

EASING SOLAR DEPLOYMENT GLOBALLY

FROM DIRECTOR GENERAL'S DESK



*"Man did not weave the web of life;
he is merely a strand in it. Whatever he
does to the web, he does to himself."*
– Chief Seattle

As populations and economies grow, our needs and actions put unjust and inequitable pressure on nature's finite resources and global commons. Therefore, taking responsibility for our actions and ensuring that permanent, irreversible damages do not occur is essential. Since its inception, ISA has taken the lead and has significantly promoted solar energy adoption and collaboration among its Member Countries. The tally of countries who

have signed the ISA Framework Agreement, with the Republic of Singapore as the newest member, stands at 116.

Insights from Ease of Doing Solar (EoDS), an annual publication in its fourth year, assists governments in fast-tracking solar technology deployment by creating a conducive environment of pro-solar policies and regulations. The 2022 ISA releases: World Solar Technology Report, World Solar Market Report, and World Solar Investment Report, documented global advancements in solar energy to drive data-driven decisions, strong project pipelines and enable investor-friendly markets within their countries.

Towards ensuring a long-term impact, ISA is helping cultivate the necessary human capacity and skills among Member Countries to undertake energy transitions independently while boosting their economies' growth and job creation. As of date, 3,073 solar energy professionals have benefitted globally. The popularity of ISA initiatives is evident in the significant number of expressions of interest received from Member Countries for solar water pumps, rooftop systems, solar mini-grids, and solar parks, totalling over 9.5 GW+. Our solar Demonstration Projects are real-world examples of implementing solar energy solutions in different contexts. They demonstrate the feasibility and effectiveness of solar technologies, showcasing their practical application and potential benefits. Similarly, innovation in technology and innovative financial mechanisms are key priority areas we have continuously focused on.

ISA's Corporate Advisory Group is working to fortify the private sector's

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vital role in solar investments. Under the G20 Presidency of the Republic of India, ISA initiatives are focused on accelerating solar-powered mini-grids in rural Africa, establishing a virtual platform - promoting green hydrogen production, utilisation, and trade, and advancing solar manufacturing globally. In the future, Country Partnership Agreements will support systematic engagements with Member Countries; the first agreement was signed with Bangladesh earlier this year.

We look forward to working with our members to enable solar to become the energy source of choice.

Greetings for the World Environment Day 2023.

With best wishes



Ajay Mathur

Director General, International Solar Alliance



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HIGHLIGHTS

INTERNATIONAL SOLAR ALLIANCE HOLDS ITS EIGHTH STANDING COMMITTEE MEETING IN NEW DELHI, INDIA

The Eighth meeting of the Standing Committee of the International Solar Alliance (ISA) took place in New Delhi on 6 June 2023, chaired by Mr. R. K. Singh, the Hon'ble Union Minister for Power and New & Renewable Energy, India, – the current President of the ISA Assembly. The meeting, co-chaired by the French Republic as Co-President of the ISA Assembly, saw the participation of representatives from Member Countries both in-person and online.

The agenda of the eighth meeting included discussions on various initiatives and projects undertaken by ISA, such as ISA Demonstration Projects in Member Countries, ISA Solar Technology Application Resource Centre (STAR-C), ISA SolarX Startup Challenge, ISA Solar Finance Facility, as well as preparations for the ninth meeting of the ISA Standing Committee and the sixth session of the ISA Assembly.

In his opening remarks, Hon'ble Minister R. K. Singh highlighted the importance of the global energy transition and emphasised the role of solar energy in achieving it. He stated, "Whether the world needs an energy transition today is no longer in question. Rather, the question is how to achieve it and how soon. A new global energy economy is emerging, with the rapid growth of renewables as the alternative energy source."

Recognising the urgency of addressing climate change, the Hon'ble Minister called for more funding for green energy initiatives. He highlighted several key initiatives undertaken by ISA, including the Solar Finance Facility, the SolarX Startup Challenge, Solar Technology Application Resource Centres, and the One Sun One World One Grid Initiative.

These initiatives aim to support the development of bankable solar projects, incubate solar start-ups, provide training and information centres, and achieve global access to electricity.

The Hon'ble Minister emphasised the importance of helping the least developed countries access clean energy to drive the energy transition. He called for increased contributions to green funds, urging them to allocate funds specifically for African countries. He congratulated ISA members for their efforts in advancing the energy transition. He expressed confidence that more projects would be undertaken, leading to increased access to clean energy for people worldwide.

In conclusion, the eighth meeting of the ISA Standing Committee showcased the Alliance's commitment to driving the global energy transition through various initiatives and projects. With a focus on solar energy and sustainable development, the ISA aims to contribute significantly to creating a greener and more sustainable world.





cells continue to open new avenues for deploying solar PV technologies. Apart from solar PV, global solar thermal market grew at 3% in the year 2021 to 25.6 gigawatt, bringing the total global capacity to around 524 gigawatts. The International Solar Alliance, through effective multilateralism, has been striving tirelessly towards global energy transition. The ISA has launched initiatives, like the Solar Finance Facility to support the development of bankable solar projects and stimulate financing through financing vehicles. The SolarX Startup Challenge to help incubate solar startups by hand-holding them to give them access to manufacturers, suppliers, and investors.

The Solar Technology Application Resource Centre for STAR-C to function as trading centres and centres of excellence for testing, and development of specifications and standards, and to serve as information centres to support governments and the private sector on solar energy projects. The One Sun, One World and One Grid initiative aimed at achieving global access to electricity. The opportunities for the International Solar Alliance to help its Member Countries are truly limitless, and the ISA, through its nine programmes covering solar applications in multiple sectors like agriculture, health, transport, battery storage, heating and cooling and green hydrogen will continue to contribute significantly to achieve a greater, greener and sustainable world.

With this, I once again welcome the honourable Co-President, the Vice Presidents, and other excellencies to his forum. I would now like to invite the Co-President of the International Solar Alliance Assembly, H.E. Ms Chrysoula Zacharopoulou, Minister of State for Development, Francophonie, and International Partnerships, to deliver her opening remarks through a video message.

