



# **GEF5-UNIDO PROJECT**

## ***“Energy-Efficient Low-Carbon Transport in Malaysia”***

**2<sup>nd</sup> National Steering Committee Meeting**

**14 December 2017**

# Content

**Agenda 1: Project Progress And Current Achievement**

**Agenda 2: Scope Change Notice and Proposal to NSC**

**Agenda 3: Discussion Of Way Forward And Other Matter**

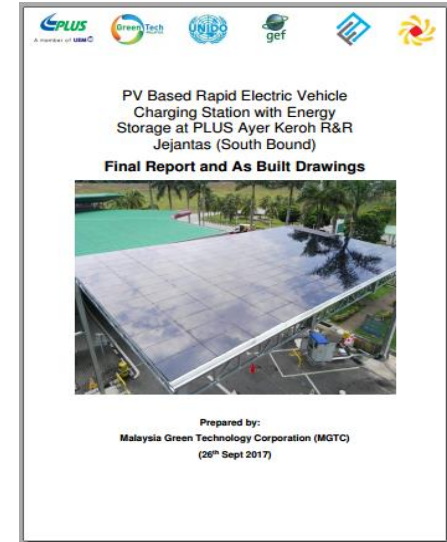
**Agenda 4: Component Overview and Plan for Revision**

# **AGENDA 1: PROJECT PROGRESS AND CURRENT ACHIEVEMENT**

- 1. Component 2-1-1-1: Installation and operation of 1 PV-based fast charging station in Melaka (Highway R&R)**
- 2. Component 2-1-1-2: Installation and operation of 1 PV-based fast charging station in Sunway BRT**
- 3. Capacity Building and Technology Transfer**
- 4. Public & Stakeholders EV Advocacy**

# Component 2-1-1-1: Installation and operation of 1 PV-based fast charging station in Melaka (Highway R&R) - COMPLETED (September 2017)

- ✓ First EV charging stations that is off-grid and is powered by solar PV. This set up also look on second-life of the automotive-grade Lithium Ion battery as energy storage for secondary value of the battery and delaying recycling/ landfill need for the battery for another 10 – 15 years.
- ✓ The type of charger at site is fast charger: (**CHAdemo = 50kW and Type 2 = 22kW**)
- ✓ Excess power is channeled back to the grid
- ✓ Training and handover session was conducted on 20.9.2017 with 30 pax attendance from relevant PLUS team member.





## Component 2-1-1-2: Installation and operation of 1 PV-based fast charging station in Sunway BRT- PENDING COMPLETION

- ✓ System to complement existing charger units in operation at Sunway BRT for the e-BUS daily operation
- ✓ 20kWp Solar PV, 50kWh battery storage and attached to 80kW AC charger.
- ✓ Solar PV, battery storage and main control unit installation has been completed.
- ✓ Pending for final tapping due to contractor still unable to meet to technical documentation requirement by site.
- ✓ Pending for commissioning, training and handover.
- ✓ Additional concern on system performance to meet the project intent as off-grid capable EV charger → PMU proposing for 1-month technical observation period to evaluate the system.



# Capacity Building And Technology Transfer

## NOSS (National Occupancy Skill Standard) Development for EV Charging Station Installation and Maintenance (Level 3)

- ✓ Development of the document started in August 2017 in collaboration with Jabatan Pembangunan Kemahiran (JPK)
- ✓ Aims to create pool of certified installer for EV charging station and promote skill development in this new field.
- ✓ The NOSS covers various technical aspects from site assessment and inspection, material preparation, installation, testing and commissioning and maintenance.
- ✓ Completed, approved and registered by the Technical Standard Committee of Department of Skills Development (November 2017)





# Capacity Building And Technology Transfer

## 4<sup>th</sup> International Electric Vehicle Expo (IEVE2017) at Jeju Island, South Korea (17-23 March 2017)



### Outcome:

1. Development reference for Langkawi Island to Low Carbon Island in Malaysia, enabling strong move for EV at Langkawi.
2. Minister's announcement of EV Taxi program at Langkawi and EV target in Malaysia.



