



Updates on Net Energy Metering (NEM)

SEDA Malaysia Open Day 2018

8th November 2018

Pn. Azah Ahmad

Director, RE Technology (RET) Division
Sustainable Energy Development Authority (SEDA) Malaysia

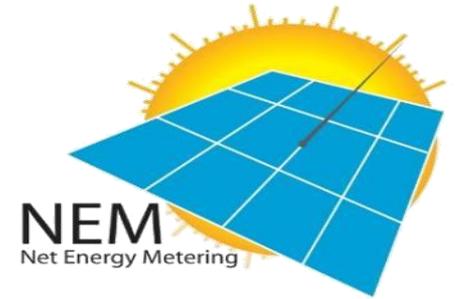
Newest Update on NEM

On 18th October during IGEM 2018, the Minister has announced the decision to improve the NEM scheme by allowing the additional energy that is generated to be exported back to the grid, on a **one-to-one** offset. This means every 1kWh exported to the grid will be off-set against 1 kWh consumed from the grid, instead of at the displaced costs.



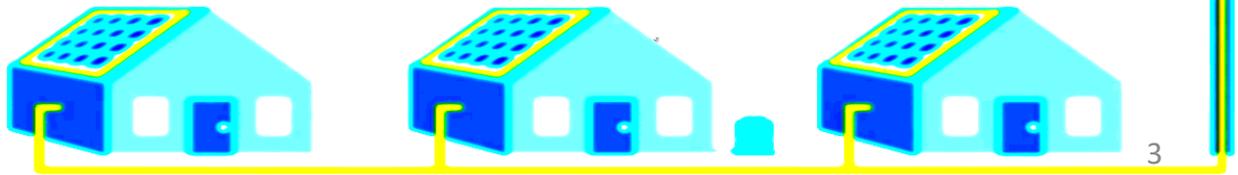
What is new Net Energy Metering (NEM)?

A mechanism where an **eligible consumer installs a solar PV system primarily for his own use and the excess energy (kWh) to be exported to the grid** and to be off-set against kWh from the energy provided by the Distribution Licensee (TNB/SESB) to the electricity consumer during the applicable billing period.



Net Energy Metering = [Energy Imported from DL (kWh) - Energy Exported to DL (kWh)] x Gazetted Tariff

For example, if a residential consumer has a PV system on the rooftop, it may generate more electricity than the home uses. The extra electricity produced will provide a credit against electricity that is consumed.



NEM Implementation



Regulator



Implementing Agency



Distribution Licensee

NEM Participants



OR



OR



NEM Quota (2016-2020)

Quota Allocation											
Location		Peninsular					Sabah				
Year		2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
Category of Consumers	Domestic/Residential, MWp	20	20	20	20	20	4	4	4	4	4
	Commercial, MWp	35	35	35	35	35	4	4	4	4	4
	Industrial, MWp	35	35	35	35	35	2	2	2	2	2
Sum, MWp		90	90	90	90	90	10	10	10	10	10
Total, MWp (as at 1 st Nov 2016)		450					50				

- ✓ The remaining of the 500MW quota for the NEM scheme will be opened for application starting from 1st January 2019.
- ✓ **No more quota allocations by year, category of consumers and location (Semenanjung/Sabah & Labuan).**
- ✓ Quota allocation will be based on **first-come first-served basis.**

Billing Method

Previous NEM



(500kWh)

Home with solar PV

Block Tariff (kWh)	Prorate (kWh)	Rate (RM)	Amount (RM)
First 200	200	0.218	43.60
Next 100	100	0.334	33.40
Next 300	200	0.516	103.20
Next 300	0	0.546	0.00
Total	500		180.20

500kWh x Gazetted Tariff = RM180.20

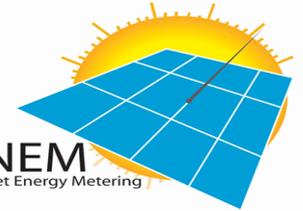


(200kWh)

Excess Energy **Export** to TNB/SESB (Solar PV)

200kWh x RM0.31/kWh = RM62.00

Export x displaced cost



NEM
Net Energy Metering

Bill : RM118.20

New NEM



(500kWh)

Home with solar PV

Block Tariff (kWh)	Prorate (kWh)	Rate (RM)	Amount (RM)
First 200	200	0.218	43.60
Next 100	100	0.334	33.40
Next 300	200	0.516	103.20
Next 300	0	0.546	0.00
Total	500		180.20