Watch 



Opening Statement by President of International Solar Alliance Assembly

Address by Hon'ble President of the International Solar Alliance Assembly: Mr R. K. Singh, Union Minister for Power and New & Renewable Energy, India

Hon'ble Minister from Venezuela, the distinguished representatives from various nations, which are members of the Standing Committee, ladies and gentlemen, Director General of the International Solar Alliance. It is an honour and a privilege to welcome you all to the 8th Meeting of the Standing Committee of the International Solar Alliance. I extend my deep appreciation to the Members of the Standing Committee for their continued support and efforts towards the International Solar Alliance and its initiatives. I'm delighted to welcome all the distinguished participants, the representatives from the host country and the ISA secretariat. Whether the world needs an energy transition is today no longer in question; rather, the question is. How to achieve it and how soon?

A new global energy economy is emerging with the rapid growth of renewables as the alternative source of energy. The development of solar energy is one of the major contributors to achieving energy transition. The cumulative global solar PV capacity has reached approximately 942 gigawatts since the last decade. The solar PV mark maintained its record-breaking speed with new capacity additions totalling 175 gigawatts in 2021. With every progressing year, solar is becoming the more dominant renewable energy generation technology. As the world moves towards net zero. This growth is expected to get compounded as solar PV technology finds more applications in the distributed energy space. Productive use of applications of solar PV, hydro PV and flexible and surface-integrated solar

Watch 



Opening Statement by Co-President of International Solar Alliance, Ms Chrysoula Zacharopoulou

Address by Co-President of the International Solar Alliance Assembly, H.E. Ms Chrysoula Zacharopoulou, Minister of State for Development, Francophonie, and International Partnerships, France

Hon'ble Minister, Director General, Vice Presidents, dear colleagues.

I'm delighted and honoured to open this Standing Committee with Minister Singh today. As you know France is convinced that the International Solar Alliance is a key initiative to accelerate global action against climate change through the promotion of solar energy. I'm glad to see that the Alliance is becoming a full-fledged international organisation recognised across the globe. We are meeting today at a decisive moment for global climate efforts and energy issues.

I would like to commend India's leadership on these issues through its G20 Presidency. I would also like to thank India for its active involvement in the preparation of the Paris Summit for a new Global Financial Pact that President Macron will host in June in Paris paving the way for ambitious decisions during the G20 Leader Summit. The need for energy security and renewable energy sources is greater than ever. For many countries solar power is the best solution for large-scale affordable renewable energy deployment. I have seen that, in particular in many African countries over the past months, Africa is home to 60 per cent of the best solar resources globally yet only one per cent of installed solar capacity is in Africa, but solar energy is an opportunity for every country including India and Europe.

In the European Union, solar is a key element of our 'Fit for 55' package, our commitment to reduce emissions by 55 per cent by 2030. COP28 will give us an opportunity to reaffirm our ambition to scale up renewable energy. it is a clear priority of the United Arab Emirates presidency; active involvement and engagement of the International Solar Alliance will be critical to make COP28 a success. France and the European Union will advocate for a clear message on the need to phase out fossil fuels and scale up renewables development everywhere. The fact that the Alliance membership has been steadily growing demonstrates its relevance and its potential. I'm proud to witness that the Alliance has welcomed so many new members this year,

including several from the European Union.

I would like to end by mentioning two priorities of the Alliance that France particularly supports. First of all, capacity building, our contribution of 1 million euros to ISA's, STAR-C programme allows to deliver technical assistance in three countries Senegal, Papua New Guinea, and Bhutan. A solar academy will be established, and local coordinators are being recruited to work locally with authorities and project sponsors. I call on ISA members to join us in this effort to build this flagship initiative. Our second priority is about scaling up investment for solar energy. France has pledged to mobilise 1.5 billion euros to fund the solar project in the ISA countries.

We are on track to deliver, 1.4 billion euros have already been committed. But we need to do more, especially regarding the leverage effect on private finance and the channelling of resources towards the most fragile countries. That is why we are holding a technical meeting in Paris on the 27 and 28 of June to take stock of our progress and examine how to unlock solar investment in countries where existing risk mitigation instruments are limited, inadequate, or unavailable.

We have the roadmap; we have the organisation we now need to scale up our ambition. This is the purpose of the Summit for a new Global Financial Pact that President Macron will host on the 22 and 23 of June in Paris to promote a new Global Financial Pact. One of the goals of this Summit is precisely to contribute to the acceleration of investment in green infrastructures worldwide.

Dear colleagues' today's Standing Committee is a unique occasion to prepare for the ISA Assembly and to reinforce its position as an international action-oriented organisation for solar energy. ISA can count on the full support of France, and I look forward to seeing you soon.

HIGHLIGHTS

ISA HOSTS ITS FOURTH MEETING OF THE REGIONAL COMMITTEE FOR EUROPE AND THE OTHERS REGION IN BRUSSELS



The ISA convened its Fourth Meeting of the Regional Committee for Europe and the Others Region in Brussels from 21-23 June 2023, with ministerial and senior government representatives from 18 countries to chart the course for the sustained and equitable roll-out of solar in the Europe region and beyond.

The Meeting proceedings featured Member Country representatives addressing various issues related to International Solar Alliance's programmatic support towards solar deployment. These programmes are crucial

in accelerating the adoption and implementation of solar energy solutions. Furthermore, the Meeting discussed the progress and impact of ISA flagship initiatives such as STAR-C, SolarX Startup Challenge, and Solar Finance Facility, which are ISA's key interventions in driving capacity-building, innovation, and investment in the solar sector.

