

ENERGY

ENVIRONMENT

10 *Years*  
A DECADE OF  
GREEN MILESTONES

# GREENING THE FUTURE

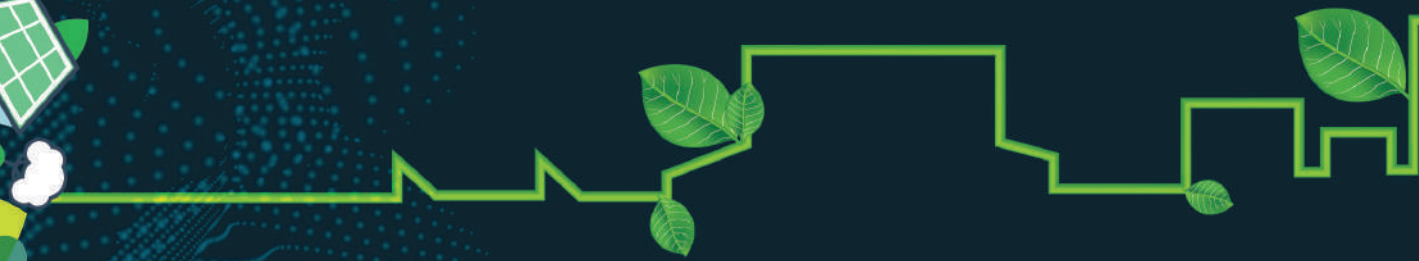
ANNUAL REPORT 2019

SOCIAL

ECONOMY







# KICKSTARTING THE GREEN FUTURE THROUGH SUSTAINABLE ENERGY



Reduction In Energy Consumption  
From EACG Programme

**49.2** GWh

Energy Management Gold  
Standard Certification

**203** Organisations

Certified Energy Managers

**1,599**

ASEAN Energy Awards 2019

**16** Malaysian Companies Won

Energy Projects Received Green Incentives

**58** Energy Efficiency

**240** Renewable Energy







# CREATING A GREEN BUSINESS ENVIRONMENT WHERE GREEN PROJECTS, PRODUCTS AND SERVICES CAN THRIVE



MyHIJAU Green Products  
Registered & Listed

**5,183** Products  
since 2015

MyHIJAU Verification  
Partners

**21**

IGEM 2019

**26** MoUs Signing **RM5.99** in Business Leads

Projects Approved for Green Incentives

**231** projects





# STEERING THE NATION TOWARDS LOW-CARBON FUTURE



Public EV Charges Installed

**300** units

EMGS Certification

**76** Organisations in 2019

Low Carbon Cities

**17** Low Carbon Zones  
in 2019

**13** Low Carbon Partners  
in 2019





# IMPLEMENTING INITIATIVES TOWARDS A GREENER LIFESTYLE



MGTC UnivTour Programme @ IGEN

Over

**500**

Students

IGEM Visitors (2016-2010)

**499,090**

Visitorship

Jobs Created (GTFS)

**4,909**

Green Knowledge (Energy)

**3,247**

Participants

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## 22<sup>nd</sup> ANNUAL GENERAL MEETING

 No. 2, Jalan 9/10  
Persiaran Usahawan, Seksyen 9  
43650 Bandar Baru Bangi  
Selangor Darul Ehsan

 Thursday  
23 July 2020

 11.00 a.m.



This Annual Report is available at  
<https://www.greentechmalaysia.my/>



### FEEDBACK

This report is available to all stakeholders and can be downloaded from our corporate website at <https://www.greentechmalaysia.my/>. MGTC welcomes comments from our stakeholders. For further enquiries or feedback, please contact:

**Tel:** 03-8921 0800 **Fax:** 03-8921 0801/0802

**email:** [info@greentechmalaysia.my](mailto:info@greentechmalaysia.my)

**MALYSIAN GREEN TECHNOLOGY AND CLIMATE CHANGE CENTRE**

**CLIMATE CHANGE COMMUNICATION & EDUCATION**

No. 2, Jalan 9/10, Persiaran Usahawan  
Seksyen 9, 43650 Bandar Baru Bangi  
Selangor Darul Ehsan



# ABOUT MALAYSIAN GREEN TECHNOLOGY AND CLIMATE CHANGE CENTRE

# 4

**PILLARS  
Under NGTP**

## NATIONAL GREEN TECHNOLOGY POLICY (NGTP)

The **National Green Technology Policy** (NGTP) Identified Green Technology as a **Key Driver** to **accelerate** the **National Economy** and **promote Sustainable Development**.



**ENERGY**



**ECONOMY**



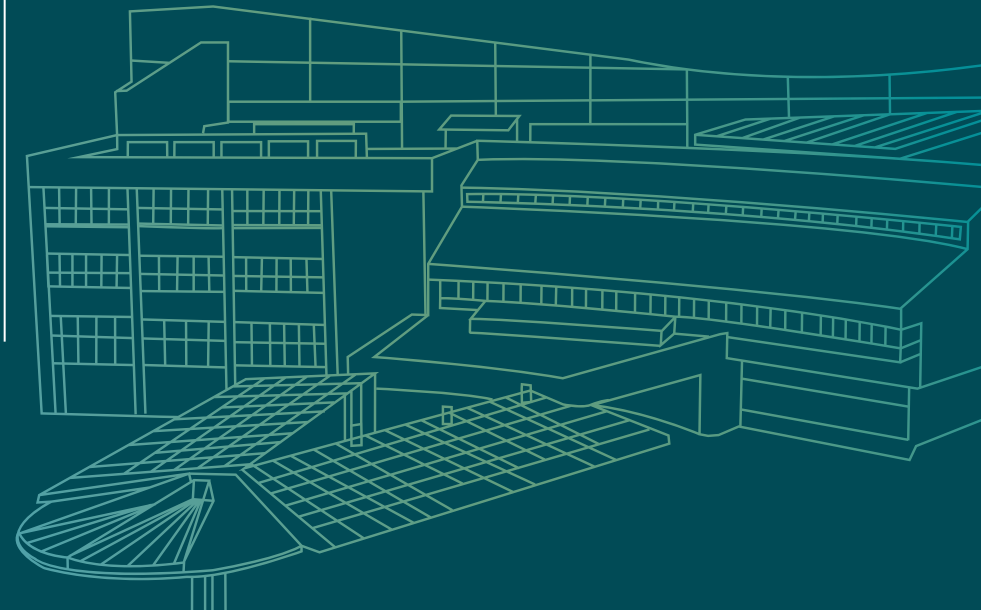
**ENVIRONMENT**



**SOCIAL**

Formerly known as Pusat Tenaga Malaysia (PTM), Malaysian Green Technology Corporation (MGTC) was **restructured in April 2010** and was under the purview of Ministry of Energy Green Technology and Water (KeTTHA) till 2018. Assuming the role of the country's lead agency, **MGTC focused on catalysing green technology** agenda in line with the **aspirations of the National Green Technology Policy 2009**.

For the period of 2018 till early 2020, MGTC was under the purview of Ministry of Energy, Science, Technology, Environment & Climate Change (MESTECC). **Now, MGTC** is under the Ministry of Environment and Water (KASA) and **known as Malaysian Green Technology and Climate Change Centre**. As the lead agency for KASA, MGTC develops and implements programmes on green growth, climate change mitigation and climate change adaptation.



# A DECADE OF GREEN MILESTONES



The year is filled with milestones related to the implementation of NGTP. Pusat Tenaga Malaysia (PTM) is rebranded as Malaysian Green Technology Corporation (GreenTech Malaysia) with an expanded portfolio on promoting green technology. 2010 also marks the establishment of the Green Technology and Climate Change Council (MTHPI); the first edition of International Greentech & Eco Products Exhibition & Conference Malaysia (IGEM); and launch of the Green Technology Financing Scheme (GTFS).

## 2009

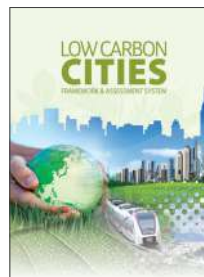
### NATIONAL GREEN TECHNOLOGY POLICY (NGTP)

In July 2009, the Government unveils the National Green Technology Policy (NGTP), marking a turning point in Malaysia's journey of sustainable growth. One of the main aims is to provide a conducive environment for green technology development.



## 2011

### LAUNCH OF LOW CARBON CITIES FRAMEWORK



In line with the NGTP, GreenTech Malaysia develops the Low Carbon Cities Framework (LCCF) to guide cities and townships towards sustainable development to reduce carbon emissions. The document can be used by stakeholders in cities, townships or even neighbourhoods to measure the impact of their development decisions in terms of carbon emissions and abatement.

## 2010

### NGTP IMPLEMENTATION



## 2013

### LAUNCH OF MYHIJAU DIRECTORY FOR GOVERNMENT GREEN PROCUREMENT



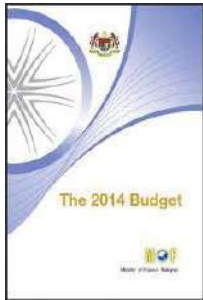
### MYHIJAU MARK AS A GUIDE IN BUYING GREEN PRODUCTS & SERVICES

## 2012

MyHijau Mark is approved by MTHPI on 23 October 2012. The programme serves as Government recognition for products and services that have been certified green and comply with local or international environmental standards. It is an initiative to promote the sourcing and purchasing of green products and services in Malaysia.

MyHIJAU Directory carries the complete list of product and service providers certified with the MyHIJAU Mark, categorised with detailed information and descriptions. The Directory is to serve as a source of reference for ministries, agencies and companies in making green purchasing decisions.





## 2014

### ANNOUNCEMENT OF GREEN INCENTIVES IN BUDGET 2014

To incentivise the adoption of green technology, GreenTech Malaysia initiates the Green Investment Tax Allowance (GITA) for the purchase of green technology equipment and/or assets, and Green Income Tax Exemption (GITE) for the provision of green technology services.



GreenTech Malaysia starts to develop strategic action plans for state governments and organisations as part of NGTP deployment.

## 2015

### GREEN ACTION PLAN DEVELOPMENT

## 2017

### LAUNCH OF GREEN TECHNOLOGY MASTER PLAN (GTMP)



The Green Technology Master Plan (GTMP) is launched at IGEM 2017. Developed by the Ministry of Energy, Green Technology and Water (KeTTHA) and GreenTech Malaysia, it creates a framework to facilitate the mainstreaming of green technology into Malaysia's development plans. GTMP focuses on six key sectors, namely Energy, Manufacturing, Transportation, Building, Waste and Water, harmonising the policy directions of each sector towards the common goal of creating a low-carbon and resource efficient economy.

## 2016

### GOVERNMENT GREEN PROCUREMENT (GGP) AT ALL MINISTRIES



The Government Green Procurement is implemented at all 25 ministries at the Federal Government level.



## 2018

### DEVELOPMENT OF GTFS 2.0

After a successful GTFS programme, GreenTech Malaysia develops an enhanced GTFS 2.0, which includes Energy Service Companies (ESCOs) as a new category of eligible applicants to support investment or assets related to energy efficient and/or energy performance contracting. Since GTFS was introduced in 2010, no less than 28 financial institutions have begun participating in the programme.

## 2019



### REBRANDING AS MALYSIAN GREEN TECHNOLOGY AND CLIMATE CHANGE CENTRE

In October 2019, GreenTech Malaysia is rebranded as Malaysian Green Technology and Climate Change Centre (MGTC) with an expanded portfolio that includes spearheading climate action for the nation. MGTC will act as a hub for climate change data, policy analysis, reporting and monitoring, coordination of climate change mitigation and climate change adaptation, effectively becoming the executing body for climate change and green technology for the Ministry of Environment and Water.





**PROFESOR DATO' IR. DR.  
A. BAKAR BIN JAAFAR**  
Chairman

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# CHAIRMAN'S STATEMENT

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**Dear Stakeholder,**

It gives me great pleasure to present MGTC's Annual Report for the year 2019, which marked two significant milestones for this corporatised Agency of the Government of Malaysia: the first milestone when it has been operating in the first 10 years since the rebranding of Pusat Tenaga Malaysia (PTM) or Malaysian Energy Centre into Malaysian Green Technology Corporation (GreenTech Malaysia); and the second one is to embark on a new chapter as the lead Agency entrusted with Malaysia's transformation into a sustainable nation driven by green technology. Since the 10<sup>th</sup> October 2019, it has been given an additional scope of work and re-branded as the Malaysian Green Technology and Climate Change Centre (MGTC).



---

In 2009, the Government committed to a **voluntary reduction of up to 40%** in terms of emissions intensity per unit of GDP by the year 2020 compared to emission intensity level in 2005. This commitment has been revised in 2016, as announced by the Prime Minister of Malaysia at COP-15, with a **new target: 45% reduction** by 2030 from the 2005 baseline.

---

Ever since climate change has taken centre stage in the global community, Malaysia has been conscious and conscientious of reducing its carbon emissions. In 2009, the Government committed to a voluntary reduction of up to 40% in terms of emissions intensity per unit of GDP by the year 2020 compared to emission intensity level in 2005. This commitment has been revised in 2016, as announced by the Prime Minister of Malaysia at COP-15, with a new target: 45% reduction by 2030 from the 2005 baseline.

Although the nation's long standing efforts toward a greener future predates the establishment of MGTC, the efforts put in particular by the previous and current leadership of this Agency have had a positive and lasting imprint on the country's sustainable development. Over the last decade, the Agency has worked tirelessly with various Ministries, Government Agencies and other market enablers, including financial institutions, to grow and support a greener marketplace, ensuring green technology becomes the preferred choice at various levels of decision making.

“  
We worked closely with various ministries, government agencies and other market enablers in **ensuring green technology becomes the preferred choice.**  
”

The Agency has continuously identified gaps in the evolution and adoption of green technology, and prioritised initiatives to overcome these gaps. Following the PTM-initiated establishment of the Sustainable Energy Development Authority (SEDA), for example, the Agency has helped in promoting renewable energy (RE) and energy efficiency (EE) growth through its enabling programmes including the Green Technology Financing Scheme (GTFS) and Green Investment Tax Allowance (GITA). It further supported greater widespread applications of green energy through the Energy Audit Conditional Grant (EACG) and that of capacity building programmes the like of Energy Management Training (EMT).

In due time, the focus of the Agency would shift toward the greening of transport sector, where it would launch various electric mobility programmes, and is currently finalising a Low Carbon Mobility Blueprint (LCMB) that is to be announced at the end of 2020. Going further forward, the Agency is conceptualising more programmes targeting highly efficient waste management in order to be in line with the concept of circular economy, another key area in the Government's agenda for greater sustainability through resource efficiency.

The Agency has achieved much, and yet there is much more to do and to accelerate the nation's green agenda by reaching more sectors of the economy including agriculture and forestry. At the same time, the Agency will play its critical role to help enhance the overall well-being by building the country's resilience to the impacts of climate change.

“  
Guided by the **45% carbon emission reduction target**, MGTC will be focusing its **climate change mitigation strategies** on the most critical sectors and sub-sectors of the economy.

”

Guided by the 45% carbon emission reduction target, MGTC will be focusing its climate change mitigation strategies on the most critical sectors and sub-sectors of the economy. Being mandated as the Climate Change Centre, it would help facilitate the Agency in its planning and tactical coordination, in order to tap into the nation's resources and talents to help achieve the national CO<sub>2</sub> emission targets. It would also focus on its Climate Change Adaptation strategies that encompass Public Health, Water Security, Food Security, Infrastructure, Coastal Protection and Biodiversity. Towards this end, a Climate Change Collaboration Network is to be set up, with MGTC serving as its nucleus linking universities, research institutions, industries and other national and international organisations working together on common goals.

The year 2020 has begun on a very challenging note, with the COVID-19 outbreak. Although the pandemic has had a serious social and economic impact on almost all nations across the world, it has also demonstrated that people are able to make and adapt to dramatic changes in their lives, for better outcomes. This is positive news for the green agenda in which half the battle lies in adopting new attitudes and belief systems. As MGTC assumes its new mandate to lead the country on climate actions, it will press on with efforts to influence Malaysians' mindsets and behaviours through public education, awareness, and industry programmes.

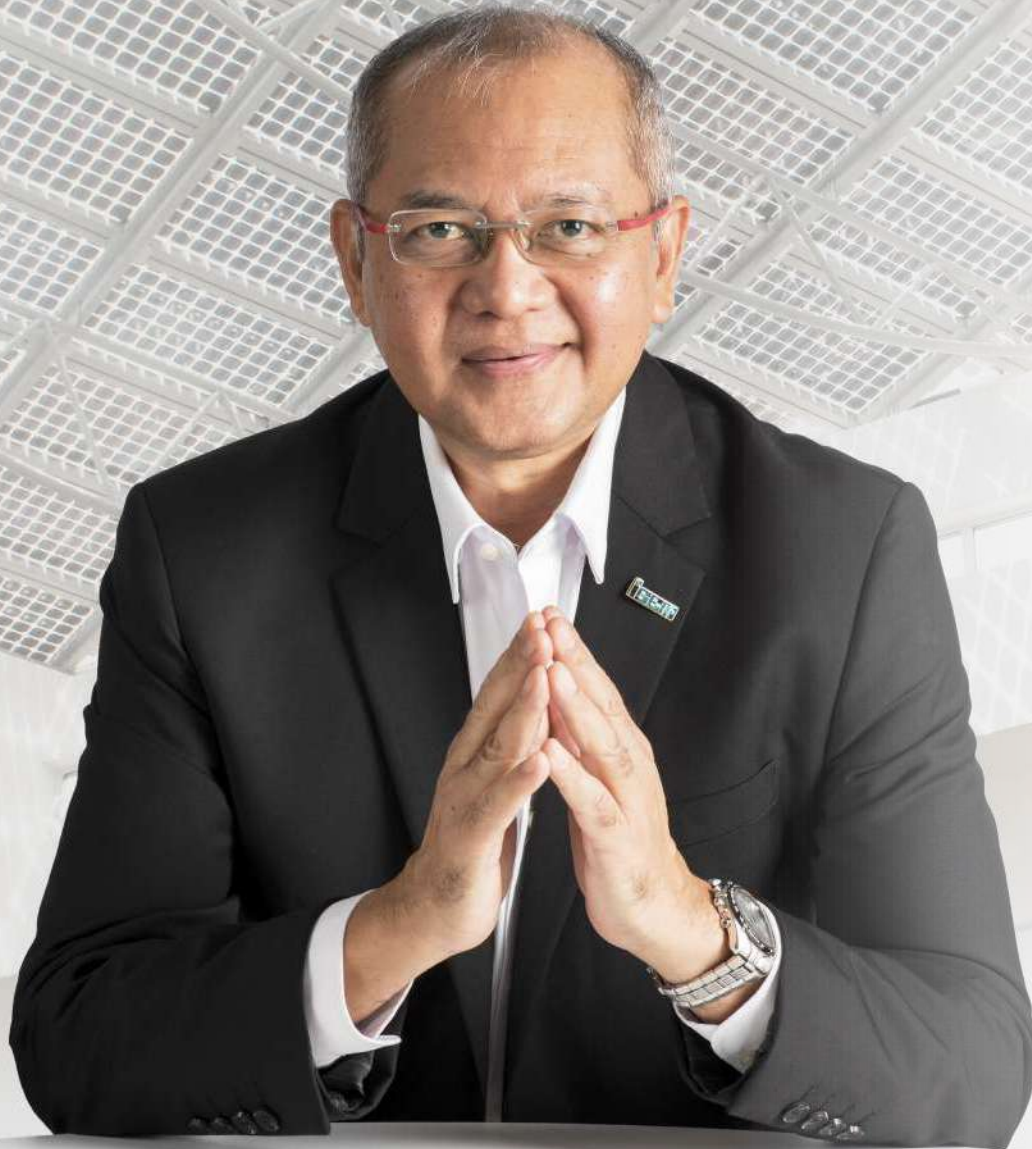
“

As MGTC assumes our new mantle to lead the country on **climate actions**, we will press on with efforts to influence Malaysians' mindsets and behaviours through public and industry programmes.

”

At this very exciting juncture that we are in, and on behalf of the MGTC and I would like to thank all relevant stakeholders for their support in creating a more sustainable Malaysia, and in particular, the newly formed Ministry of Environment and Water (KASA), all other government agencies, private sector organisations, NGOs and all our partners. I should like to congratulate YB Dato' Tuan Ibrahim Bin Tuan Man on his recent appointment as the Minister of Environment and Water, and look forward to working together to achieve our common vision toward a sustainable future.

On behalf of fellow MGTC Directors, I would also like to congratulate and our newly elected Chief Executive Officer, En Shamsul Bahar bin Mohd Nor, who has enjoyed a sterling 30-year career in the corporate sector that includes heading an Renewable Energy organisation. Under his leadership, I have every confidence in the empowered Malaysian Green Technology and Climate Change Centre team delivering on the mandate entrusted upon us.



# CEO'S STRATEGIC REVIEW

**TS. SHAMSUL BAHAR MOHD NOR**  
Chief Executive Officer



GreenTech Malaysia  
was rebranded as  
**Malaysian Green  
Technology and Climate  
Change Centre (MGTC)**  
in October 2019.

I feel honoured to present this review as the appointed Chief Executive Officer (CEO) of MGTC, an organisation that has been catalysing sustainable change in the country's social and economic fabric since its inception in 2010. It is an especial privilege to lead the organisation today, when its mandate has been expanded to encompass not just the development and promotion of green technology but the broader function of spearheading actions towards climate change mitigation and adaptation.

## CEO'S STRATEGIC REVIEW



**MGTC** mandate is to develop and promote green technology focusing on the energy, manufacturing, transport, building, waste and water sectors.



On 10 October 2019, GreenTech Malaysia was rebranded as Malaysian Green Technology and Climate Change Centre (MGTC) to strengthen the nation's institutional capability and capacity to deliver on the climate change agenda. Climate change has become one of the most pressing global challenges and I recognise fully the immense responsibility entrusted onto MGTC to help shape Malaysia's strategic response through our actions and policies.

### THE GREEN DECADE

The green technology landscape in Malaysia has changed significantly over the last 10 years, with greater adoption by Malaysians across the board. Energy efficient and renewable energy technologies are becoming the norm in industry as players recognise both their cost and environmental benefits. More industrial and commercial buildings as well as homes are generating their own electricity using solar, feeding the excess onto the national grid. The number of electric vehicles on our roads, including plug-in hybrid electric vehicles (PHEVs), is slowly increasing, reducing transport pollution. And, recycling is becoming a way of life for many, with easy access of recycling bins greatly encouraging Malaysians to segregate waste thus reduce the volume that ends up in landfills.