500kWh x Gazetted Tariff = RM180.20



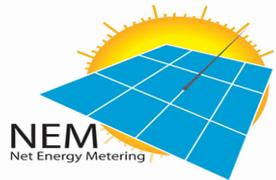
(200kWh)

Excess Energy **Export** to TNB/SESB (Solar PV)

200kWh x Gazetted Tariff = RM103.20

Block Tariff (kWh)	Prorate (kWh)	Rate (RM)	Amount (RM)
First 200	0	0.218	0.00
Next 100	0	0.334	0.00
Next 300	200	0.516	103.20
Next 300	0	0.546	0.00
Total	200		103.20

Export Charges are charged in descending order (start from the highest applicable rate)



NEM
Net Energy Metering

Bill : RM77.00
(Saving RM41.20)

Eligibility

- ✓ Registered consumers of Distribution Licensees (DL) only – in Peninsular Malaysia (TNB), and Sabah & Labuan (SESB);
 - ❑ Not blacklisted (No outstanding bill & meter tempering)
- ✓ Open to all categories of TNB/SESB consumers under the following tariff*:
 - i. Domestic/Residential (*Kediaman*)
 - ii. Commercial (*Perdagangan*) [inclusive of government buildings]
 - iii. Industrial (*Perindustrian*)

*Refer to TNB/SESB consumers electricity tariff
- ✓ The resource for producing electricity shall be from Solar Photovoltaic only



Installation Types and Capacity Limits

✓ Installation types:

- i. on the rooftop of buildings
- ii. on the garage, car park or similar buildings

Note: For ground-mounted system, it may be allowed on case-by-case basis and the installation shall be within the compound of applicant's premises and approved by the Energy Commission.

✓ Capacity limit:

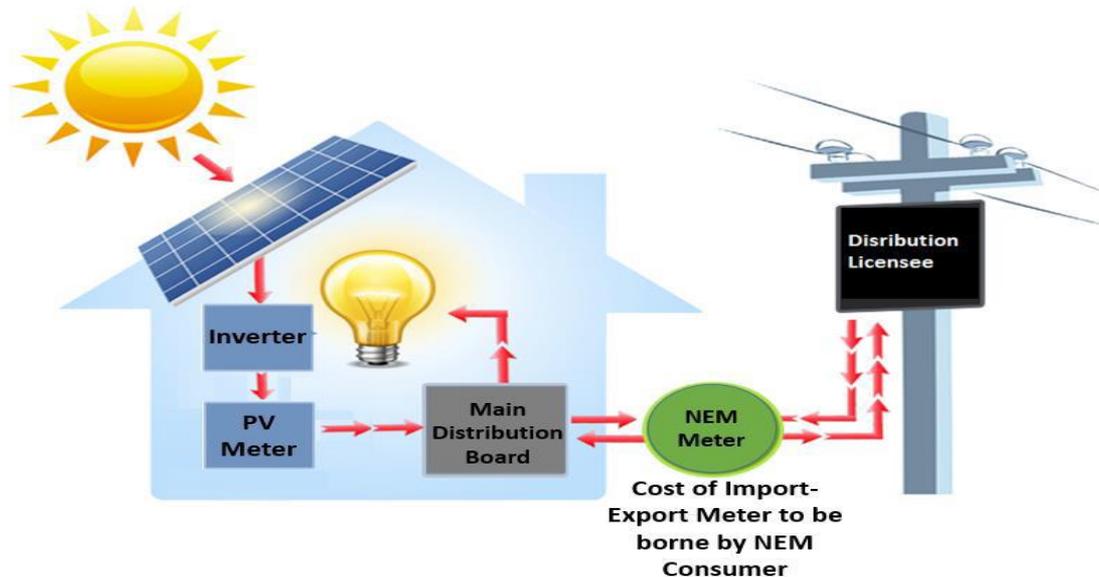
- For domestic or residential consumers, the allowable maximum capacity of the PV system installed is 12 kWp for single phase system or 72 kWp for 3 phase system
- For commercial and industrial consumers, the allowable maximum capacity of the PV system installed is ~~**1 MWp or~~ 75% of maximum demand (whichever is lower) or 60% of fuse rating or 60% of current transformer rating



****as approved by Suruhanjaya Tenaga (ST) at its meeting on 8th February 2018**

Connection Type

- ✓ The connection to the DL's (TNB/SESB) network shall be done only through indirect connection, i.e. within the owner's internal distribution board only



