables Dashboard in April 2021.

#CEEWParishad

## Costs and opportunities of India's transition to electric vehicles



At the event, clockwise from left: **JANMEJAYA KUMAR SINHA**, CEEW Trustee and Chairman India, Boston Consulting Group; **AKSHIMA GHATE**, Senior Principal, RMI India; **VAIBHAV PRATAP SINGH**, Programme Lead, CEEW; **KANIKA CHAWLA**, then Director, CEEW-CEF; **KELLY GALLAGHER**, Academic Dean and Professor of Energy and Environmental Policy, The Fletcher School; **ARUNABHA GHOSH**, CEO, CEEW; **MAHESH BABU**, the then Managing Director and CEO, Mahindra Electric; and **VIVEK SONNY ABRAHAM**, Vice-President and Co-Head, Global Investor Outreach, Invest India.

#CEEWPrize

**GAGAN SIDHU** and **ARJUN DUTT** appointed to Working Groups on Renewable Energy and Energy Efficiency of the OECD Clean Energy Finance and Investment Roadmap, being developed under the guidance of a government-led Steering Committee (MNRE, IREDA, MOP, BEE, MEA, DEA, NITI Aayog).



Images: CEEW

## Key publications



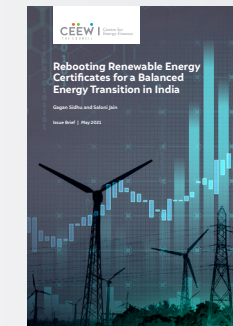
**Financing India's Energy Transition Through International Bond Markets**  
August 2021 | Report



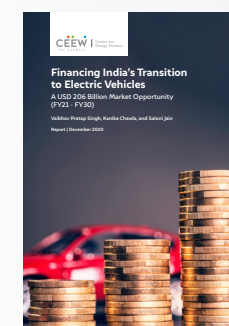
**Mapping Costs for Early Coal Decommissioning in India**  
July 2021 | Report



**Laying the Groundwork for Electric Vehicle Roaming in India**  
CEEW-EDRV Report | July 2021



**Rebooting Renewable Energy Certificates for a Balanced Energy Transition in India**  
Issue Brief | May 2021



**Financing India's Transition to Electric Vehicles**  
Report | December 2020



**Clean Energy Investment Trends 2020: Mapping Project-Level Financial Performance Expectations in India**  
CEEW-IEA Report | November 2020



Image: akshatrathi.com

“ Foreign investors will only come to a market if they are able to understand it clearly. Access to data is invaluable and it's a really good idea that CEEW-CEF has been able to put this (the quarterly market handbook) together.”

**AKSHAT RATHI**  
Reporter, Bloomberg News, at the launch of the CEEW-CEF Market Handbook in September 2020.



**USD 206 billion**  
domestic market opportunity from EV sales till FY 2030



**>USD 3.6 billion**  
raised by RE developers through green bonds in Q1 & Q2 of 2021

All data points: CEEW-CEF analysis

## The team

Amlan Bibhudatta, Arjun Dutt, Shreyas Garg, Rishabh Jain, Saloni Jain, Apoorv Minocha, Meghna Nair, Himani Sabharwal, Ruchita Shah, Nikhil Sharma, Gagan Sidhu, Vaibhav Pratap Singh, and Dhruv Warrior.

We thank Kanika Chawla, Rajesh Goel, Karan Kochhar, Aditya Kokate, Sidhartha Maheshwari, Prayag Saraiya, Jaydeep Sharma, Sangeeth Selvaraju, and Shrey Sood for their contribution to CEEW-CEF's research in 2020-21.



# Improving Finances and Efficiency of the Power Sector



Images: CEEW



CEEW's **BHARAT SHARMA** and **KANIKA BALANI** (L) at the block office of National Rural Livelihood Mission (NRLM) office, Gosaiganj, Lucknow to understand from the block officials and women self-help group (WSHG) agents, the process and gaps in door-to-door electricity bill payment collection by WSHG agents; (R) **KANIKA BALANI** in discussions with rural consumers at Mahdoiya panchayat, Malihabad to understand their perception of electricity services.



“ To be successful, the clean energy transition in the power sector has to be consumer-centric. Our nationwide residential energy survey – a first-of-its-kind exercise – revealed India’s progress on the electrification front and the need to raise ambitions and efforts on energy efficiency. To see it getting institutionalised as a periodic national survey feels very satisfying. And collaborating with UPPCL, one of the largest Indian discoms, to improve operational efficiency and service quality to consumers has been another key highlight.”

**SHALU AGRAWAL**  
Senior Programme Lead, CEEW

Enumerators travelled across 21 Indian states conducting the CEEW-ISEP India Residential Energy Survey (IRES) 2020 to map energy access and consumption patterns of urban and rural Indian households.



Image: Market Excel

The India Residential Energy Survey (IRES) 2020, was the largest pan-India survey on energy access and consumption patterns in Indian households.

The survey covered 14,850 households from 152 districts in the 21 most populous states. The surveyed states together accounted for 97 per cent of the Indian population.



CEEW’s **KARTHIK GANESAN** appointed to the NITI Aayog Expert Committee on the ‘Future of Coal in India till 2050’.

Also, **CEEW** has been appointed to the working committee constituted by the Rural Electrification Corporation to design a rating system for assessing discoms’ performance with respect to consumer service delivery.



“ I must congratulate CEEW and the whole team for coming out with the IRES reports. They give some very useful insights to us in terms of electricity access, quality, metering, billing and energy efficiency-related issues. I am sure this will help us in making our policy interventions.”

**SANJAY MALHOTRA**  
Additional Secretary (Distribution, OM, IT and R&R), Ministry of Power, at the launch of two CEEW reports based on the first-ever national India Residential Energy Survey (IRES) 2020, in October 2020.



#CEEWParishad

## Thermal decommissioning: Doing more with less coal



At the CEEW Parishad session, 'Doing More with Less Coal - The Role of Efficiency and Thermal Decommissioning in the Power Sector Transition', in July 2021, clockwise from left: **PRADEEP PERERA**, Head, Energy Operations, India, Asian Development Bank; **MOHIT BHARGAVA**, Executive Director, NTPC; **ARUNABHA GHOSH**, CEO, CEEW; **CHANDAN KUMAR MONDOL**, Director (Commercial), NTPC; **ANJULI CHANDRA**, Member, Punjab State Electricity Regulatory Commission; **KARTHIK GANESAN**, Fellow and Director - Research Coordination, CEEW; and **K. V. S. BABA** (b), Chairman and Managing Director, Power System Operation Corporation Limited (POSOCO).

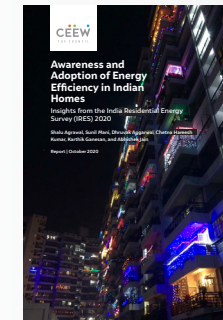
“Congratulations on this study, where you have done a first-order estimation of what kind of savings can be achieved if thermal power plants in India are dispatched according to their thermal efficiency.”

**PRADEEP PERERA**  
Head, Energy Operations – India, Asian Development Bank,  
speaking at the CEEW Parishad session.

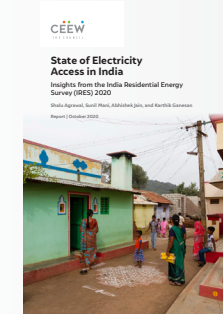


Images: CEEW

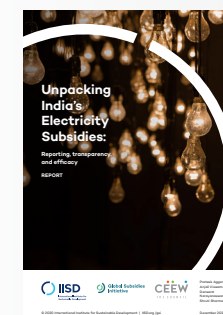
## Key publications



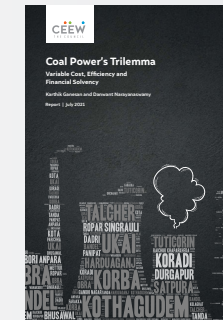
**Awareness and Adoption of Energy Efficiency in Indian Homes: Insights from the India Residential Energy Survey (IRES 2020)**  
Report | October 2020



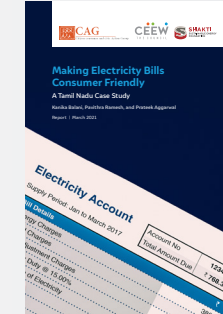
**State of Electricity Access in India: Insights from the India Residential Energy Survey (IRES 2020)**  
Report | October 2020



**Unpacking India's Electricity Subsidies: Reporting, Transparency, and Efficacy**  
IISD-CEEW Report | December 2020



**Coal Power's Trilemma: Variable Cost, Efficiency and Financial Solvency**  
Report | July 2021



**Making Electricity Bills Consumer Friendly: A Tamil Nadu Case Study**  
CAG-CEEW Report | March 2021

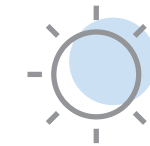


**Improving Discoms' Revenue Recovery During and After the Pandemic: A case study of MVVNL discom in Uttar Pradesh**  
Issue Brief | November 2020



**USD 1.23 billion p.a.** savings for Indian discoms if coal power despatch priority were based on efficiency over variable costs

Source: CEEW analysis



**30%** decrease in total quantified energy subsidies from FY14 to FY20

Source: IISD-CEEW analysis



**>90%** Indian households have metered electricity connections and are billed regularly

Source: CEEW analysis

## The team

Dhruvak Aggarwal, Prateek Aggarwal, Shalu Agrawal, Kanika Balani, Paras Bhattarai, Anil K. Bohra, Ganesh Dileep, Karthik Ganesan, Simran Kalra, Sunil Mani, Tarun Mehta, Rudhi Pradhan, Mohammad Rafuiddin, Bharat Sharma, Chanmeet Singh, and Rashi Singh.

We thank Srivatsan Anand, Ayushi Mishra, Danwant Narayanaswamy, Divyansh Singh Parihar, Rachna Pathak, Puneet Kamboj, Soundaram Ramanathan, and Rushabh Soni for their contribution to CEEW's Power Sector research in 2020-21.



# Greening Energy for Industry



Engaging with industry, CEEW's ISC team visiting the JSW steel plant, at Bellary, Karnataka, to explore decarbonisation opportunities using green hydrogen.

