CEO CAUCUS
INTERNATIONAL SOLAR ALLIANCE

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# CEO Caucus

## Inaugural Roundtable Discussion
## New Delhi (virtual)

06th June 2024

# KEY DISCUSSION POINTS

## Background

The International Solar Alliance (ISA) constituted a high-level forum of select CEOs to deliberate on issues around developing a diversified and resilient global supply chain, enabling access to technology and support for technological innovations, mobilizing capital, and developing an enabling policy environment. With this objective, ISA officially launched the CEO Caucus and held its inaugural meeting virtually, on the 6th of June, 2024.

Discussants for this inaugural session included industry leaders representing solar manufacturers, solar developers, financial institutions and clean technologies. Participants also included senior representatives from industry associations, donors, think tanks, philanthropies and research organisations. (See Annex for list of participants)

## Context

Dr. Ajay Mathur, DG ISA, in his inaugural address focused on the essence of private and public sector collaboration to meet the interlinked challenges of energy access, energy transition and climate goals. The DG also highlighted the remarkable progress in global solar installations, which have surpassed 1 TW, with significant growth in China, the US, Europe, and India. He also noted the skewed quantum of financing – out of the US$ 386 billion invested in solar energy, 71% has gone to just five countries, indicating huge disparities in investments.

The DG set the tone for the discussion by expressing his concerns about certain trends that are throttling solar potential. Reiterating financial constraints, especially in the Least Developed Countries (LDCs), he also noted limited grid infrastructure and lack of required technical skills and capacity as major bottlenecks. Besides, there is need to develop accessible, diversified and resilient supply chains. He underlined these as essential requirements for equitable deployment of solar, especially in the Global South, and proposed the creation of a finance working group to facilitate solar deployment, grid integration, and skills development worldwide.

# Key issues deliberated:

The roundtable deliberated on three broad themes:

## a) Examining support measures and demand-side interventions to catalyse successful solar deployment initiatives and enhancing manufacturing capacities in emerging markets as well as developing economies.

### The Issue:

Demand-side interventions have been largely successful in leading solar markets, resulting in overall demand of 600GW. However, given the oversupply in China, targeted forward-looking stable policies are required to avoid damaging local solar industries.

Data shows that 95%+ of the world's ingots and wafers are supplied by one country, leading to massive concentration of the supply chain causing logistical challenges as well as geopolitical concerns.

If one looks at India, ones sees a rising import bill despite efforts at developing solar manufacturing capacity. Last year alone, India imported $4.35 billion in solar panels and $1.85 billion in solar cells from Southeast Asia and China.

### Points of Discussion:

**Supportive policies and measures**

Clearly there is still a need to balance subsidies between fossil fuels and renewable energy, along with required infrastructure investments, particularly in flexible grids. The transformative potential of solar, and particularly 'solar plus storage' which has now become cheaper than gas, should be taken into account. Policymakers should explore innovative support measures, along with providing subsidies, to address the funding disparities. These could be in the form of credit enhancement, currency swaps, refinancing and converting Triple B loans to Triple A, etc. to further augment finances, reduce costs and increase solar adoption.

**Enhancing manufacturing capacity and improving technological efficiency**

To enable diversification, there is a pressing need for investment in technology and collaboration to improve efficiencies in cell manufacturing. Additionally, it is essential to develop the entire manufacturing ecosystem, not just focusing on cells and modules, to ensure a sustainable local manufacturing industry. Incentives should extend beyond the end-product level to include raw materials to ensure vertical integration. Policymakers should focus on overcoming the difficulty of raising capital for upstream manufacturing due to overcapacity and lack of demand execution.

**Diversification of supply chains and building local manufacturing capacity**

There is a need for global expertise coupled with cooperation in order to diversify manufacturing supply chains. Nations need to explore collaborations, across the regions including with China, to support manufacturing of components ranging from silicon to ingot and wafer. Collaborative models like the Airbus consortium for efficient manufacturing can be explored alongside leveraging expertise and resources across countries for a global market.

## b) Specific intervention for enhancing solar manufacturing, facilitating finance, and fostering technological innovations across industry and among countries.

### The Issue:

There is urgent need to address the mounting challenges in solar deployment including those of land acquisition and grid development potential and feasibility. For example, in India, there is a backlog of capacity to be built, which is already in various stages of 'execution'. In land acquisition, several key issues, including "right of way" challenges have slowed progress and lengthy approval processes for grid connections, has delayed project completion.