MINISTRY OF ENERGY,  
GREEN TECHNOLOGY AND WATER  
(KEITI MA)

### SPECIAL SPEECH

BY

HONOURABLE DATUK SERI PANGlima DR. MAXIMUS JOHNTITY ONGKILI  
MINISTER OF ENERGY, GREEN TECHNOLOGY, AND WATER  
MALAYSIA

INTERNATIONAL ELECTRIC VEHICLE EXPO 2017  
JEJU ISLAND, REPUBLIC OF KOREA  
17 MARCH 2017

1

## OUTLINE

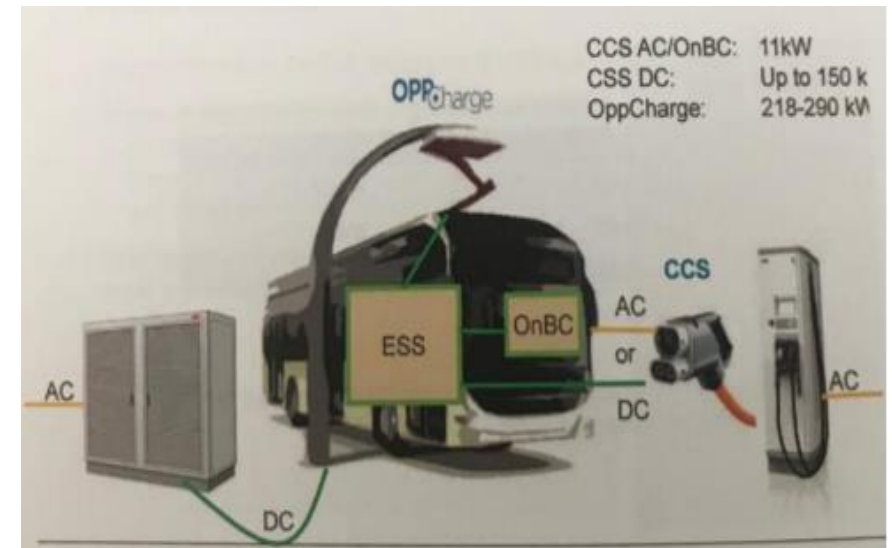
- National Transformation 2050 (TN50)
- Sustainable Development Goals (SDGs)
- Green Technology Master Plan (GTMP)
- Transport Sector in Malaysia
- Electric Mobility in Malaysia
- Electric Taxi in Langkawi
- Conclusion

2

# Capacity Building And Technology Transfer

## Electromobility Training ICP: Volvo e-Bus at Sweden and Poland (26–31 October 2017)

- ✓ Delegation comprises of MRT & Prasarana (Potential adopters for electric bus).
- ✓ Divided into 2 streams, Management and Technical. Technical group have higher exposure for technology transfer and capacity building whereby module used was very specific to electric bus technology.
- ✓ Cooperation and collaborative effort of Volvo, ABB (Industry), City (Gothernburg), University (Academician) on enabling the comprehensive ElectriCITY program that enable successful and holistic implementation of e-Bus.
- ✓ Effort being done on replicating the effort and collaboration approach on small city and campus level in Malaysia.





# Public & Stakeholders EV Advocacy

## Invest Iskandar Malaysia 2017 Symposium – “Shaping the Future Economy of Iskandar Malaysia” at Forest City, Johor (3 – 4 October 2017)

- ✓ Signature event where they share to investors and stakeholders the updates on the exciting development in Iskandar Malaysia as well as the latest on Government policies and strategies which can open up more investment opportunities.
- ✓ The Symposium with three thrusts covering investments, green and digital economy will bring together key thought leaders, capital market players, investors and potential investors, entrepreneurs and top business executives to closely discuss and spur forward thinking investment propositions.
- ✓ During on this event featuring the electric vehicle (EV) car Tesla Model S85, Renault Zoe and BMW plugin-hybrid cars (PHEV)



# Public & Stakeholders EV Advocacy

## International Greentech & Eco Products Exhibition & Conference 2017 (IGEM 2017) – “Powering Green Cities” at Kuala Lumpur Convention Centre (11 – 13 October 2017)