These positive developments are the result of the contributions towards a sustainable nation by various parties. At the core of the changes, however, is MGTC – which has been working assiduously to carry out its mandate to develop and promote green technology focusing on the energy, waste and water, transportation



**Green Technology Master Plan (GTMP)** sets a roadmap for the development of green technology up to the year 2030.



and building sectors. Countless initiatives and programmes have been launched, through which the organisation has created greater awareness of green technologies and encouraged their adoption.

Among others, MGTC has been responsible for the provision of tax incentives, funding, and the establishment of a national green mark. It also initiated and continues to organise a regional exhibition & conference that brings together thought leaders, policy makers, innovators, players and users to discuss and showcase the latest green developments while setting the stage for investments and trade. It has formed strategic partnerships to roll out new technologies; and worked hand-in hand with local authorities on how we can all collaborate to create a greener, more sustainable future.

The Green Technology Financing Scheme (GTFS) for example was continued under GTFS 2.0 programme with additional feature of energy service companies (ESCO) and companies in manufacturing sector on top of the five sectors from the original programme.



Our Green Energy Office standing as a model of energy efficiency boasting the **lowest building energy index** in the country.



Many programmes that were launched in the initial years have grown to have deeper impact on the green technology landscape. The Green Technology Financing Scheme (GTFS), for example. The list of assets that qualify for the Green Investment Tax Allowances (GITA) has also continued to grow, increasing exponentially in 2019 from nine to 49. When the AEMAS Energy Management Programme funded by the ASEAN Centre for Energy (ACE) was completed in 2014, MGTC kept it going in Malaysia with funding from the industry. Consequently, today we have 1599 Certified Energy Managers as well as 203 organisations certified with the Energy Management Gold Standard (EMGS). Of note, two organisations have achieved the highest possible EMGS ranking of 3-Stars: Universiti Teknologi Malaysia (UTM) and Institut Jantung Negara (IJN).

In the building sector, we lead by example – our Green Energy Office standing as a model of energy efficiency boasting the lowest building energy index in the country. Tours are organised for government agencies, local authorities, companies, students as well as government agencies and any other interested party on the energy efficient features that have been incorporated into our office's blueprint.

In the realm of transport, we are encouraging the adoption of green mobility through the provision of charging infrastructure for electric vehicles (EVs). Since introducing our first ChargeEV stations in 2016, we have installed 300 units across the country and in 2019 extended the network to East Malaysia (Kuching, Sarawak). In 2019, we finalised a Low Carbon Mobility Blueprint which will set a roadmap for the transformation of land transportation sectors adopting low carbon technologies. This blueprint will complement the Low Carbon City Framework (LCCF), which seeks to develop sustainable cities through the implementation of energy efficient systems across buildings, public transport, waste management and landscaping.



Benefits of having both climate change mitigation and adaptation under one roof is the **potential to tap** into their **co-benefits**, seeing as certain mitigation initiatives could also play an adaptation role, and vice versa.



## AN EXPANDED PORTFOLIO

With the rebranding in October, MGTC now has an expanded scope of responsibility which includes land transportation sectors adopting low carbon technologies. We welcome our new role, as climate change mitigation is very much aligned with our existing mandate of green technology promotion. It is, ultimately, one of the end goals of adopting sustainable systems, and positions MGTC more strategically to contribute towards the Government achieving its carbon emission reduction commitment under the Paris Agreement. Climate change adaptation, on the other hand, is a new and extensive focus area for us. It forms the key strategy in ensuring the nation's preparedness and resilience against potential climate change impacts. Among the benefits of having both climate change mitigation and adaptation under one roof is the potential to tap into their co-benefits, seeing as certain mitigation initiatives could also play an adaptation role, and vice versa.



## CEO'S STRATEGIC REVIEW

Until MGTC's appointment, there was no single government agency that oversaw the entirety of climate change and its ramifications. That MGTC has been chosen for the role is validation of the organisation's performance and achievements to date. As with green technology, we will be directly involved in policy analysis, national reporting, programme coordination and education for climate change actions. MGTC will also serve as the focal point for climate change data and communication.

We are very excited about donning our new climate change cloak, and to wear it well we will be bringing on board fresh talent with expertise in climate change. We also seek to form a Climate Change Collaboration Network with relevant agencies and universities to leverage the nation's collective expertise and talents, and ensure an alignment of our priorities.

### GOING FORWARD

We have accomplished much in our last 10 years, but with a new and expanded role, the bar has been set higher and we have a new set of goals to achieve. Bearing this in mind, we at MGTC are embarking on the new phase in our continuing journey with renewed vigour and determination.

Having already identified gaps in institutional frameworks, we have begun to work on rectifying these. Among others, we are outlining a more sustainable and comprehensive Green Financing Roadmap for clarity of all parties involved. We are also reviewing the GTMP, to update the targets and strategies outlined while incorporating new sub-sectors and creating alignment with the latest ministerial developments and MGTC's new mandate.



We also seek to form **Climate Change Collaboration Network** with relevant agencies and universities to leverage the nation's collective **expertise and talents**.



I believe the next few years will be challenging given the immensity of our responsibilities. Yet, these will also be exciting times as MGTC has always embraced challenges, the team taking pride in stretching our capabilities. We have a fantastic team here and, with the support of our partners and other stakeholders, the guidance of our directors, I have every confidence that MGTC's next decade will be as successful as the decade that we have just completed.

## CORPORATE INFORMATION

### Board of Directors

Prof. Dato' Ir. Dr. A. Bakar  
Bin Jaafar (*Chairman*)

Dr. Nagulendran A/L  
Kangayatkarasu

En. Ahmad Kamal Bin  
Wasis @ Waksis

Datuk Wira Jalilah Binti  
Baba

Datuk Hiswani Binti  
Harun

### Chief Executive Officer

Ts. Shamsul Bahar Bin Mohd Nor  
(*Appointed on 1st November 2019*)

### Secretary

Shahrizat Binti Othman  
(MAICSA 0764744)

### Registered Office

Suite C-5-4,  
Wisma Goshen Plaza Pantai  
Jalan Pantai Baharu  
59200 Kuala Lumpur

### Auditors

Crowe Malaysia PLT  
Level 16, Tower C  
Megan Avenue II  
12, Jalan Yap Kwan Seng  
50450 Kuala Lumpur  
Malaysia

### Principal Place of Business

No. 2, Jalan 9/10  
Persiaran Usahawan, Seksyen 9  
43650 Bandar Baru Bangi  
Selangor Darul Ehsan

### Principal Banker

CIMB Bank Berhad  
Serdang Perdana  
Ground Floor & Mezzanine  
No. 33, Jalan SP 2/1  
Taman Serdang Perdana  
43300 Seri Kembangan  
Selangor Darul Ehsan





# Board of Directors

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**From left to right >**

Datuk Hiswani Binti Harun,  
En Ahmad Kamal Bin Wasis @ Waksis,  
Profesor Dato' Ir Dr. A Bakar Bin Jaafar,  
Datuk Wira Jalilah Binti Baba,  
Dr. Nagulendran a/l Kangayatkarasu

# Director's Profile



**PROFESOR DATO' IR. DR. A.  
BAKAR BIN JAAFAR***Chairman*

**Prof Dato' Ir. Dr. A. Bakar Bin Jaafar**, PEng, FIEM, FASc, a Malaysian, is the Chairman of Malaysian Green Technology & Climate Change Centre (MGTC). He was appointed as Chairman of the Board on 4 October 2019.

He holds a Bachelor's Degree (Hons) in Mechanical Engineering from the University of Newcastle, NSW, Australia, 1973, a Master's Degree in Environmental Science from Miami University, Ohio, USA, 1976; and PhD in (Marine) Geography from the University of Hawaii, Manoa, 1984.

He has served the Government of Malaysia in various capacities since 1973, and his career included stints as Factories and Machinery Inspector (1973-1974), Staff Engineer of the US Environmental Protection Agency (EPA) Industrial Environmental Research Laboratory (1975-1976), Principal Assistant Director (Water Quality), Environment Division, Ministry of Science, Technology and Environment (1976-1984), Economic Planning Unit in the Prime Minister's Department (1984-1985), in the Department of Environment (DOE) as the Director of Operations (1985-1986), Deputy Director-General (Planning) (1987-1989), and the Director-General (1990-1995). After his optional retirement, he continued to serve the Government of Malaysia as the Elected-Member of United Nations Convention on the Law of the Sea (UNCLOS) Commission on the Limits of the Continental Shelf (1997-2002) (2002-2007) (2007-2012), in the United Nations' Headquarters, New York.

In the private sector, he is on the Board of Directors of public-listed and private companies, including Land & General Berhad, Enviro-LIFT Services Sdn Bhd, Novaviro Technology Sdn Bhd, AGV Environment Sdn Bhd and PAIP Berhad.

Currently, he is the Research Fellow of UTM Ocean Thermal Energy Centre, and Professor at Perdana Centre, UTM Razak Faculty of Technology and Informatics, since 2013.



## DIRECTOR'S PROFILE



**DATUK WIRA JALILAH  
BINTI BABA**

*Director*

**Datuk Wira Jalilah Bin Baba**, a Malaysian, is the Board of Director of Malaysian Green Technology & Climate Change Centre (MGTC).

She is a thought leader and an expert in International Economics & investment-related matters especially attracting foreign direct investment (FDI) as well as project evaluations and government's high impact incentives packages. She was the chief negotiator in attracting and evaluating various High Impact Investment Projects for Malaysia. Her knowledge and international networks have made her one of the most sought-after personalities in dealing with Foreign Direct Investments from various countries. She is active in several industry associations, whereby she was the first woman to be appointed as the President of Malaysia International Chamber of Commerce (MICCI) for a full term of three years. She is now an Advisor and a Council member for the SME Association Malaysia.

She is one of the main reference personalities for investment-related matters by the media. She is still actively involved in numerous knowledge-sharing sessions, lecture series and interviews for various media channels namely hosting of Live Budget commentary sessions and as a commentator on the Malaysian economy with Bloomberg and other media channels. She is known as an articulate speaker with excellent public relations communications skills and has been the lead speaker for Malaysia at various national and international conferences.



**DR. NAGULENDRAN A/L  
KANGAYATKARASU**

*Director*

**Dr. Nagulendran A/L Kangayatkarasu**, a Malaysian, is the Board of Director of Malaysian Green Technology & Climate Change Centre (MGTC).

Better known as Dr. Nagu, joined the Malaysian Government as a Diplomatic and Administrative Officer in 1995. For most of his career he has worked on issues related to biodiversity, biosafety and environment. His doctoral studies at the University of Nottingham focused on biodiversity governance in Peninsular Malaysia.

He has been involved mainly in policy formulation, developing legal frameworks, diplomacy and negotiations as well as stakeholder engagements on many issues and facets of national and global environmental governance. He advocates that it is a joined responsibility of all to ensure environmental concerns are mainstreamed into national and global socioeconomic development agenda. He too advocates that changes at an individual level to live in harmony with nature is a powerful catalyst to augment the implementation of the Sustainable Development Goals.

He is now holds the Deputy Secretary General of the Ministry of Environment and Water.



**DATUK HISWANI  
BINTI HARUN**

*Director*

**Datuk Hiswani Binti Harun**, a Malaysian, is the Board of Director of Malaysian Green Technology & Climate Change Centre (MGTC).

She holds a Diploma in Public Administration from National Institute of Public Administration (INTAN), Bachelor of Science (Hons) (Zoology) from University of Malaya and Master in Public Affairs (International Environment Policy) from Indiana University, Bloomington, USA.

She has served the Malaysian Government in various capacities since 1983 and her career includes stints as Director, Conservation and Environmental Management Division, Ministry of Science, Technology and the Environment, Senior Project Coordinator, Urban and Environmental Management Centre, National Institute of Public Administration (INTAN) and Deputy Secretary-General, Ministry of International Trade and Industry (MITI). She was also Malaysia's Permanent Representative to the World Trade Organisation (WTO) in Geneva, Switzerland.

Her international experience includes Chair of the Services Working Group, ASEAN Regional Comprehensive Economic Partnership (RCEP), Chair, Committee and Negotiating Group on Trade and Environment, WTO, Geneva. She was also Malaysia's Chief Negotiator for RCEP, ASEAN-Australia-New Zealand FTA review mechanism, Head of Delegation for Malaysia-Vietnam Trade and Economic Partnership and Malaysia-Korea and Malaysia-Taiwan Trade Partnerships. She was also a member of the Malaysian Delegation to various international and regional conferences, under the auspices of the United Nations, ASEAN and APEC in the areas of sustainable development, economy and trade.



**EN AHMAD KAMAL BIN  
WASIS @ WAKSIS**

*Director*

**En Ahmad Kamal Bin Wasis @ Waksis**, a Malaysian, is the Board of Director of Malaysian Green Technology & Climate Change Centre (MGTC). He formerly was the Director of Economic and Natural Resource Division, Economic Planning Unit, Prime Minister's Department.

He holds a Degree in Economics with Honours from University Utara Malaysia and Masters in Political Science and Economics from Meiji University, Tokyo, Japan.

He has gained an extensive experience in many areas including, development planning, and policy advocacy in the areas of agriculture, international relations, environment & natural resource management and sustainable development. He was also involved in promoting sustainable consumption and production (SCP), indicator for sustainable development (SD) and sustainable financing for environment & natural resource management.

He has also participated as a delegate in international negotiations, especially in the areas of (SD), biodiversity and climate change. Throughout his involvement in the international negotiation process, he had the opportunity to present papers on development planning, environment and natural resource governance and development of indicators for SCP and SD. He was also appointed by the United Nations Economic and Social Commission for Asia and the Pacific regions as rapporteur for the Environment and Development Committee meeting in 2013.

He is now placed with the Public Service Department.

# Leadership Team



**HUZAIMI NOR BIN OMAR**  
*Director of  
Low Carbon Mobility*

**ELINA BINTI JANI**  
*Director of  
Strategic Communications*

**SAIFUL ADIB  
BIN ABDUL MUNAFF**  
*Director of  
Low Carbon Cities*

**NOOR AZMIN AZALI  
BIN RAMLI**  
*Director of  
Corporate Services &  
Governance*

**WAN FAIZAL BIN MOHD ANWAR**  
*Director of  
Strategic Planning &  
Business Development*

**SHAMSUL BAHAR  
BIN MOHD NOR**  
*Chief Executive Officer*





**SITI HURSI AH BINTI IBRAHIM**  
*Director of  
Human Resource &  
Administration*

**SYED AHMAD BIN  
SYED MUSTAFA**  
*Chief Operating Officer*

**NORHASLIZA BINTI  
MOHD MOKHTAR**  
*Director of  
Sustainable Energy*

**TENGGU SHARIFAH HANIF  
BINTI TENGGU HAMZAH**  
*Director of  
Finance & Investment*

**KAMARADZAMAN  
BIN MOHD BAKRI**  
*Director of  
Green Catalyst*

# Leadership Team's Profile



**SHAMSUL BAHAR BIN MOHD NOR**

Chief Executive Officer (*Effective November 2019*)

Shamsul was appointed Chief Executive Officer (CEO) of MGTC on 1 November 2019. As CEO, he directs and oversees MGTC's overall operational policies, initiatives and goals to spearhead the country's climate change agenda and to drive sustainable economic development.

Shamsul has over 30 years of experience in the corporate sector. Prior to MGTC, he was managing director of Syngas Renewable Energy, the executive director of Saham Utama Sdn Bhd and CEO of Polymal Corporation (Polymal Corp). He successfully turned around the loss-making Polymal Corp into a major manufacturer and producer of extruded polymers with a profit after tax of RM4 million within four years, by which time the organisation had sales in USA, Europe, Japan, Australia, India and South Africa.

In 2014, Shamsul was awarded patent approval in 40 countries for an RE system that converts waste plastics into commercial ultra-low sulphur diesel oil (EN590), winning him MOSTI's Innovation of the Year Award, MGTC's Catalyst Award and the United Nation's Global Cleantech Innovation Award for Green Technology Renewable Energy Systems.

Shamsul is a US trained Mechanical Engineer from the University of Portland, Oregon, USA and also obtained a Bachelor's degree in Applied Physics and minor in Mathematics from Linfield College, Oregon, USA. He was also conferred a Post Graduate Diploma in Business Administration from the University of Leicester, UK.

Shamsul is a registered professional member of Malaysia Board of Technologists (MBOT).



**SYED AHMAD BIN SYED MUSTAFA**

Chief Operating Officer/Acting CEO (*till October 2019*)

Syed Ahmad joined MGTC on 18 July 2011 and is today the Chief Operating Officer, responsible for planning, directing and overseeing the operations of the Green Growth Group and Special Project Group. He is responsible for the proper management of resources and ensuring that all operations under his leadership are executed efficiently and effectively.

Syed Ahmad has more than 30 years of experience in various disciplines in banking. He was a member of the National Steering Committee of the Biomass Power Generation and Co-generation (BIOGEN) project; the Project Review Committee of the Malaysian Building Integrated Photovoltaic Technology Application (MBIPV); and was instrumental in setting up the RM1 billion RE/EE Fund and the RM28 million RE Business Fund to spur the development of renewable energy and energy efficiency in the country.

Syed Ahmad holds a Master's in International Business Administration from the Alliant International University, and a BSc in Business Administration from Central Michigan University, both in USA.





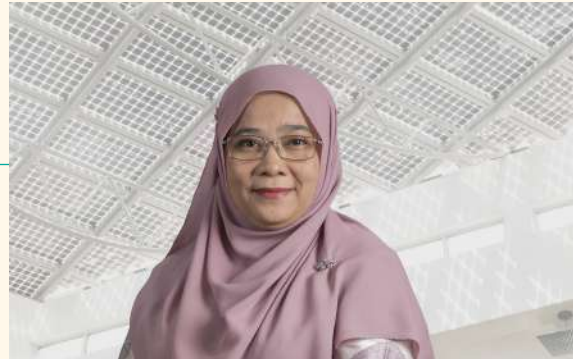
**SITI HURSIAH BINTI IBRAHIM**

Director of Human Resources & Administration

Puan Siti Hursiah, Director Talent Development & Administration joined MGTC since July 2018. She is responsible for the full spectrum of HR activities as well as administration functions.

She brings with her more than 15 years of experience in various disciplines in the field of human resources for start-up, turnaround, high-growth manufacturing and production within MNCs and Public Listed organisations. She has been involved in setting up a new human resources department; led in the establishment of new corporate core values; and managed union negotiations leading to collective agreements. She has also been instrumental in the launch of an Operation Skills Block Scheme for skills and competencies development, and led various human resources programmes.

Siti Hursiah obtained a Bachelor of Human Resource from the Open University Malaysia, and holds a Diploma of Human Resource from University Malaya as well as Diploma in Banking from University Teknologi Mara.



**TENGGU SHARIFAH HANIF BINTI TENGGU HAMZAH**

Director of Finance and Investment

As Director of Finance and Investment, Tengku Sharifah manages and oversees the daily operations of the Accounting Department. She monitors and analyses accounting data while reviewing financial reports and statements. She is also responsible for establishing and enforcing proper accounting methods, policies and principles in MGTC. She joined the organisation in March 2003.

Tengku Sharifah has 20 years of experience in accounting, financial analysis and reporting as well as financial planning and strategy development within organisations. Her experience extends to preparing and analysing the financial performance of a company, being constantly aware of the company's financial position, overseeing audits and internal control processes. She has extensive knowledge of financial analysis, budgeting and forecasting, and is proficient with financial management software and accounting principles.

Tengku Sharifah obtained a Bachelor's in Accounting from Universiti Kebangsaan Malaysia (UKM) and a Diploma in Accounts from Polytechnic Kota Bharu, Malaysia.



**NOOR AZMIN AZALI BIN RAMLI**

Director of Legal and Secretarial

Noor Azmin joined MGTC as its Director of Legal and Secretarial on 1 June 2017, entrusted with handling all legal related affairs, governance, integrity and compliance with statutory requirements under the Companies Act. He serves as a liaison officer to the Directors and corporate members, providing advice, guidance and recommendations on legal matters including disputes and issues which require the interpretation of law.

He has 13 years of experience as a corporate legal advisor during which he has established standard operating procedures (SOPs) and intellectual property (IP) policies as well as manuals; and templates for documents, forms, letters and agreements pertaining to business operations. His experience encompasses technology acquisition and related matters such as IP licensing and technical/engineering service agreements. He has conducted legal clinics and workshops, and introduced special modules for internal departments and project management offices for inventors, promoting IP awareness company-wide. He has also organised Board and committee meetings, annual general meetings, and prepared annual reports with support from external company secretaries and internal departmental functions.

Noor Azmin obtained a Bachelor of Laws (LLB) with Honours from Universiti Kebangsaan Malaysia (UKM), and was admitted as an advocate and solicitor of the High Court of Malaya in 2000.



## LEADERSHIP TEAM'S PROFILE



**WAN FAIZAL BIN MOHD ANWAR**

Director of Strategic Planning & Business Development

Wan Faizal is responsible for planning, directing and overseeing MGTC'S strategic planning and project management office as well as developing proposals for clients/financing institutions in order to secure funds. He ensures MGTC's annual operational plans and programmes are aligned with the organisation's five-year Strategic Plan and the Green Technology Master Plan (GTMP). He also identifies opportunities and engages with potential stakeholders to develop proposals to secure deals/funding. He joined MGTC on 16 October 2013.

Wan Faizal has more than 15 years of experience in innovation management, process improvement and organisational development. He has been instrumental in a series of transformation initiatives in R&D organisations; and managed projects in a diverse range of portfolios from distribution automation, solar photovoltaic and software development to green technology policies. He has also assumed leadership positions in various non-technical support functions including human resources, business development, information technology, strategic planning and quality management systems.

Wan Faizal holds a Master of Science in Engineering Business Management and a Bachelor of Engineering in Computer Systems Engineering, both from the University of Warwick, United Kingdom.



**ELINA BINTI JANI**

Director of Strategic Communications

Elina joined MGTC on 16 May 2016 as Head of Strategic Communications, responsible for the development and implementation of communication, branding and promotion strategies to build MGTC's value proposition in order to obtain stakeholder buy-in to green technology initiatives. She also manages internal communication strategies to reinforce a green culture and promote green practices within MGTC.

Elina has over 12 years of experience in strategic planning, and has delivered more than RM15 billion worth of potential investment while garnering over RM20 million worth of local and international visibility. At one of MGTC's subsidiary companies, she achieved more than 10% of nett profit from training and promotion programmes within two years. She leads in efforts to source for new investors, increase sales as well as to develop and register new products. She has been instrumental in the start-up of a new project in collaboration with the Malaysian Government, and has established a strong corporate communication network targeting niche markets using the B2C, B2B and B2G approach.

Elina holds a Master of Science in Bioprocess Engineering (Hons) and a Bachelor of Science in Microbiology (Hons), both from the University Malaya.