Addressing concerns around access to capital for solar manufacturing is another critical area. Although capital is available, cost of capital is posing to be a significant barrier. Furthermore, there is need to ensure a stable and supportive financial environment for solar projects as the competitive nature of tariffs and the reliability of PPAs are often compromised due to fluctuating equipment costs.

The underutilized potential of microgrids should be examined thoroughly especially in the context of 2030 projections pointing to 71% of all new electricity connections being off-grid. These will, most likely, reduce the grid investments.

### Points of Discussion:

**Supportive policies and measures**

Policy support and targeted subsidy approach has been covered in the previous section.

**Addressing funding imbalances**

Policymakers should devise ways of tapping into different pools of capital, including public markets and InVIT structures, and explore mechanisms to channel concessional finance and philanthropic funding to bridge gaps in countries needing technical support. They need to bring together rating agencies and developing countries decision-makers to learn and address concerns debt financing. This could help in reducing the cost of funding, which is essential to boost solar adoption globally. There is need for a global assessment of the gap between funding commitments made by global institutions and developed economies and the actual funds disbursed to the global South in support specific developments. Bottlenecks need to identified and addressed.

**Addressing skill and technology development gaps**

Skill development is a crucial tool across the value chain, and countries like India and other emerging markets, can become global skill hubs. Certified training courses across the solar value chain, with proven records of providing employment, are needed.

With the aim of reaching 35-40% efficiency in solar technology, industry-academia collaboration, with grants for engineering colleges, is required to drive innovation. Governments must take a cooperative approach to enable this.

## c) Exploring avenues for collaboration and empowering the private sector to expand its global footprint across emerging opportunities.

Private sector developers, across different regions and markets, are struggling with similar issues – lack of development stage capital for projects, particularly in emerging markets; widespread shortage of skilled workers, particularly for manufacturing; uncertainties in terms of policy environment and technology advancements.

Targeted interventions, such as India's Production Linked Incentives (PLI), have created a positive impact on the manufacturing sector leading to increased demand for trained personnel, most of these challenges still persist.

### Points of Discussion:

To establish strong policy driven demand signals for mobilizing the private sector, integrating solar into national renewable energy targets is essential, along with adopting a more balanced approach to subsidies for the energy and electricity sectors. Policymakers could also play a crucial role in catalysing the availability of high-risk development capital, as seen in sectors like oil exploration.

Public sector focus on resolving fundamental issues such as infrastructure investments, particularly in flexible grids, certified skills development, boost for solar R&D, would also give the required signals and motivation to the private sector.

There is a need to create an ecosystem where the private sector sees value in investing in solar projects across various countries. For this, the critical role of Multilateral Development Banks (MDBs) to address the gap between perceived and real risks, especially for SMEs and MSMEs, cannot be overstated, as they require MDB support where access to finance is a significant issue. Innovative financial instruments such as risk guarantees, and other means of credit enhancement through global facilities, should be made available to the private sector.

Additionally, the potential for energy trade must be discussed, acknowledging that not all countries will have equal capacity for solar generation, which further emphasizes the need for global cooperation and policy stability to avoid damaging the solar industry.

# Annex 1: List of Discussants and Participants

- Ms. Sonia Dunlop, CEO , Global Solar Council
- Mr.  Rajani Ranjan Rashmi, Distinguished Fellow, Former Special Secretary MOEFCC
- Dr. Ashvini Kumar, Former MD SECI
- Mr. Subrahmanyam Pulipaka, CEO, National Solar Energy Federation of India (NSEFI)
- Dr. Praveer Sinha, CEO, Tata Power
- Mr. Vikram Kapur, Group President , ReNew
- Mr. Vineet Mittal, Chairman, Avaada
- Mr. Ashok Kumar Sharma, Deputy MD and COO, SBI
- Mr. Pankaj Sindwani, Chief Business Officer, Tata Capital
- Ms. Jyoti Mukul, Chief of Energy, CII
- Mr. Sameer Gupta, Chairman & Managing Director, Jakson Group; CII Group on Renewable Energy and Manufacturing
- Dr. Satyendra Kumar, Director & CTO, Rsolec
- Mr. Sujoy Ghosh, Vice President & Country Managing Director, First Solar
- Ms. Walburga Hemetsberger, CEO, Solar Power Europe
- Mr. Piyush Mathur, Co-Founder, CBO, Odyssey Energy Solutions
- Ms. Maanikya Kamra , Assistant Director, FICCI
- Mr. Vineet Mittal, Director, Navitas Solar / FICCI Taskforce Lead
- Mr. Harsh Baweja, Director Finance, REC Ltd.
- Mr. Gaurav Sood ,CEO, Sprng Energy (Shell)
- Mr. Amit Paithankar, CEO, Waaree Energies Ltd
- Mr. Ranjeet Mehta, Executive Director, PhD Chamber of Commerce
- Dr. Tzu-Yar Liu, Chief Policy Officer of Green Energy & Environment Research Laboratories, ITRI