Watch



[Fourth Meeting of the Regional Committee for Europe and the Others Region, Brussels - 2023](#)

In his opening address, **Mr Dan Jørgensen, Minister for Development Cooperation and Global Climate Policy, Denmark &** the Regional Vice President for the ISA's Europe and Others Region, noted, "We share a joint ambition. We all want to rapidly accelerate the transition to a clean energy economy. We all want to promote the power of solar energy. The urgency is clearer than ever. We know how much is at stake, our climate, our security, and our welfare; more finance is needed if we are to have global climate action to limit global temperature warming. Different actors must come together to mobilise finance at an immense scale, moving us from billions to trillions." Commending ISA's work, he added, "I wish to complement the work that is so important - undertaken by ISA and its Member Countries in the past year to promote this even further. Being based in India, ISA is able to draw on the remarkable achievements made for the Indian population. In only 20 years, India has brought electricity to more than 700 million of its citizens, an astonishing accomplishment. Denmark entered into a green strategic partnership with India in 2020, and one of the key areas for cooperation was Denmark entering the International Solar Alliance. I hope we can drive our cooperation."



Sharing the stage, **Mr Matthew Baldwin, Deputy Director-General, DG ENER, European Commission, highlighted,** “We want to get from 136 GW Installed PV in EU 2020 to 320 by 2025 to 600 gigawatts by 2030. This mirrors, in fact, and I think it then exceeds what the IEA has called for as a stepping stone in terms of net zero emissions by 2050. We’ve taken this target consciously. It’s ambitious. It’s going to mean a big drive. And how are we going to do it quickly? Four initiatives to try to achieve it. Firstly, by promoting a massive PV deployment on buildings. Often the quickest way to go is via the European Solar Rooftops initiative, secondly, by making permitting procedures for solar installation shorter and simpler. I don’t think permitting has been as difficult as it has been for wind power, but it’s still a real problem, and we need to address it. Thirdly, by ensuring the availability of an abundant and skilled workforce. With producing and deploying solar energy right across the EU and, fourthly, launching a European solar PV industry alliance to further develop this resilient industrial value chain notion, particularly in the PV manufacturing sector, to seize this huge industrial opportunity. In the booming demand for solar energy, we can do this, and we must do this. It’s about Europe’s energy security. It’s about Europe’s energy autonomy and independence, and nothing speaks to that better, I think, than solar.”

Meeting delegates also provided feedback and suggestions through the thematic session deliberations hosted as part of the proceedings to ensure effective implementation and maximise the impact of ISA’s efforts.

Three thematic sessions were hosted on 22 and 23 June 2023, spotlighting ISA’s new initiative, Solar Finance Facility, capacity-building hub, the Solar Technology Application Resource Centres (STAR-Centres), and the subject of solar manufacturing – an ISA focus area as an international organisation partner to the 2023 G20 Presidency.

The ISA has done significant research in understanding solar, which has resulted in their latest offering — **the Solar Finance Facility**. The Solar Finance Facility is being built to enable solar technologies’ growth in underserved African geographies. The Facility is seeking private capital from donors worldwide to achieve this goal. It will operate through three distinct

funds: the payment guarantee fund, the insurance fund, and the investment fund. Project proposals in Africa can acquire payment guarantees or partial insurance premiums from these funds. The payment guarantee fund ensures reliable payment guarantees, while the insurance fund serves to mitigate project risks. Additionally, the investment fund offers technical assistance to address regulatory gaps. By attracting investments, fostering project development, and mitigating currency risks, the Solar Finance Facility aims to positively transform solar energy adoption and development throughout Africa, where the cumulative renewable energy investment in sub-Saharan Africa over the last two decades has just been 2 per cent.

Ms Anita George, Co-Founder, Edhina Capital, who is supporting ISA in building the structure of the Solar Finance Facility, observed, “The International Solar Alliance has been working with many stakeholders to promote and deploy solar energy across emerging markets. The Solar Finance Facility will bring the much-needed acceleration for addressing a solution for climate change and enhancing energy access for all. It will alleviate some of the critical problems that impede the growth of solar energy and will become a key component of the entire renewable energy financing ecosystem. A mix of public and private capital and a combination of global and local expertise will bring in the much-needed agility with risk appetite to enable the rollout of this Facility across the world.”

Through an exclusive thematic session, the Meeting also

focused on the solar PV supply chain’s extreme concentration in one geographical area that has previously choked supply chains and presents multiple geopolitical and economic risks. The development of localised solar PV manufacturing across the globe would bring advantages to the entire sector, from end customers to project developers and public authorities. Furthermore, to achieve net zero targets, up to 1900 GW per year must be manufactured by 2030 per the scenario in ISA’s report on **‘Building Resilient Solar Supply Chains’**, which the delegates at the Meeting had a chance to preview. \$150 billion in investments in solar manufacturing are required by 2030 to develop the necessary capacity. In the Report, ISA and Becquerel have collectively identified specific value chain steps, such as module and inverter assembly, that can be developed relatively quickly and cheaply for as low as \$5 million.

Watch



https://www.linkedin.com/posts/international-solar-alliance_the-international-solar-alliance-convened-activity-7078294825371877376-Rycd?utm_source=share&utm_medium=member_desktop

Dr Ajay Mathur, DG-ISA, called on the European Region’s leadership to drive the transition towards clean energy sources by “strengthening supply chains and collaboratively enhancing the resilience of solar photovoltaic manufacturing”. He said, “Different countries and regions must assess the appropriate role they will play in the solar ecosystem. In the Report, we have proposed a framework to help identify the most appropriate role for a given country/ecosystem. Several policy levers exist, direct and indirect, and upstream and downstream measures can be taken”. The Report also showcases successful global case studies and lends an overview of the potential policy steps.

Mr Philippe Macé, Partner, Becquerel Institute, sharing his views, remarked, “The solar PV supply chain has never been so concentrated, and overcapacity is looming at all steps as massive new production capacities are coming online. While some will be pleased by the downward pressure it puts on prices, it also makes the entire sector more vulnerable than ever. To improve the supply chain’s resiliency, local production

is a must. Plus, this can bring multiple additional benefits, such as jobs or local economic value creation. This report quantifies the potential for local solar PV production worldwide and gives clear recommendations on how to achieve it.”