**NORHASLIZA BINTI MOHD MOKHTAR**

Director of Sustainable Energy

Norhasliza has been with MGTC since February 2001, when it was still Pusat Tenaga Malaysia. In her current role, she identifies new opportunities for energy efficiency (EE) and renewable energy (RE) projects; provides consultancy and advisory services in adopting green technology while implementing EE and energy management programmes across the public and private sectors.

In her close to 20 years of service, she has played a key role in various MGTC programmes including Government Green Procurement (GGP) projects, and the ASEAN Energy Management Scheme (AEMAS)'s Energy Management Gold Standard. She also led in the development of the Green Technology Master Plan, the Green Tax Incentives, and the development of green initiatives at the state level such as the Kedah Green Agenda and Selangor Green Action Plan. She oversaw the study on Clean Development Mechanisms and the GHG Inventory, and has assisted organisations to develop their own green roadmaps and action plans.

Norhasliza has an MBA in Strategic Management from Universiti Teknologi Malaysia (UTM) and a Bachelor of Business Administration from the International Islamic University Malaysia. She is an alumna of the International Visitor Leadership Programme (IVLP) of the US Department of State's premier professional exchange programme.

**HUZAIMI NOR BIN OMAR**

Director of Low Carbon Mobility

Huzaimi was appointed to his current position as Director of Low Carbon Mobility in March 2016. In this role, he has been instrumental in developing the Low Carbon Mobility Blueprint for the Ministry of Energy, Science, Technology, Environment and Climate Change (MESTECC). The blueprint is currently pending government approval. He also serves as the National Project Manager for various Energy Efficient Low Carbon Transport (EELCT)-UNISDO/GEF5 UNIDO/GEF5 and KeTTHA/MESTECC initiatives.

Prior to joining MGTC, Huzaimi worked in various fields in the automotive industry from 2002 onwards, and gained specialist experience in electric mobility as of 2010. He has been involved in key policy development for the mobility sector including the Low Carbon Mobility Blueprint and the Electric Vehicles (EV) Roadmap. He has helped to establish training and standards requirements for EVs in Malaysia. His experience extends to demonstration projects in Solar PV-EV Chargers, EV Chargers, Solar PV and Energy Storage Systems complementing e-Bus operations. Among others, he led in the development of chargeEV as the national EV charging infrastructure.

Huzaimi holds a BSc in Engineering (Mechanical) from Vanderbilt University, USA.

**KAMARADZAMAN BIN MOHD BAKRI**

Director of Green Catalyst

Kamaradzaman as Director of Green Catalyst oversees the green financing and tax initiatives, MyHIJAU Mark programme, the green purchasing initiative, promotion of green investment and various trainings offered in relation to energy and energy efficiency. He joined MGTC in 27 April 2015.

He provides corporate finance consultancy services to Malaysian and Indonesian clients who invest in renewable energy sectors, and has completed various research papers on industries in the Middle East and Africa. He has also successfully delivered numerous cross-border financing projects involving foreign/local governments and private entities in the construction, transportation, hotel and manufacturing sectors. Kamaradzaman specialises in project financing of independent power plants, renewable energy and waste to energy projects, with particular exposure to Indonesia, the Philippines, Thailand, Bangladesh, Cambodia and Vietnam. He was involved in setting up the RM1 billion RE/EE Fund and the RM28 million RE Business Fund to spur the development of renewable energy and energy efficiency in the country.

Kamaradzaman holds a Diploma in Accountancy from Ungku Omar Polytechnic and Bachelor Economics (Public Policy) from UKM.

**SAIFUL ADIB BIN ABDUL MUNAFF**

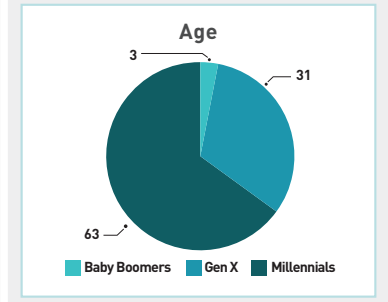
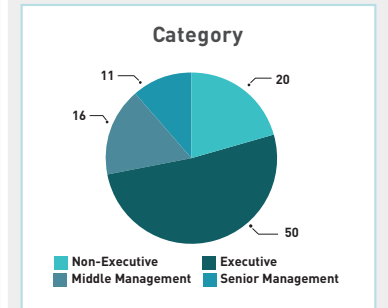
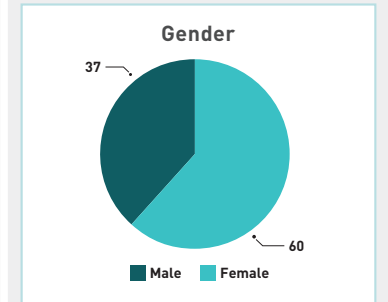
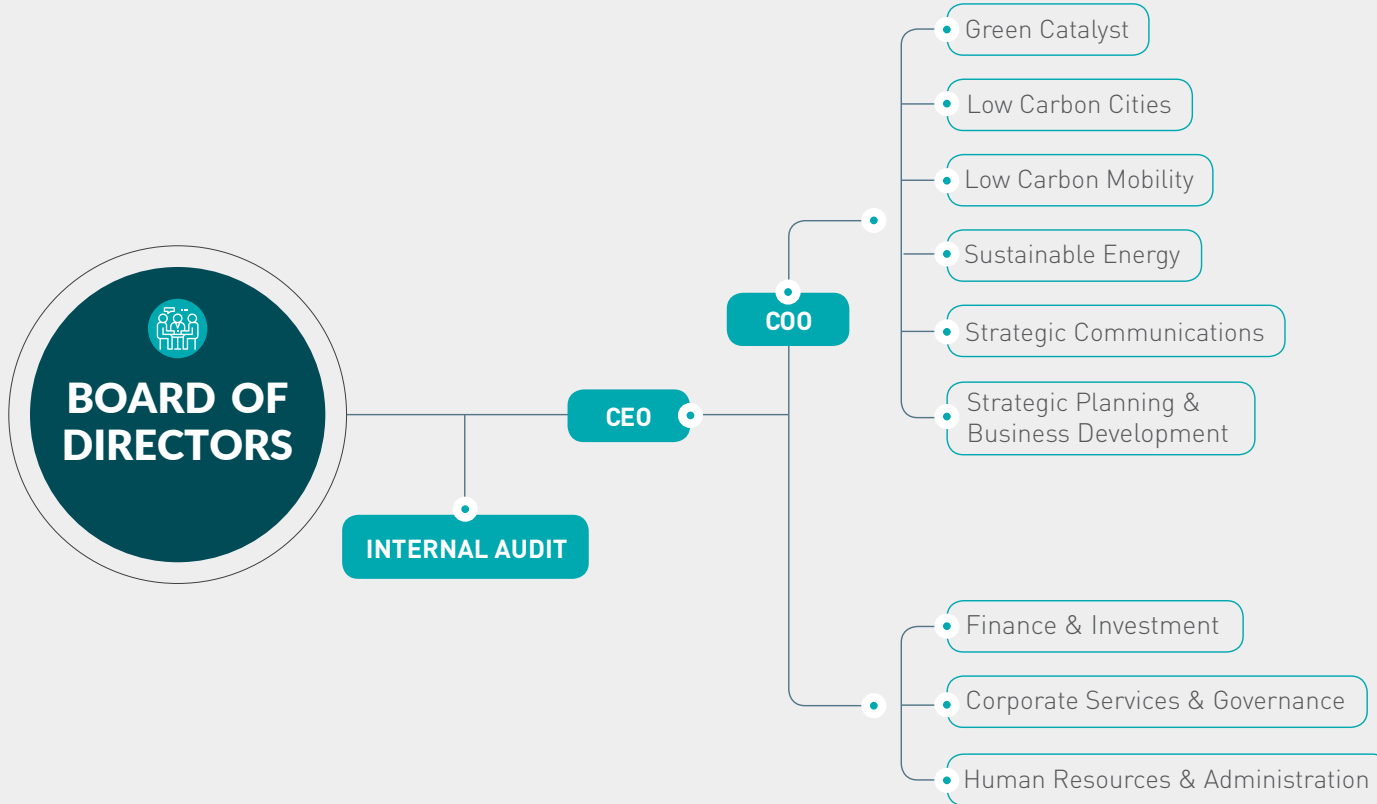
Director of Low Carbon Cities

Saiful was appointed as Director of Low Carbon Cities in MGTC on 1 May 2018. In this role, he works closely with state and local governments in transforming their cities into low carbon cities, ensuring alignment with the Green Technology Master Plan and the Low Carbon Cities Framework.

He has nearly a decade of experience in sustainable development across various industries, during which he acquired an appreciation of the complexities of sustainable development and the challenges inherent in creating low carbon cities. This includes engineering design, procurement, construction and commissioning of instrumentation and control (I&C) systems and devices for sustainable projects. He has established frameworks for I&C commissioning and led in manpower planning, material management, scheduling and prioritisation of activities in I&C implementation.

Saiful has a Masters in the Built Environment (Sustainable Development) from the University of New South Wales, Australia; and a Bachelor of Engineering (Hons) in Electrical & Electronics from Universiti Teknologi PETRONAS (UTP), Malaysia.

# ORGANISATIONAL STRUCTURE





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NGTP Strategic Thrust 01

## INSTITUTIONAL FRAMEWORK

The need for sustainable development has become more pressing, accentuated by global issues such as depleting natural resources and climate change. Nations across the world have responded by pushing ahead with various green agenda. In Malaysia, the seeds of structured change towards greener development were sown by the National Green Technology Policy launched in July 2009. Since then, many programmes to promote green technology have been initiated. A defining moment was the launch of the Green Technology Master Plan (GTMP) in 2017.

### POLICY & MASTER PLAN

#### 5 Strategic Thrusts:

- 1 Strengthen the institutional framework
- 2 Provide a conducive environment for green technology development
- 3 Intensify human capital development in green technology
- 4 Intensify green technology research and innovation
- 5 Promotion and public awareness

### National Green Technology Policy (NGTP)

The overriding objective of the NGTP was for green technology to accelerate national economic growth via sustainable development. The policy was supported by Environmental, Economic and Social pillars, and comprised five strategic thrusts, namely:

#### Definition of Green Technology

Green Technology is the development and application of products, equipment and systems used to conserve the natural environment and resources which minimises and reduces the negative impact of human activities.

Green Technology refers to Products, Equipment or Systems which satisfy the following criteria:



Minimise the degradation of the environment



Have zero or low Greenhouse Gas (GHG) emission



Are safe for use and promote healthy and improved environment for all forms of life



Conserve the use of energy and natural resources






Promote the use of renewable resources

Among the goals of the first strategic thrust, to strengthen the institutional green technology framework, was to establish a Malaysian green technology agency. This led to the restructuring of Pusat Tenaga Malaysia (PTM) in April 2010 into Malaysian Green Technology Corporation or GreenTech Malaysia (today MGTC).

**National Key Indicators were set for the three pillars:**








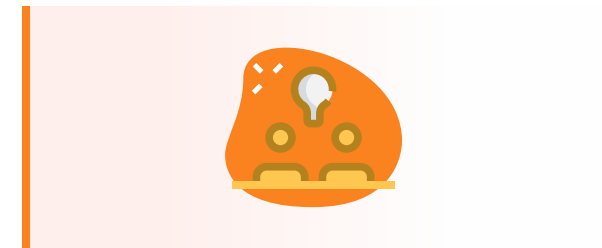
**ENVIRONMENT**

-  **Reduction in GHG emissions**
-  **Progressive rise in ranking of environmental performance by 2030**
-  **Enhanced air and river water quality**






**ECONOMY**

-  **Green Technology to contribute significantly to the national GDP**
-  **Sizeable foreign and domestic investments to be made in green technology**
-  **Increased number of certified green industries and revenue in the country**
-  **Green technology to create jobs in the manufacturing and services sectors, as well as SMEs/SMIs**
-  **Increasing value of spin-off and supporting industries from Green Technology**



**SOCIAL**

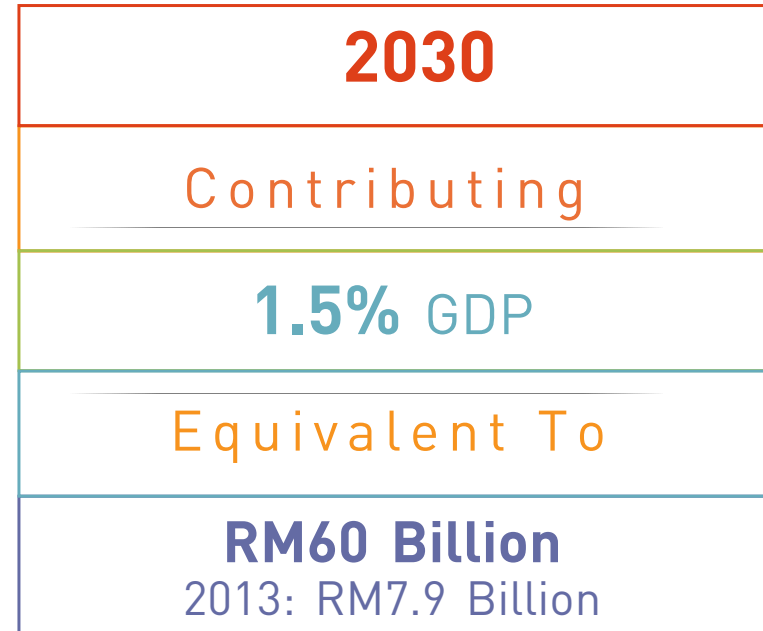
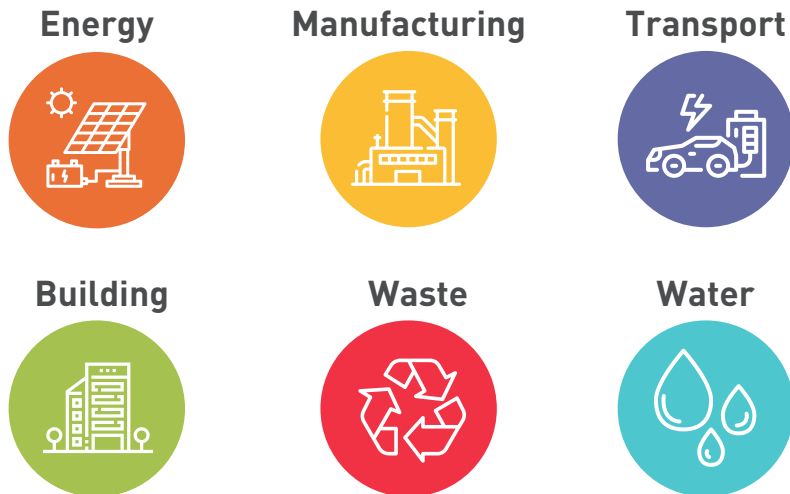
-  **More cities, townships and communities to be classified as Green Townships**
-  **Green Technology culture becomes a part of our lives**
-  **Improved quality of life in Malaysia**

## Green Technology Master Plan (GTMP)

The GTMP outlines targets in key focus areas where green technology has the potential to generate the greatest socioeconomic and environmental impact, and is the first document to provide actionable strategic directions to support the NGTP. It aligns the existing green technology-related policies and action plans with the strategic direction of the 11th Malaysia Plan.

The GTMP also fosters inter-ministerial collaboration to address areas where jurisdictions overlap. In line with the NGTP, it has identified five strategic thrusts where Government intervention is essential to create a conducive ecosystem for green technology development. It recognises strengths and weaknesses in the existing system, and provides action points for the relevant Government entities and/or the private sector to act on. Most importantly, it makes explicit ownership of various initiatives to instil responsibility and accountability among the relevant entities.

The GTMP focuses on six sectors:



In laying a course for the country's green growth journey, it has also set a foundation for the cultivation of mindset and behavioural change to indicate a green lifestyle among the rakyat.

It is anticipated that, by 2030, a total of RM94.3 billion will be invested in green technology in the country, which will contribute approximately 1.5% to the nation's Gross Domestic Product (GDP) – equivalent to RM60 billion from RM7.9 billion in 2013. This projection is premised on proper execution of policies and monitoring mechanisms to keep track of green business performance, an increase in exports as well as private sector cooperation. Supporting this agenda, the top 30 public listed companies which contribute to about 15% of the national GDP have committed to sustainability practices in their business operations.



## INSTITUTIONAL ARRANGEMENT

### National Council on Green Technology and Climate Change (MTHPI)

MTHPI was set up following the launch of the NGTP to provide a direction on green growth and the nation's sustainability agenda. Today, it continues to address strategic issues in the implementation of GTMP, deciding on matters pertaining to green technology and climate change. It also serves to identify and provide necessary funding access.



#### Ministry

##### KeTTHA

Green technology fell under the purview of the Ministry of Energy, Green Technology & Water (KeTTHA) since the launch of NGTP in 2009.



##### MESTECC

After the general elections in May 2018, green technology came under the Environment and Climate Change Sector of the Ministry of Environment, Science, Technology, Environment and Climate Change (MESTECC).

#### Ministry's Role



Coordinate policy decisions, issues and implementation strategies



Monitor the progress and performance of green technology initiatives



Report on the progress of the initiatives to MTHPI

## Lead Agency: Malaysian Green Technology Corporation

MGTC was established in 2010 as the implementing agency for green technology. The organisation was previously known as Pusat Tenaga Malaysia (PTM), which focused on implementing energy efficiency and renewable energy programmes. With the expansion of scope to cover green technology in 2010, MGTC's key functions have been:



Various programmes have been launched and institutionalised to create a conducive environment for the deployment of green technology. These include green financing incentives, the national green certification programme, a low-carbon cities framework, and an annual green technology exhibition and conference. Together, these programmes are shaping a robust ecosystem ensuring Malaysia's sustainable development.

With the launch of GTMP in 2017, the role outlined for MGTC comprises the following:

- Prepare annual plans and budgets for the implementation of green growth strategies
- Propose and prioritise new technologies and projects to be implemented
- Plan and facilitate projects and programmes, and manage funds
- Provide technical expertise in the implementation of strategies
- Provide technical inputs and report to Steering Committee
- Monitor and evaluate the effectiveness the GTMP implementation strategies

2019 Highlights

Part of the **deployment of GTMP** is the **formulation of action plans** for the sectors monitored. **In 2019, the Low Carbon Mobility Blueprint was completed**, which also forms the Action Plan for the Transport Sector. Action plans for other sectors are being initiated.

Expansion of MGTC's Scope Under Key Sectors  
With Incorporation of Climate Change



In 2019, Malaysian Green Technology Corporation was also rebranded as Malaysian Green Technology and Climate Change Centre (MGTC), along with an expanded scope that includes leading climate actions for the nation.

**CLIMATE CHANGE**

PRIOR TO 2019

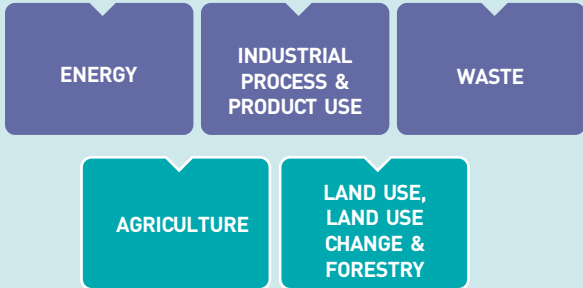
**MITIGATION SECTORS**



OCTOBER 2019 - SCOPE EXPANDED

**MITIGATION SECTORS**

**ADAPTATION SECTORS**



## NGTP Strategic Thrust 02

**CONDUCTIVE  
ENVIRONMENT**

The Government promotes the adoption of green technology through various platforms, from the provision of financial incentives to ensuring green products and services are prioritised in procurement decisions. It is also creating greater visibility and access to the green choices available, and bringing together green innovators with decision makers in the private and public sectors. MGTC plays a critical role in the green ecosystem by developing and implementing various strategic programmes to meet the specific needs of the industry.

**GREEN  
INCENTIVES**

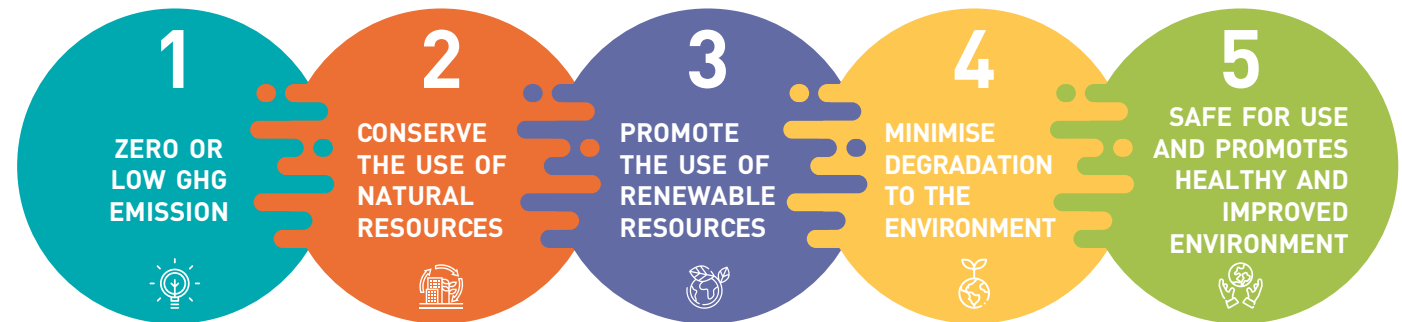
Three key incentive programmes are offered to encourage greater adoption of green technology hence develop the industry:

- ▶ Green Technology Financing Scheme (GTFS)
- ▶ Green Technology Tax Incentives
- ▶ Energy Audit Conditional Grant (EACG)

**Green Technology Financing Scheme (GTFS)**

GTFS is a low-cost financing scheme to facilitate the financing of green technology projects, providing easier access to private funds. The scheme, which targets both producers and users of green technology, offers a government guarantee of 60% of the financed amount and a 2% per annum rebate on the interest/profit rate charged by financial institutions.

In order to qualify for GTFS, organisations need to demonstrate that their green investments satisfy five criteria:





### Progress

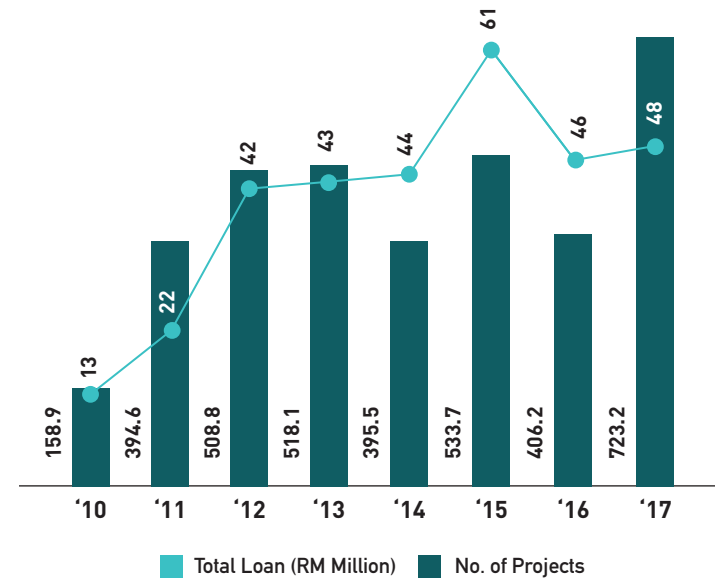
From 2010-2017, 319 projects were approved under the scheme, receiving a total of RM3.6 billion in financing from 28 participating financial institutions.