- Mr. Richie Merzian, International Director, Smart Energy Council
- Ms. Priya Shankar , India Director - Climate and Environment Program, Bloomberg
- Ms. Nidhi Sarin, Director , GEAPP
- Mr. Abhinav Jain, Country Director, Advisor GIZ
- Mr. Amit Jain, Senior Energy Specialist, World Bank
- Mr. Sunil Khosla, Lead Energy Specialist, World Bank
- Ms. Mridula Pandey, Senior Manager, CIFF
- Mr. A.K Saxena, Senior Fellow & Senior Director- Electricity & Renewables Division, TERI
- Ms. Cora Dickson, TSSC, International Trade Administration, US Dept. of Commerce, Renewable Energy Lead
- Ms. Anvesha Thakkar, Manager, KPMG
- Mr. Anish Mandal, Lead Partner - Sustainability & Climate, Deloitte
- Mr. Deepak Krishnan, Associate Director, WRI
- Mr. Damandeep Singh, Consultant
- Ms. Swati Kalra , Accenture
- Mr. Mohammad Saif, Partner P&U,EY
- Mr. Sachin R Kajrolkar, Team member RE, Bharat Petroleum Corporation Ltd.
- Mr. Eric Arndt, Director Asia Region, Rockefeller foundation
- Mr. AT Naidu, CGM Technical,HPCL
- Ms. Libby Green, Second Secretary, FCDO
- Mr. Angshuman Rudra, Dy. GM, Avaada
- Mr. Ankur Dixit, BD Manager, GAIL