Image: CEEW

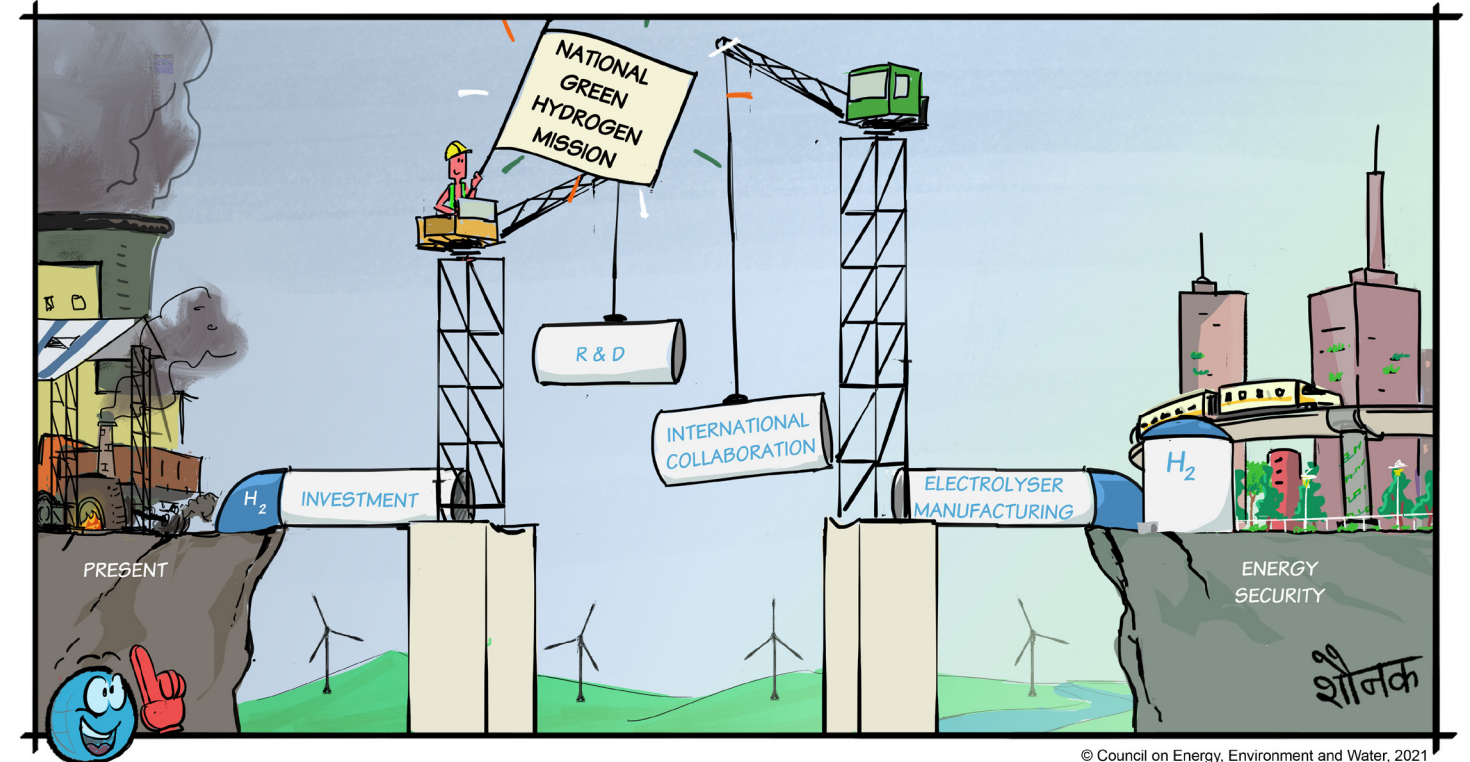
“It is a matter of great pride and satisfaction that CEEW worked closely and extensively with the MNRE and industry stakeholders to shape India’s future hydrogen economy through the *National Green Hydrogen Mission*.”

**HEMANT MALLYA**  
Senior Programme Lead



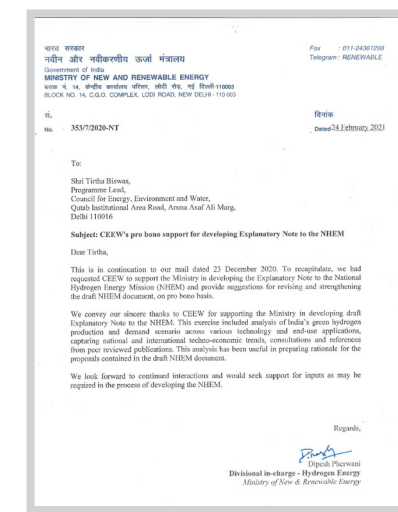
## Exploring global collaborations on green hydrogen

JUAN ANGULO, Ambassador of Chile to India; and CONSUELO KLAASSEN, Third Secretary and Consul, Embassy of Chile in India, were hosted by CEEW for a conversation on the global energy transition with a special focus on green hydrogen and critical minerals, in January 2021.



© Council on Energy, Environment and Water, 2021

## Supporting the National Green Hydrogen Energy Mission



“We convey our sincere thanks to CEEW for supporting the Ministry of New and Renewable Energy in developing the draft Explanatory Note to the National Hydrogen Energy Mission (NHM). This exercise included analysis of India’s green hydrogen production and demand scenario across various technology and end-use applications capturing national and international techno-economic trends, consultations, and references from peer-reviewed publications. This analysis has been useful in preparing the rationale for the proposals contained in the draft NHM document.”

**DIPESH PHERWANI**  
Divisional in-Charge - Hydrogen Energy  
Ministry of New and Renewable Energy.  
Excerpt from a letter dated 24 February 2021.





Image: CEEW

## Enabling India's transition to a green hydrogen economy

“Most developed economies have come up with big plans for hydrogen. India, too, considers it to be one the most important sources for the sustainable energy transition in the country.”

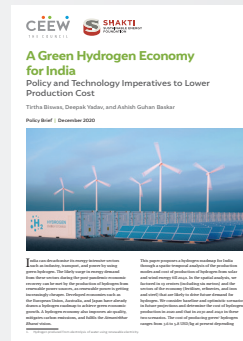
**P. C. MAITHANI**

Then Adviser, Ministry of New and Renewable Energy, Government of India, at a CEEW Parishad session on, 'Enabling India's Transition to a Green Hydrogen Economy', in October 2020.

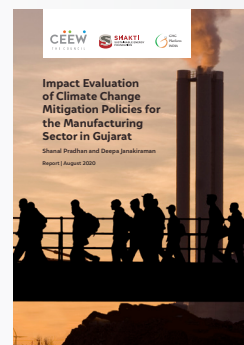
## Key publications



**Small-scale LNG for Expanding Natural Gas Access in India**  
Issue Brief | April 2021



**A Green Hydrogen Economy for India: Policy and Technology Imperatives to Lower Production Cost**  
Policy Brief | December 2020



**Impact Evaluation of Climate Change Mitigation Policies for the Manufacturing Sector in Gujarat**  
Report | September 2020



**USD 25 billion** worth investments needed per 1 million tonne of green hydrogen by 2030



**8-10%** reduction in the price of delivered natural gas possible by reducing VAT to 3% (as in Maharashtra) from 14.5% (as in Kerala)

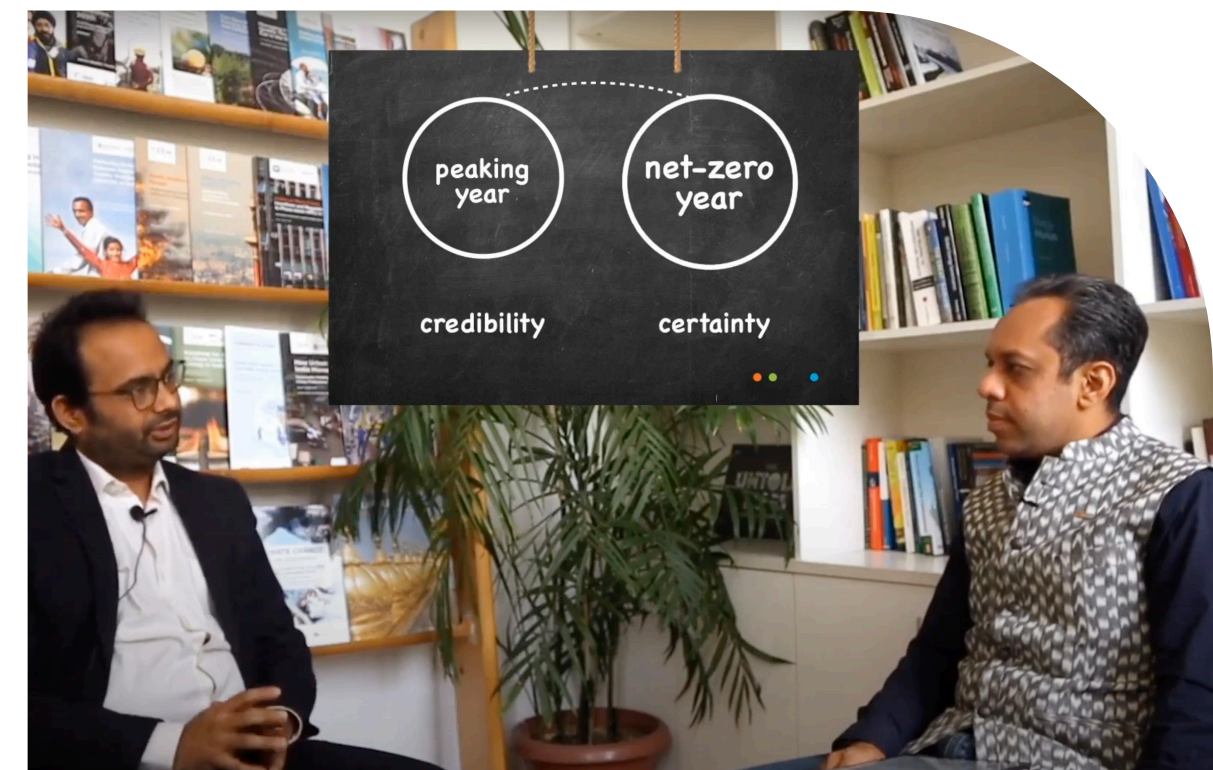
All data points: CEEW analysis

## The team

Aditi Bahuguna, Tuli Bakshi, Naveen Bali, Sabarish Elango, Karthik Ganesan, Ajeya Karajgikar, Hemant Mallya, Kartheek Nitturu, Rishabh Patidar, Prerna Prabhakar, Ankur Rawal, Nilay Srivastava, Shubham Thakare, and Deepak Yadav.

We thank Rashika Arora, Ashish Guhan Baskar, Tirtha Biswas, Deepa Janakiraman, Dhruv Amit Jhaveri, Vamsi Krishna, Nitin Maurya, Shubham K. Padia, Aniket Raj, Krishnakumar Rathinam, V. Niveditha Reddy, S. Sandilya, Deepti Siddhanti, K. Srividya, and P. M. Sivaram for their contribution to CEEW's Industrial Sustainability and Competitiveness research in 2020-21.

# Charting India's Course to Net-Zero



Images: CEEW

CEEW's **VAIBHAV CHATURVEDI** (I), discussing the findings of the study, *Peaking and Net-Zero for India's Energy Sector CO<sub>2</sub> Emissions: An Analytical Exposition*, with **ARUNABHA GHOSH**, CEO, CEEW, in March 2021.