The diagram of the connection between the consumer's solar PV system and the DL distribution system

NEM Assessment Study (NEMAS)

- **NEM Assessment Study (NEMAS)** report is required prior to NEM application to SEDA Malaysia.
- Shall be conducted by the relevant distribution licensee (TNB or SESB). The requirement is based on kWp of installation as below:

Installed Capacity	Study Required	Fee of Study (RM)
1 – 12 kWp 72 kWp	No	-
> 12 kWp 72 kWp – 180 kWp	Yes	1,000.00
> 180 kWp – 425 kWp	Yes	5,000.00
> 425 kWp – 1 MWp	Yes	8,000.00

Note: Study period = 30 days



* For installation more than 1MWp, the fee for Power System Study may applies. ¹⁰

NEM Assessment Study

Please contact:

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Sabah

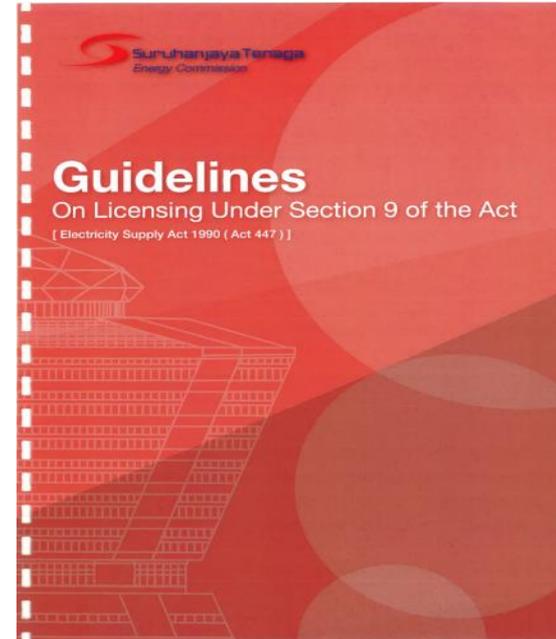


ST Licensing Requirements

For solar PV system installation:

- above 24kW for single phase; and
- above 72kW for three phase

any person who uses, works or operates the installation shall require a license as stipulated under the ST “Guidelines on Licensing Under Section 9 of the Act”.



Applicant Checklist

Documents to be submitted by the Applicant:

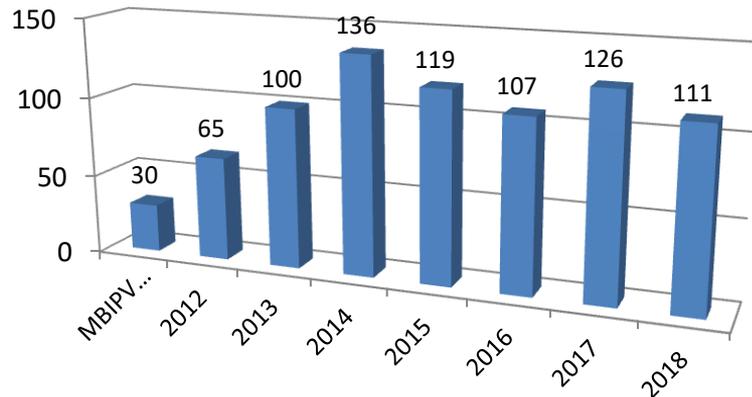
- i. The latest three (3) months electricity bill or at least the first bill (only for new building / premises);
- ii. For capacity >72kW, DL shall check the consumer status during submission for NEMAS/PSS;
- iii. Documents proving the Applicant's ownership of the site, or other conditional or unconditional rights (e.g. Option-to-Rent/Lease or leasing agreement) that the Applicant has to utilise/lease the site for a minimum period equivalent to the effective period



Appoint NEM Contractor

Registered PV Service Providers.