The 2022 ISA World Solar Investment Report in its findings had reported that the various uncertainties of the global energy landscape have highlighted the need for countries to become self-dependent in terms of energy requirements and increase penetration of solar energy adoption, with solar energy being abundant and cheaper than other non-renewable forms of energy. Of the projected investments required, solar energy is expected to draw the most investments as solar and wind technologies together are expected to meet 90% of the electricity needs by 2050.

The Fourth Meeting of the ISA Regional Committee for Europe and the Others Region provided a vital platform to take stock of where the Region sits in the energy transition journey and how to identify linkages among ISA Member Countries to help aggregate demand and determine which countries are best suited for which steps of solar deployment.

The Meeting proceedings also spotlighted the **ISA Country Partnership Framework**, which enables a strategic roadmap for collaboration between ISA and its Member Countries, facilitating the development of solar projects and promoting

sustainable energy practices.

Private sector engagements were also underlined, focusing on **ISA's Corporate Advisory Group**. This platform enables collaboration between the private sector and ISA, fostering investment, technology transfer, and knowledge sharing. The meeting proceedings acknowledged the valuable contributions of the private sector in advancing solar energy deployment and emphasised the need for continued engagement. The Meeting deliberations underlined the importance of strengthening and leveraging partnerships at various levels to achieve collective solar energy goals.

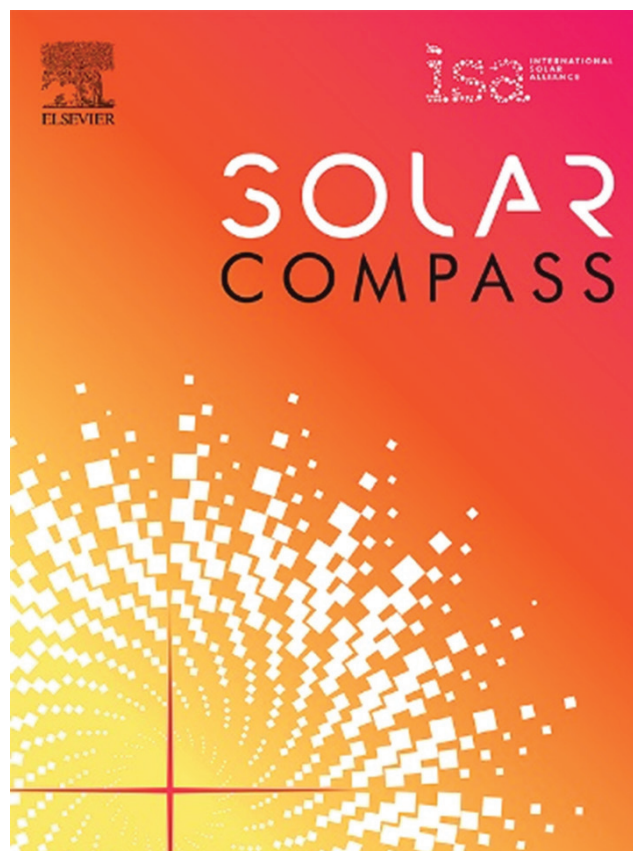
Watch the inaugural proceedings of the Meeting [here](#).

SPOTLIGHT

ISA JOURNAL, SOLAR COMPASS, RELEASES ITS SIXTH VOLUME

Rapid technological advancements are crucial to accomplish the worldwide objective of achieving net-zero carbon emissions. However, it is equally essential to establish appropriate policies and secure adequate financing to cultivate markets for these new technologies. While some individuals may emphasise technology, policy, markets, or investments, developing all these sectors must be synchronised to reach the desired goal effectively. Policymakers play a vital role in this process by requiring comprehensive information to formulate sound policies and create a resilient roadmap towards achieving the goal. ISA journal, Solar Compass, serves as a unified platform, consolidating data from all these sectors into one place, thereby facilitating access to the necessary insights.

A closer look at the articles featured in this edition:



Techno-Economic Analysis of Waste-To-Energy With Solar Hybrid: A Case Study from Kumasi, Ghana

The rapid growth in global energy demand in recent years has made global leaders think more about sustainability in the energy sector. Waste-to-energy (WTE) and solar energy are emerging areas in the energy sustainability discourse since terrestrial sustainability is of great concern. The study uses economic indices to evaluate the feasibility of WTE and solar plants at Oti landfill in Kumasi, Ghana, with the core objective of sustainable waste management through electricity production. Three scenarios were considered, (i) waste-to-energy plant alone, (ii) solar PV plant alone and (iii) combination of (i) and (ii) – hybrid. The Oti landfill receives a total volume of 891,000 tons per year of solid waste, which can be used to generate 379 GWh of electricity per year and has the potential to generate 85 GWh of electricity per year

from solar with the assumption that one-half of the land surface area used waste to electricity and the other one-half is used for solar PV electricity. The study shows that all three scenarios are worth investing in, but the best investment option is the solar PV plant alone with NPV of mGHs 324.79, DPP of 4 years, IRR of 44% and DPI of 2.7. The WTE alone had NPV, IRR, DPI and DPP of mGHs 1122.11, 16%, 0.47 and 15.2 years, respectively. The WTE and solar PV composite had NPV of mGHs 1445.9, IRR of 17%, DPI of 2.02 and the project initial cost recovery of 14.2 years.

