

Opportunities for solar power projects and a solar pilot auction in Lao PDR

Chantho Milattanapheng
Director General

Institute of Renewable Energy Promotion, Ministry of Energy and Mines, Lao PDR
June 8, 2018

Presentation at Asia Clean Energy Forum (ACEF) 2018 in Manila

Agenda

- Opportunities for solar power development in Lao PDR
 - Existing share of solar in power generation mix
 - Potential benefits of solar PV
 - Status of solar power projects
- A Solar Pilot Auction Project in Lao PDR
 - Policy goals for a solar pilot auction
 - Activities for a solar pilot auction

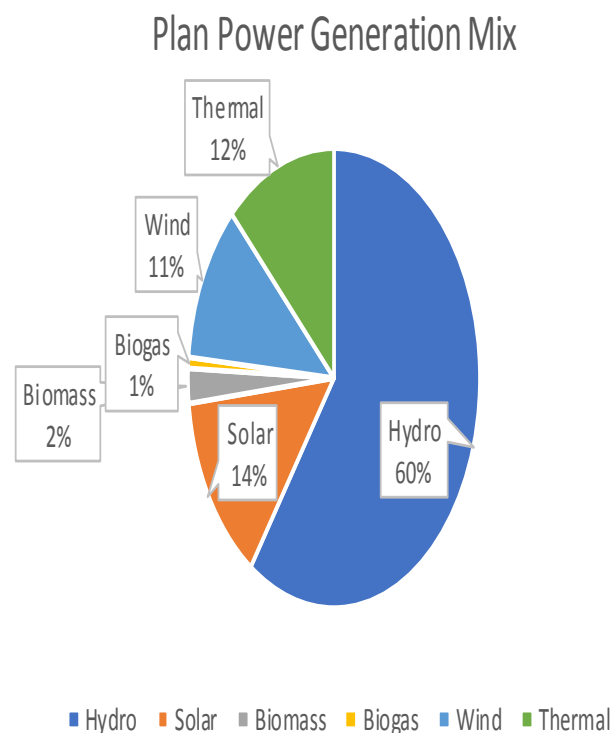
Current power generation mix in Lao PDR
(as of May 2018)

Power Gen by Sources	Installed Capacity	Share
	MW	%
Hydro	5169.11	71.95%
Solar	32	0.45%
Biomass	105	1.46%
Biogas	0.29	0.0040%
Thermal	1878	26.14%
Total	7184.4	100.00%

Planned power generation mix in Lao PDR 2030

Potential Power Generation Mix in Lao PDR for 2030

Power Gen by Sources	Installed Capacity	Share
	MW	%
Hydro	23182	59.66%
Solar	5273	13.57%
Biomass	950	2.44%
Biogas	300	0.7721%
Wind	4350	11.1955%
Thermal	4800	12.35%
Total	38855	100.00%