- List available at SEDA's website
Go to www.seda.gov.my => directory => 2018 registered PV service providers
- RPVSP'to comply with the T&C and Code of conduct
 - Must have one Qualified Person Grid-connected PV System Designer
 - Must have one competent/ passed Solar PV Training for Wireman and Chargeman




Registered PV Service Providers Directory
Service Provider • Qualified Person • SEDA Malaysia

Search Registered PV Service Providers Directory

Company Name

All States

Search

- ABLE ENERGY SDN BHD** Puchong SELANGOR DARUL EHSAN
- ACO ECO SDN BHD** KUALA LUMPUR W.P. KUALA LUMPUR
- ADVANCED POWER SOLUTIONS (BORNEO) SDN BHD** Kota Kinabalu SABAH
- AMLED SOLAR SDN BHD** Kuala Lumpur W.P. KUALA LUMPUR
- AMPTech ENGINEERING SDN BHD** SHAH ALAM SELANGOR DARUL EHSAN
- AMSOLAR SDN BHD** PETALING JAYA SELANGOR DARUL EHSAN
- ARUS SPEKTRUM SDN BHD** Shah Alam SELANGOR DARUL EHSAN
- ASIA GREEN SOLAR SDN BHD** BUTTERWORTH PULAU PINANG
- ATLANTIC BLUE SDN BHD** ALOR SETAR KEDAH DARUL AMAN
- AYLIN SERVICES SDN BHD** SHAH ALAM SELANGOR DARUL EHSAN



Where to Apply?



Welcome to Net Energy Metering System
Service Provider/Contractor Login
Please use your NEM Contractor credentials to login.

User ID

Password

Login

Forgot password?

Not a Service Provider/Contractor ?
NEM's Contractor Registration

Applicant login

This system functions best with Google Chrome and Mozilla Firefox browsers

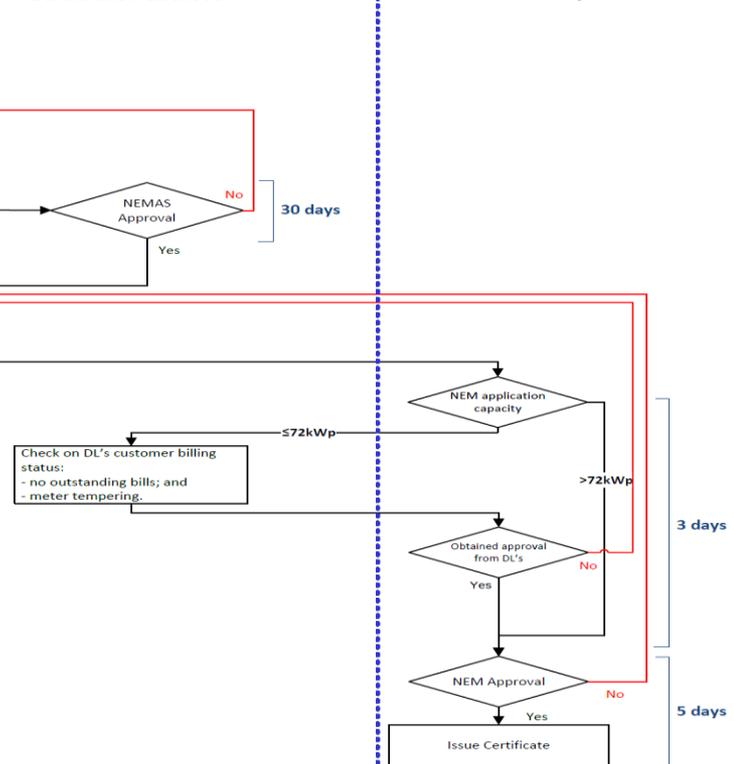
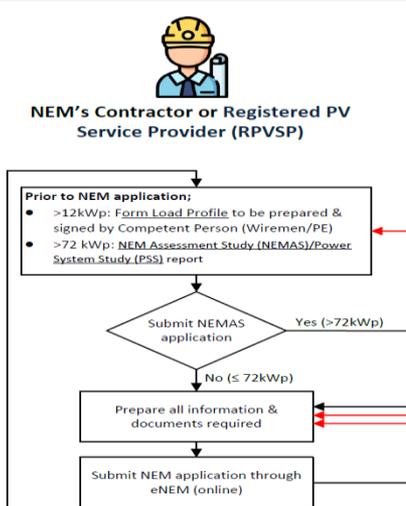
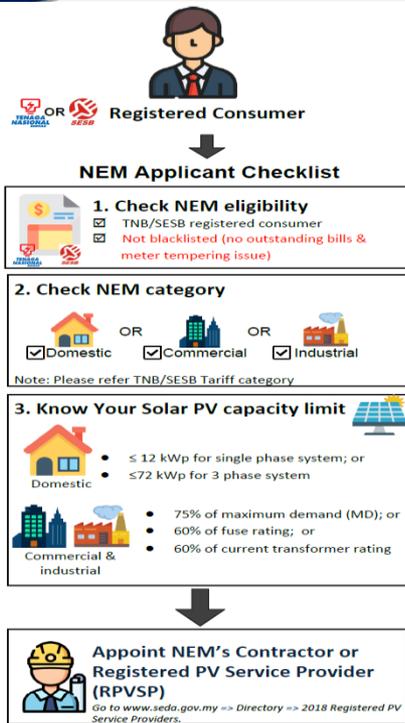
NEM System 1.0.0 | SEDA Malaysia © 2011-2017