Long Term Rating (LTR) and Energy Efficacy of Solar Driven Desalination Systems in KSA Using a Common Energy Platform of Standard Solar Energy (SSE)

All energy types consumed on Earth emanate from the Sun’s photosphere, either directly or indirectly. The maximum potential of solar energy is based on direct normal irradiance from the sun. However, due to differences in the operation and production process of each system, instead of just direct normal irradiance, it is the maximum amount of radiation in any form available for the system. By introducing common platform based upon the concept of long term rating (LTR) and standard solar energy (SSE) platform, defined by the temperatures of the photosphere of the Sun and the average Earth’s ambient, three practical solar harvesters were studied and compared in this paper. With such an approach, the efficacy of each solar system is compared meaningfully despite assorted optical and work or heat driven cycles were deployed. Citing the

case of solar-powered seawater desalination example, the amount of standard solar energy (SSE) needed per m3 produced by the stationary photovoltaic (PV), concentrated photovoltaic (CPV), and concentrated solar power (CSP) systems are 6.49, 2.36, and 2.99, respectively. Despite the more efficient use of SSE per m3 by the CPV method, which is deemed technologically mature, yet the major trend for the investment of renewable solar systems, either willfully or ignorantly, is the least efficient solar PV. As sunlight availability per m2 is finite, a causal approach is needed for sustainable solar desalination.

Sustainability Assessments in Solar Energy Projects: Results of Case Studies

Renewable energy and energy efficiency terms are the focus of policymakers to achieve a sustainable energy policy. The concept of sustainability has become a key element in the development of renewable technologies, so both quantitative and qualitative assessments are essential to consider the environmental and socioeconomic impacts.

This study presents the results of applying different methodologies to assess the sustainability of the development of solar energy technologies, where the importance of this type of analysis is highlighted to support decision-makers.

Designing with the Sun: Finding balance between aesthetics and energy performance in Building-integrated photovoltaic buildings

Energy generation in buildings is a reality in several countries. But to obtain the best aesthetics and energetic performance from the photovoltaics (PV) architectural integration, it is necessary to make essential decisions in the design stage. This paper aims to demonstrate how decision-making in the design phase of the PV design can take advantage of two tools that allow the designer to evaluate the use of solar irradiation and the impact of shading in different conditions of orientation and inclination: the solar abacus and the shading masks. The method introduced each tool and explained how they could be used to support and guide the definition of architectural design. Additionally, the critical decision-making points for each tool were highlighted, enabling better comprehension for decision-making. The method was applied in two case studies in the same

residential building located in the South of Brazil: one PV system for a rooftop and another PV system for a solar carport. As a result of the application of this method, although the orientations and inclinations existing in the case study were not ideally oriented, it was still possible to respect them, creating a building-integrated photovoltaic system (BIPV) design that harmonized with the building and valued the integration of the PV in the architecture. Due to the simplicity of interpretation of the adopted tools, both architects not specialized in solar energy and end customers can understand the decision-making process and the resulting losses from each project choice.

Advancements in Solar Technology, Markets, and Investments – A Summary of the 2022 ISA World Solar Reports

This paper provides a summary of the Annual World Solar Reports on Technology, Markets, and Investments published by the International Solar Alliance (ISA) in October 2022. Solar has emerged as the technology of choice to drive the renewable energy transition. This preference for solar has been driven by technology maturity and improvements, cost reductions, and improved methods for grid integration of solar generation. Globally, solar has grown nearly 20 fold in the last decade to reach 920 GW of installed capacity in 2021. As solar approaches and crosses into Terawatt scale of deployment, a number of technological innovations are emerging to continue improving generation efficiency, power output, and material consumption. Additionally, manufacturing capacity is growing rapidly to meet demand for installations. The market for solar installations continues to grow around the world but will need to scale rapidly to meet net zero requirements. The growth in solar markets will also require a significant scale up in solar investments across the world through a wide range of instruments. The deployment of the correct solar related interventions can ensure that the world can achieve multi terawatt scale of solar deployment in the coming decades, thus supporting the global energy transition.

Note On Solar Roadmapping – A Tool For Accelerated Deployment Of Solar Technologies

This short note describes the basics and the process of technology roadmapping and its use to accelerate the deployment of solar technologies, in particular for solar photovoltaic technologies and applications in yet untapped markets, regions and countries. It emphasizes the important role of the roadmapping process itself, namely the crucial relevance of the stakeholder dialogue when establishing the vision and the targets of the solar roadmap.

Creating a Solar Roadmap for the Republic of Togo

This paper describes the processes and initial results for developing a Solar Roadmap for the Republic of Togo, West Africa. The activity followed the IEA/ISA procedure described in the “Solar Energy, Mapping the Road Ahead” document. The roadmap development committee included members from Togo, Europe, Asia, and the United States. The activity was initiated in 2020. The Togo Solar Roadmap development was divided into four Phases: Planning and preparation; Visioning;

Roadmap Development; and Roadmap implementation and revision. The first 3 phases have been completed and are reported in this paper. The primary focus of the roadmap is on solar electricity and photovoltaics.



We plan to publish a special issue of the Solar Compass journal for Solar road mapping. We welcome you to submit your manuscripts to Solar Compass and join us on this journey to help the world achieve the net-zero goal. For more information on the submission, review, and publication processes, please visit the Journal Homepage: <https://www.journals.elsevier.com/solar-compass>

ROUNDUP

ISA, THE U.S. DEPARTMENT OF STATE, AND CEEW HOSTED A CAPACITY BUILDING WORKSHOP ON DEMAND AGGREGATION MODELS FOR SCALING ROOFTOP SOLAR ADOPTION – LEARNINGS FROM INDIA



VIRTUAL CAPACITY BUILDING WORKSHOP

Demand Aggregation Models for Scaling Rooftop Solar Adoption – Learnings from India

Speakers



Brian F. Keane
President, Smart Power



Neeraj Kuldeep
Senior Programme Lead, CEEW



Joseph Pereira
Deputy Director, Department of Regulatory Agencies, Colorado



Alexander Hogeveen Rutter
Private Sector Specialist, ISA



Bhawna Tyagi
Programme Associate, CEEW



Scott E. Woodard
Acting Director, U.S. Department of State, Bureau of Energy Resources

International Solar Alliance (ISA), in collaboration Council on Energy, Environment and Water (CEEW) and the U.S. Department of State, hosted a capacity-building workshop on ‘Demand Aggregation Models for Scaling Rooftop Solar Adoption – Learnings from India’ virtually. Accelerating the adoption of distributed solar, particularly rooftop solar, is crucial for countries to achieve a democratic transition to clean energy. The session highlighted important aspects of Distributed Renewable Energy (DRE), which will help bring the energy transition closer to communities. The session also explored innovative approaches to accelerate the adoption of distributed renewable energy. The participants include officials from ministries, regulatory bodies, and utility companies. The workshop helped participants with

insights into the two business models – Solarise, a demand aggregation campaign focusing on urban communities and Community Solar, focusing on rural and semi-urban communities. The Solarise campaigns were supported by distribution utilities from Delhi – BSES Rajdhani and BSES Yamuna Power Limited. The panellists discussed challenges, opportunities, and presented policy recommendations for accelerating the adoption of distributed solar.