“CEEW has played an instrumental role in shaping the narrative on India's net-zero future. The path towards such a future is incredibly complex. It is not going to just be about the techno-economics of the transition, but equally about its political economy and issues related to just transition and feasibility.

Most importantly, we will need an economic transformation, for which an equal partnership between the centre and the states is imperative.”

**VAIBHAV CHATURVEDI**  
Fellow, CEEW





## Enabling Odisha and Bihar's transition to a low-carbon economy



CEEW along with UNEP in India and other partners are working with the Bihar government to develop their low-carbon development strategy.

In Odisha, CEEW, IIM Sambalpur and the University of Maryland, USA have invited multi-sector stakeholders from the state and set up an **Economic Transition Coalition for Odisha (ETCO)**. ETCO will identify the impacts and trade-offs of the economic transition that will have to take place as the state adopts clean energy to meet its jobs, growth and sustainability ambitions.

## #CEEWPride



- **ARUNABHA GHOSH** and **VAIBHAV CHATURVEDI** appointed, in their individual capacities, to the Expert Group on Carbon Budget in India's Climate Strategy, by the Government of India.
- **VAIBHAV CHATURVEDI** appointed to the Steering Committee of the India Energy Modelling Forum (IEMF) constituted by NITI Aayog.
- **VAIBHAV CHATURVEDI** also joined as Co-Chair Mitigation Working Group, Independent Global Stocktake, an international civil society initiative. The working group is co-chaired by Dr Leon Clarke and Dr Nathan Hultman from University of Maryland, USA.

## Key publications



**Carbon Capture, Utilisation, and Storage Technology (CCUS) in India: From a Cameo to Supporting Role in the Nation's Low-Carbon Story**  
Issue Brief | August 2021



**India's Natural Gas Future Amid Changing Global Energy Dynamics**  
Paper | August 2021



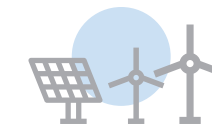
**Climate Policy Models Need to Get Real About People — Here's How**  
Other Publications | June 2021



**Peaking and Net-Zero for India's Energy Sector CO2 Emissions: An Analytical Exposition**  
Report | March 2021



**Domestic Measurement, Reporting, and Verification**  
Book Chapter | February 2021



**67%** required non-hydro RE share in India's electricity generation in 2050 for a 2070 net-zero target with hydrogen and without carbon capture and storage (CCS) feasibility



**38%** required share of electricity in India's total industrial energy in 2050 for a 2070 net-zero target with hydrogen and without CCS feasibility



**21%** of India's primary energy demand could be supported by natural gas by 2050 in a low gas price scenario

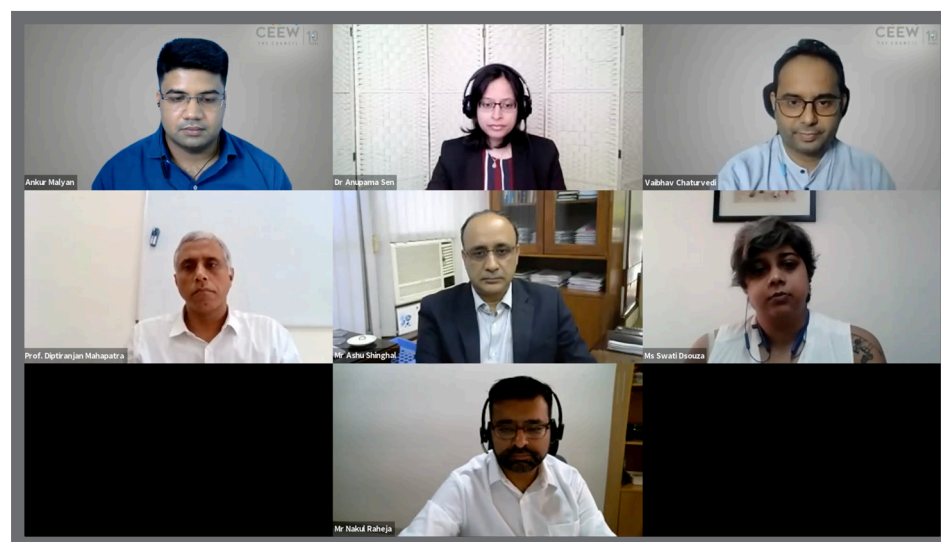
All data points: CEEW analysis

## The role of natural gas in India's energy transition



“ CEEW's study is a very apt presentation on what the role of natural gas will be in the coming three decades.”

**ASHU SHINGHAL**  
Executive Director – Corporate Strategy, Planning, and Advocacy, GAIL (India) Limited, at the launch of the CEEW study, *India's Natural Gas Future Amid Changing Global Energy Dynamics*, in August 2021.



Launch of the CEEW study, *India's Natural Gas Future Amid Changing Global Energy Dynamics*, in August 2021. Clockwise from left: **ANKUR MALYAN**, Programme Associate, CEEW; **ANUPAMA SEN**, Senior Research Fellow and Executive Director – Electricity Programme, Oxford Institute for Energy Studies; **VAIBHAV CHATURVEDI**, Fellow, CEEW; **SWATI D'SOUZA**, Research Lead, Climate Action, National Foundation for India; **NAKUL RAHEJA**, Country Head (Gas, LNG, and Power), Shell Energy India; **DIPTIRANJAN MAHAPATRA**, Associate Professor, IIM-Sambalpur; and **ASHU SHINGHAL** (c), Executive Director – Corporate Strategy, Planning and Advocacy, GAIL (India) Limited.



# Guarding our Pale Blue Dot

## #AirQuality

### Enabling a democratic demand for clean air



“ When we evaluated the clean air plans of 100+ Indian cities made as part of the *National Clean Air Programme*, we found most plans lacked information on polluting sources and also did not include budgets for implementation. Are our cities doing everything they planned to combat air pollution? Our data, shared with citizen groups, is enabling these discussions across Maharashtra, Jharkhand, Punjab, and Uttar Pradesh, and empowering people to demand clean air measures in their cities.”

TANUSHREE GANGULY  
Programme Lead

CEEW's air quality team using a custom-built pollution mapping tool to capture pollution occurring from uncovered construction materials.



Images: CEEW

“ Citizens can play a huge role in improving air quality by being active monitors, educating themselves, and by making lifestyle changes that could serve the cause of clean air.”

SANYUKTA BHATIA  
Mayor, Lucknow, at a discussion on Lucknow's clean air plan, organised by CEEW and the Centre for Environment and Energy Development (CEED) in October 2020.



## Building resilience



Image: Shawn Sebastian

## Mapping India's climate hotspots

A first-of-its-kind district-level profiling of India's extreme climate events



Image: ICDRI 2021



“ Extreme climate events are going to massively impact infrastructure. And unless we make it more disaster-resilient and climate-resilient, we are going to suffer more and more losses.”

SANDEEP POUNDRIK  
Then Director General, Coalition for Disaster-Resilient Infrastructure, speaking at the launch of the CEEW study, *Preparing India for Extreme Climate Events: Mapping Hotspots and Response Mechanisms*, in December 2020.

“ What does it take to insulate our geographies, economies and infrastructure from climate risks? CEEW is identifying, mapping, and steering empirical, evidence-based micro-level climate risk assessments that can drive climate actions through a first-of-its-kind Climate Risk Atlas (CRA). A CRA can better identify, assess, and project chronic and acute risks such as extreme climate events, heat and water stresses, crop loss, vector-borne diseases, and biodiversity collapse.”

ABINASH MOHANTY  
Programme Lead





Images: CEEW

Launch of the CEEW study, *Preparing India for Extreme Climate Events: Mapping Hotspots and Response Mechanisms*, in December 2020. Clockwise from left: **ARUNABHA GHOSH**, CEO, CEEW; **JAYASHREE NANDI**, Environment Journalist, Hindustan Times; **DIPAK GYAWALI**, Former Water Resources Minister, Nepal; **SHLOKA NATH**, Executive Director, India Climate Collaborative; **ANIMESH KUMAR**, the then Officer-in-Charge and Deputy Chief, Regional Office for Asia and the Pacific, United Nations Office for Disaster Risk Reduction (UNDRR); **ABINASH MOHANTY**, Programme Lead, CEEW; and **SANDEEP POUNDRIK** (c), then Director General, Coalition for Disaster-Resilient Infrastructure (CDRI).

### #CEEW Pride



The Intergovernmental Panel on Climate Change (IPCC) Working Group III appointed **VAIBHAV CHATURVEDI** as Review Editor of Chapter 3 of the IPCC Working Group III report.

## Convening international climate experts in CEEW's High-Level Advisory Group



Members of the CEEW-convened, High-Level Advisory Group (HLAG) for the Climate Risk Atlas. Clockwise from top left: **DR ARUNABHA GHOSH**, CEO, CEEW; **DR MARJORIE MCGUIRK**, Subject Matter Expert, World Meteorological Organization (WMO); **SHLOKA NATH**, Executive Director, India Climate Collaborative (ICC); **IRIA TOURZAN**, Knowledge Management Officer, UNDRR Asia Pacific; **LAURA SCHAFER**, Senior Advisor, Germanwatch; **SANDEEP POUNDRIK** (CHAIR HLAG), and former Director General, Coalition for Disaster Resilient Infrastructure (CDRI); **DR OSVALDO L. L. MORAES**, Chair, BRICS Working Group on Climate Change and Director, CEMADEN, Brazil; **PROF. CARMINE GALASSO**, Professor, UCL Institute for Risk and Disaster Reduction; and **DR DIPAK GYAWALI**, former Minister of Water Resources, Government of Nepal.

Images: Respective members

## #SustainableFoodSystems

### Transforming what India eats and how it is produced



“What is the state of sustainable agriculture in India? It’s a simple question, but there was no easily available answer. Addressing this critical knowledge gap and creating a go-to resource on the issue – the *Sustainable Agriculture in India, 2021* report – was our biggest endeavour and highlight last year.”

**APOORVE KHANDELWAL**  
Senior Programme Lead

“One of the paradoxes of contemporary India is that while the Green Revolution has made India food-secure, its negative long-term environmental and social effects are now well-documented. Indian agriculture has no option but to move towards more sustainable systems, techniques and practices.”

**Ambassador NENGCHA LHOUVUM MUKHOPADHAYA**, CEEW Trustee and former Ambassador of India to Indonesia, Serbia, and Lebanon at the launch of the CEEW-FOLU study, *Sustainable Agriculture in India 2021: What We Know and How to Scale-up*, in April 2021.

