Thailand's Renewable Development Status and Recommendations

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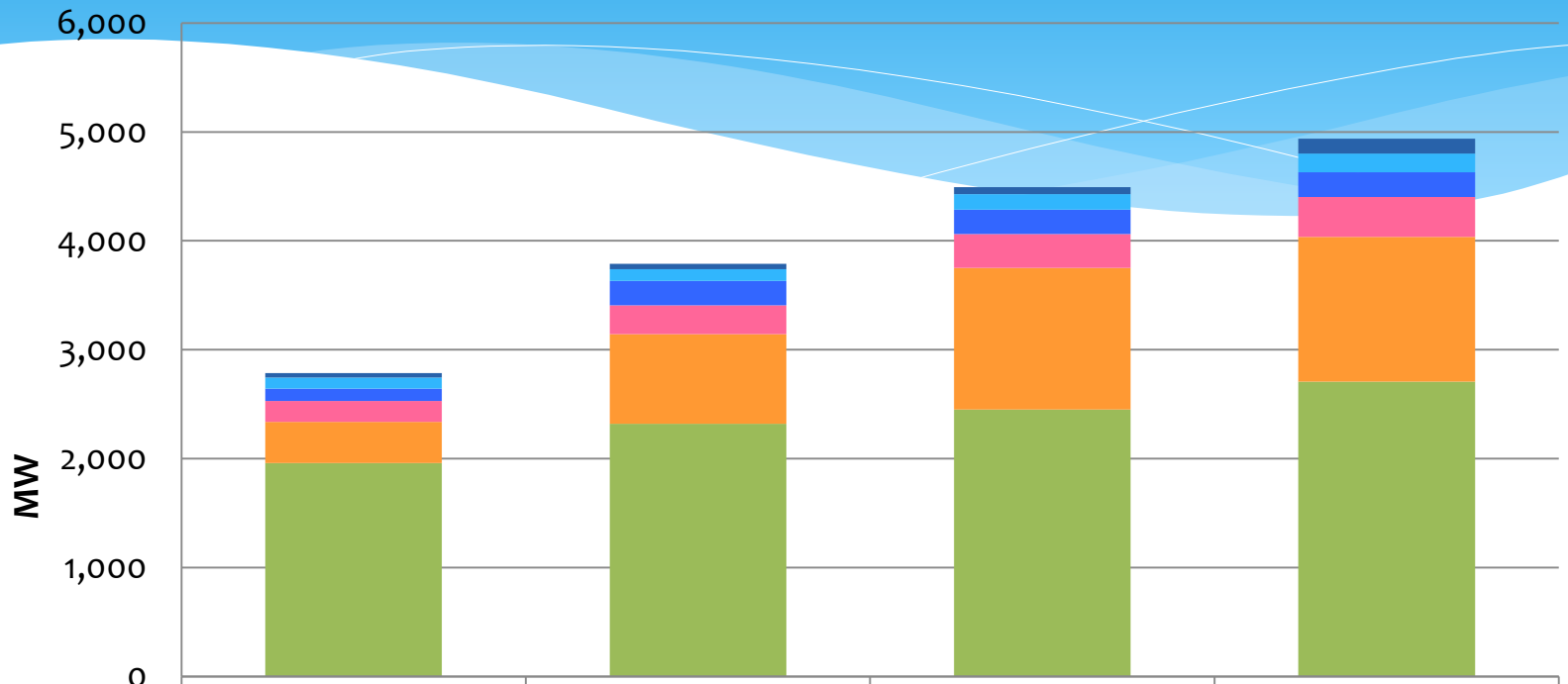
Thailand has laid out important building blocks for renewable power development.

Note: Adapted from Weischer et al. (2011)

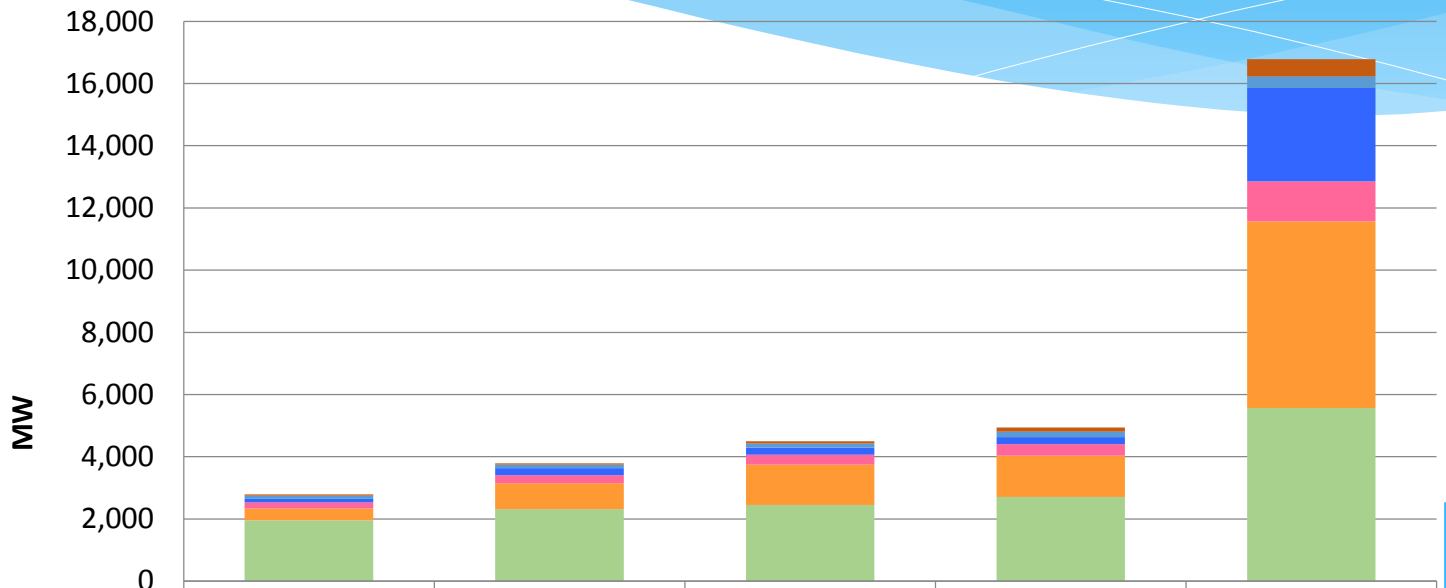
* AEDP is a crucial component for enhancing Thailand's electricity security – quadrupling of renewable generation.
* All important building blocks have been put in place and can be further strengthened.