“As they said it...”

“U.S. Government’s support for ISA’s ambitious work to accelerate the clean energy transition through solar deployment initiatives worldwide. He also noted that “our joint work on the Solarise campaign guidebook and community solar is a testament to the partnership between India and the United States in addressing the shared global challenges that guide our bilateral energy relationship.” “These institutional frameworks, business models, and solar initiatives, tested in the India context, offer persuasive, value-added lessons for other countries.”

**Scott E. Woodard, Acting Director,
U.S. Department of State, Bureau of Energy Resources**

“Rooftop solar is a huge opportunity for a win-win-win for distribution utilities, consumers, regulators and local employment. Today’s webinar gave great insights in how to capture the benefits of rooftop solar, lowering costs for consumers, but also the subsidy burden on the distribution utilities. The Solarise Delhi presentation helped chart a path for distribution utilities around the world to promote solar in their home areas. ISA is looking forward to continuing to support its member countries in deploying solar rooftops.”

**Alexander Hogeveen Rutter,
Private Sector Specialist, ISA**

“The adoption and proliferation of medium-scale community solar offerings in Colorado and across the United States has provided the opportunity for utilities to engage distributed energy resources that support the grid through resiliency support while moving toward clean energy goals. These applications have proven to provide customers financial benefits while also supporting the financial health of the utility. The flexibility of this type of solar application has proven to work in a variety of contexts and has great potential for growing and transitioning energy economies.”

**Joseph Pereira, Deputy Director,
Department of Regulatory Agencies, Colorado**

“The Solarise Delhi programs have once again proven everything we continue to see in the United State. Our Solarise campaigns dramatically increase residential solar adoption on a massive scale. Let’s now commit ourselves to Solarising not just New Delhi – but all of India!”

Brian F Keane, President, SmartPower

“Distributed solar provides an opportunity for communities to be part of the energy transition. Tapping into this potential requires moving beyond traditional models and exploring innovative business models. Community solar models provide rural consumers with low-cost solar while playing a catalytic role in the financial turnaround of the

power distribution utilities. These campaigns leverage peer-to-peer influence and provide end-to-end support to consumers to start their solar journey. These models have relevance beyond India, and insights from Indian experience could be used to roll out these models in other developing countries.”

**Bhawna Tyagi, Programme
Associate, CEEW**

“For developing economies, distributed solar offers the opportunity to embrace two energy transition together – providing access to electricity to millions, and transition to clean energy. However, communities face multitude of challenges in adoption of distributed RE – awareness and confidence in the technology, high upfront cost of adoption, limited access to affordable financing etc. The two innovative demand aggregation models discussed during the workshop will be a big step towards addressing the multiple impediments to the transition towards distributed RE among communities be it rural or urban. We hope the countries will leverage these models to chart a community driven energy transition.”

**Neeraj Kuldeep, Senior
Programme Lead, CEEW.**

#IDEASTHATHAVEWORKED: SOLAR IMPACT STORIES FROM AROUND THE GLOBE

The EU Cooperation with ISA aims to deepen further the links between the ISA, its Member Countries, and international academic, financial, and business communities, including the relevant European Union (EU) communities. The project aims to support and strengthen ISA’s role as a solar energy platform, including supporting concrete communication activities. Over 250 case studies of solar uptake and road mapping across the globe have been put together as part of this project. The ISA newsletter showcases innovative solar interventions that have carved positive outcomes on the ground every month.

SHINING A LIGHT ON SOLAR INNOVATION: PHOTOVOLTAIC SIGNBOARDS FROM DENMARK

The Danish company, Dansk Solenergi, specialising in building-integrated photovoltaics (PV), has introduced a signboard powered by a circular solar module with an impressive efficiency of 18.5%.

From solar balconies to solar trees, businesses and innovators the world over have developed thoughtful and, at times, creative solutions to harness solar energy. Adding to this long list of innovations are the photovoltaic signboards developed by Danish company Dansk Solenergi (Danish Solar Energy Ltd), a building-integrated PV specialist.

With over twenty years of global experience in innovative solar PV solutions, ranging from stand-alone solar systems to solar parks, the company developed the PV signboard in collaboration with Danish artist Bo Karberg. The circular signboard is backed by a solar module with 35 solar cells supplied by Singapore-based manufacturer Maxeon. Overall, the signboard has a 95W capacity and an efficiency of 18.5%.

The solar signboard panel utilises an innovative cell technology called “Colour, Form, Reflection (CRF)” as its foundation. The manufacturer asserts that this panel can be affixed to a wide array of surfaces. By employing a coloured substance that adheres to the glass, the solar cells remain concealed. This substance comprises multiple hues strategically arranged to depict an image of the Earth captured during the renowned Apollo 11 space mission. The company claims that despite being covered by the image, the solar cells continue to generate sufficient energy to

charge a battery during daylight hours on a normal day in south Denmark. The signboard uses its stored solar energy to power a 760-lumen LED light at night.

The company aims to further innovate in the space of construction, solar tiles and other infrastructure areas using renewable energies.



The solar-powered signboard. Image: Dansk Solenergi

#IDEASTHATHAVEWORKED: SOLAR IMPACT STORIES FROM AROUND THE GLOBE

GERMANY'S SOLAR TILES CAST A SUNNY LIGHT FOR PV INNOVATION



German companies Creaton and Autarq have pushed solar innovation by collaborating to develop a modular solar tile that enables homeowners and architects to integrate solar systems on their roofs easily.