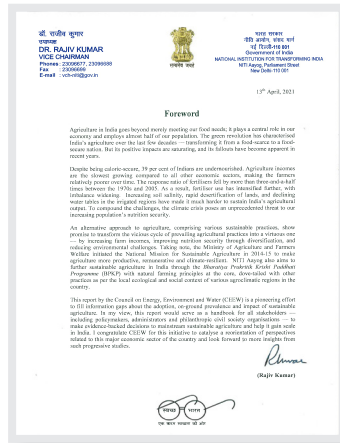


The launch of the CEEW-FOLU study, *Sustainable Agriculture in India 2021: What We Know and How to Scale-up*, in April 2021. Clockwise from left: **ABHISHEK JAIN**, Fellow, CEEW; **K. M. JAYAHARI**, Senior Manager, Sustainable Landscapes & Restoration, World Resources Institute India; **G. V. RAMAJANEYULU**, Executive Director, Centre for Sustainable Agriculture; **RAJIV KUMAR**, the then Vice-Chairman, NITI-Aayog; **LEENA SHARMA**, a progressive farmer and farmer trainer; **NENGCHA LHOUVUM MUKHOPADHAYA**, CEEW Trustee and former Ambassador of India to Indonesia, Serbia, and Lebanon; **SHANAL PRADHAN**, Programme Associate, CEEW; **RAVINDRA A.**, Watershed Support Service and Activities Network; and **ARUNABHA GHOSH** (c), CEO, CEEW.

Images: CEEW



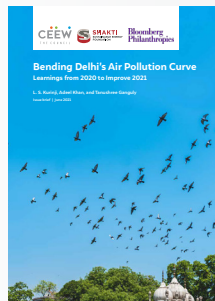
## Helping mainstream sustainable agriculture



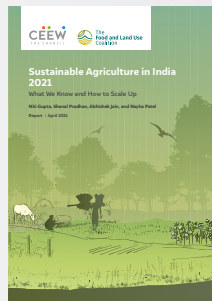
"This report by the Council on Energy, Environment and Water is a pioneering effort to fill information gaps about the adoption, on-ground prevalence, and impact of sustainable agriculture. In my view, this report would serve as a handbook for all stakeholders — including policymakers, administrators, and philanthropic civil society organisations — to make evidence-based decisions to mainstream sustainable agriculture and help it gain scale in India."

**RAJIV KUMAR**  
Vice Chairman, NITI-Aayog  
in a letter dated 13 April 2021

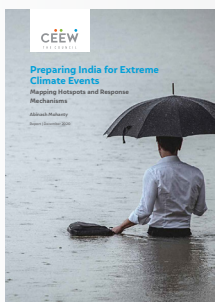
## Key publications



**Bending Delhi's Air Pollution Curve: Learnings from 2020 to Improve 2021**  
Report | June 2021



**Sustainable Agriculture in India 2021: What We Know and How to Scale Up**  
CEEW-FOLU Report | April 2021



**Preparing India for Extreme Climate Events: Mapping Hotspots and Response Mechanisms**  
Report | December 2020



**Is Ex-situ Crop Residue Management a Scalable Solution to Stubble Burning? A Punjab Case Study**  
Report | January 2021



**National Clean Air Programme (NCAP) for Indian cities: Review and outlook of clean air action plans**  
Paper | December 2020



**92** severe/very poor air quality days in Delhi in the winter of 2020, up from 80 in the previous year  
*Source: CEEW analysis*



**↑ 75%** of Indian districts are extreme events hotspots  
*Source: CEEW analysis*

## The team

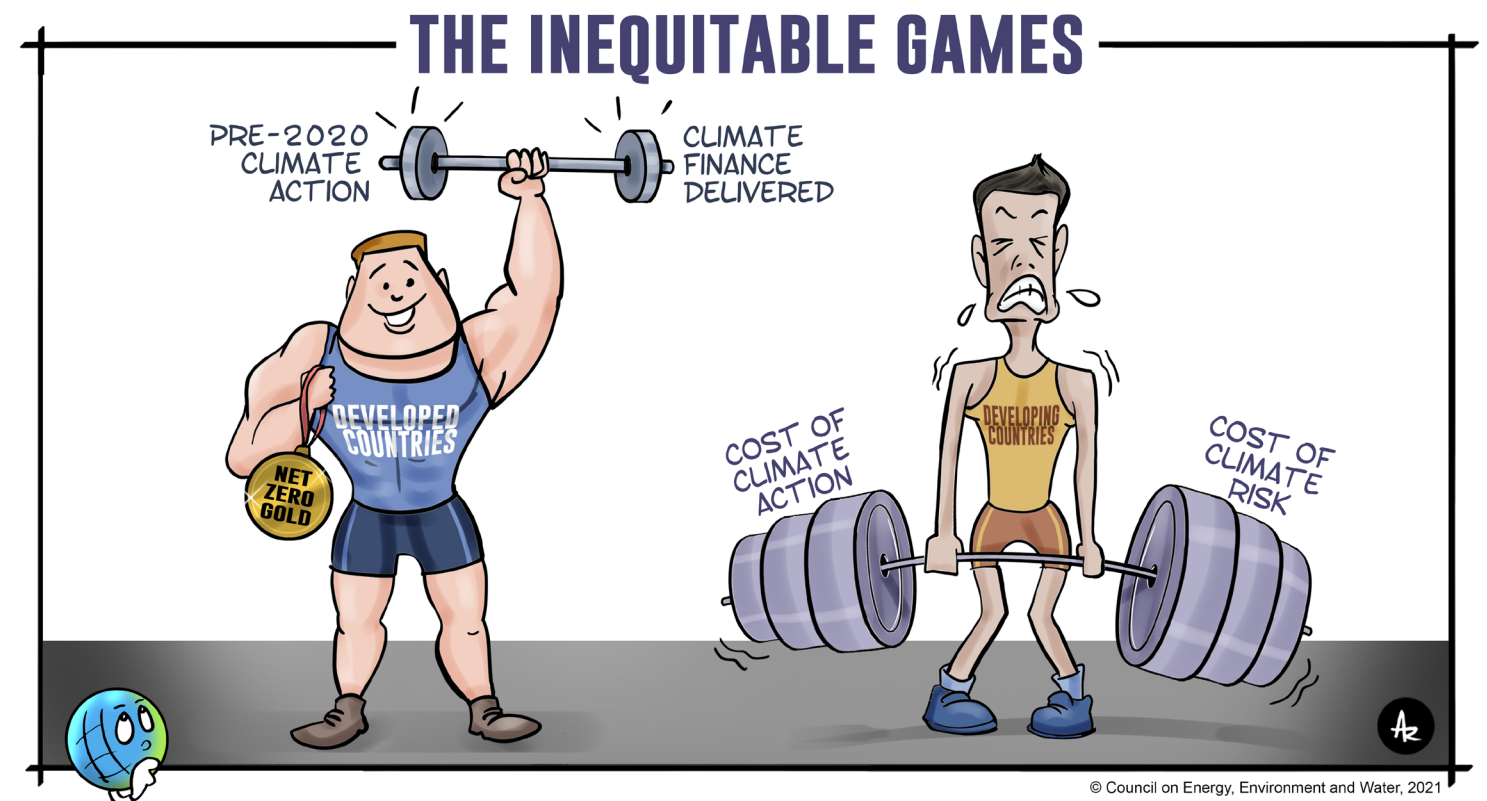
Sijo Abraham, Chinmaya Acharya, Nandini Agarwal, Nitin Bassi, Anju Bhaskaran, Shreya Chadha, Sairam Dhandapani, Karthik Ganesan, Tanushree Ganguly, Dyuti Garg, Ruchira Goyal, Vishaka Gulati, Niyati Gupta, Abhishek Jain, Anjali Teresa John, Sathes Kumar Kanagaraj, Adeel Khan, Apoorve Khandelwal, L. S. Kurinji, Abinash Mohanty, Saahil Parekh, Shravan Rajesh Prabhu, Shanal Pradhan, Srish Prakash, Priyanka Singh, Shakti Singh, Madhumitha Srinivasan, Uday Suryanarayanan, Aishwarya Tiwari, and Shreya Wadhawan.

We thank Aarushi Agarwal, Khalid Azam, Aditi Bhargava, Dorothy Ashmita Biswas, Anuva Chowdhury, Lipi Gandhi, Darshna Gupta, Niti Gupta, Gayathri Hari, Bhamini Jain, Kamakshi Kaushik, Aalok Kumar, Sankalp Kumar, Aditi Kumari, Sweta Kumari, Niharika Labhsetwar, Utkarsh Lal, Vidur Mithal, Kangkanika Neog, Susmita Paul, Shwetha Rathore, Ankitha Shanbogue, Rajvi Savla, Anubhuti Shekhar, Gianlal Siam, Devendra Singh, Surabhi Singh, Satyateja Subbarao, Ayush Tyagi, Niharika Tyagi, Sattyam Tripathi, Swetha Shrinithi V., and Gitesh Wasson for their contribution to CEEW's Risks and Adaptation research in 2020-21.

# Accelerating Climate Action

## Unpacking pre-2020 climate commitments

Evaluating the performance of developed countries in the Kyoto Protocol and the Doha Amendment



“ CEEW's analysis of developed nations' pre-2020 climate actions has significant implications for the fate of post-2020 negotiations. Many developed countries have consumed disproportionate shares of the global carbon budget because they did not meet their commitments in the pre-2020 period. Trust in their long-term commitments will be regained only if their near-term actions free up carbon space for others. While all countries must consider raising ambition, the burden of unmet promises and disproportionate use of carbon space cannot fall on developing countries.”

**ARUNABHA GHOSH**  
CEO, CEEW





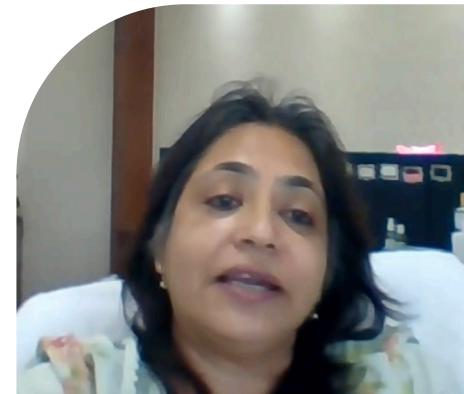
## Explore our pre-2020 commitments dashboard

www.ceew.in/unpacking-pre-2020-climate-actions



Have Developed Countries Delivered on Pre-2020 Climate Commitments? (YouTube)

See the video here: <https://bit.ly/3pIIIBE>



“ We need to look back to the pre-2020 period to build forward better. I'd like to congratulate Dr Ghosh and the entire CEEW team for the launch of their flagship study and dashboard.”

**RICHA SHARMA**

Additional Secretary, Ministry of Environment, Forest, and Climate Change, Government of India, at a CEEW Parishad session, 'International Dialogue on Pre-2020 Climate Commitments: Have Developed Countries Delivered? How Can They Regain Trust?' in July 2021.