Quota Balance										
Region	Peninsular Malaysia					Sabah				
Year	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
Domestic (MW)	0.0000	39.5726	0.0000	0.0000	0.0000	0.0000	8.0000	0.0000	0.0000	0.0000
Commercial (MW)	0.0000	68.8791	0.0000	0.0000	0.0000	0.0000	8.0000	0.0000	0.0000	0.0000
Industrial (MW)	0.0000	69.0785	0.0000	0.0000	0.0000	0.0000	4.0000	0.0000	0.0000	0.0000
Total (MW)	0.0000	177.5302	0.0000	0.0000	0.0000	0.0000	20.0000	0.0000	0.0000	0.0000

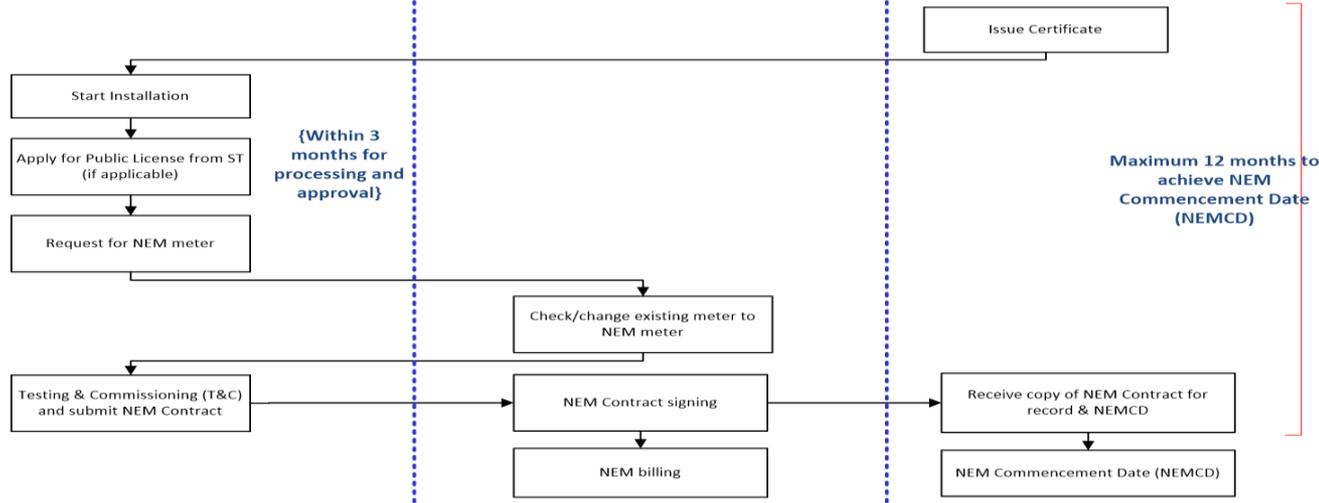
Quota Taken										
Region	Peninsular Malaysia					Sabah				
Year	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
Domestic (MW)	0.0210	0.4064	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Commercial (MW)	0.0064	1.1145	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Industrial (MW)	0.0000	0.9215	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total (MW)	0.0274	2.4424	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Go to www.seda.gov.my => Net Metering => eNEM System

How to Apply? Process Flowchart



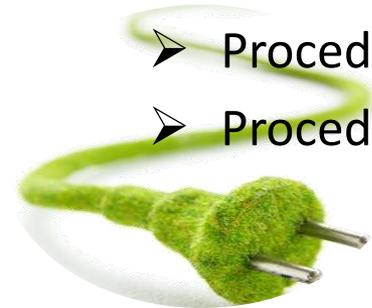
How to Apply? Process Flowchart (cont.)