Technical potential for solar

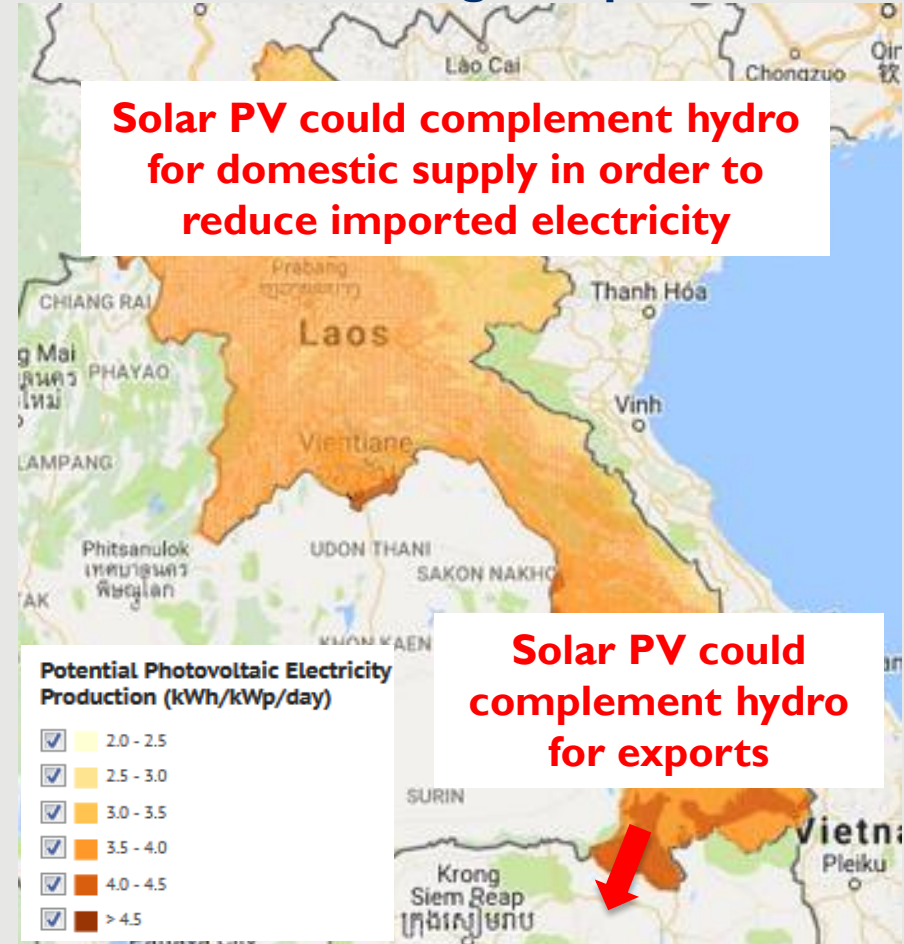
Locations of load demand



Source: IES and MKE, Alternatives for power generation in the GMS, Volume 3: Lao People's Democratic Republic (2016)

Locations of high RE potential

Solar PV could complement hydro for domestic supply in order to reduce imported electricity