The CEEW Parishad session, 'International Dialogue on Pre-2020 Climate Commitments: Have Developed Countries Delivered? How Can They Regain Trust?' in July 2021. Clockwise from left: **SUMIT PRASAD**, Programme Associate, CEEW; **ARUNABHA GHOSH**, CEO, CEEW; **YAMIDE DAGNET**, Director – Climate Negotiations, World Resources Institute; **HARALD WINKLER**, Professor, Faculty of Engineering and the Built Environment, University of Cape Town; **ANSHU BHARADWAJ**, CEO, Shakti Sustainable Energy Foundation; **SALEEMUL HUQ**, Director, International Centre for Climate Change and Development; **SARA MOARIF**, Head of Environment and Climate Change (ECC) Unit, International Energy Agency (IEA); **SIMON EVANS**, Deputy Editor and Policy Editor, Carbon Brief; and **SHIKHA BHASIN** (c), Senior Programme Lead, CEEW.

Images: CEEW

“ I really welcome CEEW's report because it covers important ground for learning from past actions and inactions under the UNFCCC and the Kyoto Protocol.”

**TRACY BACH**

Co-Focal Point, UNFCCC Research and Independent NGOs (RINGO), speaking at the event.



## Expanding CEEW's global footprint

#CEEWPride



In November 2020, CEEW became a member of the Global Solutions Initiative – Council for Global Problem Solving (GSI-CGP), a group of leading think tanks and experts tasked with providing a permanent advisory structure on long-term multilateral policy to the G7 and G20.



In June 2021, **ARUNABHA GHOSH** joined the Board of Directors of the ClimateWorks Foundation, a global climate philanthropy non-profit. CEEW's Chairperson, Jamshyd N. Godrej, is also a member of the ClimateWorks Board of Directors.



CEEW selected to partner with UNFCCC Secretariat to develop intelligence, tools and information systems on capacity building and transparency arrangements within developing countries.



**ARUNABHA GHOSH** appointed to the Project Advisory Council to develop a Code of Conduct for Ocean Carbon Dioxide Removal (OCDR), convened by the Aspen Institute.



CEEW appointed to the Bureau of Indian Standards (BIS) panel on long-term AC efficiency in India.



**MONTREAL PROTOCOL**

**ARUNABHA GHOSH** appointed to Government of India's Empowered Steering Committee for the Implementation of the Montréal Protocol.



CEEW's Chairperson, **JAMSHYD N. GODREJ**, represents India on the IEA's Global Commission on People-Centred Clean Energy Transitions: Our Inclusive Energy Future, established in January 2021 and comprising 30 government leaders, ministers, and prominent thinkers.



In June 2021, **ARUNABHA GHOSH** became an inaugural member of the Climate Crisis Advisory Group, an independent international scientific body launched to provide world leaders with expert advice and guidance on the climate crisis. It is chaired by Sir David King, former Chief Scientific Advisor to the UK government.



**ARUNABHA GHOSH** invited to be a part of the Steering Committee of the Global Governance of Solar Geoengineering Project convened by the Paris Peace Forum.



**ARUNABHA GHOSH** appointed to the Taskforce on the Security Impacts of Climate Change, constituted by the Institute of Peace and Conflict Studies (IPCS).



**ARUNABHA GHOSH** appointed to the High-Level Advisory Group of the OECD project on Losses and Damage from Climate Change.



#SustainableCooling

## Implementing India's Cooling Action Plan



“ For the Government of India's *India Cooling Action Plan* (ICAP), we co-authored chapters on R&D and the AC servicing sector, building on our decade-long work on sustainable cooling. This year, we focused on kick-starting its implementation by identifying key aspects for raising consumer awareness, formalising trainings, and certifying the AC servicing sector amidst the uncertainties of multiple technology transitions: improving energy efficiency, low-global-warming-potential refrigerants, and the Internet of Things. CEEW is committed to realising the opportunities offered by sustainable cooling to reduce global warming by at least 0.4 degrees, while also ensuring that jobs, food security, productivity, and human well-being are optimised.”

**SHIKHA BHASIN**  
Senior Programme Lead

#SideEvent@MontrealProtocolOEWG

## Tackling the world's cooling conundrum



Image: Service to America

“ Congratulations to CEEW on your recent work looking at R&D in India. It's suggesting some very productive ways to move forward.”

**STEPHEN O. ANDERSEN**  
Director of Research, Institute for Governance and Sustainable Development, at a side-event hosted by CEEW in July 2021 at the 43rd meeting of the Open-Ended Working Group (OEWG) of the Parties to the Montreal Protocol.

At CEEW's side-event at OEWG, clockwise from left: **STEPHEN O. ANDERSEN**, Director of Research, Institute for Governance and Sustainable Development; **ANDREW EIL**, Partner, Climate Finance Advisors; **SHIKHA BHASIN**, Senior Programme Lead, CEEW; **ANDREA VOIGT**, Vice President, Head of Group Public Affairs and Sustainability, Danfoss; and **VAIBHAV CHATURVEDI**, Fellow, CEEW.



Images: CEEW

#CEEW Parishad

## Understanding AC consumers' preferences



Image: CEEW

“ CEEW has played a key role in developing the servicing sector strategy in the *India Cooling Action Plan* (ICAP). Since then, they are constantly trying to bring new ideas to improve this sector. I must congratulate CEEW for the excellent work they are doing.”

**RADHEY S. AGARWAL**  
Technical Advisor to Ozone Cell India at a CEEW Parishad session on, 'Nudging Behaviour Change: Perceptions and Priorities of India's Air Conditioner Consumer', held in September 2020.

“ We would be more than pleased to learn from this CEEW's study and incorporate these outcomes into our standards and labelling programme.”

**SAMEER PANDITA**  
Director, Bureau of Energy Efficiency, Ministry of Power, speaking at the CEEW event.



Image: YouTube/Blue Circle

Enumerators at a household in Meerut conducting an RCT survey to understand AC user servicing perceptions and purchase behaviours.

#InTheField



Image: Alina Sen/CEEW



#SustainableMobility

## Paving the way for India's EV revolution



“The high point for the team was estimating the gains as well as trade-offs through a year-long study on the impact of India's electric vehicle transition on post-COVID economic recovery. We reviewed the sector focussing on domestic value-addition, job creation, reduction of crude oil imports, tax-based revenue, and reduction of local pollution and GHG emissions. I am also proud that our team forayed into big data (8.2 to 14.3 million data points per day) and built tools to develop regular analyses for transit efficiency.”

**HIMANI JAIN**  
Senior Programme Lead



Image: Twitter/Jasmine Shah

“We do see that the entire EV supply chain is not only going to require different kinds of skills but is also going to create new jobs in those domains. We are very committed to aligning our entire skilling and vocational training institutions with the needs of the green economy.”

**JASMINE SHAH**  
Vice Chairperson, Dialogue & Development Commission, Government of NCT of Delhi, at a CEEW Parishad session on, 'Scaling Local Value-addition and Jobs from EV Manufacturing in India', held in November 2020.

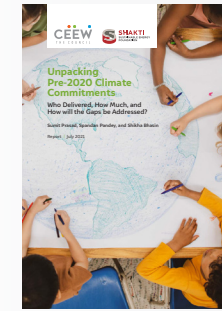
## #InTheField

In August 2021, CEEW collaborated with the BBD University of Lucknow, where students helped conduct a survey on the daily operations of drivers of cabs/auto rickshaws/tempo/bike taxis/vans to understand their challenges and mobility preferences.



Image: BBD University

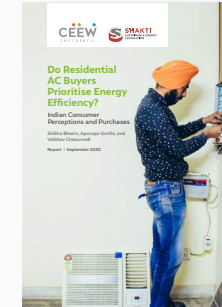
## Key publications



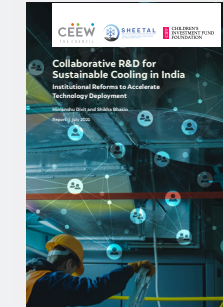
**Unpacking Pre-2020 Climate Commitments: Who Delivered, How Much, and How will the Gaps be Addressed?**  
Report | July 2021



**India's Electric Vehicle Transition: Can Electric Mobility Support India's Sustainable Economic Recovery Post COVID-19?**  
Report | November 2020



**Do Residential AC Buyers Prioritise Energy Efficiency? Indian Consumer Perceptions and Purchases**  
Report | September 2020



**Collaborative R&D for Sustainable Cooling in India: Institutional Reforms to Accelerate Technology Deployment**  
Report | July 2021

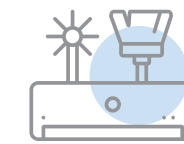


**Consumer Behaviour and Climate Action: Insights from a Randomised Control Trial Experiment in India's Residential Cooling Sector**  
Paper | January 2021



**25 GtCO<sub>2</sub> eq.** developed countries' collective emissions exceeding their estimated allowance during the 2008-2020 period due to non-participation in climate agreements and misuse of accounting provisions

Source: CEEW analysis



**1.5 hours** the maximum amount of time most AC users want to spend on servicing

Source: CEEW-IIM Ahmedabad analysis



**14.1 billion USD** expected crude oil import savings if India's EV sales share were to reach 30% in 2030

Source: CEEW analysis

## The team

Jhalak Aggarwal, Jitendra Bhambure, Shikha Bhasin, Samradh Singh Chauhan, Himanshu Dixit, Aditya Garg, Arunabha Ghosh, Nilanshu Ghosh, Aravind Harikumar, Himani Jain, Shreya Jaiswal, Anand R.M., Arpan Patra, Sowmia Philip, Sumit S. Prasad, Bhuvan Ravindran, and Parichya Sirahi.

We thank Hammad Farooqui, Neha Jacob, Jeswin John, Harsimran Kaur, Chhitiz Kumar, Disha Luthra, Aarti Nain, Spandan Pandey, Srishti Rana, and Abhinav Soman for their contribution to CEEW's Technology, Finance, and Trade research in 2020-21.





Image: EmotiveLens

#OurTeam

# People First at CEEW



Image: Alina Sen/CEEW

CEEW is grateful to have had yet another impactful year, in these uncertain times, strengthened by the trust and the resilience of its team.

## #CovidSupport

We are glad that all our colleagues who contracted Covid-19 during the 2nd wave recovered well. A shout out to all our managers for offering unconditional support and flexibility to help colleagues (and their families) cope. Further, our Covid-Support group of volunteers comprising **MILAN JACOB**, **PADARABINDA SAMAL**, **MIHIR SHAH**, **ANAS RAHMAN**, and **REMAN SINGH** helped colleagues 24/7 with real-time verified leads and information around the availability of oxygen, hospital beds and medicines. We also introduced a dedicated in-house counsellor, in collaboration with InnerHour, for our teams and their families as the pandemic highlighted the importance of mental health. Additional compassionate leaves were also introduced for all colleagues.