- ✓ **The International Greentech & Eco Products Exhibition & Conference Malaysia (IGEM) has established itself as South East Asia’s largest trade event for green technologies and eco solutions.**
- ✓ This event is the deal platform for solution providers and green energy business to tap into the fast expanding ASEAN market by showcasing the latest innovations to policy makers, government organization, investors and the mass markets under the IGEM brand.
- ✓ The 3 days event will also feature insightful discussion and networking sessions with international speakers and thought leaders on the future of developing sustainable urban areas.
- ✓ **320 Participating Companies; Total of 34,868 visitation recorded; 5 Country Group Pavilions: China, EUMCCI, Japan, Korea & Taiwan**



*Left: Electric Assist Trishaw for heritage area.*

*Left Below: Showcase of various low carbon vehicle, EV as the ultimate choice.*

*Below: Additional chargeEV at Petronas and with green lifestyle.*



# Public & Stakeholders EV Advocacy

## Selangor Smart City (September 2017)

- ✓ **The Smart City & Future Commerce Convention 2017 is set to be Asia's hottest Smart City event in years to come.**
- ✓ Not content at being 'just another Smart City event', they are going full force to co-curate and co-organise the region's most unique and biggest smart and digital event ever to explore the impact of the confluence of the digital world, future commerce and urban living, and how smart & digital advances are transforming cities, communities, and individuals around the globe.
- ✓ Features keynotes by top leadership personalities who are some of the best in their industries, on top of all-star panel sessions with CXOs and thought leaders in both Smart City and Future Commerce.
- ✓ **Throughout all three days, massive exposition with 300 booths from service providers, vendors, tech giants, urban developers, and more from around the world and across Asia.**





# Public & Stakeholders EV Advocacy

## Kuala Lumpur Engineering Science Fair (KLESF) at MINES International Exhibition & Convention Centre (3 – 5 Nov 2017)

- ✓ The Kuala Lumpur Engineering Science Fair (KLESF) is an initiative with various programmes and activities that aims to **promote interest in science, technology, engineering and mathematics (STEM) among primary and secondary school students.**
- ✓ The KLESF partners comprise of the ASEAN Academy Of Engineering and Technology (AAET), Universiti Tunku Abdul Rahman (UTAR), Malaysian Industry-Government Group For High Technology (MIGHT) and The Institution Of Engineers Malaysia (IEM).
- ✓ **KLESF is also an initiative in support of Science to Action (S2A) initiative announced by the Prime Minister in 2013 to mainstream the usage and understanding science to the society and promote innovation and technology as one of the strategic reform initiatives for national development.**

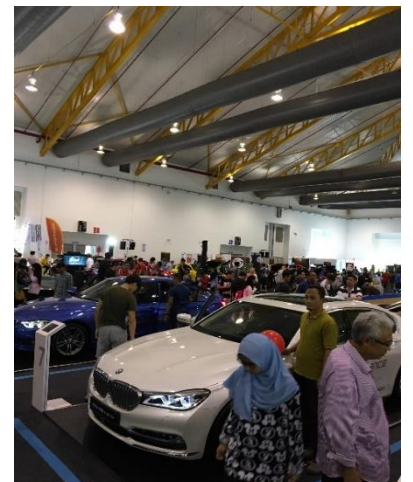
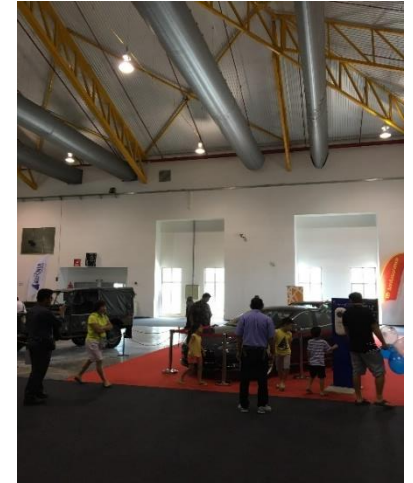




# Public & Stakeholders EV Advocacy

## Malaysia Autoshow 2017 by MAI - “Smart, Safe and Sustainability Mobility” at Malaysia Argo Exposition Park, Serdang (MAEPS) (9 – 12 November 2017)

- ✓ Malaysia Automotive Institute has taken a step further this year by taking the Malaysia's largest annual autoshow to a whole new level. Malaysia Autoshow 2017, with the theme of “**Smart, Safe and Sustainability Mobility**”
- ✓ total of 170 exhibitors showcasing a wide range of automotive technology products and services-providing motor enthusiast to gain an insight of the products and services that are being offered by the their favorite brand.