# Annex 2: Event Background Note

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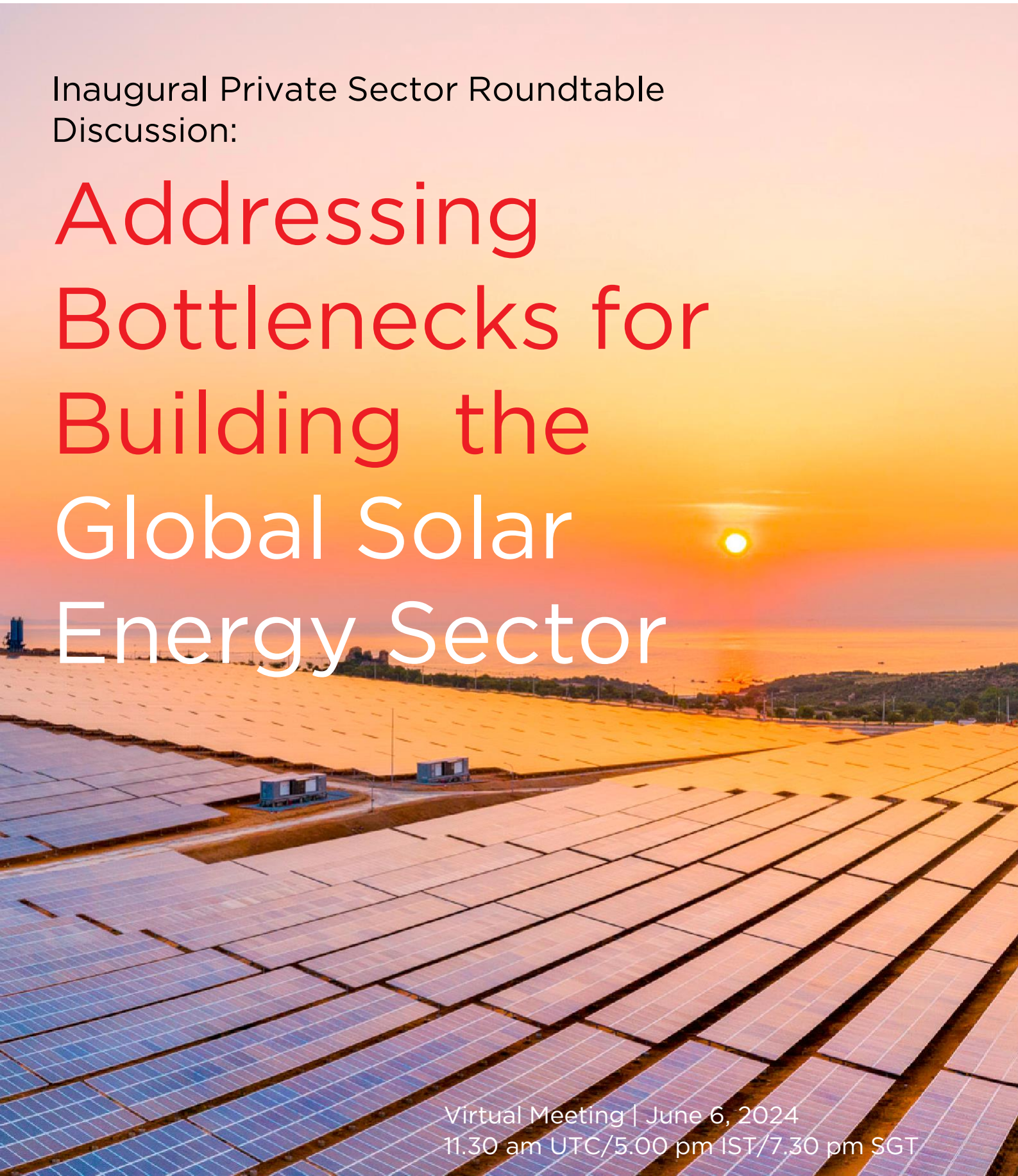
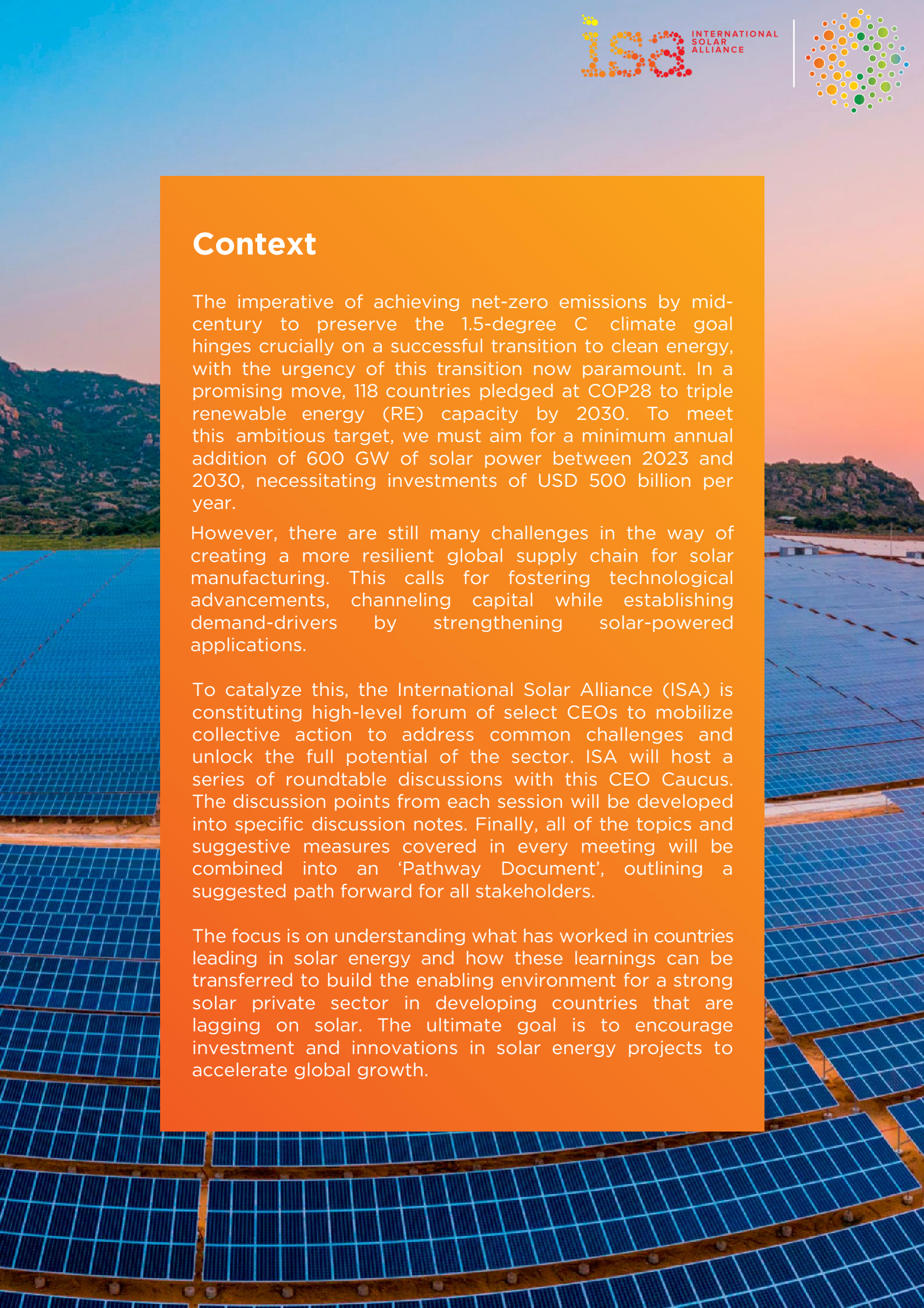
Inaugural Private Sector Roundtable Discussion:

# Addressing Bottlenecks for Building the Global Solar Energy Sector



Virtual Meeting | June 6, 2024
11.30 am UTC/5.00 pm IST/7.30 pm SGT



# Context

The imperative of achieving net-zero emissions by mid-century to preserve the 1.5-degree C climate goal hinges crucially on a successful transition to clean energy, with the urgency of this transition now paramount. In a promising move, 118 countries pledged at COP28 to triple renewable energy (RE) capacity by 2030. To meet this ambitious target, we must aim for a minimum annual addition of 600 GW of solar power between 2023 and 2030, necessitating investments of USD 500 billion per year.

However, there are still many challenges in the way of creating a more resilient global supply chain for solar manufacturing. This calls for fostering technological advancements, channeling capital while establishing demand-drivers by strengthening solar-powered applications.

To catalyze this, the International Solar Alliance (ISA) is constituting high-level forum of select CEOs to mobilize collective action to address common challenges and unlock the full potential of the sector. ISA will host a series of roundtable discussions with this CEO Caucus. The discussion points from each session will be developed into specific discussion notes. Finally, all of the topics and suggestive measures covered in every meeting will be combined into an 'Pathway Document', outlining a suggested path forward for all stakeholders.

The focus is on understanding what has worked in countries leading in solar energy and how these learnings can be transferred to build the enabling environment for a strong solar private sector in developing countries that are lagging on solar. The ultimate goal is to encourage investment and innovations in solar energy projects to accelerate global growth.

# Inaugural meeting

The inaugural meeting of the CEO Caucus in the form of the first virtual private sector roundtable, will be hosted by ISA on June 6, 2024. The roundtable is the first in a series of roundtables to identify challenges and opportunities and create pathways for collaboration amongst stakeholders to advance global growth through solar industry development. The participants for this inaugural session include global leaders working on clean technologies, solar manufacturing and deployment, renewable energy companies, and leaders from global conglomerates with significant net-zero commitments. This will be an invite only and closed-door session.

## Themes of deliberations

Deliberations will be initiated by private sector leadership, through collaborative and innovative efforts on manufacturing, investments, and technology, which can play a key role in advancing the deployment of solar energy in developing countries. While developed countries have made significant strides in solar growth through robust private sector participation, the same remains nascent in many developing nations.

Outlined below are the prospective questions that could be brought up during the inaugural virtual CEO Caucus deliberation.

1. What aspect of the supply chain (polysilicon, ingots, wafer, cell, panel/modules) should the developing world first focus on?
2. What mechanisms can be put in place (demand aggregation, demand generation, incentives etc.) at national and regional levels to accelerate deployment of manufacturing at scale?
3. What are the interventions that need to be considered to link solar energy with upcoming sectors, like transport decarbonization (EVs), agrivoltaics, etc. to increase uptake?
4. What mechanisms need to be put in place from governments and international organizations, through collaborations and partnerships, to support the private sector in deploying technology and creating an innovation ecosystem in developing countries?
5. What mechanisms and frameworks (regulatory etc.) can be created for faster and more effective sharing of technology between developed and developing economies?
6. What are some of the innovative financing mechanisms that can be developed to attract investments for large-scale solar projects, particularly in developing regions?