NEM: Documents and Downloads

www.seda.gov.my → Net Metering

- NEM guidelines;
- Manual application form and e-NEM System (online application);
- NEM contract;
 - Domestic/residential
 - Non-domestic (commercial & industrial)
- Technical guideline for connection of indirect solar PV under NEM scheme;
- Procedure for NEM Assessment Study (NEMAS);
- Procedure for NEM Meter application and signing NEM contract with TNB;
- Procedure for NEM T&C.



Frequently Asked Questions (FAQ)

Q: When will the new NEM commence (where no difference in sale and purchase price of electricity) ?

A: The new NEM mechanism will commence on 1st Jan 2019 and applicable to all previous NEM consumers.

Q: Is there any cash transaction for the excess energy exported to the utility each month ?

A: Any excess energy exported to the utility is allowed to be rolled over max 24 months from the start of NEMCD (or December of the following year).

Q: What is Supply Agreement with Renewable Energy (SARE) and where can I get more information?

A: The detail guideline/ information will be ready on 22nd Nov 2018. There will be tri-partied agreement between the three parties (Customers, investors/owners and the utility). Similar like 'solar-leasing' concept except that investors/owners can opt for billing system provided by the utility.

Frequently Asked Questions (FAQ)

Q: What is the maximum duration allowed from application to proposed NEMCD?

A: 12 months from the date of NEM approved until the date of proposed NEM contract with TNB/SESB, failing which the quota allocated will be refused and offered back to other potential NEM applicants.

Q: What types of meter are required for NEM?

A: 2 types of meter are required as below:

- i. **TNB/SESB's bi-directional meter** (with import-export feature) to record the amount of electricity consumed, produced or exported;
- ii. **PV meter/data logger/inverter with monitoring feature** to record the total amount of electricity generated by the PV system.

Optional - May install check meter for measurement of the energy export (if applicable) and shall be of the same or equivalent to the standards of the consumer meter installed at the premises by TNB/SESB;

Q: Am I eligible to participate in NEM?

A: Yes, as long as you are a customer of TNB/SESB. The basis is always your electricity bill. Please ensure you are a registered customer of TNB/SESB (your name/ company as appeared in the TNB/SESB bill), only then you are eligible to participate in NEM.

Q: If I plan or have installed Solar PV system for self-consumption (SELCO) and have taken the necessary steps to ensure no reverse flow or energy exported to the grid, do I need to apply for NEM?

A: No, but for PV system with capacity above 72 kWp, generation license (private) from ST is required and subject to complying with the relevant rules under the Electricity Supply Act (ESA). For more information please refer Guidelines On The Connection Of Solar Photovoltaic Installation For Self-Consumption issued by ST's

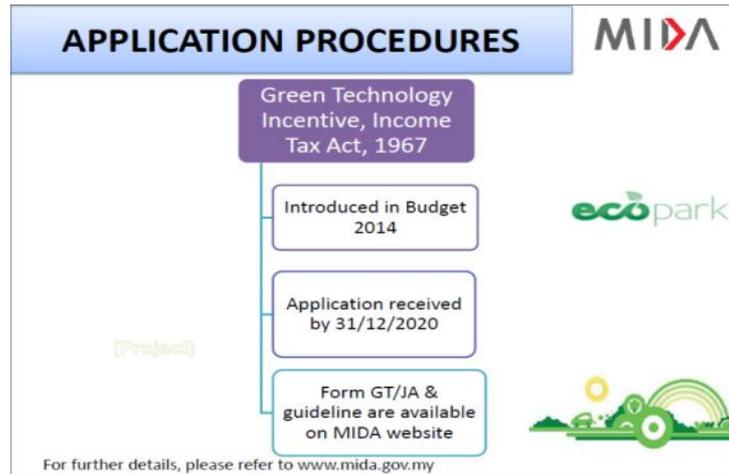
Q: Is a non-local / 100% foreign company eligible to participate in NEM?

A: Yes, as long as he/she is a customer of TNB/SESB.

Q: What types of incentives available for NEM consumers?

A: At the moment there is fiscal incentives offered to eligible companies in the form of Green Technology Incentive by Malaysia Investment Development Authority (MIDA), available until 2020.

