

JUNE 23-Plenary Conference

MENA Solar Market Updates

9:00-12:00

Keynote Speech:

- MENA region experienced a fast pace boost in clean energy transition over the past years. Installed capacity and numbers of ongoing biddings for PV and CSP projects are climbing rapidly. What is the current situation of solar market in this region? Learn about what efforts has been done and what effects have been achieved in enlarging MENA solar power energy.
- Abu Dhabi is the first emirate to launch commercial CSP project in UAE---Shams 1 parabolic trough plant, and now with Al Maktoum Solar Park, Dubai is also striving to achieve its clean energy strategy. Is there any further plan after the Solar Park be completed? Hear from officials to get familiar with UAE's clean energy strategy, solar projects plan, bidding status and future solar power deployment strategy.
- Saudi Arabia is treated as the most ambitious market for promoting solar energy. Based on Saudi Vision 2030, 300 MW CSP and 20 GW solar PV projects are under the latest NREP (National Renewable Energy Program) plan by 2023. Currently, round 2 tender is under evaluation and RFP of round 3 has been issued. Besides NREP, other IPP projects are also interesting to be introduced such as Duba 1 and Waad Al Shamal ISCC projects. Hear the interpretation of this large market benefits and solar energy development strategy, to grasp the business opportunities and avoid pitfalls.
- In order to achieve government's renewable energy target, Morocco has completed 510 MW CSP plants in one of the largest solar park around the world. Besides, NOOR Midelt projects settle a new commercial mode for hybrid plant. Get to know how these solar projects contribute to the country's power structure, energy safety, and local value chain and grid stability. Discover future

market potential in this market and learn about future projects status.

- Other emerging markets' introduction such as Egypt, Oman, Jordan, Kuwait... their solar project deployment plans, challenges and opportunities.

Future Solar Development in MENA

14:00-17:30

Panel discussion:

- Currently, both PV and CSP are included in clean energy strategy in MENA region. In the long term, to better achieve the clean energy goal, the balance between PV&CSP projects allocation is important. Under this circumstance, how to evaluate both technologies' benefits to power system for next step planning? What are the best ways to coordinate both technologies? Whether PV will meet curtailment problem in the region? As a flexible power source, how CSP support PV to secure power grid stability? In the future, how to develop solar energy in this market?

In this panel, thought leaders will discuss the two technologies' prospects in terms of both economic and technical availability aspects, indicating solar development trend in MENA region.

Hybrid Power Plants

Keynote Speech:

- In order to make best use of PV and CSP technology, integrated PV+ CSP hybrid solution has been newly introduced in utility power plant. Dubai's NOOR Energy 1 and Morocco's NOOR Midelt project are using this technology to reach the lowest bidding price. Learn from key players to know about a requirements for a single hybrid plant, the best proportion configuration of a PV+CSP hybrid power plant, the advantages it demonstrates such as 24/7 power supply and competitive cost.
- Get to know other type of hybridizations to reach higher energy efficiency, their strengths, difficulties and opportunities in future renewable markets.

JUNE 24-CSP Stream

Newly-Built CSP Project Updates

9:00-12:00

Keynote Speech:

- Learn from NOOR Energy 1 project side to understand the benchmark project status such as milestones, time schedule, construction arrangements and expected time of launch. Be aware of the technology provider, engineering provider, component suppliers...etc. involved.
- Learn about Kuwait Shagaya Solar Park phase 1 performance and its contributions to Kuwait power system. Excavate Shagaya phase 3 project bidding requirements.
- Hear from project side to learn the hybrid NOOR Midelt plant, project technology analysis, requirements for purchasing, potential cooperation opportunities...etc.
- Hear from Chinese and Chilean developers, EPCs and investors to know current CSP status quo in both markets and the latest project updates.

Increase CSP's Reliability

Panel Discussion:

- Few CSP projects did not meet the expected performance after years' operation, reducing confidence from investors and related players. What a smooth-running CSP project could bring to the industry? What damages an unsuccessful project may cause to the plant owner, even to the industry? In order to increase CSP's reliability, what measures need to be noticed and tackled throughout a plant's lifecycle? Any experience?

In this panel, industry experts will discuss questions mentioned above, to help you be clear about the importance of a reliable CSP project.

14:00-17:30

Keynote Speech:

- Case studies from operational CSP projects, how they improve the O&M measures to reach higher power production such as the plants in Spain or other regions. Understand potential solutions to deal with the challenges during plant O&M period from different aspects:
- Reduce water consumption in MENA CSP plants;
- Higher efficiency cleaning;
- More precise solar resource measurements;
- Accurate solar field testing and risk prevention;
- Improved control system...etc.;

Technology Innovation

Keynote Speech:

- Learn about breakthroughs in cutting edge technologies such as higher efficiency thermodynamic cycle; new concept focusing system, novel plant engineering, low-cost HTF, thermal storage medium and system, monitoring system, receivers, reflectors...etc.

Non-electricity Solar Thermal Utilizations

Keynote Speech:

- Consider specific environment and demand in MENA area, CSP plants can be used in non-electricity utilization, especially for seawater desalination due to fresh water scarcity in this region. Also, demand for high temperature steam, which is widely used in industrial heat process such as petroleum, hydrogen, steel and aluminium, mining...etc., could be another potential application scene for CSP. Hear the non-electricity CSP's utilizations and discover huge market behind this, make best use of CSP in MENA region.
- Are there any scene for small-scale CSP application in MENA region? What are their advantages and how to develop?

JUNE 24-PV Stream

Cost Reduction Trend in PV

9:00-12:00

Keynote Speech:

- Cost in PV has reduced dramatically over past years thanks to the improvement of components and enlarging markets scale. Learn how PV could reach record-low price in MENA region, what is the development path and future trend?

PV with Storage

- As the installed capacity of PV is increasing continuously in some MENA countries, problems arise when they connect to power grid:
- How unstable output may affect the power grid security and what problems it may cause?
- Why supplementary energy storage system is critical for PV plants;
- What kind of storage system normally adopted with PV plants, battery, heat or others? What are the strengths and weakness for different solutions?
- Economic analysis for PV+Battery Storage system;
- Running mode explanations for PV+Battery Storage plant...etc.;

Market Status, Barriers and Opportunities

Panel Discussion:

- Some great efforts have been made in MENA, but still some challenges the market is facing with. This panel will discuss some questions like:
- Learn Saudi's renewable energy bid winners to meet the requirement such as localization ratio once the project starts to construction; the cooperation between local and overseas players to compete for the bid.
- Jordan's power grid capacity and reliability need to be upgraded since higher penetration of PV and Wind energy. Understand current situation and measures cope with the grid issues, paving the way for RE development.
- The arid climate and extreme high temperature in Sahara desert makes solar park in Egypt become the one of the harshest environment for PV components, what challenges the plant suppliers

and O&M staff will meet and what are the solutions?

Solar Asset Management

14:00-17:30

Keynote Speech:

- Enhance the solar asset's reliability in MENA region by appropriate component selection such as solar module, tracker, cable...etc.;
- Solar resource data collecting and short term weather forecast;
- Onsite and remote monitoring, running data collecting and failure detection;
- Increase plant output by reducing solar module degradation;
- Soiling detection on solar module and cleaning methods;

Technology Development and Application

Keynote Speech:

- Solar cell R&D process on higher efficiency, lower cost and longer durability such as thin film solar cell with novel material.
- Breakthroughs in solar backsheet, inverter, cable...etc.
- How bifacial solar module increase PV plant output and what about the cost?
- Distributed solar PV in rural area development and support policy.
- Floating solar panel applications, the perspective and barriers.