# Outcome of the first session and next steps

The themes identified in the first roundtable will serve as a foundation for the topics to be taken up by the CEO Caucus. It will facilitate issue-focused deliberations by the participating CEOs/industry leaders on challenges faced and measures to catalyze the uptake of solar energy across industries and the globe

Additionally, the key discussion points will be consolidated into a framework for the '*Pathway Document*', outlining a suggested path forward for stakeholders to promote solar market growth. This document will be released at a high-level event organized by ISA later in the year. This platform will continuously engage stakeholders to develop a comprehensive roadmap for expanding solar adoption.

# Agenda

| Time (IST) | Activity | Details |
|---|---|---|
| 17:00 – 17:05 PM | Welcome Address | Session opening and welcome address by Tamiksha Singh, ISA |
| 17:05 – 17:10 PM | Inaugural Address | Dr. Ajay Mathur, DG International Solar Alliance (ISA) |
| 17:10-17:15 | Special Address | Sonia Dunlop, CEO, Global Solar Council (GSC) |
| 17:15 – 18:50 PM | Roundtable discussion | Session Chair & Lead Discussants |
| | | (30-min) Learning from existing successful initiatives : The session will include critical support measures from the governments, which helped in driving successful solar deployment initiatives<br>- for manufacturing, financing, and technological advancements.<br>- Demand side aggregations that have helped boost solar sector |
| | | (30minutes) Specific needs of interventions required to give a boost to:<br>• Solar Manufacturing<br>• Solar financing<br>• Increasing tech collaboration in solar |
| | | (30-min): Opportunities for collaboration and partnerships, to support the private sector in expanding their global presence. |
| 18:55 – 19:00 PM | Closing | Closing Remarks by Dr. Ajay Mathur, DG ISA and Sonia Dunlop, CEO GSC |

# Annex 3: CEO Caucus Series Note

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# CEO Caucus:
## A Global High-Level Consultative Platform for Industry Collaboration

## 1. Building an industry collective to unlock full capacity of solar

Achieving net-zero emissions by mid-century to maintain the 1.5-degree Celsius climate target is critically dependent on a successful transition to clean energy. To achieve this transition, and meet the goal of tripling renewables by 2030, it is essential to add at least 600 GW of solar power annually from 2023 to 2030, requiring investments of USD 500 billion per year. However, the road to accelerate solar deployment remains full of obstacles. There's a need to create a diversified and more resilient global solar manufacturing supply chain, conditions to unlock financing and for fostering technological innovations, and to strengthen solar powered applications as demand drivers to boost deployment of solar at scale across the world. The private sector plays a critical role across all these aspects and their perspectives on these issues are essential for framing the way forward.

To catalyze this, the International Solar Alliance (ISA) is constituting high-level forum of select Leaders to deliberate on measures and potential collective action for addressing challenges to unlock the full potential of the sector. The 'CEO Caucus' will provide industry leaders with a platform to collaborate with key stakeholders to create pathways for global growth through interventions across the solar value-chain. In this process, ISA will also collaborate with like-minded organisations from across the world to achieve its mission of facilitating the private sector for accelerating clean energy transitions.

This initiative is in continuation to ISAs on-going efforts to further strengthen public-private partnerships to enhance adoption of solar energy across the globe.

## 2. A consultative platform to build pathways for global growth

The CEO Caucus will bring together global leaders working on clean technologies, solar manufacturing and deployment, renewable energy companies, and leaders from global conglomerates with significant net-zero commitments. The platform will enable targeted discussions on the shared challenges within the industry, foster private sector's engagement with key policymakers and propose solutions to accelerate the adoption of solar energy across regions

ISA will conduct a series of roundtables under the 'CEO Caucus' and also gather global viewpoints on the solar sector on the sidelines of ISA's Regional Committee meetings (RCMs). The discussion points from each session will be developed into specific discussion notes. Finally, all of the topics and suggestive measures covered in every meeting will be combined into a "*Pathway Document*", outlining a suggested path forward for all stakeholders—both private and public—to promote the growth of solar markets.