## #TownhallsWithTheCEO

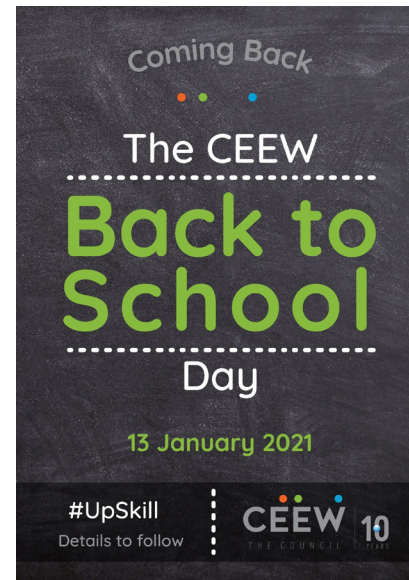
To stay connected and motivated while working from home, we had team-based, town hall sessions with the CEO across the organisation. This helped several colleagues, especially new recruits, to engage with the CEO on a range of topics spanning CEEW's vision, personal and professional challenges, career aspirations, and even food.

## #WomenForward (The Women's Leadership Circle)

Select women leaders at CEEW have been meeting with the CEO over structured lunches to implicitly and explicitly recognise the role they play as leaders at the institution and the support that they require for their careers to thrive further.

## #Upskill

We ran the 2nd edition of the CEEW learning programme 'Back to School' in January 2021. Conducted virtually, it enabled colleagues to learn various technical and engagement skills required for their current or future roles. The CEEW Academy was introduced as a signature initiative to periodically upskill and transform talent across all levels at CEEW.



## #CampusConnect

We strengthened our internship-first format to enable teams to explore the aptitude and attitude of recruits from top campuses before converting them into full-time roles.



Image: EmotiveLens

## #GenderPositive

# Women in Sustainability

Set up in 2017, CEEW's Women in Sustainability (WiS) initiative is a network of individuals and institutions promoting greater participation, inclusiveness, and visibility of women at all levels of the public policy workforce. Now in its fifth year, WiS has been empowering women to challenge the status quo through discussions, gender sensitivity trainings, book readings, film screenings, and much more.

On the eve of World Environment Day (4 June 2021), WiS held a special webinar under the direction of its two new co-chairs, Disha Agarwal and Rishabh Jain, to celebrate its fourth anniversary. The event began with a story-telling session in which participants shared their experiences of overcoming gender bias, followed by a book-reading session and a presentation by Sahar Mansoor, Founder and CEO of the circular economy start-up, Bare Necessities.

WiS  
turns  
4!



Team CEEW at the WiS 4th anniversary celebrations held on 4 June 2021.



“ I feel I have come a long way. Perhaps you do too. We have all had our trials and we need to be empathetic about each other’s circumstances and journeys to be more inclusive and respectful. That’s been my effort in engaging with every colleague, male or female.”

**KANIKA BALANI**  
Programme Associate



## Learning from women in sustainability



Image: YouTube/TEDx Talks

“ We have an amazing women-run manufacturing team that’s learning English on the side and computer skills. A lot of them don’t have any formal education but are asking the best questions and doing a really great job.”

**SAHAR MANSOOR**  
Founder and CEO, Bare Necessities, at a special WiS webinar held to celebrate the initiative’s fourth anniversary in June 2021. Bare Necessities makes handmade, ethically sourced, zero-waste products across categories such as home care, personal care, stationery, and more.

## Improving work-life balance for working women: Pandemic and beyond

“ If every single day, we devote even a fraction of the attention we give on Women’s Day to issues relating to women, and act upon it, I think we’ll move ahead in the right direction. Engaging women is not just a nice thing to do, they contribute to the economy. Including them is a well-rounded way of delivering an outcome.”

**VAISHALI NIGAM SINHA**  
Chair, ReNew Foundation and Chief Sustainability and CSR officer, Renew Power, at a special, WiS-organised fireside chat, ‘Improving Work-life Balance for Working Women: Pandemic and Beyond’, in March 2021.



Images: CEEW

#CEEWpride

## WiS @ United Nations High-Level Dialogue on Energy 2021

WiS proudly partnered with a coalition of governments, corporates, academia, civil society, and youth organisations to co-develop the UN Gender and Energy Compact. The Compact will catalyse action towards gender equality and women’s empowerment to accelerate a just, inclusive, and sustainable energy transition.

## CEEW’s Gender KPIs

2020 Last year As of Jul/Aug 2020		2021 This year As of Jul 2021
46:54*	proportion of men to women in the organisation	54:46
44%	of total salary disbursed to women	35%
36%**	of leadership roles held by women	47%
1	woman on the CEEW governing board	1
29%	research publications with women as lead authors	36%
32%**	women speakers at CEEW panel discussions	37%
45%**	women in CEEW programmatic advisory groups	35%
23%**	instances of women researchers quoted in the press	29%
50%**	opinion editorials published with women as first authors	41.9%***
20%*	opinion editorials published with women as second authors	19%***

\*Till August 20, 2020 \*\*Till July 31, 2020 \*\*\*Excludes opinion editorials written by the CEO.



Images: CEEW



“ The ‘Women in Sustainability initiative’ aims to increase the participation of women professionals in the field of public policy. The pandemic-induced lockdown created additional barriers to building gender diversity in workspaces. During this period, WiS is proud to have created platforms enabling difficult conversations as well as disseminating best practices that helped individuals and institutions to cope with the new normal.”

**DISHA AGARWAL and RISHABH JAIN**  
Co-Chairs, Women in Sustainability



# Informing Public Opinion



**A just energy transition**  
JAMSHYD N. GODREJ and FATIH BIROL in *The Indian Express*, August 2021



**Right climate for a handshake**  
India must reach out to Biden administration and propose a bilateral deal that focuses on climate action  
ARUNABHA GHOSH in *The Indian Express*, November 2020.

## OPINION: Look to India to put the climate-vulnerable at the heart of a green recovery

by Abhishek Jain & William Brent  
Friday, 16 April 2021 07:20 GMT



**Look to India to put the climate-vulnerable at the heart of a green recovery**  
ABHISHEK JAIN & WILLIAM BRENT in *Thompson Reuters Foundation News*, April 2021.

**4800+** media mentions

of CEEW's work in leading international and national media outlets such as Bloomberg, The Guardian, Washington Post, The New York Times, The Indian Express, Hindustan Times, The Times of India, The Hindu, Mint, The Economic Times, Dainik Bhaskar, and Dainik Jagran.

**20+** appearances

of CEEW researchers in news channels such as NDTV, CNBC TV18, Al Jazeera, and Rajya Sabha TV.

**60+** op-eds published

(Period under review September 2020 - August 2021)

**Inflection Point: Before net-zero, comes the peak**

*In developed countries, emissions have already peaked. Their decision is only about the path to net-zero. Emerging economies like India, instead, will go through a high-growth phase with rising energy demand and emissions. So, before a net-zero year can be targeted, India must discuss options for its peaking year*

Written by **Guest**  
March 25, 2021 7:15:34 am

**Before net-zero, comes the peak**  
ARUNABHA GHOSH and VAIBHAV CHATURVEDI in *Financial Express*, March 2021.

**4 key steps to decommissioning coal-fired power plants**

**4 key steps to decommissioning coal-fired power plants**  
ARUNABHA GHOSH and GAGAN SIDHU for the World Economic Forum, August 2021

**4 key steps to decommissioning coal-fired power plants**  
ARUNABHA GHOSH and GAGAN SIDHU for the World Economic Forum, August 2021

**Inflection Points: Cleaning up our coal fleet**

*Discoms can save Rs 9,000 crore every year efficiency-based coal-power despatch instead of the prevailing VC-based system*

Written by **Guest**  
August 20, 2021 5:00:41 am

**Cleaning Up Our Coal Fleet**  
ARUNABHA GHOSH and KARTHIK GANESAN in *Financial Express*, August 2021.

**A LETTER TO PRESIDENT BIDEN**

JAMSHYD N. GODREJ, Chairperson, CEEW; TARUN DAS, Trustee, CEEW; and ARUNABHA GHOSH, CEO, CEEW, were co-signatories to a full-page letter urging U. S. President Joe Biden to show "bold leadership" to tackle climate change. The letter was published in January 2021 in the *New York Times*. Other signatories included Amazon CEO JEFF BEZOS, former Australian Prime Minister KEVIN RUDD, and actors JANE FONDA and LEONARDO DICAPRIO.

# The New York Times

**PRESIDENT BIDEN: YOU CAN BE THE CLIMATE PRESIDENT**

Mr. President,  
Congratulations! Your inauguration marks a turning point in history for the United States of America and for the world. The task ahead is enormous: the need to tackle the devastating global health and economic crises, and the need to unite Americans in doing so, is urgent.

As we recover from COVID-19 and rebuild the global economy, we must also act on climate change. In fact, these are not separate missions; they are one and the same. This is the most decisive decade in human history to confront the climate crisis.

You can be remembered as the "climate president" who led humanity away from the cliff's edge. You can transform the world's energy systems from fossil fuels to clean energy, while also creating an abundance of jobs, reducing harmful pollution, and tackling economic, racial, and health inequality in the process.

Choosing to take bold leadership will allow us to build back better and to build forward to a new world we can create together. By rejoining the Paris Agreement on day one, you have moved the United States in the right direction. But, as you have stated, it is simply not enough, and we must "do all we possibly can."

You've famously said: "When I hear the words climate change, I hear jobs." We agree. While the climate crisis presents incredible challenges, it is also the greatest economic opportunity for innovation, job creation, new businesses, and investment in our communities. It goes hand in hand with restoring justice and building an equitable, inclusive, and just future for all.

Your commitment to build back better with clean energy jobs and tackling the legacy of environmental injustice is the consequential action that science and our future demands. We will work alongside you to realize this ambitious pursuit.

Our children and grandchildren must see this as the moment the world was saved.

Mr. President, we are proud to have you as our leader. We are confident that you will lead us to a better future. We are confident that you will lead us to a world where clean energy is the backbone of our economy, where we have created an abundance of jobs, where we have reduced harmful pollution, and where we have tackled economic, racial, and health inequality in the process.

Mr. President, we are proud to have you as our leader. We are confident that you will lead us to a better future. We are confident that you will lead us to a world where clean energy is the backbone of our economy, where we have created an abundance of jobs, where we have reduced harmful pollution, and where we have tackled economic, racial, and health inequality in the process.