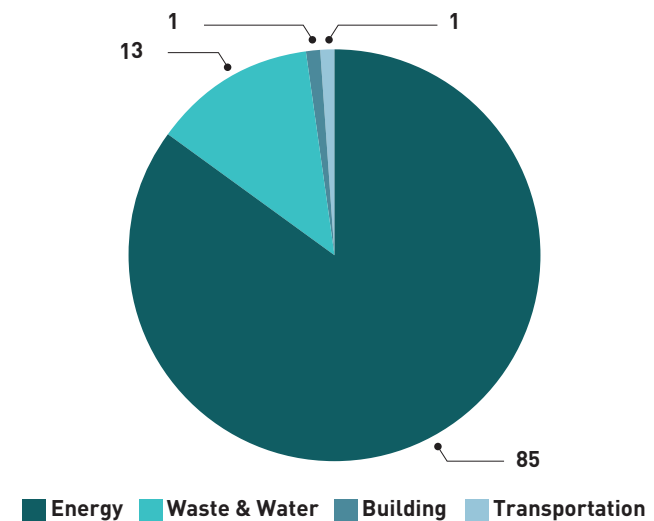
Together, these projects have resulted in:



### Financing Offer from Participating Institutions 2010-2017



### Project Funding from 2010-2017, by Sector



2019 Highlights



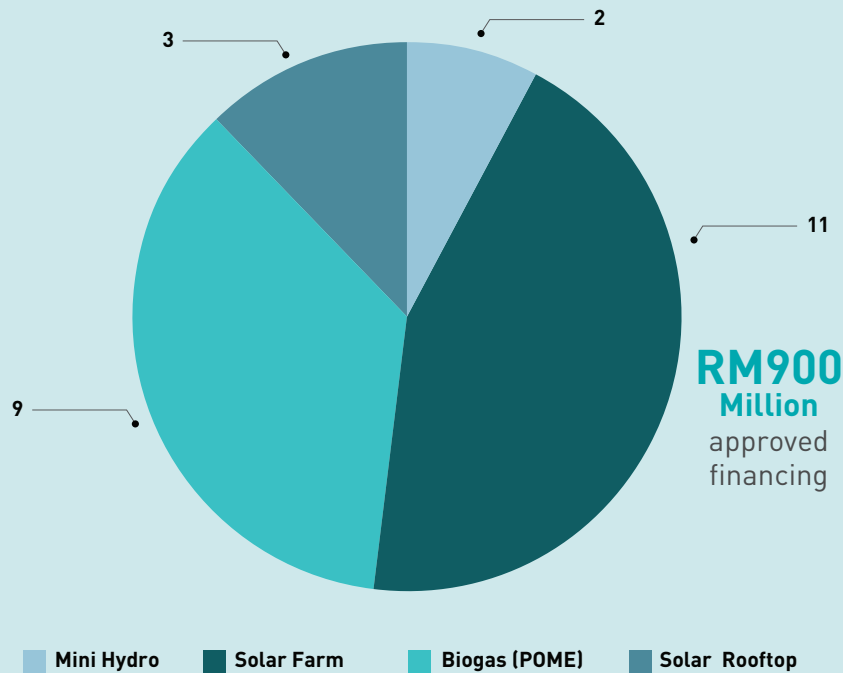
GTFS 2.0 was announced in the 2019 with a RM2.0 billion allocation. Additional criteria and sectors were implemented in the scheme, the latter including energy service companies (ESCOs) and expansion to the manufacturing sector.



**RM2.0 Billion**  
allocation for  
**GTFS 2.0**

**9 Projects**  
solar farm

No. of Project Type Received GTFS 2.0



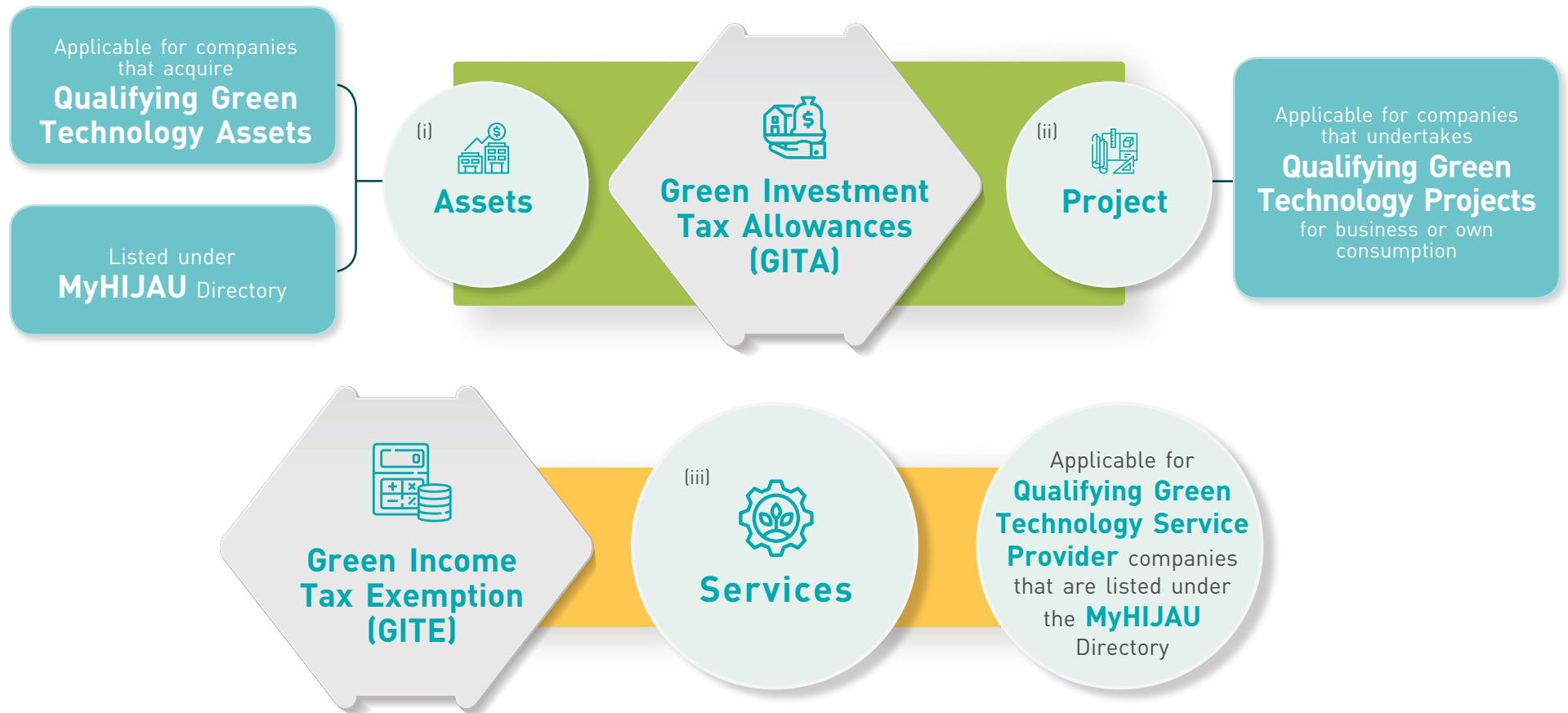
What's Next >>

For the year 2020, the target is for 30 green projects to be funded, at a total financing cost of up to RM600 million. With the inclusion of an ESCOs category in GTFS 2.0, it is anticipated that there will be an increase in financing of investments or assets related to energy efficient projects and/or energy performance contracting in the coming years. More project applications are also expected in the transport sector with the launch of the Low Carbon Mobility Blueprint.

## Green Technology Tax Incentives

In 2014, Government have introduced the Green Technology Tax Incentive in 2014 with the objective to strengthen the development of green technology in Malaysia.

There are three groups of activities as follows:

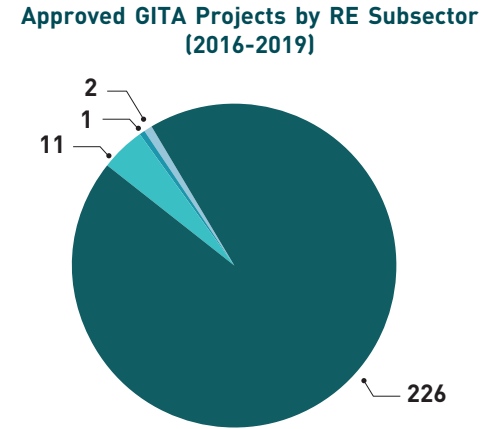
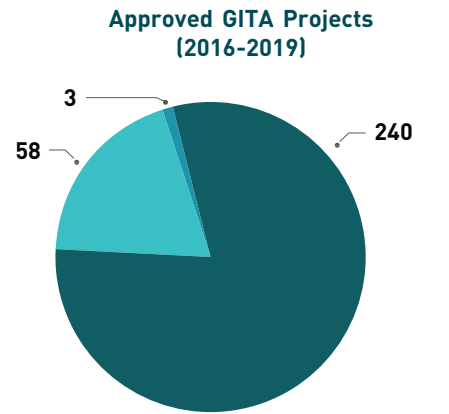
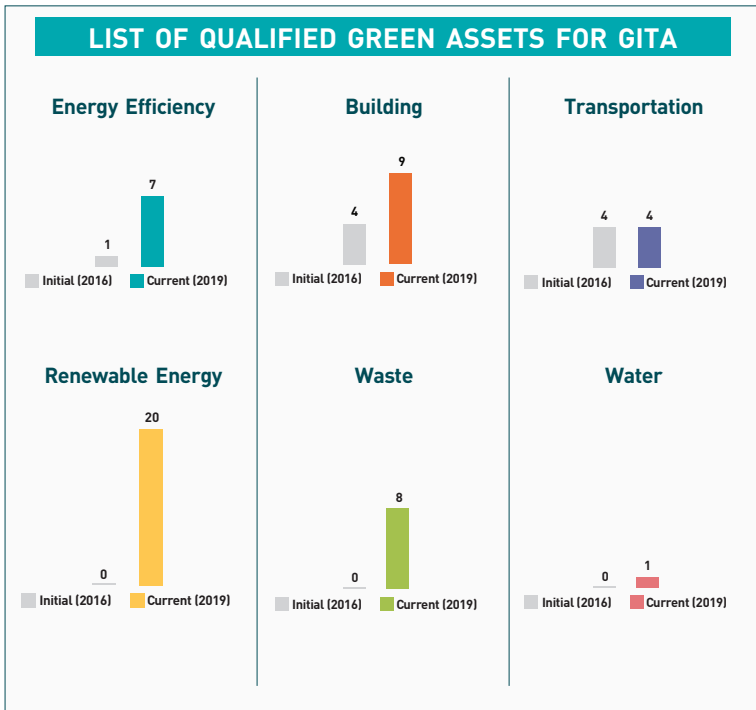


### Progress

Under Budget 2019, the Government expanded the list of green assets that qualify for GITA from nine to 49, a large number of which fall under the renewable energy (RE) category. RE, waste and water were new sector added to the incentive which previously focused only on energy efficiency, building and transportation.

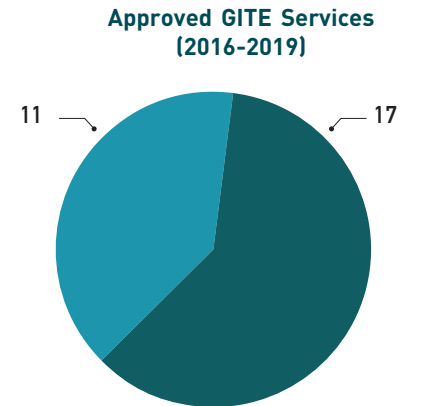
### Achievements

From 2016-2019, a total of **301 projects** were approved. Which most of the applications were in the Energy Category with total numbers of **298 projects**. Meanwhile, **28** applications were approved under **GITE** services to claim for tax exemption and **8** applications were approved under **GITA** asset. Details are as indicated in the chart below:



Renewable Energy Energy Efficiency  
Green Building

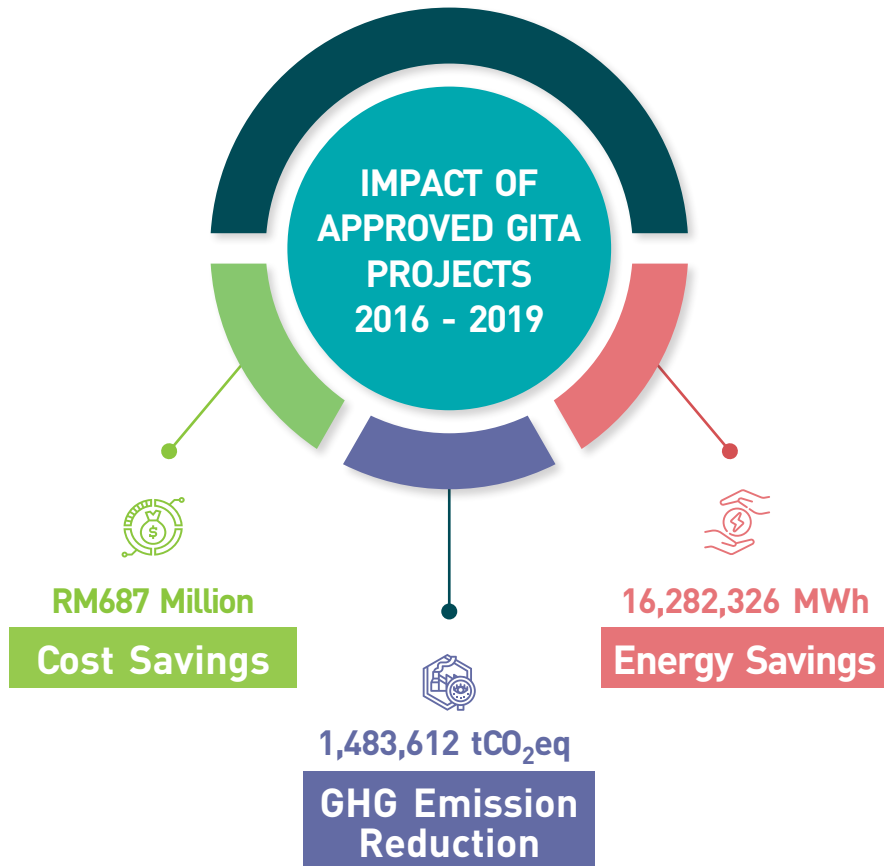
Solar Biogas  
Biomass Mini Hydro



Renewable Energy Energy Efficiency  
Green Building



### Achievements GITA Projects

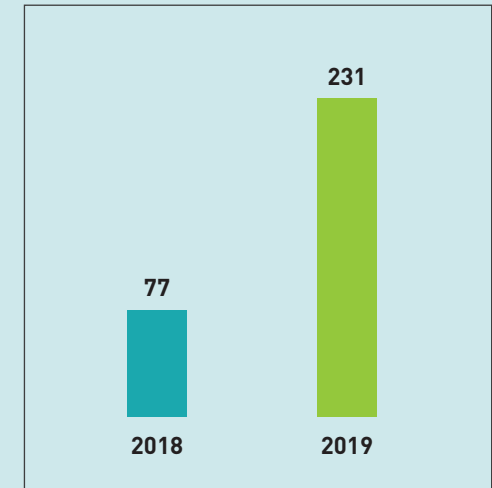


### 2019 Highlights and What's Next

In 2019, there was a marked increase in number of GITA and GITE, with the total number more than doubling year on year from **77 as at end 2018** to **231 at end 2019**.

In 2020, GITA and GITE have been extended up to the year 2023. Among others, this will provide a boost to the country's ambition of renewable energy making up 20% of the fuel mix by 2025. In addition, 70% income tax exemption of up to 10 years will be given to companies undertaking solar leasing activities under the purview of SEDA Malaysia.

**No. of Approved GITA & GITE Compared at Year End**



## Energy Audit Conditional Grant (EACG)

The industrial sector consumes a large amount of energy. In 2016, it was the second largest energy consumer in Malaysia, accounting for 28% of the country's total consumption. The potential to reduce consumption in this sector is, therefore, also high. Through energy audits conducted by appointed energy service companies (ESCOs), organisations gain clarity on how and where energy is being used, enabling them to better manage and reduce their consumption.

MGTC was appointed to promote the EACG, process the applications and, subsequently, monitor the relevant projects. The organisation's role can be summarised as:



### Progress

## EACG

was launched by the Ministry of Energy, Green Technology and Water (KeTTHA) under the Eleventh Malaysia Plan (2016-2020)

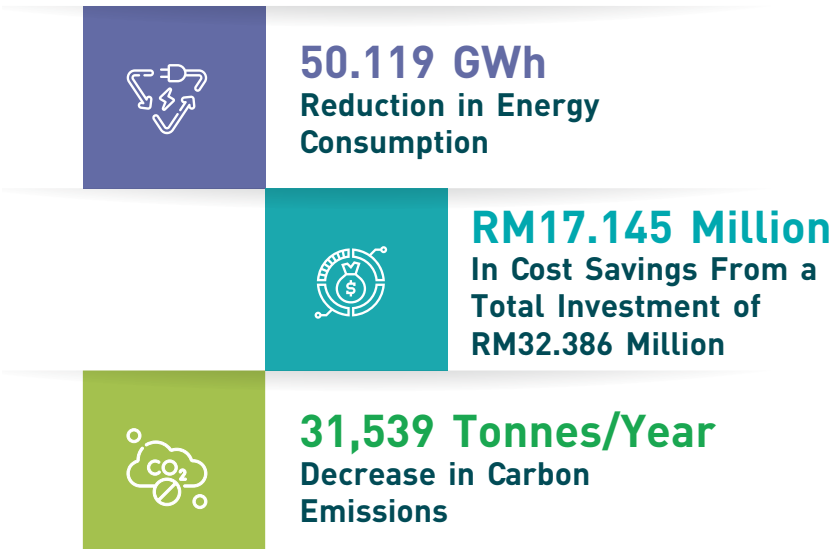
Grants were awarded from May 2016 to May 2018 to large and medium-sized industries that consume at least

**100,000 kWh/month**  
for six consecutive months

## Achievements

As of 2018, 108 companies had received the EACG and completed their on-premise energy audits. Monitoring and verification by MGTC began in January 2018 for 90 companies receiving the grant 2017, while monitoring and verification for another 18 companies receiving the grant in 2018 began in July 2018. The 3-year monitoring and verification will end in year 2021.

As of December 2018, the project has led to:



## 2019 Highlights

In 2019, the monitoring and verification activity covered the reporting cycle of January to June 2019 and July to December 2019, involving 108 companies.

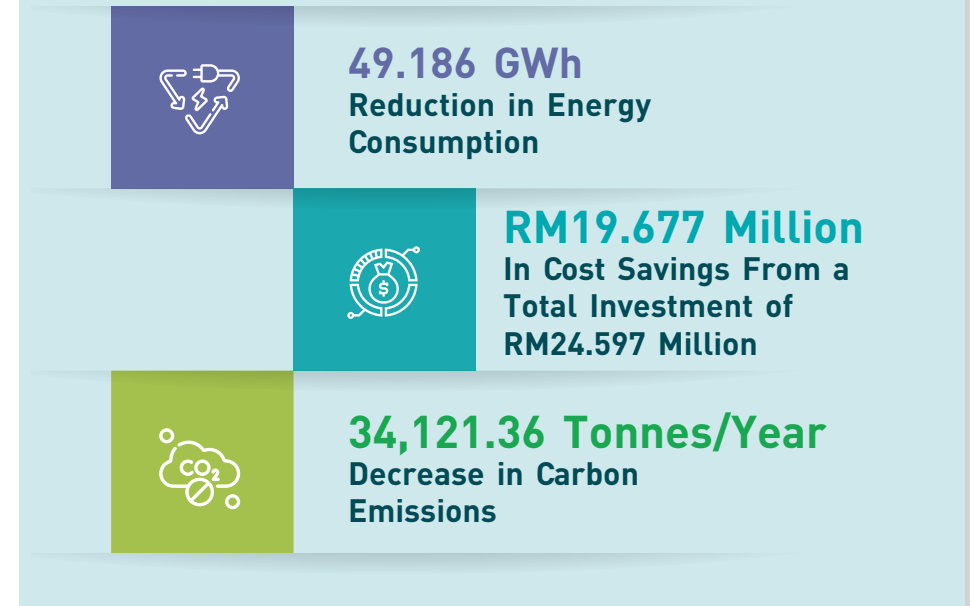
### The January-June 2019 cycle resulted in

- » 22,031 GWh reduction in energy consumption
- » RM8.478 million in cost savings from total investment of RM14.718 million
- » 15,278.03 tonnes/year decrease in carbon emissions

### The July-December 2019 cycle resulted in

- » 27,155 GWh reduction in energy consumption
- » RM11.198 million in cost savings from total investment of RM9.878 million
- » 18,843.33 tonnes/year decrease in carbon emissions

### EACG achievement in 2019



### What's Next »»

Based on good response and feedback received from the industrial sector, MGTC has proposed an expansion of the EACG programme under the 12<sup>th</sup> Malaysia Plan.



## GREEN CERTIFICATION

MGTC focuses on three levels of certification for specific objectives, namely certifications at the city, organisation and product/service levels.

- ▶ MyHIJAU Mark
- ▶ Energy Management Gold Standard (EMGS)
- ▶ Low Carbon Cities Framework (LCCF) Diamond Certification

### MyHIJAU Mark fulfills the following Key Objectives:



Provides A Simple And Clear Way For Consumers To Distinguish Genuine Green Products And Services Through The Usage Of A Single, Trusted Logo.



Serves As A Comprehensive Online Platform For Businesses To Promote Their Green Products And Services To New Markets.



Encourages Malaysians To Make Smart, Educated Decisions About Their Shopping Habits That Will Lead To A Cleaner, Greener Future.



Inspires More Companies To Attain Proper Environmental Certification In Order To Reap The Benefits Of Carrying The MyHIJAU Mark And Being Listed On The MyHIJAU Directory.