# AGENDA 2: SCOPE CHANGE NOTICE AND PROPOSAL TO NSC

## Agenda 2.1:

**Change of PMU role and Project Executing Partner.** KeTTHA appointing a new PMU while MGTC is taking role of Project Executing Partner for effective project execution process.

## Agenda 2.2:

**Langkawi Data Mining for Low Carbon Island program.** Change of Component 1-1-1-8 Policy Instrument - Langkawi to Langkawi Data Mining activities. The contract for the data mining activity was already awarded to UM Power Energy Dedicated Advanced Centre (UMPEDAC) Inception Report was submitted in December 2017.

## Agenda 2.3:

**4-PV based Charging station to 30 charging station at Langkawi for greater impact.** To change four (4) PV-based fast electric vehicle charging station charging to 30 electric vehicle charging station at Langkawi Island. The revised pricing for all the installation is valued at USD188,000.

## Agenda 2.4:

**EMB Review to Low Carbon Mobility Blueprint.** Review to Electric Mobility Blueprint to Low Carbon Mobility Blueprint. This document will be the guiding policy framework document for Low Carbon Mobility in Malaysia. For that, budget allocation from Component 1-1-2-2 amounting USD120,000 to complete the document is proposed.

# Scope Change Notice and Proposal to NSC

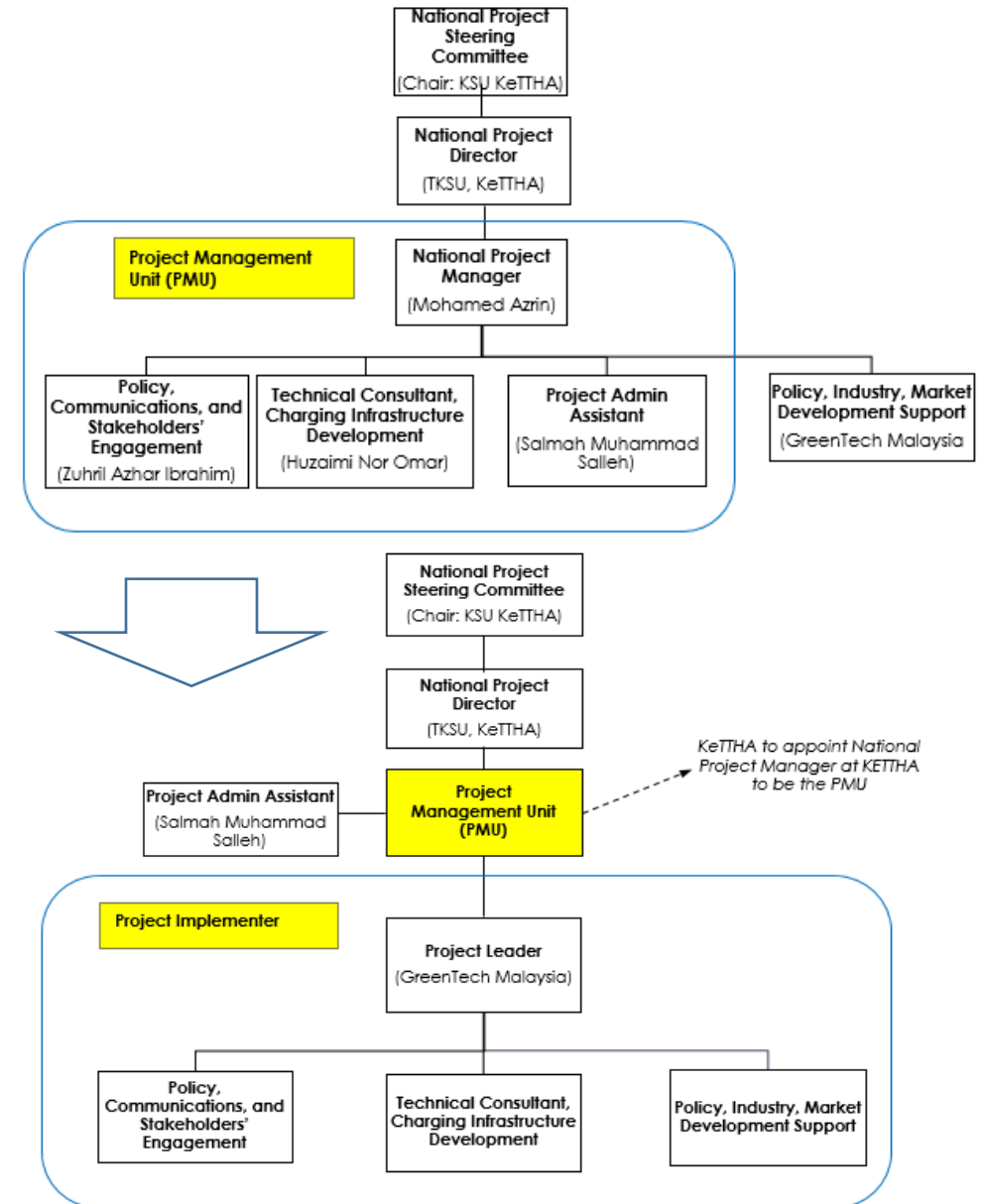
## Agenda 2.1: Change of PMU role and Project Executing Partner