Solar PV could complement hydro for exports

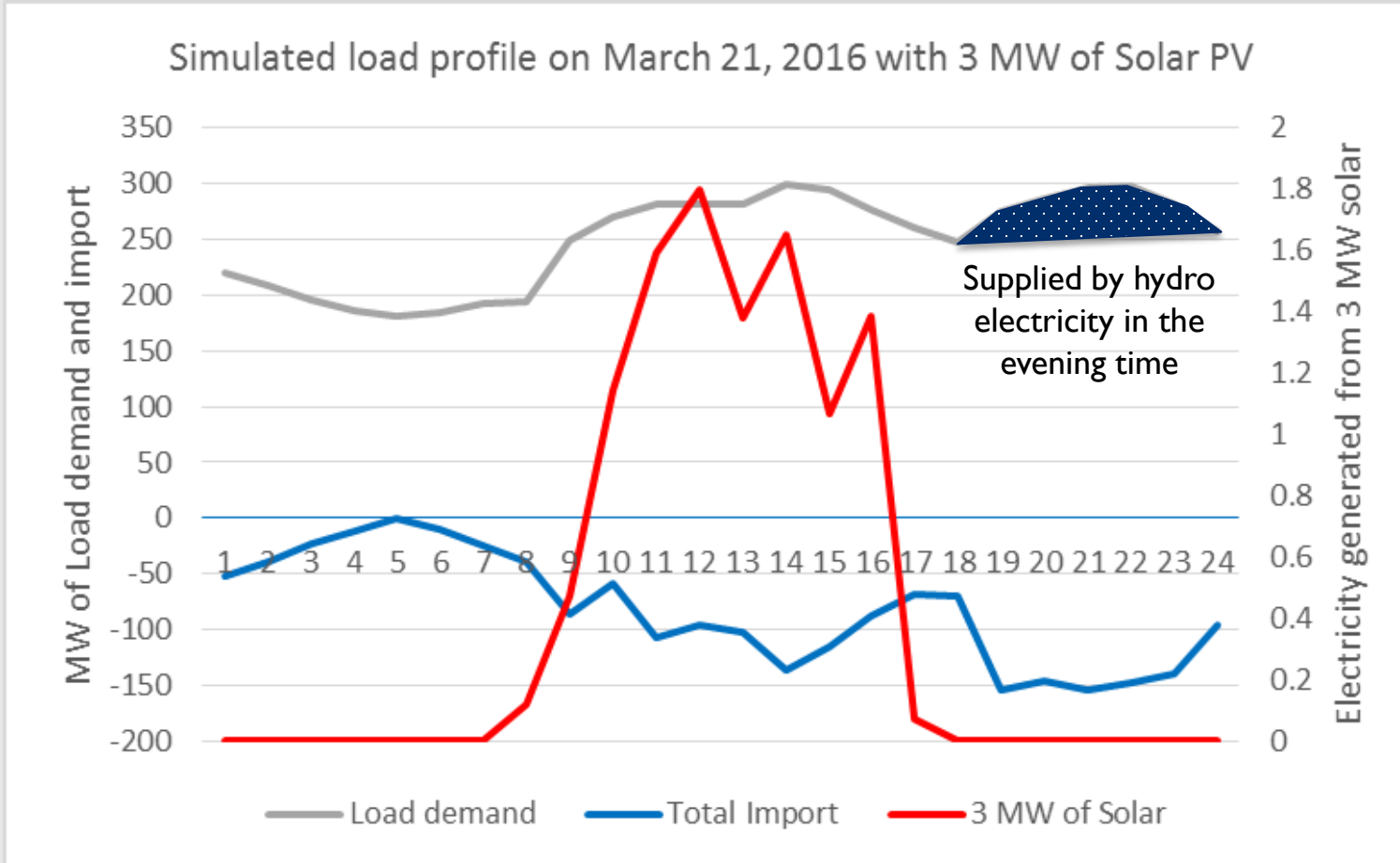
Source: Estimated technical potential from the RE data explorer

Solar capacity: 518 GW

(Under scenario 4 – All Exclusions + Forest and Agriculture exclusions – NREL)