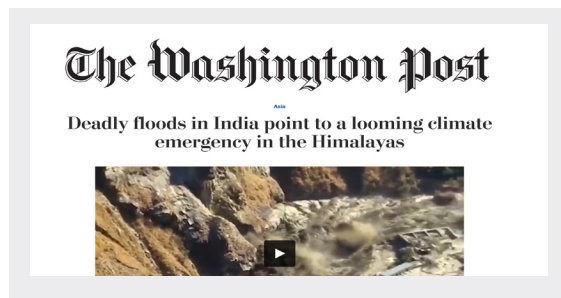


#MediaMentions

**More electric vehicles hit the month in 7 months than all of last year**  
**MEGHNA NAIR**  
 quoted in *ET Energy World*  
 August 2021

**UN urges India to lead push for clean energy and climate action**  
**RISHABH JAIN**  
 quoted in *Global Citizen* September 2020

**70% rise in Mumbai's pollution levels during first week of September**  
**L. S. KURINJI**  
 quoted in *the Hindustan Times*  
 September 2020



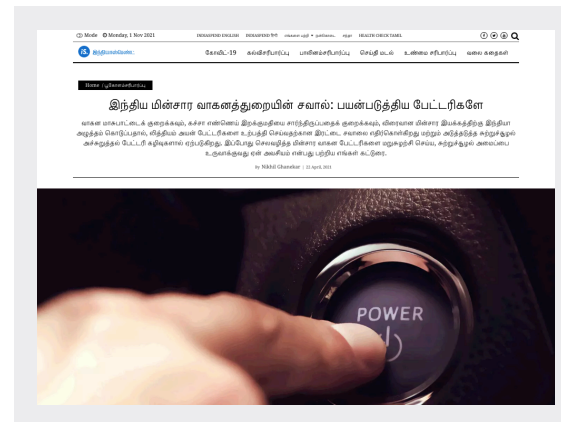
**Deadly floods in India point to a looming climate emergency in the Himalayas**  
**ABINASH MOHANTY**  
 quoted in *The Washington Post*  
 February 2021



**A towering white elephant**  
**TANUSHREE GANGULY'S**  
 op-ed in *Outlook*  
 November 2020

**Can a border tax help slow a borderless crisis?**  
**CARBON TRACKER-CEEW research**  
 quoted in *The New Yorker*  
 July 2021

**Why ignorance is no bliss in saving energy**  
**DHRUVAK AGGARWAL**  
 quoted in *The Times of India*  
 November 2020



**India's looming electric vehicle challenge: Spent batteries**  
**ABHINAV SOMAN**  
 quoted in *IndiaSpend Tamil*  
 April 2021



**29 districts in Gujarat vulnerable to extreme climate events: CEEW**  
**CEEW RESEARCH**  
 quoted in *Gujarat Samachar*  
 May 2021

#Op-eds

**FINANCIAL EXPRESS**  
 Read to Lead  
**A just energy transition**  
 HEMANT MALLYA and TIRTHA BISWAS  
 June 2021

**THE HINDU**  
**Acclimatising to climate risks**  
 ABINASH MOHANTY  
 January 2021

**THE HINDU**  
**Embracing energy efficiency**  
 SHALU AGRAWAL  
 January 2021

**the pioneer**  
**Meeting the challenges of urban water supply in India**  
 SURABHI SINGH and MILAN JACOB  
 March 2021

**Outlook**  
**A Towering White Elephant**  
 TANUSHREE GANGULY  
 November 2020

**THE HINDU**  
**Health first, fiscal prudence later**  
 ABHISHEK JAIN and KARTHIK GANESAN  
 March 2021

**BusinessLine**  
**Funding India's clean energy transition**  
 ARJUN DUTT  
 March 2021

**BBC SOUNDS**  
**DISHA AGARWAL**  
 was interviewed in an episode of BBC's People Fixing the World podcast titled, 'Riding the solar railway' in November 2020.  
 Listen at: <https://www.bbc.co.uk/sounds/play/p08z3rtk>

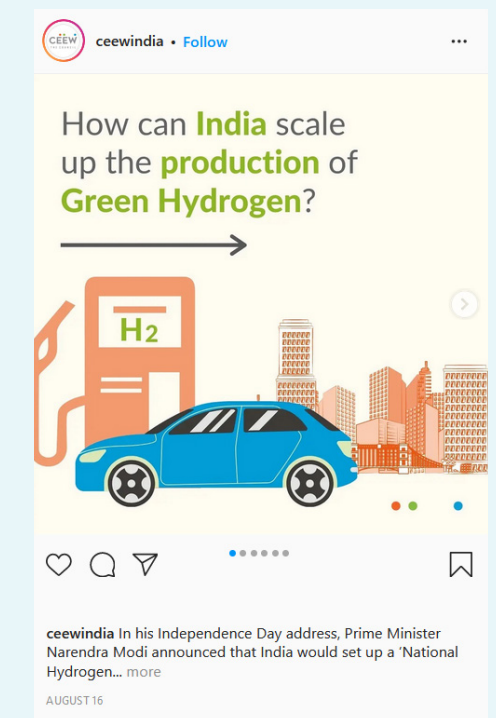
Principles of professional and sustainable leadership



ARUNABHA GHOSH, CEO, CEEW, in conversation with LAKSHMI PRATURY, Founder and CEO of INK, in an episode of Lakshmi's Leadership Lounge in June 2021.

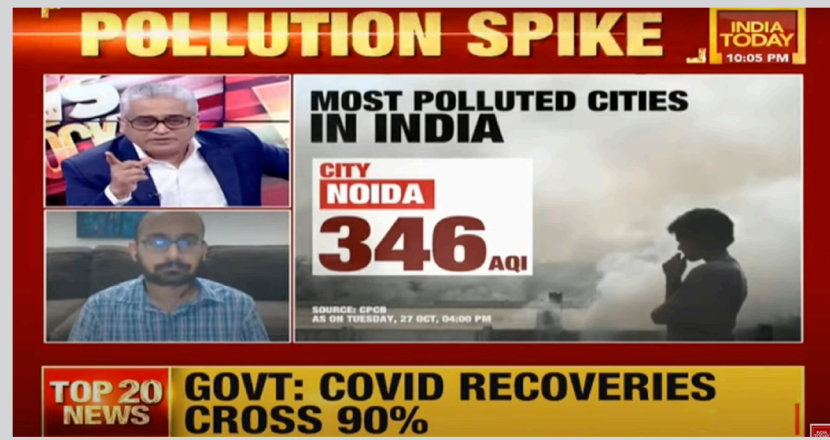
See the episode here: <https://www.youtube.com/watch?v=aw4N5hhr2jg>

Expanding outreach to reach new audiences





#OnTV



KARTHIK GANESAN

India Today

Air quality worsens across North India

October 2020

TANUSHREE GANGULY

NDTV

Total ban on crackers in Delhi, surrounding areas between

Nov 9-30

November 2020



INSIDE STORY

KARTHIK GANESAN

Research Fellow, Council on Energy, Environment and Water

GHG emissions specialist

Civil engineer

KARTHIK GANESAN

Al Jazeera

'Has enough been done to deal with toxic smog in New Delhi?'

August 2021

ARUNABHA GHOSH

NDTV

UN climate change panel's damning report

August 2021



#10YearsofCEEW

## The (R)evolutionary Road



What does it take to be one of Asia's leading think tanks?

Watch The (R)evolutionary Road on our YouTube channel to relive our inspiring story:

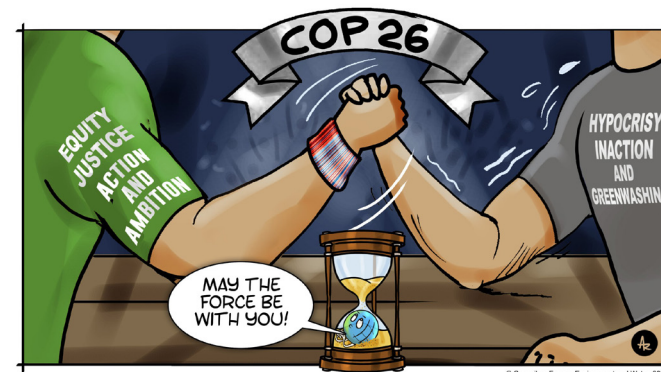
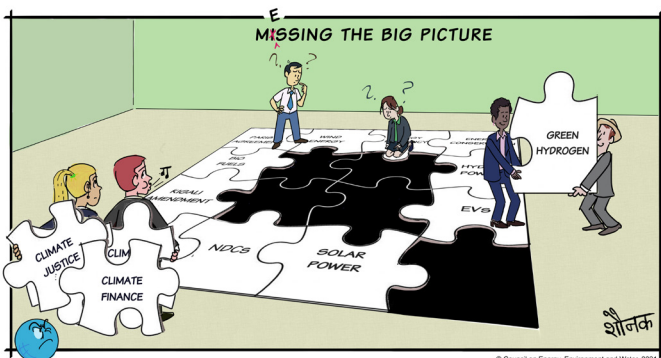
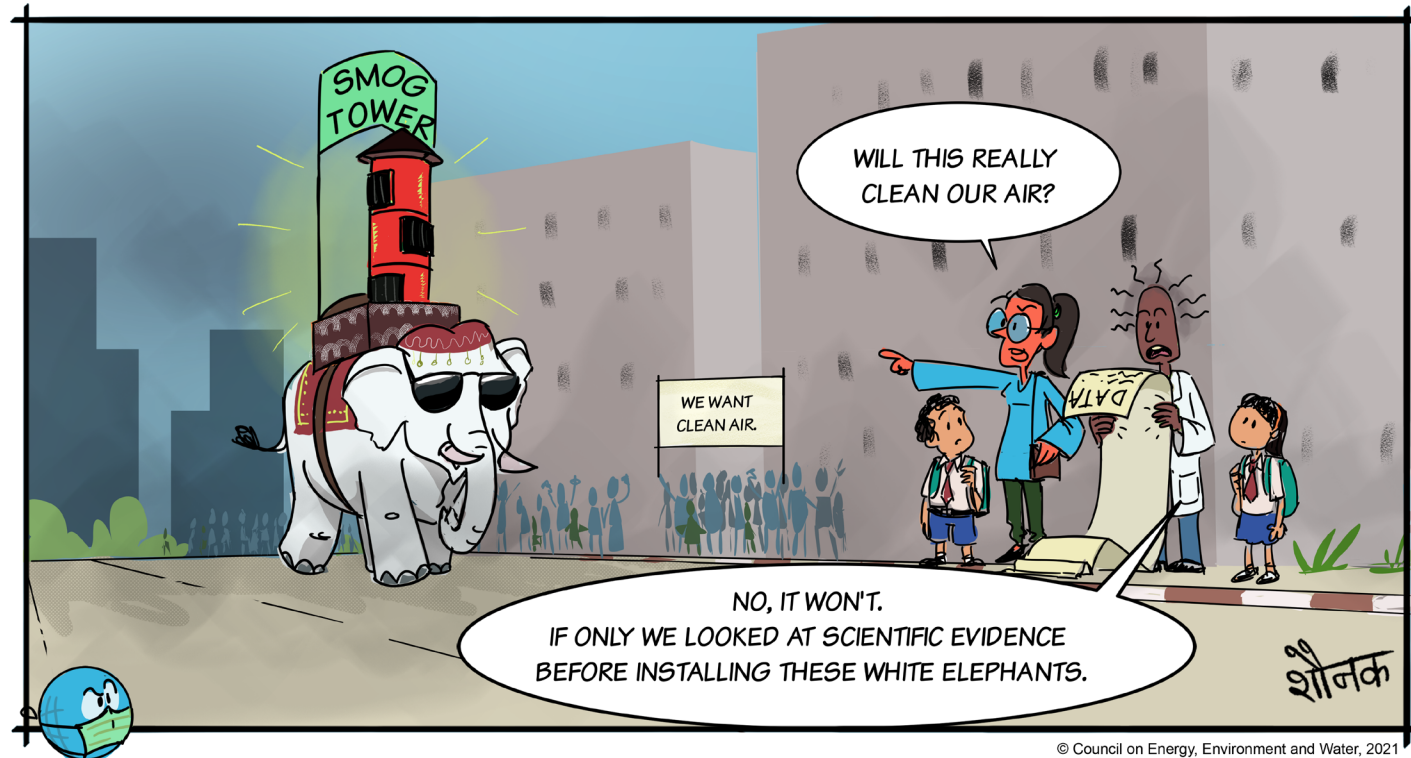
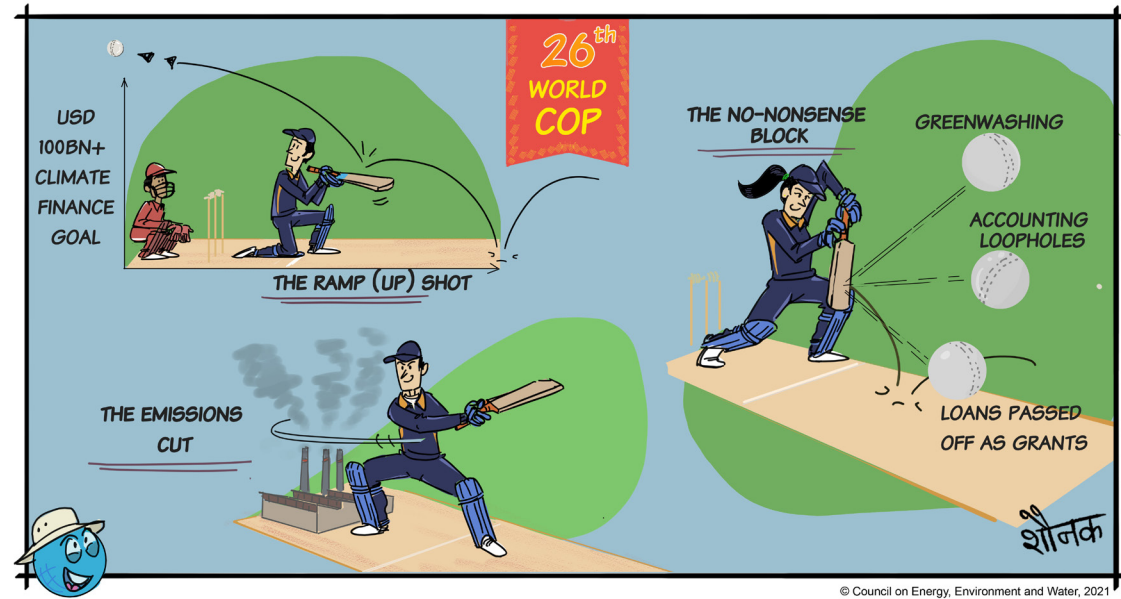
See the film here: <https://bit.ly/CEEW-RevolutionaryRoadFilm>