**Title:** MGTC not renewing PMU contract that expired on June 2017 with EELCT program.

**Justification:** MGTC as the executing arm (Project Executing Partner for EELCT) would yield much greater productivity. PMU role is in conflict of interest position for MGTC to undertake project executing role.

**Status:** PMU role is being undertake by Green Technology Sector of KeTTHA. KeTTHA is appointing Mr. Zairin Ismail as the National Project Manager. Mr Zairin is expected to be on board starting January 2018.

**Proposal:** NSC to take note on the changes and consent MGTC to manage the execution of all EELCT project Component 1 and Component 2.







# Scope Change Notice and Proposal to NSC

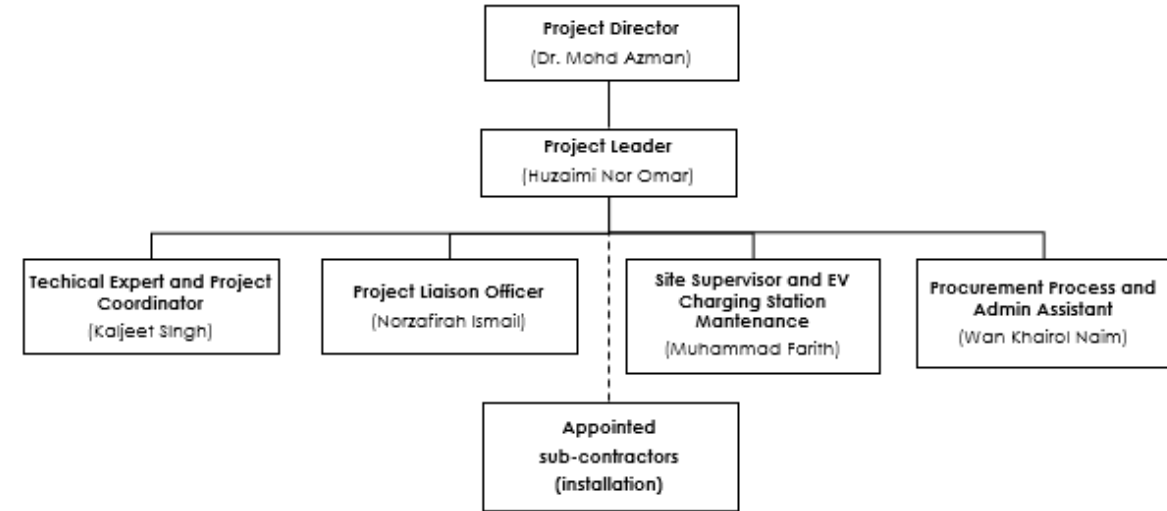
## Agenda 2.3: 4-PV based Charging station to 30 charging station at Langkawi for greater impact.