## MyHIJAU

### Mark & Directory

MyHIJAU Mark & Directory is a government initiative to promote the sourcing and purchasing of green products and services in Malaysia. It provides a single recognisable mark that consolidates all certified products and services that meet local and international environmental standards. The programme also includes an online directory which allows easy access to the public.

MGTC's role is to promote the MyHIJAU Mark recognition and directory, as well as provide business advisory, verification and monitoring of certified green products and services. The organisation register products and services that have already been certified by accredited certification bodies; as well as conducts our own verification for such products and services.

### Progress

2012

MyHIJAU Mark was introduced by the Government.

2013

The recognition and directory were launched.

2014

Government announced tax incentives for the use of green products and targeted more than 1,000 products and services to be registered under the scheme. To capture eco-friendly agricultural products and green spaces, MGTC included the Malaysia Sustainable Palm Oil Certification Scheme and Green Building Certification into the programme.

2015

More than 200 products and services registered under the MyHIJAU Mark, and a target was set for at least 20% of all Government purchases being green by 2020.

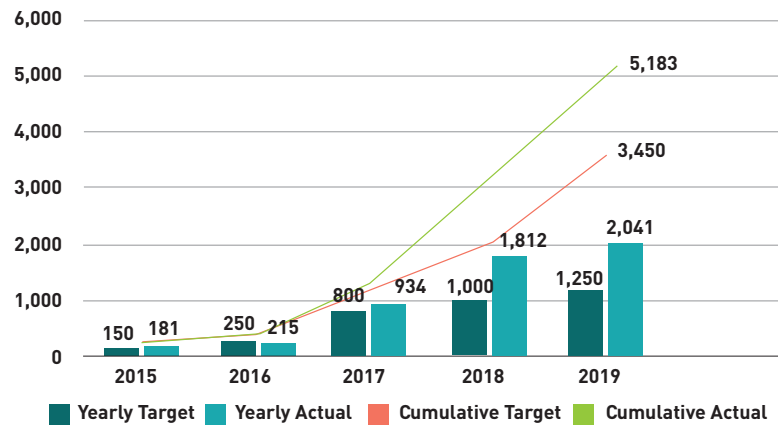
2018

MyHIJAU app was launched enabling consumers to download the Directory from Play Stores and App Stores.

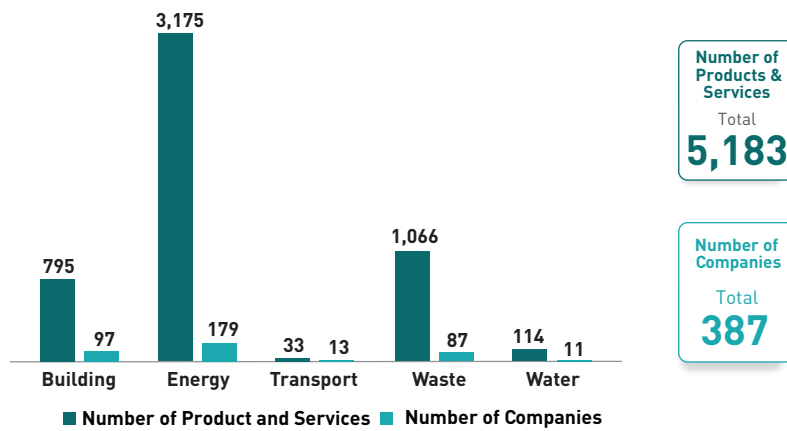
## Achievements

From 2015-2019, a total of 5,183 products and services were registered under the scheme.

MyHIJAU Mark Registration Until 31<sup>st</sup> December 2019



Number of Green Products and Services Registered under MyHIJAU Mark by sector, 2015-2019



## 2019 Highlights

In 2019, MGTC approved 396 MyHIJAU Mark applications, exceeding the target of 350. In efforts to promote the programme and the companies registered, MGTC set up a MyHIJAU Pavilion at the 10<sup>th</sup> ISEM. The pavilion showcased developments under the MyHIJAU Mark Recognition Scheme including the website and mobile apps, as well as the certification and verification partners.



### MyHIJAU Registered Certification & Verification Partners



### What's Next >>

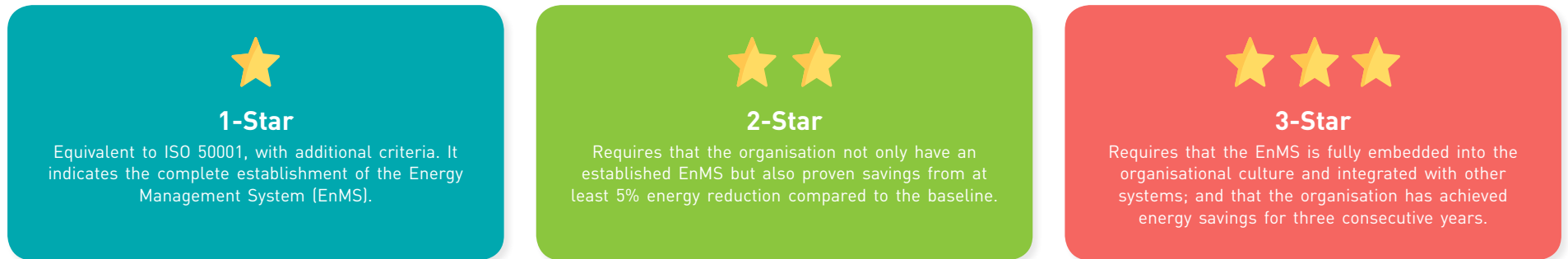
Moving forward, MGTC will continue to organise workshops to explain the MyHIJAU Mark verification process and benefits of the registration and directory. At the same time, the organisation seek to expand its database of verification bodies to facilitate the process of certification.

## Energy Management Gold Standard (EMGS)

EMGS is an organisation-level certification delivered under the ASEAN Energy Management Scheme (AEMAS) based on excellence in energy management. Owned by the ASEAN Centre for Energy (ACE) and supported by the European Commission as well as the United Nations Environment Programme (UNEP), EMGS provides companies with a Sustainable Energy Management System (SEMS) where cost savings are not only achieved but maintained and improved. Under the programme, companies also receive comprehensive training for their energy managers to help ensure their energy efficiency goals are achieved.

AEMAS was officially launched in 2011, and to date has been adopted by eight ASEAN member countries. MGTC was appointed by ACE as the certification body for EMGS in Malaysia. Its role includes appointing assessors, assessing companies' documentation, conducting site assessments and presenting the assessments to the relevant approval committees at the national and Asean levels.

There are three rating grades:



### Progress

On 1 October 2014, Universiti Teknologi Malaysia (UTM) became the first organisation in Malaysia to be awarded the EMGS 3-Star rating. Meanwhile, MGTC has been collaborating with the Ministry of Health to implement EMGS in all government hospitals as the average hospital uses 2.5 times the amount of energy than other commercial buildings.





## 2019 Highlights

As of end 2019, **203 EMGS certifications** had been issued by ACE for Malaysia. Within the year 2019 itself, **76 organisations** were certified.



INSTITUT JANTUNG NEGARA  
National Heart Institute

**IJN**  
**1<sup>st</sup> in Malaysian**  
**Health Sector**  
**Awarded EMGS**

★★★  
Rating



### What's Next >>

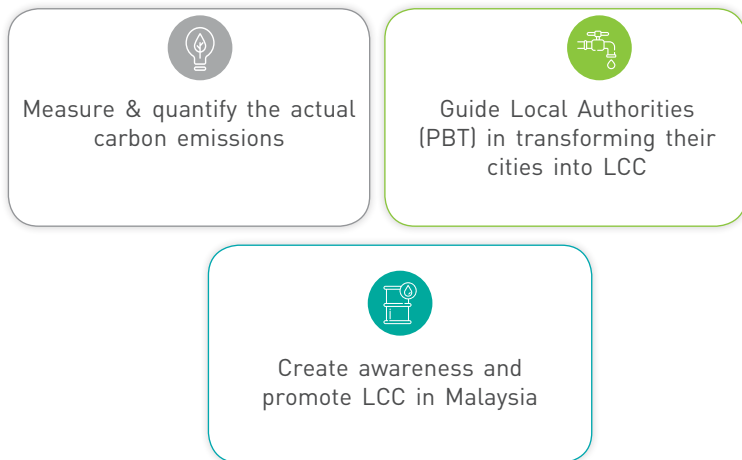


**MGTC** will continue to assist **1-Star** and **2-Star** organisations to attain the **3-Star** standard. At the same time, it aim to expand its focus to include private hospitals and the education sector, specifically universities and polytechnics.

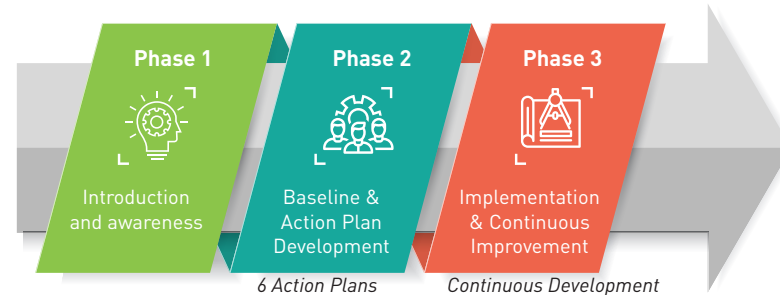
## Low-Carbon Cities Framework (LCCF) Diamond Certification

Cities account for about 70% of GHG emissions globally. To help local authorities support holistic sustainable development in Malaysia and achieve the Government’s emissions target by 2030, the LCCF was developed. It provides the necessary tools – including city design guidelines, measurement and reporting methodology as well as an assessment and recognition programme – to implement low-carbon strategies in a systematic and impactful manner. The framework, encompassing the Urban Environment, Urban Transportation, Urban Infrastructure and Building, is to be supported by a Low Carbon Cities Master Plan (LCCMP) which is currently being drafted.

### Three key objectives of the LCCF:

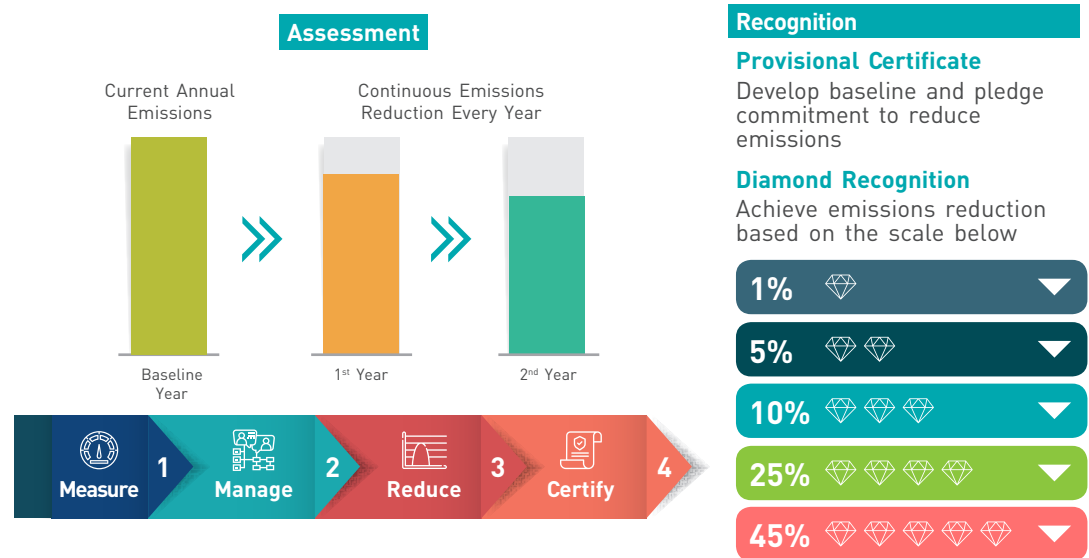


Application of the framework is a continuous process undertaken in three phases:



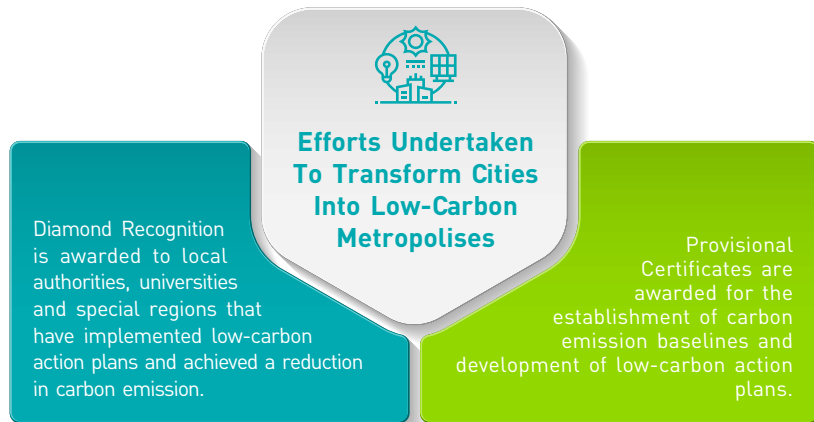
Upon completion of Phase 3, the initiatives undertaken are reviewed to measure the CO<sub>2</sub> reduction achieved. An Assessment and Recognition system is used to evaluate the local councils’ efforts, based on the CO<sub>2</sub> reduction achieved in designated zones.

### Assessment & Recognition



## Progress

In recognition of efforts undertaken to transform cities into low-carbon metropolises, MGTC together with the Ministry of Energy, Science, Technology, Environment & Climate Change (MESTECC) organises the annual Low Carbon Cities Awards.



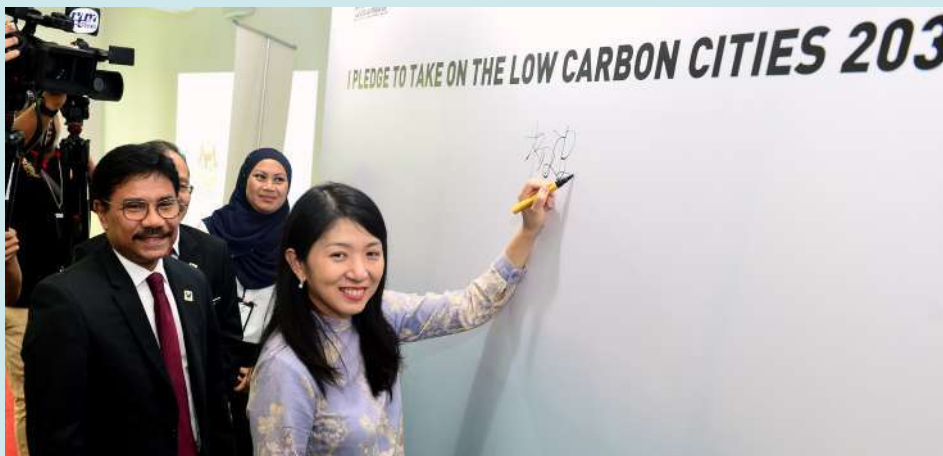
The **Low Carbon Cities 2030 Challenge (LCC2030C)** was launched by the Minister of Energy, Science, Technology, Environment & Climate Change (MESTECC) which sets the target of attaining 200 Low Carbon Zones and 1,000 Low Carbon Partners by 2030.



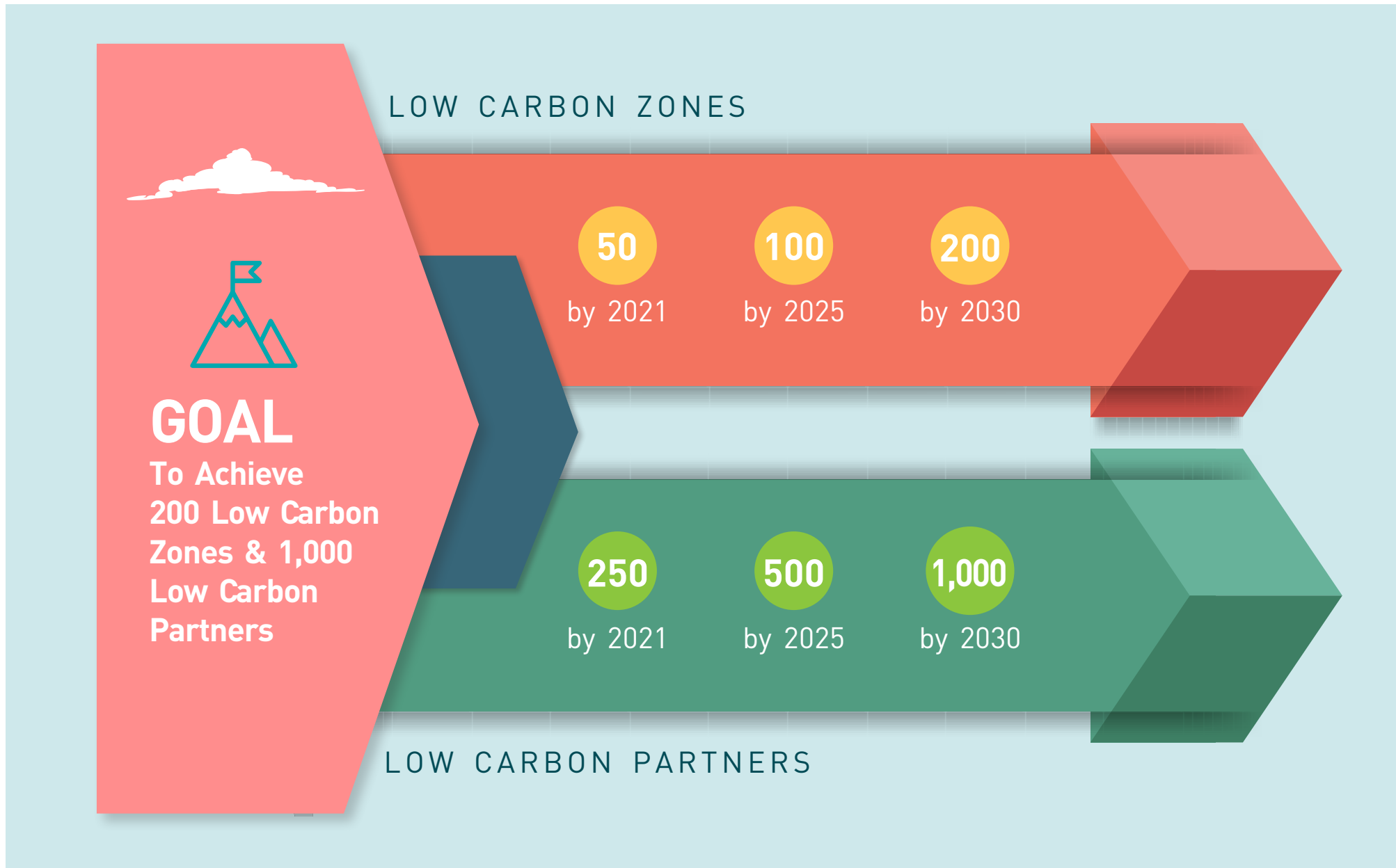
The **10 Low Carbon Zones** that received the Diamond Recognition can be referred to appendixes on page 141.

Collectively, these low carbon zones have reduced a total of **47,705.78 tCO<sub>2</sub>e** across 4 elements (energy, water, waste and mobility).

## 2019 Highlights



# LOW CARBON CITIES 2030 CHALLENGE







**What's Next >>**

In 2020, the aim is to enroll 20 new local authorities into the programme while increasing the number of Diamond-recognised Low-Carbon Zones to 25 and Low-Carbon Partners with Diamond Recognition to 50. A total of 19 mayors and President (Yang Di-Pertua) of various municipalities have pledged to support the Low Carbon Cities 2030 Challenge.

## GREEN PROCUREMENT

Green Procurement is one of the strategies to create demand for green products and services. Under the spirit of the Government leading by example, the Ministry of Finance (MOF) is championing the Government Green Procurement programme of which MGTC is the implementing agency.

## Government Green Procurement (GGP)

Government procurement plays an important role as a catalyst for socio-economic development, representing about 12%-15% of Gross Domestic Product (GDP). Through procurement, the Government has the potential to promote innovation in green technology hence drive green growth and a green economy. This inspired the launch of Government Green Procurement (GGP) in 2013.

### Progress

## GGP IMPLEMENTATION IN RMK-11 (2013-2017)

### ► 2013-2015 (Pilot Project)

- 6 product groups
- 5 ministries / government agencies

### ► 2017

- 30 product groups
- 25 ministries / government agencies

### ► 2016

- 20 product groups
- 12 ministries / government agencies

**2013** Polis Diraja Malaysia (PDRM) became one of the first government agencies to embrace GGP. MGTC worked with PDRM to launch its Green Practices and Green Technology Application Blueprint, providing the Police a roadmap to reduce its carbon emissions. One of the key initiatives was sustainable procurement, setting a precedent for other government organisations.

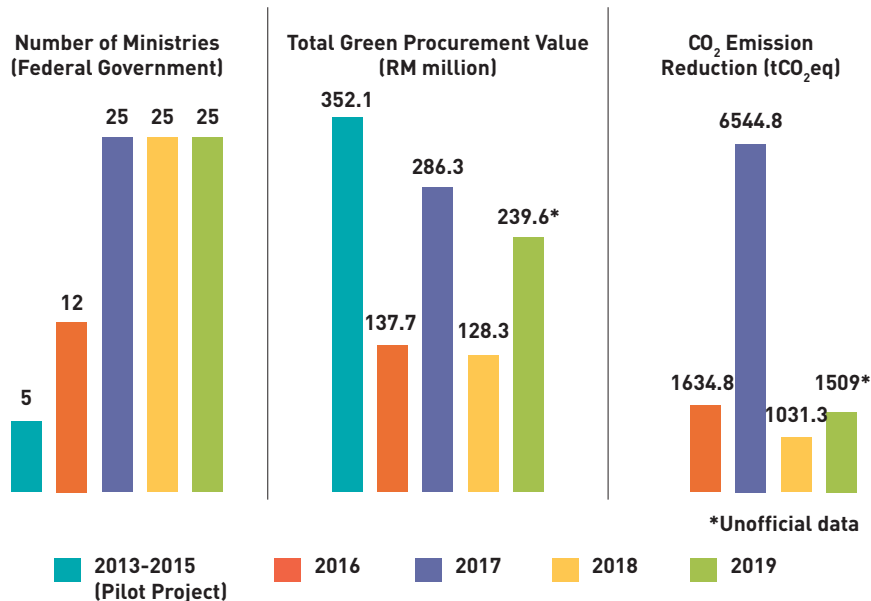
**2015** Under the guidance of MGTC, the MOF, Ministry of Energy, Green Technology and Water (KeTTHA) and Economic Planning Unit (EPU) implemented various strategies to spearhead GGP in tandem with the Government's 11<sup>th</sup> Malaysia Plan aspiration of 20% green government procurement by 2020.