Status:
Renewable Power in Thailand 2012-2015



	2012	2013	2014	2015 (Jan-Oct)
Waste to energy	43	47	66	135
Small Hydro Power	102	109	142	172
Wind Power	112	223	224	225
Biogas	193	265	312	367
Solar Power	377	823	1,299	1,330
Biomass	1,960	2,321	2,452	2,707

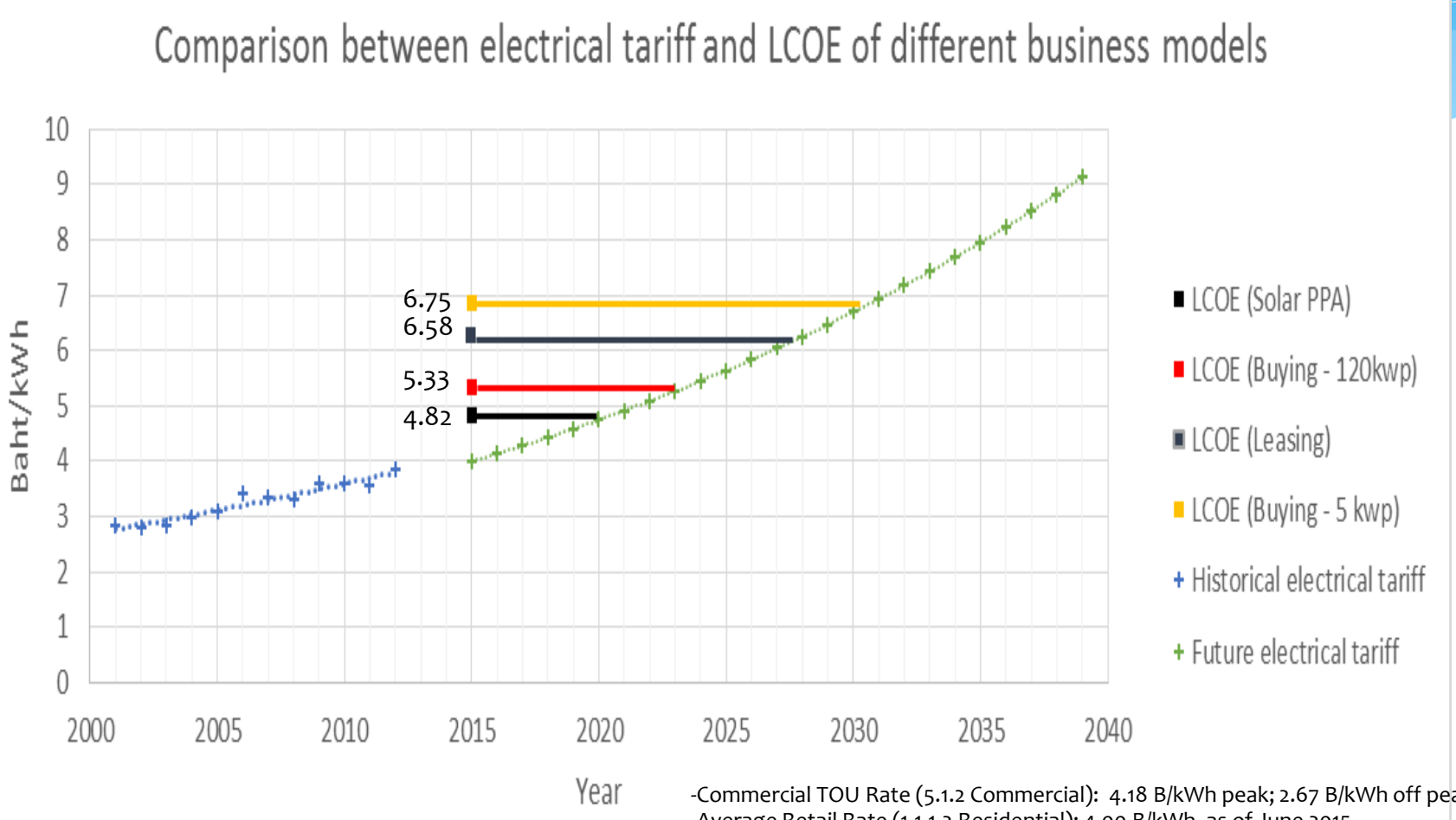
Recent growth in RE significantly exceeds the rate needed to meet 2036 goals