**Title:** Scope change from four (4) PV-based fast electric vehicle charging station charging to 30 electric vehicle charging station at Langkawi Island. USD200k was budgeted for the 4 PV-Based Charging Station.

**Justification:** Existing 2 PV-Based C/station providing adequate visibility requirement of the establishment. Higher impact establishment is required in supporting Langkawi Low Carbon Island initiatives.

**Status:** The principal of the changes has been agreed by KeTTHA and UNIDO. MGTC had submitted proposal to UNIDO for USD200k for 30 charging points with chargeEV as the network branding, aligned to chargeEV as the National EV charging network. MGTC had received the contract with Total value of USD188k.

**Proposal:** NSC to take note on the component change and consent on the contract award to MGTC.



Activities	Deliverables	Timeline
Technical assessment of potential sites and site approval	<ul style="list-style-type: none"><li>Detail assessment report for each site</li><li>Signed meeting minutes of the consultations with the local taxi community and local council</li><li>Signed ChargeEV Acceptance Form from each site</li></ul>	6 weeks
Phase 1 installation (10 units)	<ul style="list-style-type: none"><li>10 working charger with full ChargeEV features</li></ul>	6 weeks
Phase 2 installation (10 units)	<ul style="list-style-type: none"><li>10 working charger with full ChargeEV features</li></ul>	6 weeks
Phase 3 installation (10 units)	<ul style="list-style-type: none"><li>10 working charger with full ChargeEV features</li></ul>	6 weeks
Operation and maintenance	<ul style="list-style-type: none"><li>Support provided throughout the established ChargeEV hotline (maximum of 5 working days for provision of required service)</li></ul>	2 years

# Scope Change Notice and Proposal to NSC

## Agenda 2.4: EMB Review to Low Carbon Mobility Blueprint

**Title:** Review to Electric Mobility Blueprint to Low Carbon Mobility Blueprint; as the guiding policy framework document for transportation sector transformation to low carbon mobility in particular electric vehicles.

**Justification:** No holistic policy framework document for Electric Mobility available; making it difficult to execute effective action plan from various players and stakeholders.

**Status:** Urgency and importance of the document has been deliberated and agreed upon at KeTTHA's level. TOR has been completed. MGTC has circulate TC Committee Nomination letter to 6 relevant agencies.

**Proposal:** NSC to recognize the importance of the needed policy document and approve the action plan with budget of USD120k from EELCT UNIDO-GEF5.



*GTMP specifying 6 focus sectors; launched Oct 2017*



*New document for policy framework on **GREEN TECHNOLOGY in TRANSPORT SECTOR** with holistic view and action plan for EV transition. To make various references (local policy document) and global approach.*

*EMB produced on 2015 was not strong enough for policy reference. Lacking in action plan and unrealistic target*

## AGENDA 3: DISCUSSION OF WAY FORWARD AND OTHER MATTER

- All matters related to PMU in the future to be managed by NPM. MGTC role as the Project Executing Partner.
- To discuss on next NSC meeting with UNIDO director scheduled in town on February 2018.
- Expediting contract award by UNIDO for better project execution.

## AGENDA 4: COMPONENT OVERVIEW AND PLAN FOR REVISION

- There is delay on AWP component execution mainly due:
  - a) Component execution matters due to MGTC cannot execute project component when carrying PMU role.
  - b) Late appointment of new PMU (6 months vacuum). MGTC had assisted on PMU roles.
- Due to timing lag and condition has changed slightly, some component require re-scoping.
- MGTC with new NPM will work together on reviewing the AWP and to propose recovery plan and budget allocation restructuring during next NSC scheduled on February '17.