**2017** All 25 ministries in Malaysia had embarked on the GGP programme with green products and services totalling 5.4% of the Government's overall procurement. This translated into the avoidance of 6,545kg of tCO<sub>2</sub>e emissions.

**2018** GGP Guidelines 2.0 were published, covering 20 GGP criteria for products and services such as ICT equipment, air-conditioning systems and cleaning services. Refer to page 142 for full list of GGP Product Groups.

### Achievements

As at end 2019, the cumulative GGP value achieved was RM1.144 billion.



### 2019 Highlights

In **2019**, **10 new product groups** were **endorsed** such that the GGP Guidelines now cover a total of 30 product groups.

#### GGP Product Groups

Air Conditioning System Maintenance Services	Coated Flat Steel
Air Conditioning & Mechanical Ventilation System Component (cooling mode)	Toner Cartridge
Electric Water Pump	Event Management (Services & Supplies)
Green Diesel Engine for Heavy Vehicles	Non Wooden Based Furniture
Organic Fertilizer	Masonry Unit

#### What's Next >>

The target for 2020 is for another 10 product groups to be assessed and added to the existing list. Meanwhile, the GGP programme will be rolled out in more government agencies, state governments and local authorities. This will be supported by programmes such as MyReLamp Project which aims to promote the procurement of energy efficient lighting among local authorities.

Programmes are also being conceptualised to promote green procurement within the private sector under the 12<sup>th</sup> Malaysia Plan.

**2020**

- More than 30 product groups
- 25 ministries / government agencies

**Government Announced The Target of 20% GGP by Year 2020**

## GREEN MARKETPLACE

MGTC plays a central role in enhancing the growth of green technology in Malaysia by balancing the supply and demand sides of the equation through the creation of an effective green marketplace.

- ▶ Annual IGEN
- ▶ Global Platforms

## Annual International Greentech & Eco Products Exhibition & Conference Malaysia (IGEM)

IGEM has established itself as South East Asia's largest trade event for green technologies and eco solutions. It is widely recognised as the platform for solutions providers and green energy businesses to tap into the fast-expanding region by showcasing the latest innovations to policy makers, government organisations, investors and the mass markets. It also serves as a "marketplace" for industry players to explore business opportunities, generating potential investment for Malaysia.

One of the Government's flagship green technology events, IGEN has been held since 2010 to enhance the development and potential of green technology-based businesses as well as create awareness among the public of the importance of green technology and green living.

### Progress & Achievements

Between 2010 and 2018, IGEN attracted more than 400,000 visitors and exhibitors from more than 50 countries. It also recorded more than RM23 billion in actual and potential business transactions.

## 2010 to 2019

### IGEM 2010

#### A Green New Deal

No. of Exhibitors:  
**277**  
Total No. of Visitors:  
**86,372**  
Business Leads:  
**RM1.2 Billion**

### IGEM 2011

#### A Green New Deal: The Next Frontier

No. of Exhibitors:  
**353**  
Total No. of Visitors:  
**68,105**  
Business Leads:  
**RM1.3 Billion**

### IGEM 2012

#### Greentech for Growth

No. of Exhibitors:  
**366**  
Total No. of Visitors:  
**65,210**  
Business Leads:  
**RM1.3 Billion**

### IGEM 2013

#### Advancing Green Growth and Global Entrepreneurship

No. of Exhibitors:  
**261**  
Total No. of Visitors:  
**56,552**  
Business Leads:  
**RM0.4 Billion**

### IGEM 2014

#### Creating Green Wealth

No. of Exhibitors:  
**357**  
Total No. of Visitors:  
**49,813**  
Business Leads:  
**RM1.9 Billion**

### IGEM 2015

#### Powering the Green Economy

No. of Exhibitors:  
**350**  
Total No. of Visitors:  
**23,932**  
Business Leads:  
**RM1.98 Billion**

### IGEM 2016

#### Green Business for Sustainability

No. of Exhibitors:  
**350**  
Total No. of Visitors:  
**33,903**  
Business Leads:  
**RM2.046 Billion**

### IGEM 2017

#### Powering Green Cities

No. of Exhibitors:  
**378**  
Total No. of Visitors:  
**34,868**  
Business Leads:  
**RM9.19 Billion**

### IGEM 2018

#### Green Economy & Industry 4.0: Achieving Sustainable Development Goals

No. of Exhibition Booth:  
**280**  
Total No. of Visitors:  
**39,803**  
Business Leads:  
**RM4.155 Billion**

### IGEM 2019

#### Innovating Sustainability

No. of Exhibition Booth:  
**376**  
Total No. of Visitors:  
**40,531**  
Business Leads:  
**RM5.985 Billion**



## 2019 Highlights



In 2019, the **10<sup>th</sup> edition of IGEM**, held at the Kuala Lumpur International Convention Centre (KLCC), attracted 230 exhibitors who set up 376 exhibition booths which were **visited by over 40,531 trade and public visitors** from **43 countries**. The event garnered a total of RM5.985 billion in business leads. Through the event, **26 MoUs** were **signed** between organisations from the government and private sectors, including SMEs, while seven products were launched. Refer to page 142 for full list of MoU/MoA forged during IGEM 2019.

### Investor & Buyer Engagement Over 500 Business Matching Meetings



## Collaboration

IGEM is a platform to provide visibility of the different organisations involved in evolving green technology, from innovators to facilitators, producers and investors. Through the event, various partnerships are formed. During **IGEM 2019, 26 MoUs** were **forged** between various organisations.



## Product Launches

IGEM is also the ideal platform at which government and private sector organisations are able to garner high visibility of new programmes, products and services in the field of green technology. During IGEM 2019, **seven products** were **launched**.

## Product Launches at IGEM 2019



Launching Peer-to-Peer Energy Trading (P2P) by SEDA



Launch of PETRONAS Solar Rooftop Solutions



Launch of Green Pit Stop IOT Garden by Ny Design (M) Sdn Bhd (Incubatee of Technology Park Malaysia)



Launch of TNBES-MGTC EV Infrastructure Expansion Project



### MCY Product Launch:

- >> TRUCE - SARINGAN PANTAS BGS (BIOANALYTICAL QUEST SDN BHD - INCUBATEE TPM)
- >> HALEA NATURAL SKIN CARE (UTM)
- >> MNR G-TREAT (MNR MULTITECH SDN BHD - INCUBATEE TPM)
- >> ELECTRONIC NOSE TECHNOLOGY (E-ANFUN) (SYNBION SDN BHD - INCUBATEE TPM)

### Other Product Launches at IGEM 2019

Launch of Green Tariff Rider by TNB

Launch of Malaysia Green Attribute Tracking System (MGATS) by TNB

**250**  
exhibitors  
**RM1.6b**  
business  
leads

**17**  
countries  
**10k**  
visitors

### What's Next >>

MGTC is currently co-organising the 11<sup>th</sup> edition of IGEM, which is expected to be held on 5-9 October 2020. Themed "Energising Sustainability", this year's event anchors on innovation to ensure environmental stability along with economic prosperity. The aim is to attract RM1.6 billion business leads, 250 exhibitors, 17 countries and 10,000 visitors.

## Participation at Global Platforms

MGTC also plays a significant role in promoting local green products and services abroad, creating a presence for local companies in the global green marketplace. A key event to date has been the international specialised expo, EXPO 2017, in Astana, Kazakhstan. Currently, MGTC is coordinating Malaysia's participation at the upcoming World Expo, EXPO 2020 Dubai. Both expos fall under the auspices of the Bureau International des Exposition.

### Astana EXPO 2017 – Future Energy

MGTC was appointed by the Government as the implementing agency tasked to develop and coordinate Malaysia's programmes and activities at EXPO 2017 Astana. EXPO 2017, themed "Future Energy", provided an unprecedented opportunity for Malaysia to develop stronger trade and business ties in the field of green energy, products and services with the Republic of Kazakhstan as well as the other 114 participating countries.

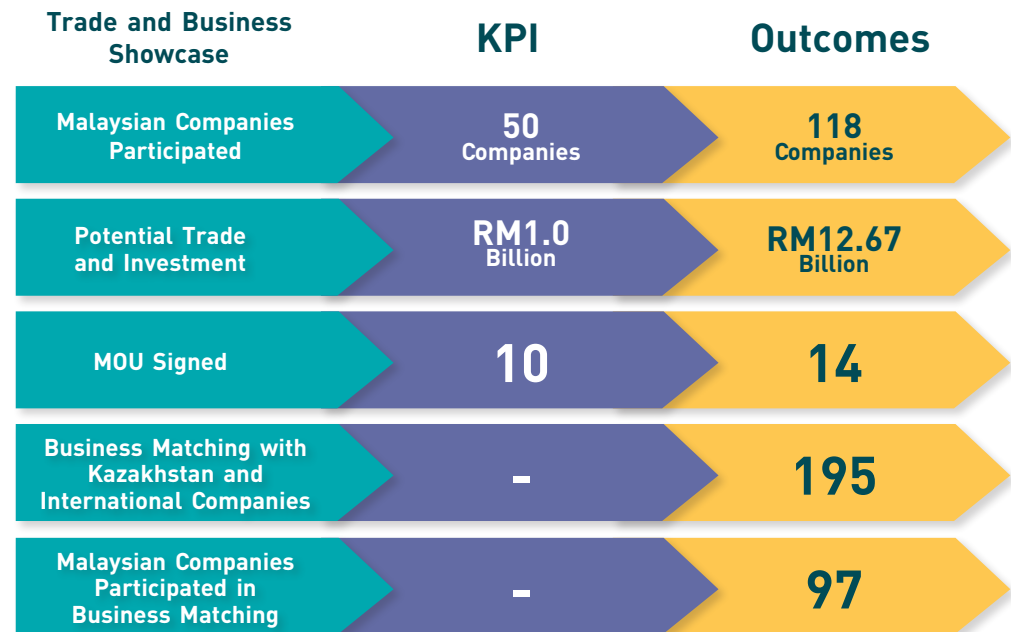
The 727m<sup>2</sup> Malaysia Pavilion, classified under the Medium Pavilion category alongside countries such as Germany, China and South Korea, was themed "Powering Green Growth". It showcased our country's journey towards a sustainable and green future, providing visitors an immersive experience beginning with a rainforest experience followed by Malaysia's transformation agenda to its vision to become a developed, low-carbon, high-income nation. The pavilion journey ended with a cultural experience and colourful showcase towards Malaysia's traditions, heritage and arts.

A total of 118 Malaysian companies, aside from several government ministries and agencies, participated in Malaysia Pavilion's programmes, with 3,770 Malaysian and international participants attending its business and social events.

Malaysia Pavilion was one of the top 10 most visited pavilions attracting 682,591 visitors, including prime ministers, ministers, deputy ministers and ambassadors from various countries, in addition to members of the public. It won the Marketing Excellence Award's Gold Award for Excellence in Government Sector Marketing for its EXPO 2017 Astana brand campaign; and an Honourable Mention by Exhibitor Magazine's Expo 2017 Astana Awards for Best Interpretation of Theme.

In terms of trade and investment outcomes, Malaysia Pavilion generated RM12.67 billion in business leads including the signing of 14 MoUs between various parties.

### Summary of Deliverables and Achievements | Outcomes of Malaysia Pavilion





## 2019 Highlights

### EXPO 2020 Dubai



In 2019, MGTC was given the role as implementing agency for Malaysia's participation at the upcoming EXPO 2020 to be held in Dubai from October 2021 to March 2022.

EXPO 2020 Dubai is themed "Connecting Minds, Creating the Future" with three sub-themes of "Opportunity", "Mobility" and "Sustainability". Malaysia has chosen "Energising Sustainability" as the theme for its Net Zero Carbon Pavilion. This aptly displays our commitment to sustainability as we aim to ensure our participation at EXPO 2020 Dubai does not leave any carbon footprint. The Pavilion features a Rainforest Canopy inspired by the majestic rainforest in Malaysia, which also symbolises the nation's forest

conservation efforts. The Pavilion is segmented into four dedicated zones themed "Energising Today", "Energising Tomorrow", "Energising Harmony" and "Energising Business".

At EXPO 2020 Dubai, Malaysia will be positioned as a dynamic and progressive nation driven by science, technology and innovation; and an ideal place to invest in, do business with, study in and visit. A total of 192 countries are participating in EXPO 2020 Dubai, dubbed the "World's Greatest Show". Malaysia will leverage the event to further strengthen its global relationships while enhancing trade ties with the UAE and other participating countries.

Some 22 ministries and several agencies will lead a delegation of over 200 companies encompassing 10 industries across six clusters, to participate in 25 weekly thematic business programmes throughout EXPO 2020 Dubai.

#### The Six Clusters



Sustainable,  
Agriculture &  
Agricommodity



Energy, Science,  
Technology,  
Innovation &  
Environment



Culture, Tourism,  
Women, Education,  
Youth & Health



E-Commerce,  
Entrepreneurship  
& ICT



Trade and 4<sup>th</sup>  
Industrial  
Revolution



Malaysia  
Sustainability  
Week & Water



#### Malaysia's Targets



**RM10  
billion**  
in potential trade  
and investments



**1,000**  
business leads



**20**  
MoUs/partnership  
agreements



**1,000,000**  
visitors to its pavilion

Malaysia will also create and promote dialogue and discussions on sustainability issues through conferences, forums and pocket talks.



## Organisation

MGTC's Green Advisory programme has been set up to help organisations pursue effective green strategies. PLUS and Johor Port Authority were among the early beneficiaries of the two-to-three-year programme.

### GREEN ADVISORY PROGRAMME

#### OVERVIEW

Green Advisory Programme (GAP) is a hand-holding programme to facilitate organisations to adopt green technology and green culture.

One organisation per industry/sector/sub-sector is selected to be positioned as a role model for the respective industry/sector/sub-sector

#### CURRENT CLIENT



Highway Operator (PLUS)



Port Management  
(LEMBAGA PELABUHAN JOHOR)

#### APPROACH

Programme Duration: 2-3 years with various options preferred by client



Roadmap  
Development



Turnkey  
Projects



Technical  
Advisory

At Johor Port Authority (JPA), we helped to outline a Green Procurement Policy following which JPA implemented an energy efficiency lighting project and a solar energy project.

### ORGANISATION PURSUING GREEN STRATEGY

Case Study: Johor Port Authority (Lembaga Pelabuhan Johor)

#### 2016 Green Procurement Policy (GGP)



Policy came into effect on  
1 January 2018

#### 2017 Energy Efficiency Lighting Project (LED Project) @ HQ



#### Result:

A total of 17.9% savings in energy consumption (January 2019 compared to 2017 figures)

#### 2018 Solar Energy Project



#### Result:

BEI improved to 140 from 2016 baseline of 190.76  
**(Completed one-year cycle with RM savings of more than 20%)**

## GREEN ADVISORY

- ▶ Organisation
- ▶ Local Authorities

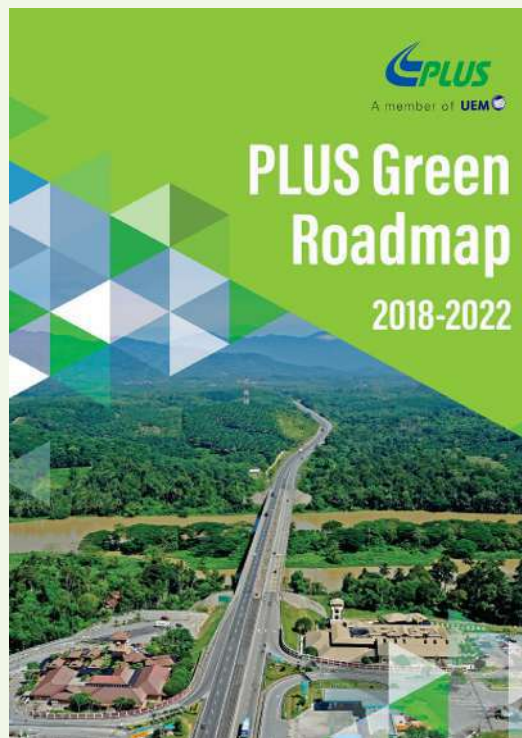
At PLUS, a green roadmap was established which saw the implementation of a solar PV pilot project in 2018. Currently, the organisation is undergoing a five-year programme up to 2023 to install solar PV infrastructure.

## ORGANISATION PURSUING GREEN STRATEGY

Case Study: PLUS Malaysia Berhad

### 2017

PLUS Green Roadmap



- ▶ PLUS Roadmap
- ▶ GHG Baseline

### 2018

Solar PV Pilot Project



Solar PV Panels at Persada PLUS



The Solar PV Panels at PLUS RSA Machap, Northbound

### 2019 Highlights

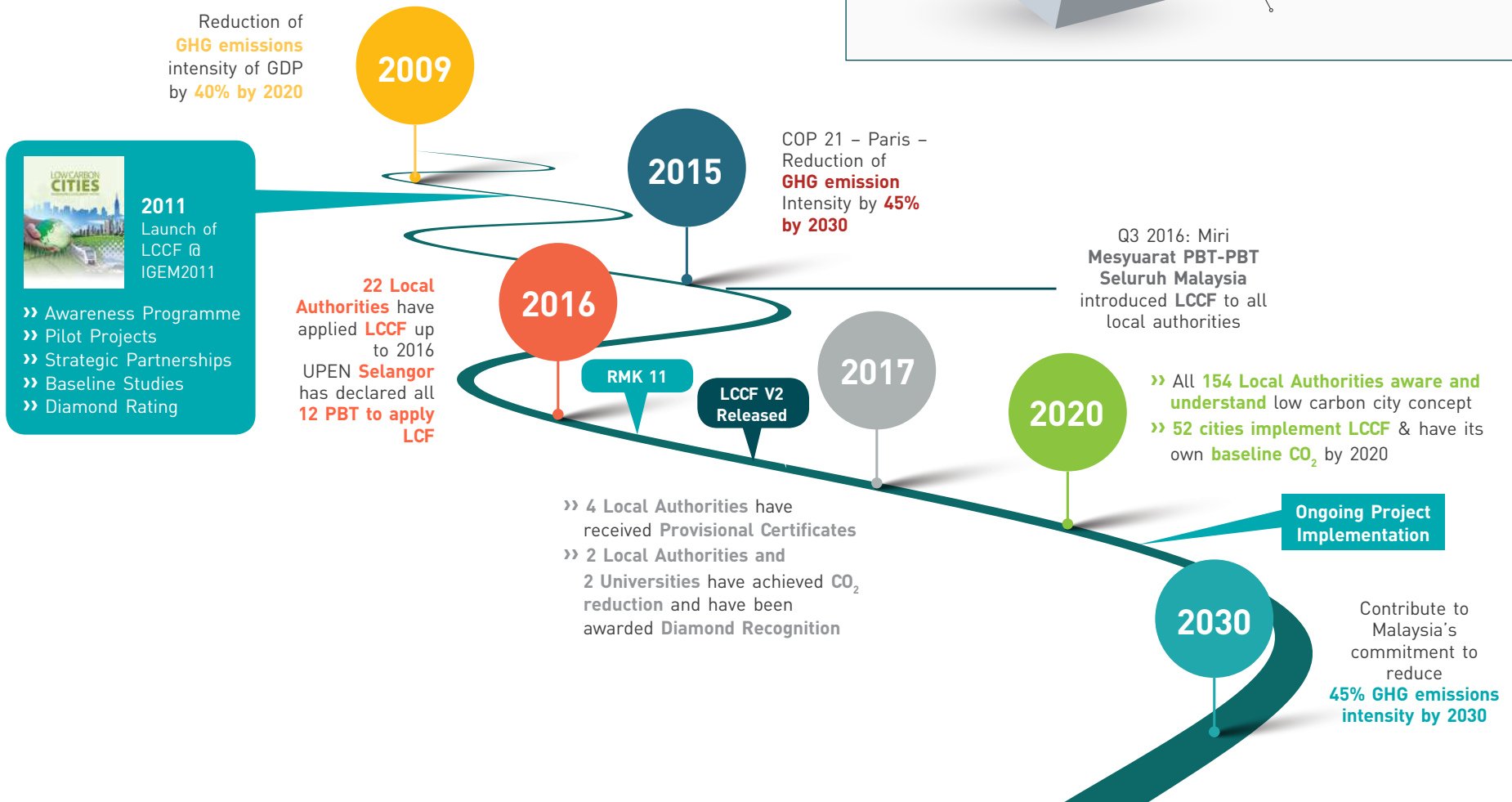
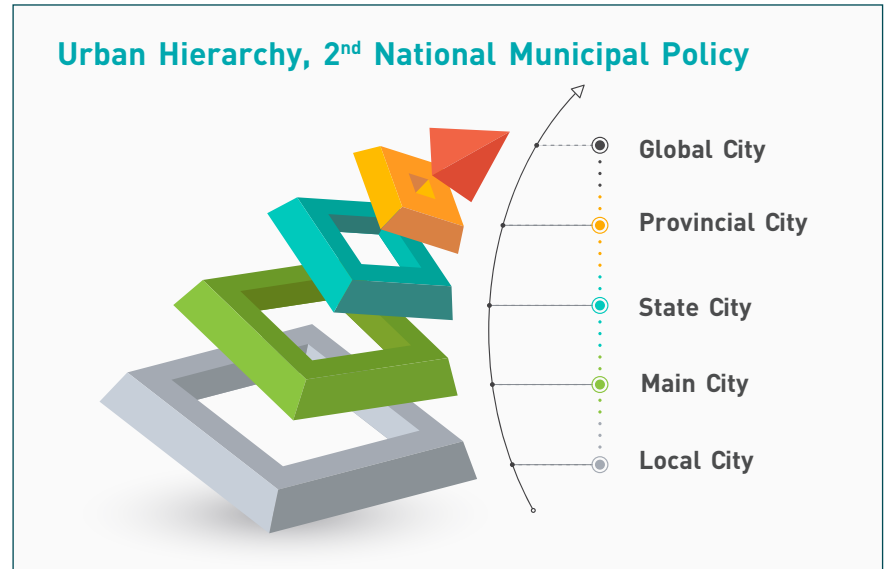


In 2019, MGTC received a number of enquiries, especially from local financial institutions, on the pursuit of green strategies. This was mainly driven by Bank Negara Malaysia through its Value-Based Intermediation Financing and Investment Impact Assessment Framework. At IGEM 2019, for example, **MGTC signed an MOU to assist AmBank Islamic Berhad to develop green financial packages.**

## Local Authorities adopting Low Carbon Cities

MGTC also fulfils an advisory role in assisting local authorities transform their cities into low carbon cities through technical clinics and workshops.