<http://www.mida.gov.my/home/tax-incentives-for-green-industry/posts/>



Date: 22nd November 2018

Time: 3.30pm (TBC)

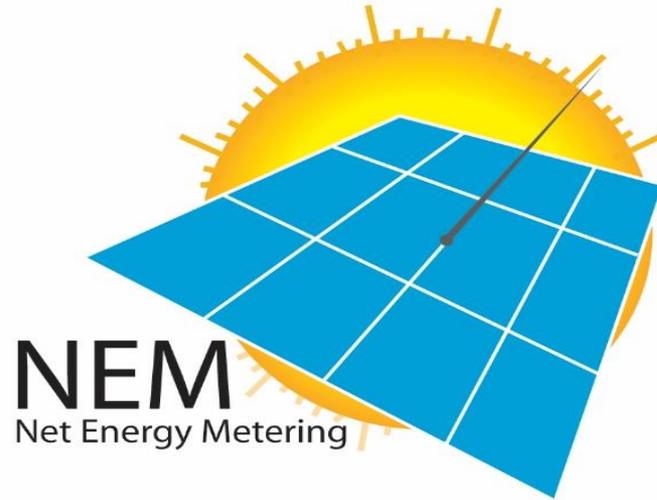
Venue: Hilton Hotel Kuala Lumpur

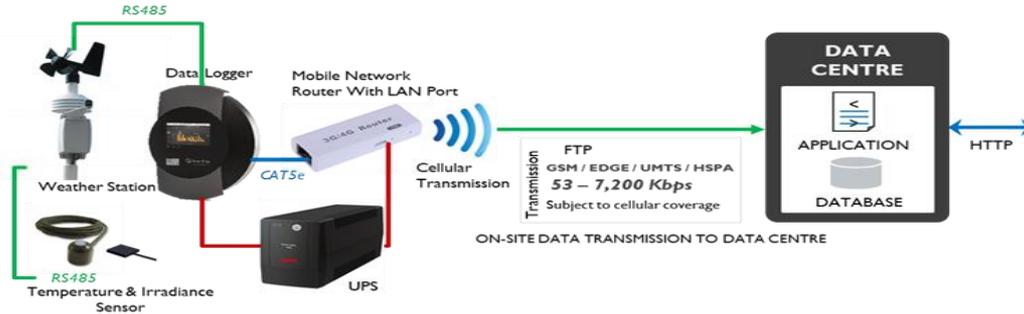
Agenda:

- Net Energy Metering (NEM)
- Supply Agreement with Renewable Energy (SARE)

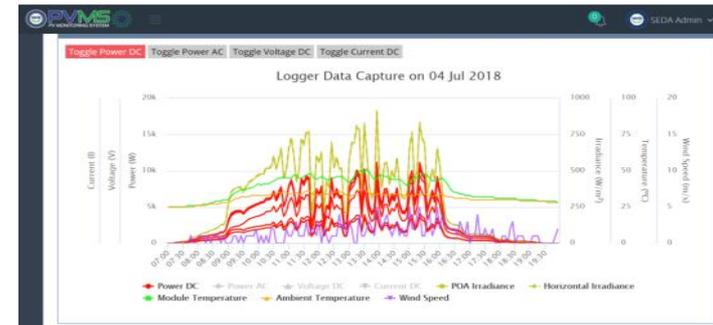


Video on New Enhanced NEM

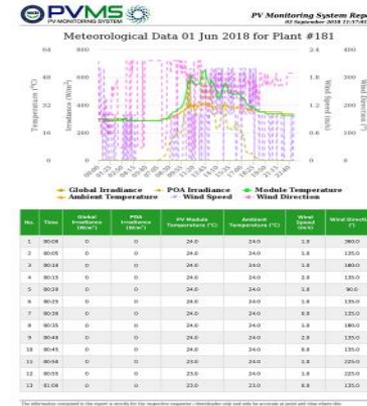
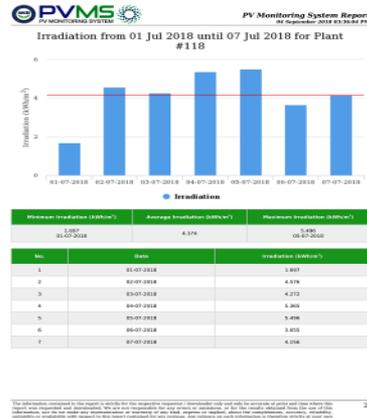
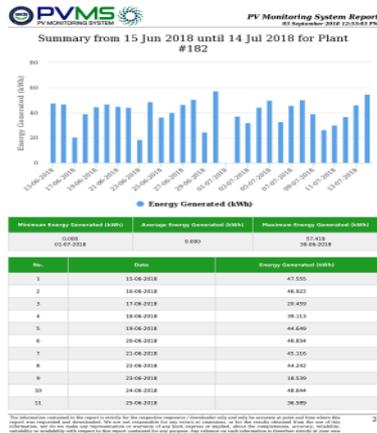