This platform will serve as an ongoing forum, continuously engaging with stakeholders to develop and actualize a comprehensive roadmap for expanding solar adoption.

## 3. Key themes of discussion for the CEO Caucus

### 1. Expanding the global footprint of solar manufacturing

The main challenge in manufacturing is that it is highly concentrated in specific regions which can lead to supply chain disruptions. Through initiating deliberations, ISA wants to boost the global footprint of solar manufacturing. Direct support measures for solar manufacturing play a key role in incentivizing the exponentially large scale-up needed for new market entrants to be competitive. However, some of these measures can be perceived as protectionist. Furthermore, concerns are increasing about recyclability, waste, and the total life cycle footprint of solar modules and other components. Therefore, ISA CEO Caucus will work towards designing a holistic strategy for solar manufacturing, targeting both upstream and downstream parts of the value chain.

### 2. Unlocking capital to propel solar manufacturing led growth

One of the major obstacles to developing resilient global solar supply chains is the lack of adequate financing for solar manufacturing. Support for both capital and operating expenses is especially crucial in emerging markets. Currently, financing for solar manufacturing is concentrated in a few countries, and the significant multi-billion dollar investments required for polysilicon, wafer/ingot, and cell production pose an even greater challenge for smaller and less developed nations. Innovative ways of capital deployment can help overcome these challenges and drive ecosystem growth by propelling solar manufacturing. There is a significant opportunity for nations and international institutions to gradually increase their investments in clean energy manufacturing within their energy portfolios.

### 3. Fostering technological innovations

Emerging markets that have significant plans for solar installation may have limited expertise and R&D funding to develop solar supply chains domestically. Research on next-generation higher-efficiency technologies, including interdigitated back-contact cells, which supersede existing crystalline silicon cells are even more concentrated with only few countries. Further, critical equipment (particularly in the polysilicon, wafer/ingot and cell manufacturing) are often bottlenecked, with a small number of suppliers worldwide. Emerging markets may be challenged in procuring or gaining access to this equipment. Therefore, there is a need to increase access to technology for all regions through collaborative action.

### 4. Applications oriented demand generation

Market depends on demand and therefore countries may consider offering "guaranteed demand" to manufacturers setting up new capacity, as a buyer of last resort at a guaranteed price, but only after market forces have been exhausted. Further, the 'CEO Caucus' can look at leveraging the platform for cross-sectoral partnerships and engagements to foster application-based demand generation in the solar sector.

## 4. Series of consultative forum

Leading up to the Solar Festival and at the Festival, a series of roundtables sessions will be organized. Below is the proposed calendar for this year under the first CEO's Caucus.

1. **Private Sector Roundtable– June 6, 2024 (Virtual):** To initiate the roundtables, ISA will hold a meeting with invited organizations, to inform them of the objectives, approach and planned activities.

2. **Private Sector Roundtable – July, 2024:** Building on the previous roundtable, a High-Level Political Forum (HLPF) will be organized for select private sector participants. These will include lead discussants representing relevant corporates and industry associations, and sector experts.

3. **Private Sector Roundtable – August, 2024 –** The final roundtable will be organized with technical experts and key industry representatives for reviewing the revised draft of the white paper, which will be presented, so that it maybe finalized for a launch at the Solar Festival.

4. **Engagement at RCMs –** Gathering viewpoints from global experts on the sidelines of ISA Regional Committee Meetings:

- **ISA RCM for Europe and the Others Region – June 11-13, 2024:** To be held in Brussels, Belgium
- **ISA Regional Committee Meeting for Asia and the Pacific Region:** To be held on July 22-24, 2024, in Abu Dhabi, UAE
- **ISA Regional Committee Meeting for Africa Region:** To be held on August 27-29, 2024, in Abidjan, Côte d'Ivoire
- **ISA Regional Committee Meeting for Latin America and the Caribbean Region:** To be held in August. 2024.

5. **Solar Festival – September 5-6, 2024:** A high-level plenary, building on the Private Sector Roundtable series, with select CEOs will be convened during the two days of the festival. The final white paper will released at the festival*.

***Note: The finalized policy briefs/ white paper may be shared with the CEM Secretariat for consideration and informing the discussions at the CEM Ministerial (1-3 October, 2024 in Brazil).**