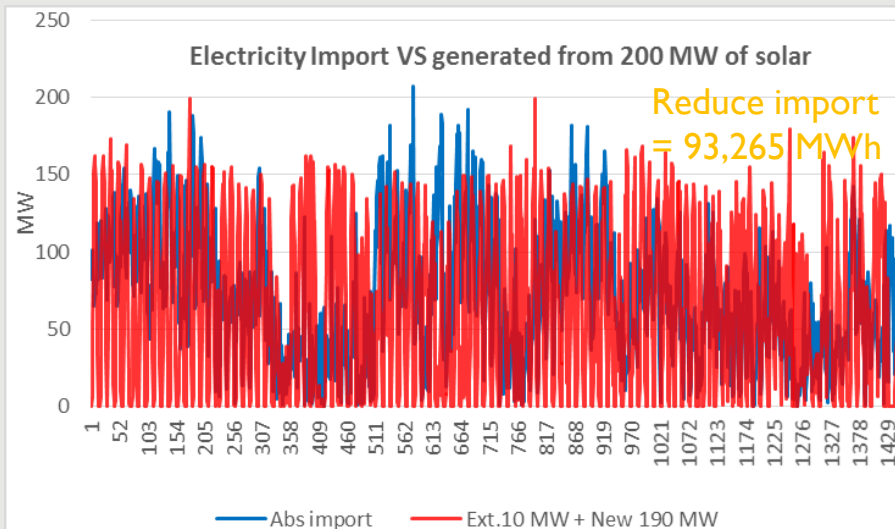
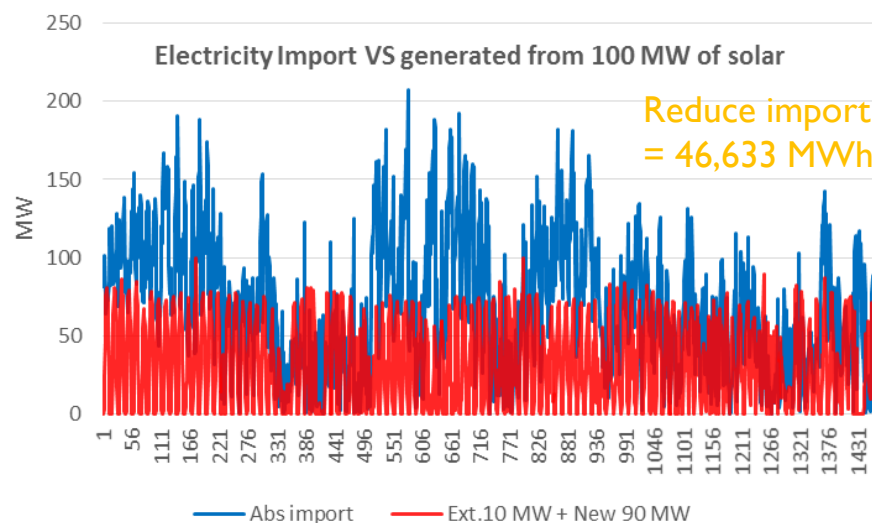
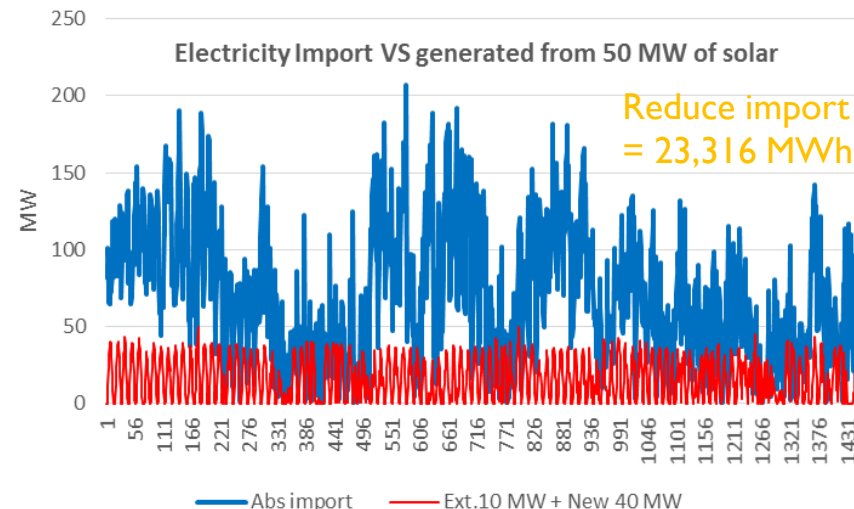
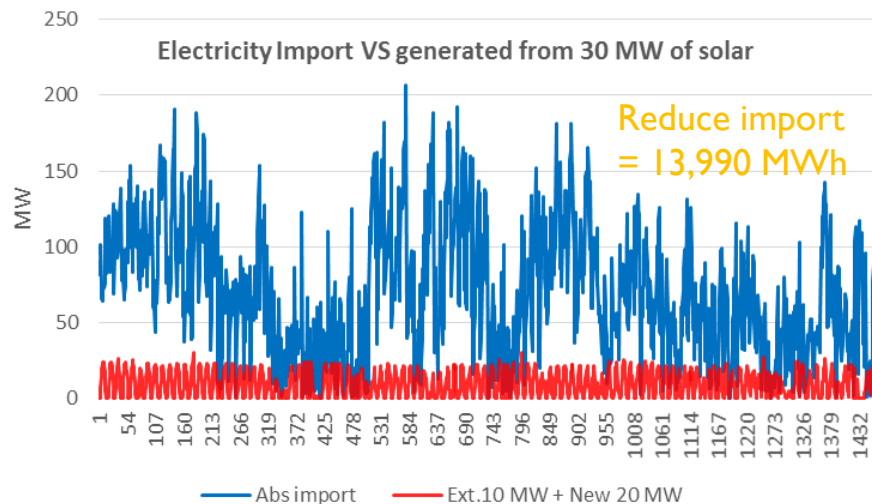
Potential benefit of solar PV: Based on load profile

