



PROPOSAL ON IMPLEMENTATION OF UTILITY SCALE SOLAR (USS)

Ir Dr Ali Askar Sher Mohamad
COO SEDA Malaysia

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FiT Quota Plan (2012-2025) with 1.6 % contribution to RE Fund

Source/ Tech	2012	2013	H1 2014	H2 2014	2015	2016	H1 2017	H2 2017	2018	2019	2020	2021	2022	2023	2024	2025
BG	30	30	15	10	31	25	8	7	15	15	15	15	15	15	15	15
BM	60	50	25	8	18	40	20	10	20	20	20	20	20	20	20	20
BMSW	20	30	15	-	-	-	15		18	20	20	-	-	-	-	-
SH	30	30	45	-	-	50	50	50	100	50	50	-	-	-	-	-
PV (IND)	5	11	3	10	26	15	15	-	-	-	-	-	-	-	-	-
PV (Non Ind <425 kW)				10	20	20	24	-	-	-	-	-	-	-	-	-
PV (Non Ind < 1 MW)	45	45	23	18	34	33	-	-	-	-	-	-	-	-	-	-
PV Community	-	-	-	5	7	7	7	-	-	-	-	-	-	-	-	-
Geothermal	-	-	-	-	-	30	-	-	-	-	-	-	-	-	-	-
Annual	190	196	126	61	136	248	137	7	153	105	105	35	35	35	35	35
Cumulative	190	386	512	573	709	957	1094	1101	1254	1359	1464	1499	1534	1569	1604	1639

National RE targets as per RE Plan

Year	Cumulative RE Capacity
2015	985 MW
2020	2,080 MW
2025	3000 MW
2030	4,000 MW

Under FiT

Total RE capacity by 2020 = 1464 MW, by 2025 = 1639 MW

Total PV capacity under FiT by 2020 = 357 MW

No new FiTs for PV after 2017



New RE Targets

- ASEAN has decided to redefine large hydro as renewable
 - Thus Malaysia now has installed RE capacity of about 4000 MW, including Bakun
 - Far more than the National RE targets for 2020 of 2080 MW
 - Already achieving 2030 RE target of 4000 MW
- However, ASEAN has also set RE targets for member countries
 - 30 % of installed capacity by 2020
 - Installed capacity for Malaysia by 2020 will be about 30 GW
 - 30 % translates to 9000 MW
 - Therefore need another 5000 MW
 - FiT can contribute 1464 MW by 2020, say 1500 MW
 - Therefore need another 3500 MW
 - Net Energy Metering (NEM) and Utility Scale Solar (USS) can contribute
- In 2014 Malaysia has also become the 3rd largest producer of PV in the World, creating thousands of jobs
- It is important that we show a strong domestic market or else the MNCs may shift to countries where there is a strong domestic demand



How to implement

- Through FiT mechanism
 - For plants > 10 MW (up to 30 MW) 2015 COD basic rates are 48.96 sen
 - This rate (and bonus for local modules) can be further reduced for COD in 2016 or 2017 so total is < 50 sen
 - Maximum plant size in Schedule can be increased (say 50 MW) by Ministerial Directive
 - Total capacity under this Program can be limited to say 500 MW for first round
 - Need source of funds other than existing RE Fund to pay for this Program
 - For 500 MW at a FiT rate of 47 sen, a capacity factor of 16 %, and average displaced cost of 23 sen, we need about RM 168M annually
 - Present annual collection to RE Fund is about RM 650M annually but already dedicated to other categories/technologies



How to implement

- Through a bidding mechanism
 - Prequalification of bidders
 - Malaysian owned (foreign participation limited to say 30 %)
 - Utility allowed to bid and own 100 %
 - Need to prove ownership or rights to land, financial capability, preliminary PSS to show connectivity at selected site
 - Bidding
 - Carried out by agency like SEDA, with collaboration with ST and supervision of Kettha
 - Plant size to be between 30-50 MW
 - Total capacity under this Program can be limited to say 500 MW for first round and another 500 MW for second round
 - AVERAGE TNB generating cost about 36-37 sen, but PV power will offset peak demand, so commands higher value
 - Any increase/decrease in TNB generating costs must be reflected through ICPT mechanism



Issues for discussion

- Plant size
 - Proposed 30-50 MW for economies of scale, allow connection to Transmission
 - Another alternative is to spread a plant over a few locations (especially large rooftops), and allow connection to medium voltage (if PSS shows possible)
- Location
 - Allow for minimum distance between plants, say 50 km, to average out the spikes and dips and reduce intermittency
 - This will also reduce the Grid Operator's margin for Operating Reserve and Spinning Reserve
 - A bonus may be needed for plants located outside the Sun Belt, i.e. Perlis, Kedah and Kelantan
- Connection
 - Amendments to Grid Code to allow connection of intermittent plants to Grid will be tabled by Tn Hj Yusof Rakob, independent member of GCC
- Generation forecast
 - Mandatory monthly, weekly and daily forecast using latest forecasting tools; penalty to be introduced if difference of certain %



Way forward

- Propose a Policy on USS for Kettha to consider
 - If under FiT mechanism, Seda can start immediately if there is a source of funds
 - If bidding mechanism, milestones
 - June 2015 – Policy is approved by Government
 - August 2015 – PreQ exercise
 - Nov 2015 – Bidding exercise for COD in 2017
- In the meantime, other issues can be settled like Grid Code, etc

Lets make a bold move now before we get left behind

Thank you

SEDA Malaysia,
Galeria PjH, Level 9
Jalan P4W, Persiaran
Perdana,
Presint 4, 62100
Putrajaya, Malaysia.

Phone : +603-8870 5800
Email: aliaskar@seda.gov.my
Web: www.seda.gov.my