## What On Earth!™

CEEW launched a new weekly cartoon series on 28 July 2021, to move sustainability discussions from the margins to the mainstream.



# Research Publications

1 September 2020 - 31 August 2021

## REPORTS/BOOKS

1. Pradhan, Shanal, and Deepa Janakiraman. 2020. *Impact Evaluation of Climate Change Mitigation Policies for the Manufacturing Sector in Gujarat*. New Delhi: Council on Energy, Environment and Water.
2. Bhasin, Shikha, Apurupa Gorthi, and Vaibhav Chaturvedi. 2020. *Do Residential AC Buyers Prioritise Energy Efficiency? Indian Consumer Perceptions and Purchases*. New Delhi: Council on Energy, Environment and Water.
3. Agrawal, Shalu, Sunil Mani, Dhruvak Aggarwal, Abhishek Jain, Chetna Hareesh Kumar and Karthik Ganesan. 2020. *Awareness and Adoption of Energy Efficiency in Indian Homes: Insights from the India Residential Energy Consumption Survey (IRES) 2020*. New Delhi: Council on Energy, Environment and Water.
4. Agrawal, Shalu, Sunil Mani, Abhishek Jain, and Karthik Ganesan. 2020. *State of Electricity Access in India: Insights from the India Residential Energy Consumption Survey (IRES) 2020*. New Delhi: Council on Energy, Environment and Water.
5. Sidhu, Gagan and Kashish Shah. 2020. *The Case for Indexed Renewable Energy Tariffs: An Interim Solution To Buy Time for Indian Discoms To Make Durable, Long-Term Reforms*. CEEW-IEEFA report. New Delhi: Institute for Energy Economics and Financial Analysis.
6. Tyagi, Akanksha, Neeraj Kuldeep, and Aarushi Dave. 2020. *Are Urban Microgrids Economically Feasible? A Study of Delhi's Discom and Consumer Perspectives for BYPL*. New Delhi: Council on Energy, Environment and Water.
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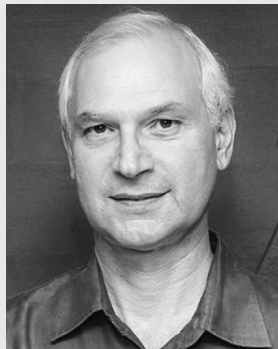
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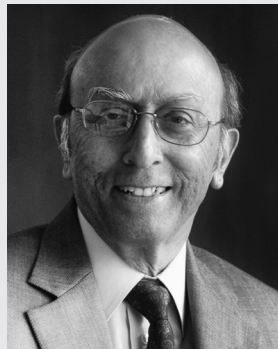


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[Sustainable India Finance Facility \(SIFF\)](#)  
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- TalentNomics
- Tata Power Delhi Distribution Ltd (TPDDL)
- Tata Steel
- Technology Information, Forecasting and Assessment Council (TIFAC), Gol
- Terrawatt Initiative, France
- The Abdul Latif Jameel Poverty Action Lab South Asia
- The Ashden India Renewable Energy Collective (AIREC)
- The Aspen Institute
- The Climate Group (TCG)
- The Economics Society, St. Stephen's College
- The National Center for Monitoring and Early Warning of Natural Disasters (CEMADEN), Brazil
- The Currency Exchange Fund (TCX)
- The Energy and Resources Institute (TERI)\*
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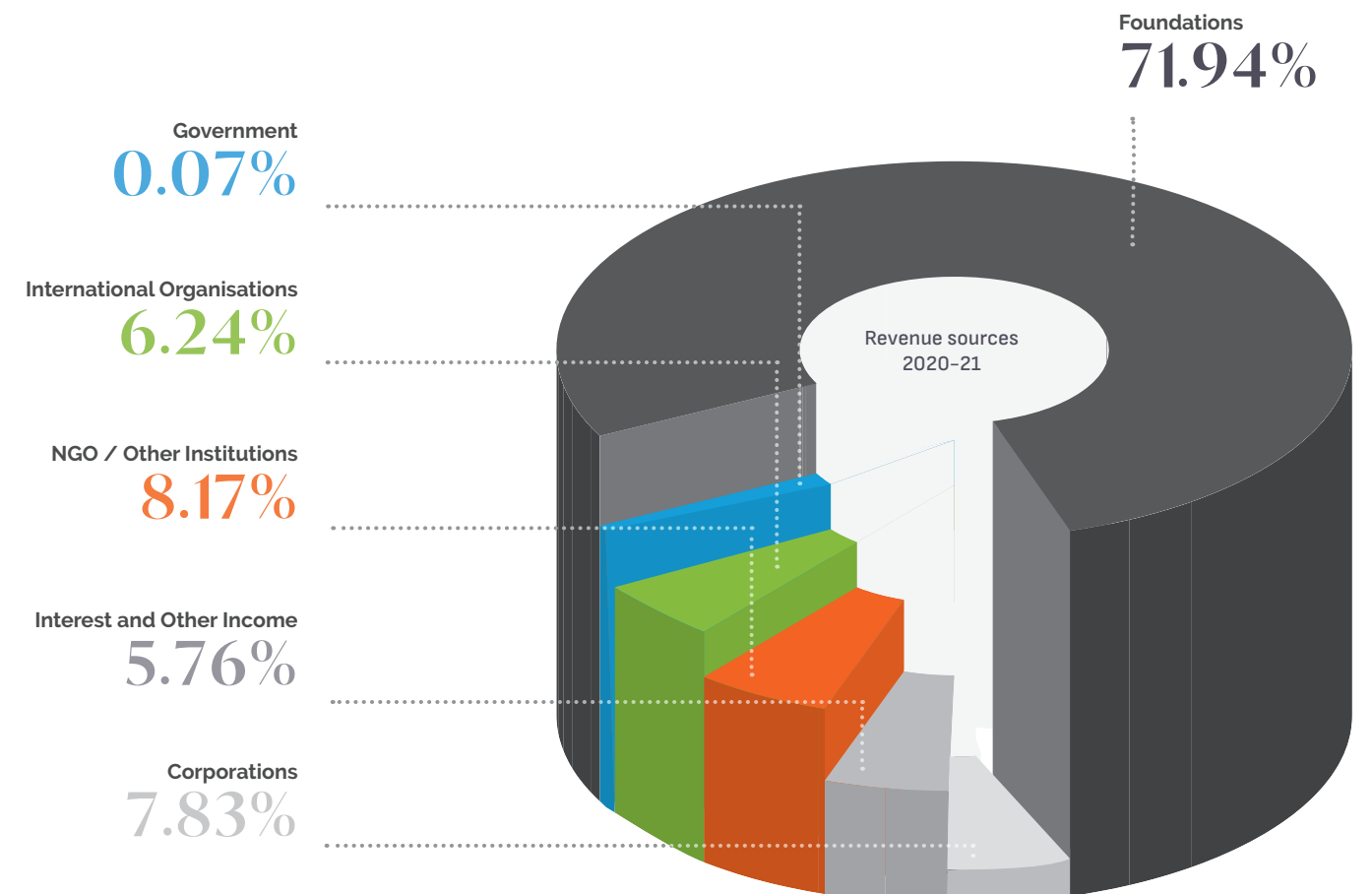
- The Rockefeller Foundation
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- UNEP-Danish Technical University Partnership (UNEP-DTU)
- United Nations Foundation
- United Nations Foundation: Global Alliance for Clean Cookstoves
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- US Department of State - Bureau of Energy Resources
- US-India Clean Energy Finance (USICEF)
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