Germany's federal states are slowly but surely making rooftop solar installations on private and commercial homes mandatory. This has seen an uptick in the already growing rooftop solar market in the country, with the number of residential solar systems increasing by 52% in 2022 compared with the previous year.

This trend was already anticipated by the German roofing company Creaton who collaborated with building integrated photovoltaic specialist Autarq to innovate and develop a revolutionary new modular solar roof tile system. Creaton is a leading European roofing company that produces clay roof tiles, concrete roof tiles and system accessories, including various solar solutions across Central and Eastern Europe.

The two companies joined forces and produced the 'Creaton PV Autarq' - a smooth black roof tile that doubles as a carrier for small microcrystalline PV elements that Autarq created. The tiles come with integrated solar modules that enable homeowners and architects to incorporate solar energy into their houses and projects without affecting the roof's aesthetics. Designed in Germany, the components are guaranteed for up to 25 years.

The tiles are protected by a 3.2 mm safety glass pane on the front side. They can be connected by means of plug-in

connections which remain under the bricks and are protected from weather-related damage. The modular nature of the tiles allows for easy installation in combination with the existing tiles while allowing for flexibility in the size of the Photo Voltaic (PV) array.

The module's overlay grid pattern is closely attuned to the tile model and its colour, which is available in two colour variants - black or anthracite engobe. Upon installation, this tile is designed to provide a back-ventilated in-roof system that integrates seamlessly into the roof.

The solar tile is designed to operate in temperatures between -40 degrees C and +85 degrees C and withstand mechanical stress levels of up to 5,400 Pascal. The product is also compatible with all common inverters. The Creaton PV Autarq tile is IEC 61215 compliant for durability and quality and IEC 61730 compliant for safety. Consequently, the product is offered a guarantee of up to 25 years for its components.

SNAPSHOT

ISA PARTICIPATES IN THE THIRD MEETING OF THE SUSTAINABLE FINANCE WORKING GROUP IN MAHABALIPURAM, INDIA



COO-ISA, Mr Joshua Wycliffe, addressing the proceedings



The Third Meeting of the Sustainable Finance Working Group (SFWG) under the Indian G20 Presidency occurred in Mahabalipuram from 19 - 21 June 2023. The Group’s objective is to identify institutional and market barriers to sustainable finance and to develop options to overcome these. It also aims to contribute to a better alignment of the international financial system to the objectives of the 2030 Agenda and the Paris Agreement.

Under India’s Presidency, the G20 Finance Ministers and Central Bank Governors mandated the SFWG to work on three priority areas for 2023 to advance the actions envisaged in the G20 Sustainable Roadmap:

- 1) Mechanisms for mobilisation of timely and adequate resources for climate finance;
- 2) Enabling finance for the Sustainable Development Goals (SDGs); and
- 3) Capacity building of the ecosystem for financing toward sustainable development.

At the Mahabalipuram Meeting, the focus was on reaching a consensus on policy recommendations for these three priority areas.

For the International Solar Alliance (ISA), it was important to be a part of these discussions, as it gives us an understanding of how policies at the international level may be framed

in the upcoming years to enable sustainable development actions and also gives us an opportunity to put forth our perspective from the solar sector to decision makers, regarding the challenges being faced on the ground for implementing such actions.

Following a presentation of ISA’s Global Solar Facility and SolarX Start-up Challenge in a previous SFWG meeting, ISA once again took the opportunity to reiterate the critical need for blended finance mechanisms and concessional finance for enabling the deployment of solar technology solutions in LDCs and SIDS. ISA also briefed the Group on its capacity-building initiatives, highlighting the STAR Centres and their objective of facilitating technical assistance for developing a viable ecosystem for solar. ISA invited members to learn more about the STAR Centres and support this initiative.

SNAPSHOT

ISA AT ASIA CLEAN ENERGY FORUM (ACEF) 2023: DEEP DIVE WORKSHOP ON 'SOLARISING SUSTAINABILITY: CATALYSING CLEAN ENERGY COLLABORATIVE ACTION IN ASIA AND THE PACIFIC'



Left, COO-ISA, Mr Joshua Wycliffe and (right) Dr Priyantha Wijayatunga, Senior Director, Energy Sector Office, Sectors Group (SG), ADB, speaking at the workshop

As a part of scaling solar initiatives in its Member Countries, ISA, and Asian Development Bank (ADB), in partnership, co-hosted a “Deep Dive Workshop” (DDW) on “Solarising Sustainability: Catalysing Clean Energy Collaborative Action in Asia and the Pacific”. The workshop brought together representatives from ISA and ADB member countries, academia, multilateral development banks, development financial institutions, international development organisations and other relevant stakeholders, including private sectors, to deliberate on the future of solar technologies in Asia and the Pacific.

The primary objective of the workshop was to explore collaborative opportunities, tackle challenges, and identify crucial action points, specifically focusing on three key areas: solar mini-grids, solar pumps, and floating solar, engage in in-depth discussions and deliberations, allowing for interactive exchanges, questions, and meaningful engagement with the participating audience.

Further, this session aimed to deliberate on current policy and regulatory issues, technology landscapes, financing and capacity gaps and possible interventions to address these cross-cutting issues and achieve national targets and regional & international commitments, encouraging early actions supporting SDG 7 and SDG 13.

