

Online Conference

Concentrating Solar for Power and Heat

Generating, storing and delivering clean, affordable electricity and heat

1-2 April 2020

This final workshop of the World Bank’s Middle East & North Africa Concentration Solar Power Knowledge & Innovation Program will summarize the results of the Program’s activities over the past three years, provide an update on the roles concentrating solar and thermal storage technologies can play in meeting national energy strategies, and evaluate options for design, financing and implementation of future investments.

Time	Agenda Item
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DAY 1: CONCENTRATING SOLAR POWER WITH THERMAL ENERGY STORAGE

1 April 2020

11 am – 12:00 noon CET	<p>High-level Panel Session</p> <p>Evolving Role of CSP with Thermal Energy Storage in National Power Systems: Dispatchable, Renewable and Affordable Power</p> <p>Solar PV and onshore wind are inexpensive, locally sourced, and set to play a much larger role in the energy mix, but as their share grows, grids need more flexibility. CSP with thermal energy storage are among the options available to provide that flexibility. In this session, officials from across the MENA region discuss their strategies and plans for deploying CSP with thermal storage.</p> <p><i>Panelists (in alphabetical order)</i></p> <ul style="list-style-type: none"> • Amani Al Azzam (invited), Secretary General, Ministry of Energy & Natural Resources, Jordan • Mustapha Bakkoury (invited), President, MASEN, Morocco • Pierre El Houry (invited), General Director, President of the Board, Lebanese Center for Energy Conservation • Belhassen Chiboub (invited), General Director of Electricity and Renewable Energy, Ministry in charge of Energy, Tunisia <p>Moderator: Erik Fernstrom, MENA Energy Practice Manager, World Bank</p>
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<p>12:05 – 13:05 CET</p>	<p>Panel Session CSP Project Development Best Practice Hear the latest lessons from the pioneering companies that have developed CSP projects around the world. <i>Panelists (in alphabetical order by organization)</i></p> <ul style="list-style-type: none"> • Paddy Padmanathan, CEO, ACWA Power • Fernando González, CEO, Cerro Dominador • Li Wei, Vice President, Supcon • Oliver Baudson, Managing Director, TSK Flagsol <p>Moderator: Belén Gallego, ATA Insights</p>
<p>13:10 – 14:10</p>	<p>Panel session Best Practice in Financing CSP Projects Leading international financial institutions discuss how to best leverage concessional financing to mitigate risks inherent to large-scale CSP projects. <i>Panelists</i></p> <ul style="list-style-type: none"> • Erik Becker, International Financial Corporation (IFC) • TBC, AFD • TBC, AfDB • TBC, EIB • TBC, KfW <p>Moderator: Moez Cherif, Lead Energy Specialist, World Bank</p>
<p>14:15 – 15:15</p>	<p>Panel Session Dispatchable Solar: Complementarity of CSP, Thermal Storage, PV and Batteries Explore the value dispatchable CSP with thermal storage provides to national electricity systems, and how it complements other generation and storage resources. <i>Panelists (in alphabetical order by organization)</i></p> <ul style="list-style-type: none"> • Cristina Prieto, Head of Innovation, Abengoa • Michael Geyer, Senior Advisor for Technology Development of Solar Power and Storage Projects, DLR • Mark Mehos, Group Manager, Thermal Systems R&D, NREL • Luis Crespo, President, Protermosolar <p>Moderator: Heather Worley, Senior Strategy and Operations Officer, World Bank</p>
<p>15:20 – 16:20</p>	<p>Panel Session The Way Forward for Concentrated Solar Power in MENA Representatives from selected participant countries talk about the work that has been done so far and what remains to be done in their countries. <i>Panelists (in alphabetical order by country)</i></p> <ul style="list-style-type: none"> • TBC, NEPCO, Jordan • TBC, LCEC, Lebanon • Abderrahim Jamrani, Masen, Morocco • TBC, STEG, Tunisia <p>Moderator: TBD, MENA CSP Knowledge & Innovation Program</p>

Time	Agenda Item
DAY 2: CSP TECHNICAL SESSIONS <i>2 April 2020</i>	
11:00 – 11:30 CET	<p>Presentation What is Driving Cost Reductions in CSP? The levelized cost of energy of CSP has fallen from US\$0.40 per kWh to US\$0.07 in less than ten years. See which factors have driven this cost reduction and how much lower CSP costs could go.</p> <ul style="list-style-type: none"> • Michael Taylor, Senior Analyst, Renewable Cost Status and Outlook, IRENA
11:35 – 12:35	<p>Presentation Structuring and Financing CSP Projects Explore in-depth the options available for financing and structuring to achieve competitive costs for energy and essential grid services.</p> <ul style="list-style-type: none"> • Nadia Taobane, Senior Energy Specialist, World Bank
12:40 – 13:40	<p>Presentation Getting a Return on Energy Storage Investments Storage technologies, whether battery, pumped storage or thermal, face challenges in giving a return on investment. This seminar will discuss some of the regulatory approaches and valuation approaches that can make storage viable.</p> <ul style="list-style-type: none"> • Emanuele Taibi, Power Sector Transformation Strategies, IRENA
13:45 – 14:45	<p>Presentation Reducing Technology Risk in CSP Development and Operations Learn about the pitfalls that previous CSP projects have encountered and how they can be avoided, based on empirical evidence from operating CSP plants from around the world.</p> <ul style="list-style-type: none"> • Mark Mehos, NREL • Hank Price, Solar Dynamics

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DAY 2: CONCENTRATING SOLAR HEAT FOR INDUSTRY

2 April 2020

11:00 – 12:00 CET	<p>Panel Session</p> <p>CSH for Industry: National Perspectives Speakers will address how solar thermal technologies can help tackle national energy issues. <i>Panelists (in alphabetical order by country)</i></p> <ul style="list-style-type: none"> • Dr. Nael Al Husami, General Manager at Amman Chamber of Industry, Jordan • Fatima El Khalifa, Cluster Solaire, Morocco • TBC, PENRA • TBC, ANME, Tunisia <p>Moderator: Carlos Márquez, ATA Insights</p>
12:05 – 13:05	<p>Panel Session</p> <p>Opportunities and Challenges for Commercial and Industrial Users of Heat End users talk about how they use heat, what their challenges are and their concerns in adopting concentrating solar heat <i>Panelists (in alphabetical order by organization)</i></p> <ul style="list-style-type: none"> • Pedro Horta, Renewable Energies Chair Chairman and Researcher Coordinator, Évora University • Mohammad Swaitti, JTI Jordan <p>Moderator: TBC</p>
13:10 – 14:10	<p>Panel Session</p> <p>Lessons Learned from Integrating CSH into Existing Production Lines A guided dialogue between industrial users and CSH companies about the challenges in integrating solar heat systems into existing facilities, and how to overcome them. <i>Panelists (in alphabetical order by organization)</i></p> <ul style="list-style-type: none"> • Martin Haagen, Industrial Solar • Ángel Mejía, Inventive Power • Siddharth Malik, Megawatt Solar • Miguel Frasquet, Solatom <p>Moderator: Bärbel Epp, Solrico</p>
14:15 – 15:15	<p>Panel Session</p> <p>Financing Mechanisms to Bring CSH to Market Hear about approaches to financing projects, from traditional project finance with concessional support, to innovations like heat purchase agreements and fuel taxes. <i>Panelists (in alphabetical order by organization)</i></p> <ul style="list-style-type: none"> • Alexis Gazzo, EY • TBC, Fraunhofer Institute • Rémi Cuer, Kyotherm <p>Moderator: Tigran Parvanyan, Energy Sector Management Assistance Program, World Bank</p>