	2012	2013	2014	2015 (Jan-Oct)	2036 Target	Over the last 3 years: 3-Year CAGR	For the next 21 years: 21-Year CAGR
Waste to energy	43	47	66	135	550	46.92	6.90
Small Hydro Power	102	109	142	172	376	19.14	3.79
Wind Power	112	223	224	225	3,002	26.35	13.12
Biogas	193	265	312	367	1,280	23.82	6.13
Solar Power	377	823	1,299	1,330	6,000	52.26	7.44
Biomass	1,960	2,321	2,452	2,707	5,570	11.37	3.49

Cost declines are already changing the business model for some renewables

LCOE for Solar is already competitive in Thailand in some cases



-Commercial TOU Rate (5.1.2 Commercial): 4.18 B/kWh peak; 2.67 B/kWh off peak
-Average Retail Rate (1.1-1.2 Residential): 4.00 B/kWh, as of June 2015

Source: Tongsopit, S., Moungchareon, S., Aksornkij, A. and Tanai Potisat. Business Models and Financing Options for a Rapid Scale-Up of Rooftop Solar Power Systems in Thailand. 2016. ERIA Report (forthcoming).

Addressing Challenges: a non-exhaustive list

* Utilize RE potential to the fullest by setting targets based on real potential
* Contain the cost of subsidies
* Address grid integration challenges by finding optimal locations for the grid system
* Respond to community needs

Addressing Challenges: Rethink Support Measures for RE

SPP Bidding in Designated Areas:
-Annual tender rounds
-Selected grid areas
-Compete on price
-Focus on utility-scale solar farms, wind farms, and biomass
-Availability of firm and non-firm contracts

VSPP Open Application :

-Open for application all year round
-Fixed price FiT
-Available on a first-come, first-serve basis with strict COD deadlines

Solar Net-Metering:

-Open for application all year round
-Credit-based
-Cap as share of the system's peak demand
-Implemented alongside tariff reform

Thailand key findings - Renewables I

* **Planning and Strategy:**
  * The AEDP lacks clear statement of objectives
  * AEDP targets quite ambitious but still underestimates the potential for cost declines, especially for solar and wind.
  * Experiences in IEA countries: Increasing RE share can increase electricity security without undermining reliability
  * The differences in logic between:
    * Given renewable energy potential, what renewable energy goals should be set?
    * Given grid limitations, what renewable energy goals should be set?

Thailand's key findings – Renewables II

* **Attractive Pricing and Financing:**

-Feed-in tariff programs have in place since 2007 but have suffered from policy uncertainties and stop-and-go application process:

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Solar Adder										
Solar FiT: Rooftop										
Solar FiT: Agri.Co-op and Gov										
Adder : Other REs										
FiT: Other REs										

Notes: = Application process is open; = No policy; = Application process is closed; = Uncertainty

-This is caused by two seemingly contradicting policy objectives: increasing renewables vs. containing the cost → new approaches to RE power procurement are needed.

-Steady investment climate is important for the expansion of renewable power capacity

Thailand key findings - Renewables III

* **Technical Capacity:**
  * Many renewable energy projects have been stalled due to the delay in transmission capacity reinforcement
    * At the same time, areas rich in renewable resources often have inadequate grid capacity to accommodate interconnection.
    * When inadequate grid capacity is combined with other constraints, including government priority and permitting challenges, further prospects for RE capacity addition is dim.
    * Current approach to RE grid integration relies upon transmission system reinforcement
  * EGAT does not have a real-time view of distributed generation
  * A number of additional options exist that can enhance the power system's ability to integrate renewables – flexibility in planning and operations.

Thailand key findings - Renewables IV

* **Institutional Capacity:**
  * Functions of different agencies are related to the success of the AEDP.
  * Yet, many cross-cutting issues are not formally hosted by any particular agency and are acted upon on an ad hoc basis.
  * Lack of co-ordination between agencies result in unanticipated problems that arise after the support measure has been launched.
  * There is also a lack of regular evaluation cycle to measure the accomplishment of the AEDP
  * Support measures for RE are now separated into different schemes. Due to grid constraints, the implementation of one scheme relies on the completion of the previous schemes.

Key recommendations

* Increase the ambition of the renewables target, in particular for solar PV
* Redesign support schemes for RE
* Establish renewable performance targets for EGAT in terms of share of grid connected renewables
* Re-think the zoning approach for the deployment of renewables
* Increase EGAT's visibility with respect to the real-time output of distributed generation


THANK
YOU !