### Progress



## Achievements

Based on the technical advisory provided to the Local Authorities since 2001, up till 2018:



### LCCF Implementation Under Ministry (2011-2018)

**52 LA + 3 Uni + TLDM**  
Introduced and Trained

**19 LA + 3 Uni + TLDM**  
Developed Baseline and Action Plan

**5 LA + 2 Uni**  
Achieved Reduction



### International Recognition

#### Kuala Lumpur

83<sup>rd</sup> (Planet Sub Index) on Sustainable Cities Index 2018

#### Shah Alam & Hang Tuah Jaya

Low Carbon Model Town (APEC, Japan)

#### Petaling Jaya

UNESCO Learning City Award 2019

#### Muar

ASEAN Clean Tourist City Standard Award 2017

#### Taiping

3<sup>rd</sup> Sustainable Top 100 Destination Awards 2019



### International Cities Network & Affiliations:

#### ICLEI

(Penang, Langkawi, Melaka)

#### GCOM

(Putrajaya, KL, Seberang Perai, Iskandar)

## 2019 Highlights

**MGTC organised 12 LCCF workshops**, clinics and focus group discussions throughout 2019 to advise and guide the local authorities in developing their respective LCC action plans.



In **October 2019**, **MGTC** also organised a **Low Carbon Cities 2030 Challenge**: City-Biz Alliance Session #1 - Energy event. At this session, solutions providers related to energy efficiency and sustainable energy were invited to share their products and services. Among the solutions providers were several MyHIJAU companies.

This session was aimed at linking local authorities with solution providers to enhance on the ground solutions of Low Carbon Cities.





### What's Next >>

The way forward is to further enhance low carbon cities programmes by launching the National Low Carbon Cities Masterplan & Policy Roadmap that is scheduled for approval in 2020. The Masterplan outlines various action items and recommendations to be taken at the National, State and Local Government levels.



NGTP Strategic Thrust 03

## HUMAN CAPITAL

Human capital forms a central component of the successful adoption of green technology. Just as the effective implementation of green technology entails a paradigm shift in operational frameworks and organisations' business models, it also requires new skill-sets and competencies of the people using these technologies. MGTC's efforts to advocate sustainable energy management extend to human capital development in order to address needs at both the leadership and working/operational levels.

### ENERGY MANAGEMENT PROGRAMMES

When organisations introduce green technologies, it is essential that they prepare their workforce for the new systems and equip them with the knowledge as well as skills to be able to realise the full potential of the innovations. One of the most basic fundamentals to be mastered is energy management. Over the past 10 years, MGTC has been running various programmes to upskill technical human capital in the different aspects of managing and reducing energy consumption.

#### Energy Auditor Training Course (EATC)

The Energy Auditor Training Course (EATC) provides structure to the practice of energy auditing and raises the professional standards of those engaged in energy auditing. This training programme covers the knowledge and skills required to inspect, survey and analyse energy flows for energy conservation in a building, process or system to reduce the energy input into the system without negatively affecting the output. The training also covers the use of energy audit tools and report writing skills. Led by experienced energy auditors and managers, trainees will be exposed to real-life examples of performing energy audits, and things to do and not do, with updated input from the industry.

#### Energy Water Management Training (EWMT)

This programme helps organisations to better manage their energy and water usage by establishing a Management Committee Utility (JPU). The JPU is entrusted to outline effective energy policies, and to develop programmes as well as procedures to reduce energy and water consumption.

The programme is designed to:



Introduce sustainable utility management principles to continuously reduce consumption



Introduce best practices to reduce energy and water waste in daily and operation and building maintenance

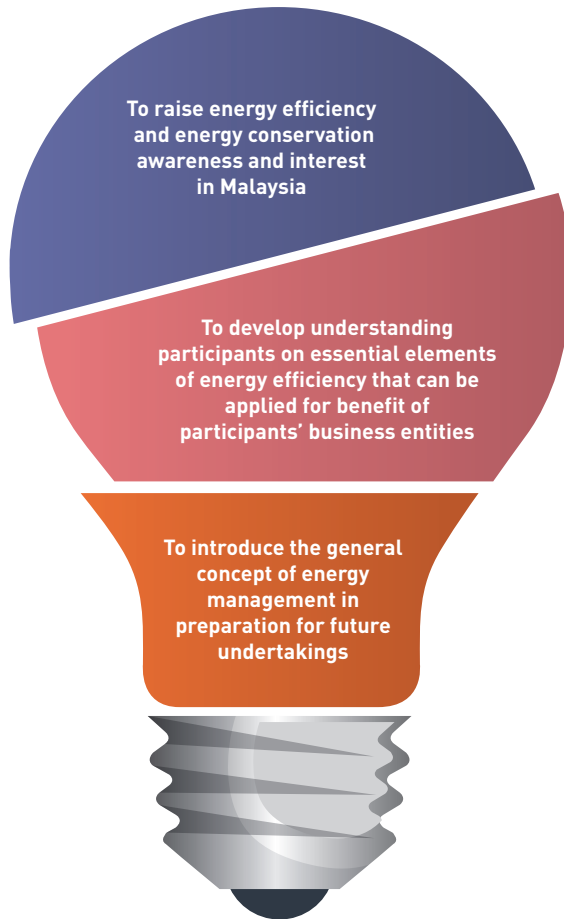


Provide participants with technical skills including knowledge of how electrical and mechanical systems functions, and how they should be maintained for optimal energy efficiency

## Have We Done Enough (HWDE)

This programme explores the essential elements of energy efficiency and conservation in a typical business entity. Participants are guided to understand and analyse energy consumption as well as to identify potential savings through the use of energy management systems. The programme assists the participants to prepare action plans on how to implement energy efficiency initiatives at the workplace.

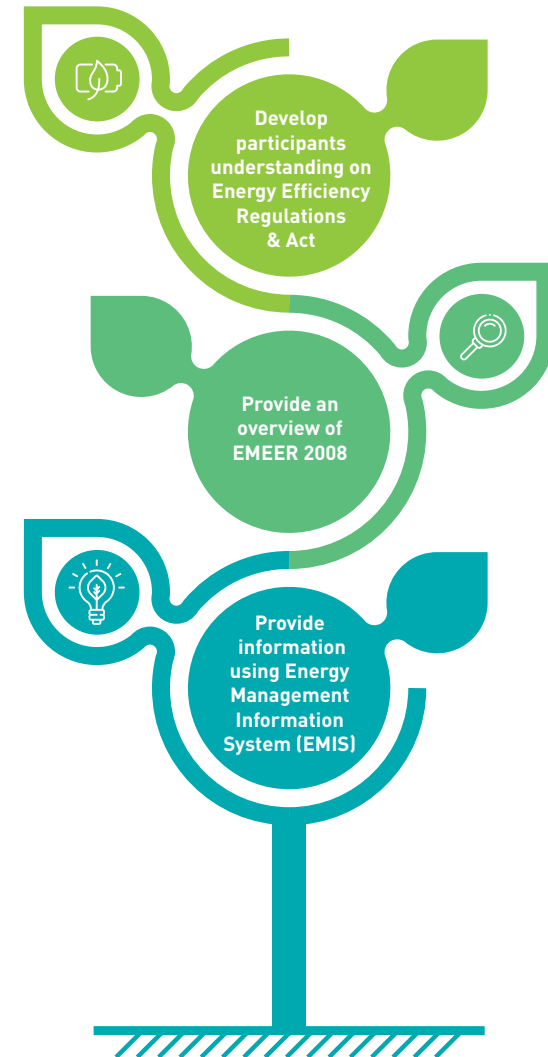
### Programme objectives:



## Registered Electrical Energy Manager (REEM)

A Registered Electrical Energy Manager (REEM) is an electrical energy manager who holds a valid certificate of registration from the Energy Commission (Suruhanjaya Tenaga). Half-day training is carried out on REEM guidelines under the Efficient Management of Electrical Energy Regulation (EMEER) 2008. The training assists energy managers to apply to become REEMs.

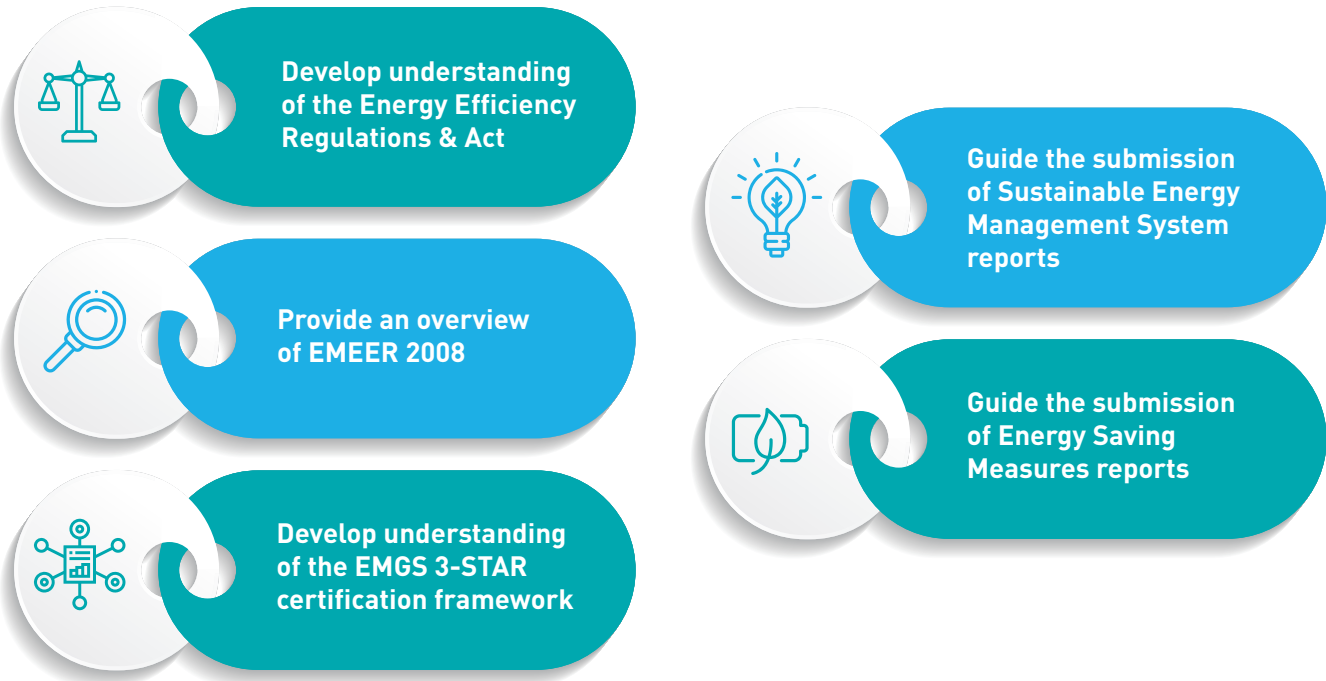
### Programme objectives:



## Professional Energy Manager (PEM)

The half-day Professional Energy Manager (PEM) training provides participants with the knowledge and skills to fulfil EMGS 3-Star requirements. Through the programme, PEMs will be able to further enhance the energy reduction achieved in 2-Star Assessment and integrate their organisation's energy management system with other standards and quality systems. PEMs help their organisations to become leaders in sustainable development.

### Course Objectives:



## Certified Professional in Measurement and Verification (CPMV)

CPMV is a certification training module that facilitates the end user or energy service company to develop strategies for their Sustainable Energy Management Systems (SEMS), and conduct measurement and verification activities for the energy saving programmes. The module covers the fundamental concepts of energy savings, available options for measurement and verification (M&V), planning and determining uncertainty using statistics. Upon successful completion of the programme, Certified M&V practitioners will have the knowledge and a structured framework to verify energy saving projects and produce energy savings reports. The course also provides individual capacity building skills.

In 2019, MGTC  
Conducted 5 CPMV  
Sessions and Trained  
**92 participants**



## AEMAS Energy Manager - Energy Manager Training Course (EMTC)

A key programme in preparing organisations to transform their energy management is the Energy Manager Training Course (EMTC). The five-day course is designed to equip young or experienced facility and maintenance officers, executives or engineers with the necessary knowledge to manage energy usage at their premises sustainably. The programme modules are developed and delivered by engineers and energy managers with decades of experience across industrial and commercial sectors.

At the end of the course, participants will be assessed through a written examination, a group presentation, and individual report writing. Upon passing the course, successful participants will be granted a certificate earning them the title of an AEMAS Certified Energy Manager (CEM). The training also provides a channel for participants to sign up as Registered Electrical Energy Managers (REEMs) with the Malaysian Energy Commission.

According to the Efficient Management of Electrical Energy Regulation 2018 by Suruhanjaya Tenaga (ST), organisations with large power consumption are required to employ REEMs.

### Background - AEMAS Energy Manager Programme in Malaysia



- AEMAS Programme started in February 2010
- AEMAS designed and developed the training curricula, energy management test procedures and simulation
- Implementation by ACE and 7 partners since 2010 in 8 ASEAN countries
- MGTC serves as the Country Coordinator for Malaysia

- MGTC is appointed by ACE to continue the AEMAS Programme in Malaysia as a Country Coordinator
- Two programmes for AEMAS – Energy Manager Training Course (EMTC) & Energy Management Gold Standard (EMGS)
- EMTC is authorised by Energy Commission to support the EMEER2018

- MGTC committed to continue AEMAS Training Programmes
- Adapting training and skills development to meet IR4.0 and COVID-19 Challenge

#### Training Method



Physical with computer assisted, blended learning integrated electronic formats



Using a mix of micro-learning, virtual sessions and simulations to leverage technology to meet learning needs



AEMAS EMTC session conducted in 2019 at MGTC.

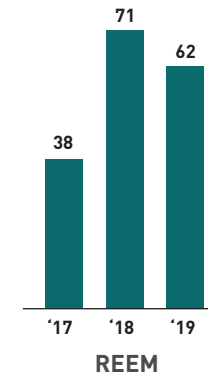
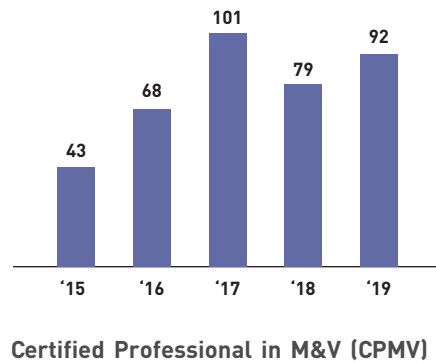
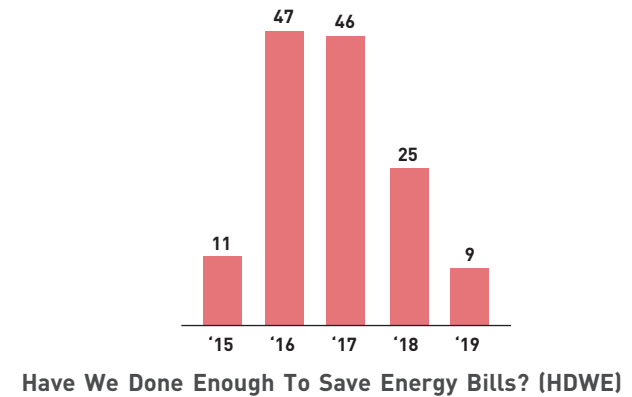
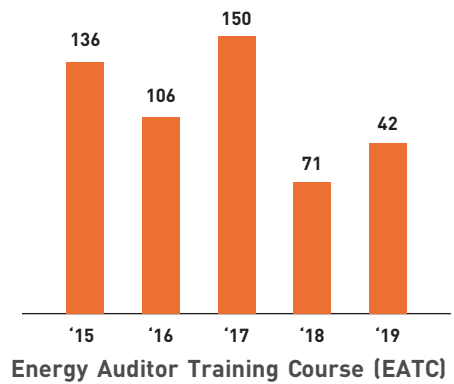
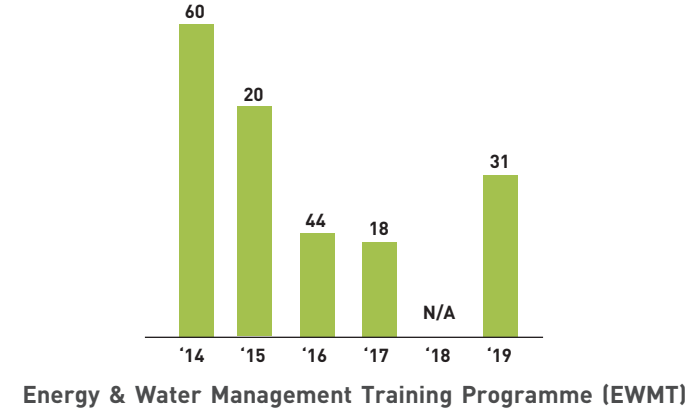
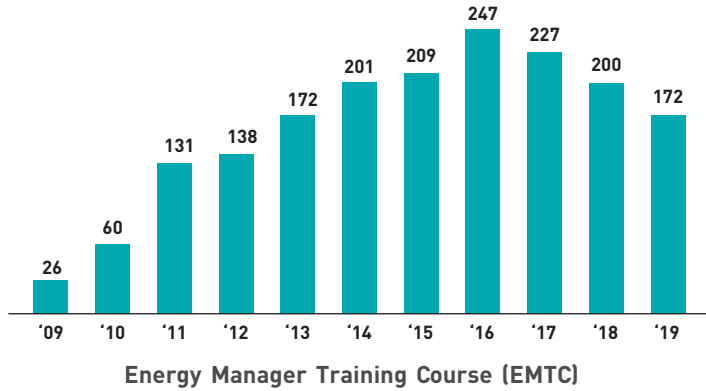


AEMAS EMTC session conducted in 2019 at Enderong Resort, Pahang.



## Achievements

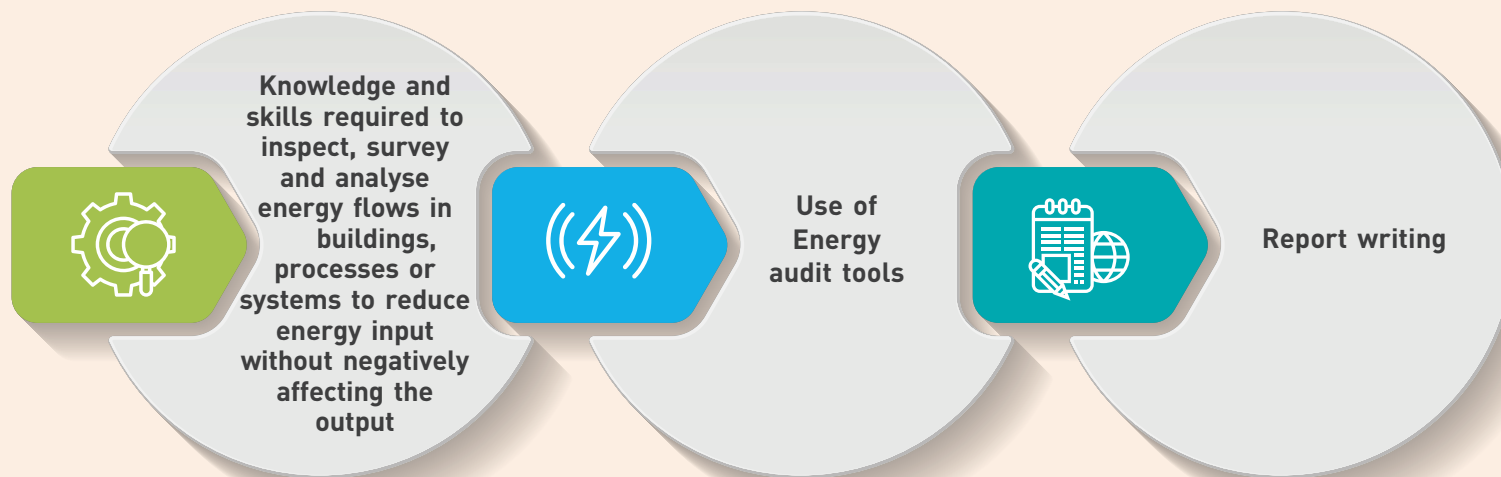
No. of Participants of the Different Training Programmes



## What's Next >>

In efforts to further expand energy management training and promote sustainable energy management, MGTC aims to organise a training programme specifically to develop Certified Energy Auditors (CEA).

CEA training will include:



Led by experienced energy auditors and managers, trainees will be exposed to real-life energy audits and receive updated industry input.

The programme will provide structure to energy audits and raise the professional standards of the practice. Certified Energy Auditors, acknowledged by Suruhanjaya Tenaga, will be qualified to audit any facility, especially those covered by EMEER 2008.

## LOW CARBON CITIES TRAINING PROGRAMME

Through capacity development, we hope to enable officers from local authorities to measure CO<sub>2</sub> emissions, develop emissions baselines, as well as draft and implement action plans.

### 2019 Highlights

Under the **ongoing Low Carbon Cities (LCC) programme, MGTC conducted training with three local authorities in 2019**. The two-day sessions offered a two-way approach for authorities to adopt the Low Carbon Cities Framework in their areas of jurisdiction. A **total of 140 participants** from Majlis Daerah Kuala Langat, Majlis Daerah Hulu Selangor and Majlis Perbandaran Kuantan participated in the training.

MGTC also conducted **two Townhall sessions** to explain the Low Carbon Cities Framework to **170 participants** from Majlis Perbandaran Batu Pahat and Majlis Perbandaran Kajang.



*Pictures from MGTC's Townhall session on Low Carbon Cities Framework*

### What's Next >>

MGTC aims to conduct more training and Townhall sessions for local authorities in order to facilitate the rapid roll-out of the Low Carbon Cities Framework to address climate change and ensure Malaysia stays true to its commitment to the Paris Climate Agreement. MGTC will also continue with the one-time fee for universities, industrial and other buildings, parks and companies to register under low carbon zones. LCC programmes such as LCC Help Desk @ MGTC, Meet & Greet Day and Clinics will continue to be conducted.



## GOVERNMENT GREEN PROCUREMENT TRAINING PROGRAMME

To promote green procurement within the government and its agencies, MGTC has been organising training, workshops and seminars for officials to introduce them to the green procurement framework and equip them with knowledge on green product and service specifications.

2017

All **25 ministries** and agencies in the **Federal Government** had implemented government **green procurement (GPP)**.

2013

Focused training of **officers** from **ministries** began.

## 2019 Highlights

**MGTC** conducted **15 GPP workshops and seminars** targeting government agencies, government linked companies and government suppliers/contractors.

Refer to page 140 for the list of seminars conducted.



*Seminar on Green Purchasing and Industry Development at MGTC, Bangi*

## 2019 Highlights



*Seminar on Green Purchasing and Industry Development at MGTC, Bangi*

Seminar on Green Purchasing and Industry Development in Malaysia  
(Malaysia Association of Cleaning Contractors)

MGTC also organised a Regional Workshop to share Malaysian practices with Indonesian and Philippine stakeholders on Green Public Procurement, Eco Labelling and Supporting Processes. In addition, MGTC was involved in regional training on Government Green Procurement and Sustainable Public Procurement.