Simulated 24-hour load profile in March with a 3 MW of solar PV



Potential benefit of solar PV: Simulation results

Simulation of the electricity system integrated with different amounts of installed solar PV project capacity (30, 50, 100, and 200 MW) by selecting daytime data from Jan to June 2016



Current status of solar power development in Lao PDR

Existing grid-connected projects

- **Solar home system:** 630 kW grid connected (commercial buildings and demonstration project by Japanese grant)
- **Solar farm projects:** 32 MW commercial operation in 2017 in Vientiane Capital

Opportunities

- **Conducting feasibility:** With more than 5273 MW of existing signed MOU for both solar farms and floating solar projects.
- **Solar pilot auction project:** Under discussion with technical assistance from USAID Clean Power Asia



Photo credit: EDL-GEN

First solar farm project in Lao PDR

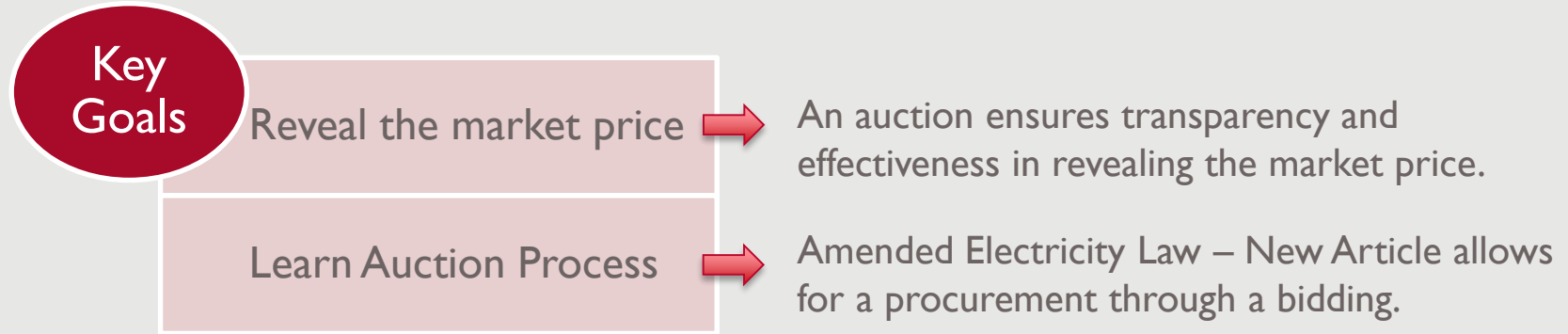
Type	Detail
Developer	EDL-Gen Solar Power (60%) Pattana Energy Absolute Company Limited(40%)
Power buyer	Eletricite du Laos (EDL)
Installed capacity	32 MW
Commercial operation	February, August 2017 and May 2018
Expansion plan	100 MW by 2020 including solar roof top