- Realtime Online PV Monitoring System (1st in ASEAN region)
- Adopted the “Internet of Things” (IoT) technology
- 150 Grid-connected solar PV are being monitored on real time basis
- Objective: To monitor PV system in terms of performance and reliability

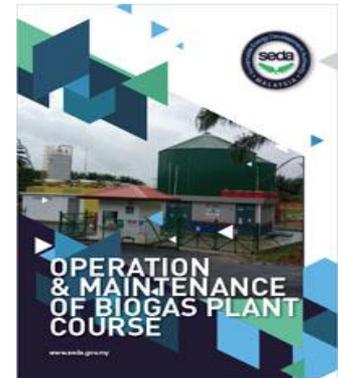
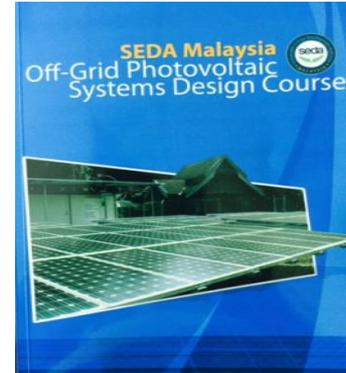
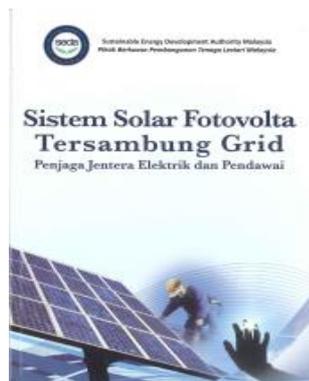
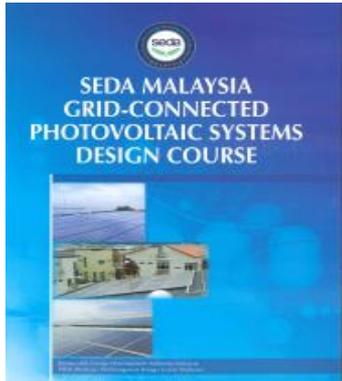


- Reports available for subscription:
 - Summary (Energy Generation)
 - Plant Performance
 - Meteorological Data (wind speed, ambient temp, module temp and irradiance)
 - Irradiation Data



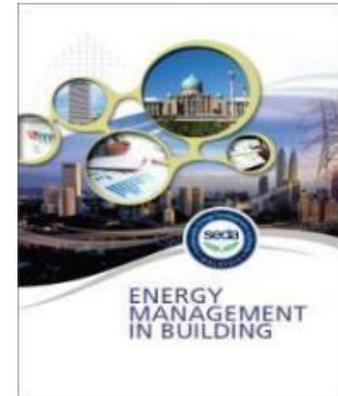
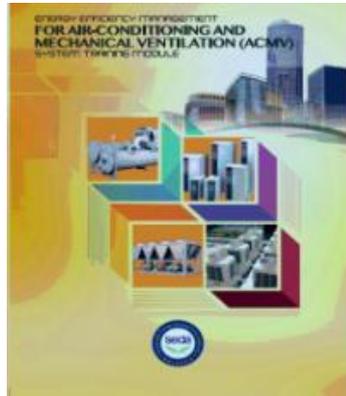
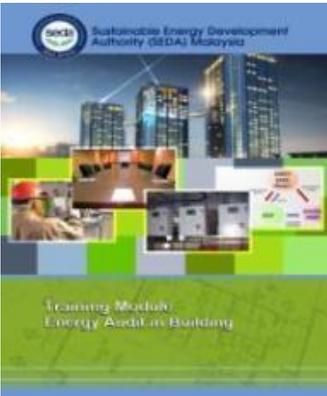
RE Trainings

1. Grid-Connected PV Systems Design
2. Grid-Connected Solar PV for Wireman & Chargeman Grid-Connected Solar PV Installation and Maintenance
3. Off-grid solar PV systems design
4. Operation & maintenance of biogas plants



EE Trainings

- Energy management in building
- Energy efficient management in ACMV system
- Energy audit in Buildings
- Principle and application in compliance to EE&RE Standards in building (MS1525)
- Sustainable Energy Low Carbon Building



THANK YOU



For further enquiries, please contact:

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