The panel discussion, with representation from sectorial experts, discussed whether there exists the possibility for

developers, investors, and business enterprises to work together and achieve economies of scale through a joint effort, discussing the following:

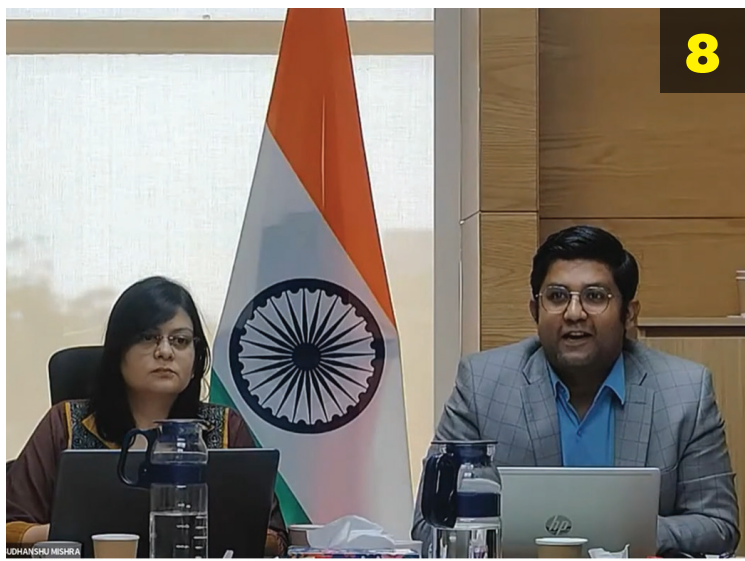
- What are the technology's prospects, issues, gaps and challenges (solar mini-grids, solar pumps and floating solar) in terms of coherent policies and regulations, appropriateness of the technology, capacity gaps, and the economics of scale?
- Where can efficiencies be improved (policy, technology, finance, capacity, etc.), and how can they be achieved while encouraging early actions to fulfil national, regional, and international commitments (SDG 7, SDG 13)?
- How do the multi-stakeholders support these interventions? What are the financial or investment gaps, and how can we narrow them by encouraging private-sector investment?

ISA INTERVENTIONS

A Visual Record of Our Activities and Actions



1. DG-ISA met with H.E. Mr Raymond Serge Bale, Ambassador of the Republic of Congo and discussed the next steps to strengthen the partnership in expediting solarisation.
2. DG-ISA met Hon. Ahmed Sekou Keita, Secretary General, Ministry of Energy, Hydropower & Hydrocarbons & Ismael Nabe, Advisor to the Prime Minister of Guinea, during the 'India - Africa Growth Partnership' Conclave organised by CII and Exim Bank.
3. ISA participated in the Asia Clean Energy Forum 2023, 'Navigating towards a Carbon-Neutral Future through Clean Energy Solutions' in Manila.
4. ISA hosted diplomats from Uganda at the ISA headquarters today. They were briefed on ISA's activities and ongoing projects. The diplomats also highlighted the need for policy pathways to establish more solar-based solutions in Uganda.



- ISA's M&E Specialist, Vardhani Ratnala, participated in 'Women in RE: A Dialogue on Policy, Technology, Skilling and Finance' and emphasised that to encourage women entrepreneurs in the sector, a change in hiring practices & advocacy for women to join the RE sector, an RE portal for jobs with gender-specific information are means for increased participation of women in RE.
- ISA and ACI World sign an MoU that will promote renewable technologies in ISA Member countries by scaling up the solarisation of airports globally.
- Alexander Hogeveen Rutter, Private Sector Specialist, ISA, participated in the 18th CII-EXIM Bank Conclave on the India-Africa growth partnership. Addressing the 'Scaling up Green and Clean Energy Collaboration' session. He spoke of technical assistance, ISA's knowledge-sharing initiatives in Ghana, and ISA's support for other developing countries through the STAR-C initiative.
- ISA's Sudhanshu Mishra introduced ISA and its work to the global trade community at the World Trade Organization's Trade and Environment 2023 Week. Watch the session proceedings here: [\(47\) Trade and Environment Week 2023 - YouTube](#)

ISA IN NEWS

June 2023

Jun 7



Solar energy generation becoming dominant renewable tech as world moves to net-zero: R K Singh

[The Economic Times](#)

Jun 7



Estudian acuerdo sobre la creación de una alianza solar internacional

[Senado](#)

Jun 8



International Solar Alliance's Standing Committee Focuses on Solar Energy Transition and Global Collaboration

[Solar Quarter](#)

Jun 8



Delhi holds eighth standing committee meeting of International Solar Alliance

[ET Energy World](#)

Jun 8



Abierta una licitación de 60 MW fotovoltaicos en Cuba

[PV Latin America](#)

Jun 9



Green hydrogen: A key enabler for a sustainable future

[PV Magazine](#)

Jun 14



Power Minister Singh Urges ISA To Promote Solar Projects In Africa

[Outlook](#)

Jun 16



Money invested in the solar sector skewed towards China and OECD countries: ISA chief Ajay Mathur

[Mongabay](#)

Jun 16



ISA, CEEW and U.S. Department of State Organises Capacity Building Workshop for Scaling Rooftop Solar Adoption

[Energetica](#)

Jun 16



La décennie de l'or vert au Maroc

[Challenge](#)

Jun 19



India's renewable capacity estimated to increase, while reliance on coal to continue, indicates National Electricity Plan

[Mongabay India](#)

Jun 21



ISA to Play Crucial Role in Promoting Solar Energy Deployment

[Energetica](#)

Jun 22



L'Alliance solaire internationale, initiative franco-indienne pour financer la transition écologique

[RFI](#)

Jun 23



Europe region's active participation in the International Solar Alliance accelerates climate action: International Solar Alliance

[PV Magazine](#)

Jun 23



We need innovative international financing mechanisms to accelerate solar energy installations in the Global South

[Le Monde](#)

Jun 26



International Solar Alliance – Paving Way for Sharing World Resources

[Mondaq](#)

Jun 26



Global solar chief calls for EU production guarantees

[Politico](#)

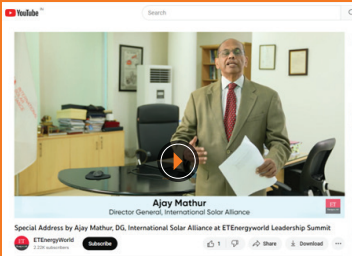
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Global Energy Sector Investments: Embracing Clean and Renewable Sources, Highlights World Solar Investment Report by ISA

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