Photo credit: EDL-GEN



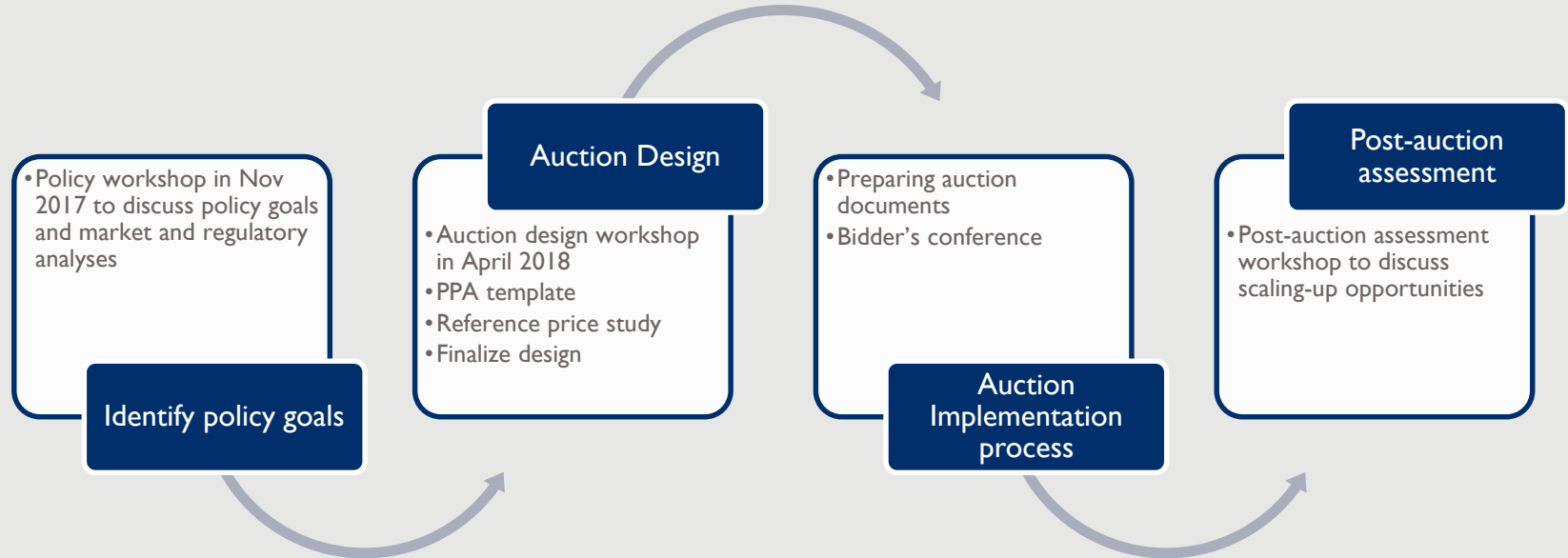
Solar pilot auction project: Policy goals



Policy goals for a solar pilot auction

1. Identify the tariff level that triggers private solar development
2. Learn from the procurement mechanism process and assess the potential for scaling up solar auctions.
3. Potentially reduce the need for electricity imports near load centers with a focus on increasing the available capacity during the dry season (when there is less hydro capacity).
4. To minimize the grid expansion costs, solar PV projects should be built at sites considering the available grid capacity, load demand, and land
5. Begin to build a local industry of solar PV in the mid-term (no short-term goal but for a potential scale-up of the solar PV auction)

Planned activities for a solar pilot auction project



USAID Clean Power Asia and the Lao Ministry of Energy and Mines conducted a workshop in November 2017 to identify steps in developing a solar policy roadmap and to agree on policies to guide an upcoming solar pilot auction in Lao PDR and a workshop in April 2018 for designing a solar pilot auction (Photo credit: US Embassy/Lao PDR)



Mr. Chantho Milattanapheng
Director General
Institute of Renewable Energy Promotion, Ministry of Energy and Mines,
Lao PDR

Mr. Sithisakdi Apichatthanapath
USAID Regional Development Mission for Asia
Athenee Tower, 25th Floor
63 Wireless Road
Patumwan, Bangkok, 10330
Tel: +66 2257 3000
Email: sapichatthanapath@usaid.gov

Ms. Dana Kenney
USAID Clean Power Asia
Abdulrahim Place, Suite 501
990 Rama IV Road
Bangrak, Bangkok 10500
Tel: +66 2026 3065
Email: Dana_Kenney@abtassoc.com



USAID CLEAN POWER ASIA