# EELCT Component 1 Overview

<b>Component 1 Key Activities</b> Policy and regulatory framework Financing mechanisms Business models for industry and market development Promotion and awareness activities Capacity building for stakeholders			
<b>Planned Activities</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
Framework for national policy and regulatory instruments	1x		
ChargeUP x.0 Stakeholders' Engagement session - Government stakeholders			
ChargeUP x.1 Stakeholders' Engagement session - Industry players	1x		
ChargeUP x.2 Stakeholders' Engagement session - Public EV advocacy	1x		
Review of the National Electric Mobility Blueprint - strengthening public awareness	1x		
Policy paper on incorporating EV charging infrastructure into electricity supply rates for utilities		1x	
Policy paper on financial mechanism to encourage growth of EV market		1x	
Policy instrument - Langkawi		1x	
Capacity building framework	1x		

*\* To present on full AWP revision on next NSC (Feb '18) for component work plan improvement; in achieving the original target or better.*

# EELCT Component 1 Overview (cont.)

<b>Component 1 Key Activities</b> Policy and regulatory framework Financing mechanisms Business models for industry and market development Promotion and awareness activities Capacity building for stakeholders			
<b>Planned Activities</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
Techno-economic study, system performance monitoring, and business model development		1x	1x
Publication, brochures, media for awareness program		1x	1x
IEVE Expo Korea - capacity building for 3 pax 17-23 Mar 2017		1x	
VEF 2017 May Conference - capacity building for 4 pax		1x	
Electric Vehicle Symposium (EVS 30) Stuttgart Oct 2017 Conference - capacity building for 3 pax		1x	
Electric Mobility Roundtable May 2017		1x	
Electric Mobility International Conference in conjunction with IGEM 2018			1x

*\* To present on full AWP revision on next NSC (Feb '18) for component work plan improvement; in achieving the original target or better.*

# EELCT Component 2 Overview

<b>Component 2 Key Activities</b> 6 PV-based charging stations (fast and off-grid) for EVs Enhanced standards and regulations for EV infrastructure Local manufacturing of EV bus and motorcycle components supported Facilitate capacity building and technology transfer to enable EV and component manufacturing			
<b>Planned Activities</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
Installation and operation of 1 PV-based fast charging station in Melaka	1x		
Installation and operation of 1 PV-based fast charging station in Sunway BRT		1x	
Installation and operation of 1 PV-based fast charging station in Putrajaya/ Cyberjaya		1x	
Installation and operation of 10 charging station in Langkawi		10x	
Installation and operation of 1 PV-based fast charging station in Iskandar			1x
Travelling and accommodation for off-site project management	1x	1x	1x
Adoption of revised IEC 61850 and 62196 standards		1x	
EV Charging Station Setting Up Guidelines		1x	
Enabling support programmes framework	1x		

*\* To present on full AWP revision on next NSC (Feb '18) for component work plan improvement; in achieving the original target or better.*

# EELCT Component 2 Overview (cont.)

Component 2 Key Activities			
6 PV-based charging stations (fast and off-grid) for EVs			
Enhanced standards and regulations for EV infrastructure			
Local manufacturing of EV bus and motorcycle components supported			
Facilitate capacity building and technology transfer to enable EV and component manufacturing			
Planned Activities	2016	2017	2018
Electric two wheeler and bus deployment initiative		1x	
Capacity building and technology transfer framework	1x		
Engagements with international OEMs involved in electric mobility	1x		
Engagements with OEMs involved in electric mobility with local presence	1x		

*\* To present on full AWP revision on next NSC (Feb '18) for component work plan improvement; in achieving the original target or better.*



# EELCT Component 3 Overview

Component 3 Key Activities Regular monitoring, tracking tools Mid-term and final project evaluations			
Planned Activities	2016	2017	2018
Monthly submission of progress report	5x	12x	12x
Submission of annual report	1x	1x	1x
Project Steering Committee Meeting	1x	2x	2x
Evaluation of annual performance	1x	1x	1x
Analysis on performance and opportunities for improvement	1x	1x	1x

*\* To present on full AWP revision on next NSC (Feb '18) for component work plan improvement; in achieving the original target or better.*



**THANK YOU**

**Contact:  
Huzaimi Omar  
Head of Low Carbon Mobility  
Malaysian Green Technology Corporation  
[huzaimi@greentechmalaysia.my](mailto:huzaimi@greentechmalaysia.my)**