Monthly MyHIJAU Business Clinics and Coaching Session were organised for companies to create greater awareness of the various components of the green procurement ecosystem and green technology industry development. **A total of 13 Business Clinics on MyHIJAU Mark, GITA, GITE and GTFS 2.0 were conducted.** In addition, two awareness seminars on Thermal Energy Efficiency & Solar Thermal Application were organised for suppliers and vendors, and financial institutions respectively.



*MyHIJAU Clinics Organised by MGTC*

## International Capacity Building on GGP



### MARCH

Workshop on Knowledge Sharing on EPC, Mydata NAMA Project and Green Public Procurement (Bangkok, Thailand)



### JUNE

International Conference and Training Workshop on Green Public Procurement - 10 Countries (Seoul, Republic of Korea)



### SEPTEMBER

"Reduce! Rethinking Circular Economy" Global Knowledge Exchange on SDG 12 Policy Tools (Bangkok, Thailand)



### DECEMBER

Workshop on Supporting Decision Making on Sustainable Consumption and Production (SCP) through Training on Sustainable Procurement (Bangkok, Thailand)



"Reduce! Rethinking Circular Economy" Global Knowledge Exchange on SDG 12 Policy Tools (Bangkok, Thailand)

## 2019 Highlights

### CONFERENCE & THOUGHT LEADERSHIP PROGRAMME

The annual IGEM is one of the main platforms used to engage government and industry leaders on the potential of green technology. At the event, participants are presented with technology updates, new business models and government initiatives.

For the **10<sup>th</sup> IGEM**, MGTC **collaborated with 10 partners to organise 11 conferences relating to energy**, green buildings, and the circular economy. A range of topics – from planning, solutions and best practices in green technology – were delivered by local and global thought leaders while experts from the different disciplines shared the stage to discuss efforts to nurture a green technology-ready workforce.



The 10<sup>th</sup> IGEM also saw the **launch of two MGTC-initiated programmes**, namely the **Climate Change Conversations™ Forum** and **Energy Management Convention**.

Event	Host	No. of Participants	Event	Host	No. of Participants
International Urban Sustainability Green Building Conference (IUSGBC)	MalaysiaGBC	100	Energy Manager Convention 2019	ACE, EC, MAREEM	168
Grassroots Innovation Dialogue	Yayasan Inovasi Malaysia	65	How to get Your Project Bankable and Get Approved by Funders	Technology Park Malaysia	48
Climate Change Conversations™ Forum	GreenTech Malaysia & Shell	191	Financing the Green Energy Sector	Capital Markets Malaysia	130
Sustainable Waste Management Seminar	Embassy of Netherlands	100	Seminar Promosi Sijil Kemahiran Malaysia	GreenTech Malaysia	103
KL Towards Low Carbon Society Forum	City Planning Department of DBKL	100	MCY Coaching & Mentoring	Technology Park Malaysia	30
Circular Economy and Energy Forum	The Nordics	160	Sustainable Energy Management Forum	Canada High Commission	63
KL Eco Film Festival: Film Screening	EcoKnights	32	MCY Ministerial Dialogue	Yayasan Inovasi	200
MDBC Innovation and Sustainability Awards (MISA)	Malaysian Dutch Business Council	70	KLEFF 2019 Award Ceremony	EcoKnights	70
Conversations with YB Yeo: MESI 2.0	MESTECC & TNB	200	Sustainable Innovation Awards (SIA 2019)	ProTemp	54



## The Climate Change Conversations™ Forum

The Climate Change Conversations™ Forum, themed “Future of Corporations: Climate Change Risks & Opportunities”, was aimed at corporate C-suites. Organised in partnership with Shell Malaysia and MESTECC, it featured two local speakers and one international speaker, and **attracted 191 participants**, including **65 corporate leaders**, representing **115 organisations**.



*The Climate Change Conversations™ Forum aimed at corporate C-suites.*

## The Energy Manager Convention



*The Energy Manager Convention featured six speakers from Malaysia, Thailand, the Philippines, Indonesia and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ).*

The **Energy Manager Convention** was a **joint collaboration with ACE, Suruhanjaya Tenaga and MAREEM**, sponsored by Concord Group, Tadau Energy Sdn Bhd, TNB and TNB Energy Services. Featuring six speakers from Malaysia, Thailand, the Philippines, Indonesia and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), the **objectives** were **to inspire and generate ideas related to energy management** while providing a platform for regional practitioners and interested parties to network. The convention attracted 168 participants including students, government officers and members of the public.

### What's Next >> —

MGTC will continue to collaborate with partners and develop more thought leadership platforms covering a wide range of green technology and climate change subjects. The Climate Change Conversations™, for example, will be organised quarterly as part of efforts to enhance awareness of climate change among corporations and government leaders.

NGTP Strategic Thrust 04

## RESEARCH & INNOVATION

Innovation is at the core of all emerging technologies. It catalyses growth by providing better, more effective solutions for increased productivity and operational efficiency. Innovation in green technology is vital to ensure economic advancement is resource-efficient and does not create a negative impact on the environment. A decade since its inception, MGTC has been focusing on cultivating a culture of innovation and providing accessibility to the public of the latest green technologies.

### CULTIVATING AN INNOVATIVE CULTURE

MGTC nurtures youth and aspiring entrepreneurs through innovative and experiential mindset-changing programmes. These include the Green Tech Youth Innovation Challenge, Journey to Astana and Eco Biz Challenge aimed at tertiary-level students; and the Green Minds Challenge Programme for secondary students. The overall objective is to inculcate a green mindset and stimulate creativity amongst youth to be innovation-driven in solving real-life environmental problems.

### Youth Programmes

#### Green Tech Youth Innovation Challenge (GTYIC)

The inaugural GTYIC challenged tertiary-level students to develop solutions to environmental issues using design thinking skills and 3-D mechanical design. Organised in collaboration with Asia School of Business-MIT Sloan School of Management (ASB-MIT), the 2016 challenge, themed "Greening Your Home", attracted the participation of 40 students in 10 teams. The winning teams represented Monash University, Asia Pacific University and Universiti Kebangsaan Malaysia.



Winner of Green Tech Youth Innovation Challenge  
Organised by MGTC - Monash University



Runner Up of Green Tech Youth Innovation Challenge  
Organised by MGTC - Asia Pacific University



### The GTYIC Challenges

are organised for tertiary-level students to develop solutions to environmental issues using

### Design Thinking Skills And 3-D Mechanical Design



## Journey to Astana (JTA)

JTA provided Malaysian youth and university researchers the opportunity to showcase their technological products and educational programmes at the International Expo 2017 in Astana. Organised jointly by MGTC, the Ministry of Energy, Green Technology and Water (KeTTHA) and Ministry of Higher Education (MoHE), JTA saw 25 students and 19 lecturers from 15 public and private universities enter 13 end-stage commercialised products and six educational programmes at the expo held from 10 June to 10 September 2017 in the capital of Kazakhstan. Special events were organised weekly for delegates to present their products and programmes. A key highlight was a visit to Astana's most prestigious research university, Nazarbayev University.

Upon returning from their trip, JTA delegates shared their experience and knowledge gained on sustainable development with peers at:

- A symposium held at Universiti Institut Teknologi MARA Shah Alam campus
- Six symposiums during IGEM 2017, held in Kuala Lumpur Convention Centre



### Astana EXPO 2017

provided Malaysian youth and university researchers a platform to showcase their technological products and educational programmes



Visit to Nazarbayev University - Astana's most prestigious research university



Delegates presenting their products/ programmes at Astana EXPO 2017



Symposium at UiTM Shah Alam

## Eco-Biz Dream Project Challenge



The Eco-Biz Dream Project was initiated in 2016 to inspire and empower students to develop business ideas that have a positive impact on the environment, thus developing entrepreneurial skills with a sustainability mindset. Co-organised by MGTC and Alliance Bank Malaysia Berhad (ABMB), the programme has to date challenged more than 300 tertiary students to identify solutions for environmental problems in Malaysia.

A total of 125 students participated in the 2018 programme themed "Revitalising Kerayong River in Kuala Lumpur". University Malaysia Sarawak emerged as the champion, receiving RM10,000 in cash with their winning solution using 'BioChar' in a plug-and-clean filter for use at wet markets along Kerayong River. The team also received an additional RM200,000 seed funding to implement their idea from Alliance Islamic Bank Berhad.



A platform for Tertiary Students to Compete and Identify Solutions for Environmental Problems in Malaysia



2018 Eco Biz - Winner

## Green Minds Challenge



MGTC developed the Green Minds Challenge (GMC) in 2016 in partnership with the Malaysian Mensa Society to inspire secondary school students to think about and develop simple solutions to environmental issues. The focus is on minimising consumption of natural resources at schools such as water and energy through effective waste management, recycling and composting, among others.

The inaugural programme, themed “Greening Your School”, attracted the participation of more than 70 students from 12 schools. The winning solution was “Wonder Washaway” by Sekolah Sri Puteri



Green Minds Challenge Programme for Secondary School Students



2016 GMC – Winner Sekolah Sri Puteri



Magical Liquid

Puteri, Cyberjaya. It was developed to reduce water usage in toilets by filling up a used plastic mineral water bottle with pebbles and placing it in the cistern.

In 2018, MGTC partnered with Majlis Perbandaran Subang Jaya (MPSJ) to embed GMC into MPSJ’s Smart Gen Programme for schools under its jurisdiction. SMK Sri Serdang was selected as the champion with “Magical Liquid”, which reduces the volume of water needed in handwashing and cleaning of equipment. The liquid uses plants found in the school compound and is packaged in recycled liquid soap bottles.



Programme developed for secondary school students to

**Inculcate, Educate And Create Green Leaders**

who will then

**Deliver Solutions To Environmental Issues**

## 2019 Highlights

In 2019, **MGTC partnered with Yayasan Hijau Malaysia (YaHijau)** to take more than **500 students** from **nine universities** to the 10<sup>th</sup> IGEM under the MGTC UnivTour programme. The guided tour offered first-hand experience to participating students in green technology innovations. It **enhanced the students’ understanding of the green technology landscape** in Malaysia.





## Entrepreneur Programme

Various programmes have been organised in collaboration with third parties over the last decade to promote entrepreneurship in green technology.



## Climate Launchpad



In 2018, MGTC partnered with the Malaysian Global Innovation and Creativity Centre (MaGIC) on Climate Launchpad (CLP), which accelerates the growth of green technology-based start-up companies. The objective is to shape innovative green business ideas into viable business solutions, attracting greater take-up by financial institutions and investors.

The focus was on facilitation and mentoring of participants as well as creating access to public-private funds with MGTC and MaGIC contributing RM100,000 each. The biggest attraction of the project was the chance for start-ups to qualify for the Grand Championships of the CLP 2018 in Scotland. Following a two-day Bootcamp facilitated by a CLP trainer and a six-week Acceleration Lab, the national final for CLP was held, and three champions were enrolled for Scotland.

Overall, the programme served to unlock the potential of Malaysia's green economy as it developed successful green entrepreneurs and created more green job opportunities.

## 2019 Highlights

In 2019, several programmes were organised at the three-day IGEN held at Kuala Lumpur Convention Centre to **promote aspiring green technology entrepreneurs**. It included the Sustainable Innovation Awards (SIA) and MDBC Innovation and Sustainability Awards (MISA).

### Sustainable Innovation Awards (SIA)

SIA served as a **platform to recognise excellence in research and product innovation in Green Technologies, Sustainable Innovations and Eco Innovations**. Young inventors were provided with a space to introduce their innovations, and connect with investors and business partners.

A total of **54 inquiries** and **28 online submissions** were received, of which **12 inventions** were showcased. The following four inventions won Gold awards:



## GOLD WINNERS

INVENTION / INNOVATION	INVENTOR / INNOVATOR
Low Carbon Transport Monitoring System	University Tun Hussein Onn Malaysia & Majlis Perbandaran Batu Pahat
Blockchain Energy Savings Consortium (BESC)	EPC Blockchain
Sistem Pemantauan Operasi Pam (SPOP)	Majlis Bandaraya Melaka Bersejarah
PathoSans: Cleaning & Disinfecting System For A Sustainable Tomorrow	Spraying Systems Malaysia

### MDBC Innovation and Sustainability Awards (MISA)



Winners of MISA 2019 With YB Hannah Yeoh

Through **MISA**, companies were **given a platform to showcase their best practices** and trailblazing spirit **in the areas of sustainability and innovation**. Shortlisted finalists presented their projects to a panel of judges and a general audience earlier the same day. Ensuring transparency, judges and the audience had the opportunity to ask questions of the finalists regarding their projects, something that also provided a learning experience for the attendees. Winners were then recognised at a ceremonial awards dinner held at the Grand Hyatt Kuala Lumpur.

### Winners of MISA 2019



Best Innovative Waste Management Programme:  
Better – Bev



Best Digital Green Tech:  
Satelligence



Best Practice for Renewable Energy:  
Concord Group



MISA '19 Audience Award:  
Besi APAC

## PROVIDING ACCESSIBILITY TO GREEN INNOVATION

MGTC seeks to make green innovations more accessible to the public, enabling Malaysians to experience developments that in the process, we demonstrate Malaysia's ability to become a powerhouse for green technology alongside developed nations.

One of the most outstanding models of green innovation in the country is MGTC's premises, the GEO building. Commissioned in 2007 and completed in 2010, the building marked a milestone in the adoption of sustainable building design and technology in Malaysia. To date, MGTC still receive streams of visitors to experience and learn about the various green building innovation including green building design concept, energy efficiency (EE) and renewable solar photovoltaic systems.

## Solar Photovoltaic Innovation

Solar photovoltaic systems form a key feature of the GEO building and have been aesthetically incorporated into its design. Building-integrated photovoltaics (BIPV) systems generate electricity for the building's needs while exporting surplus into the national grid during the daytime via a net-metering arrangement. The BIPV systems provide up to 50% of the building's electricity requirements, which amounts to 120,000 kWh/year.



**Building-integrated photovoltaic (BIPV)** are photovoltaic materials that are used to replace conventional building materials in parts of the building envelope such as the roof, skylights, or facades.



**1 System A:**  
Polycrystalline

**2 System B:**  
Amorphous Silicon



**3 System C:**  
Monocrystalline  
Glass-Glass

**4 System D: 27 kWp**  
Monocrystalline



**Showcases Solar  
Photovoltaic Systems**  
which are architecturally  
and aesthetically incorporated into the  
GEO building's design



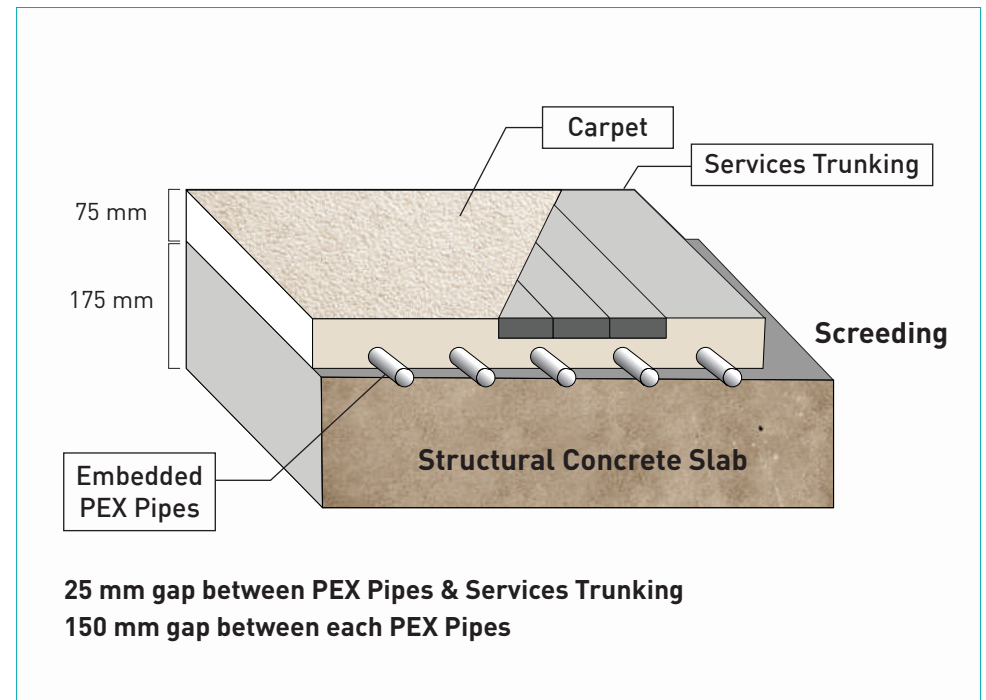
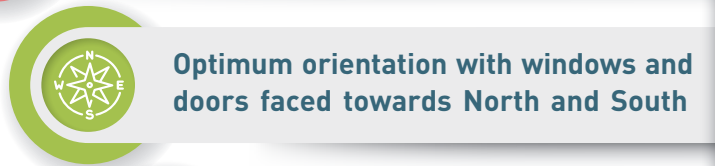
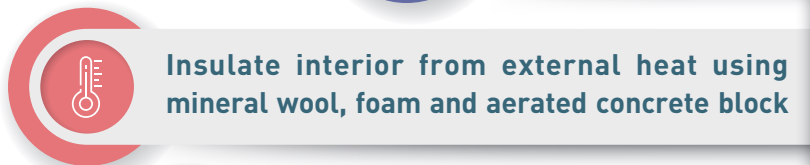
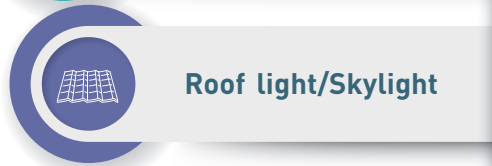
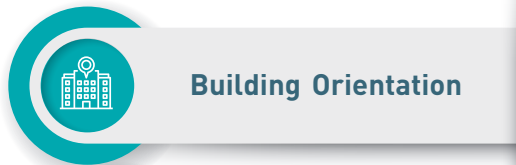
**F Systems E and F:**  
Thin Film CdTe



## Green Building Innovation

The GEO building incorporates many innovative features. The floor slab cooling system was the first in Malaysia. It is an innovative cooling system, where 50% of the cooling comes from the ceiling and the floor by means of chilled radiation and the rest by air volume for each building zone. Two types of radiant cooling system are demonstrated in the building, namely Floor Slab cooling (wet type) and Chilled Metal Ceiling colling (dry type). Chilled water temperature at 18° Celcius was led into the designated floor slabs giving a surface temperature of 21° Celcius at the ceiling and 21.5 at the floor. Floor slabs are cooled early in the morning via embedded cooling pipes.

GEO building features various passive green building ideas. Among them are:



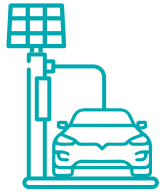
*PEX Pipes Before Covered With Structural Concrete*



## Electric Mobility

MGTC is also promoting the electric vehicle (EV) as part of emission reduction solution in transportation sector. It owns an EV fleet including Tesla Model S, Nissan Leaf, Renault Zoe and Mitsubishi IMIEV models, which is introduced to the public to drive home their value. Through outreach programmes, MGTC also hopes to allay any misconceptions the public may have on the effectiveness of EV and their usability.

MGTC initiated the Tesla programme in 2016 in order to provide access to Malaysian on the latest EV technology in the world. Tesla Model S was among EV that has battery capacity range of more than 400 km then. Coupled with its advanced digital technologies application, Tesla EV attracted attention and interest among Malaysian ranging from YAB Prime Minister, Ministers, Senior Government officials, CEOs, professional, inventors and public. Tesla approach to its overall business model was a game changer to global automotive industry which has attracted interest on how to deploy green technologies in an innovative way.



MGTC is promoting the **EV Agenda**



### What's Next >>



#### Green Incubation Hub

More can be done to cultivate a research culture hence various strategies have been outlines to stimulate the country's green technology industry. These include a proposal to establish a Green Incubation Hub.

Among others, the Green Incubation Hub is to fund local research into the development of innovative products. It would also reduce the need to import green products by promoting a green economy across Malaysia's states and cities.

Under the first phase of this five-year initiative, five of Malaysia's leading research institutes and university partners are to deliver 26 strategic science programmes and 14 key national research projects. Ultimately, the programme seeks to promote R&D-based entrepreneurship and increase the portfolio of green products available for enhanced economic growth.

NGTP Strategic Thrust 05

## PROMOTION & PUBLIC AWARENESS

In order for green technology to become a key driver of sustainable development, it has to be integrated into every aspect of our lives. This, in turn, requires Malaysians to adopt a green mindset and make conscious decisions to reduce our collective environmental footprint. To encourage more sustainable lifestyles, MGTC reaches out to the public by recognising excellence in green technologies and also creating opportunities for people to experience the multifaceted benefits of green solutions.

### AWARDS & RECOGNITION

Recognition of efforts to promote and build a green economy not only motivate greater participation in the sector, it also creates greater awareness among the public of the value placed on green technology.



### National Energy Awards (NEA)

The National Energy Awards, or NEA is a ministry initiative initiated in 2018 to acknowledge and recognise the energy efficiency practices and renewable energy efforts among private and public sectors in Malaysia. NEA is the cornerstone of a joint venture between government & private sectors for innovations in products, solutions & commercialisation towards a green economy. It is funded by the Malaysian Electricity Supply Industries Trust Account or AAIBE and is fully supported by Energy Commission (Suruhanjaya Tenaga) and Sustainable Energy Development Authority (SEDA). It also serves as a platform to identify Malaysia's best practises in the field EE & RE to represent Malaysia at the ASEAN Energy Awards (AEA) on a yearly basis.

#### Objectives

-  Recognise efforts across the public and private sectors in energy innovation that have a positive impact on the public.
-  Enhance awareness of the importance of sustainable energy in society.
-  Highlight the development of ideas and best practices in sustainable energy.
-  Promote innovation in technology, inspiring research and development (R&D) in line with the aspiration for green energy to become a new engine of economic growth.

#### Categories

-  Energy Efficiency (EE) – recognising excellence in energy management and energy efficiency in commercial and industrial buildings.
-  Renewable Energy (RE) – encompassing on-grid and off-grid generation of energy from different renewable sources.

## Low Carbon Cities Award

Low Carbon Annual Sharing Session started in 2017 as a programme that recognises the efforts and achievements of local authorities, universities, organisations and companies to lower their carbon footprint. In 2019, the programme was rebranded as the Low Carbon City Awards for better visibility and prestige as well as to promote the Low Carbon Cities 2030 Challenge (LCC2030Challenge).

LCC2030Challenge aims to establish 200 Low Carbon Zones and 1,000 Low Carbon Partners across Malaysia by 2030.

These Low Carbon Zones and Low Carbon Partners will minimise their emissions from:



### ENERGY

Maximise building energy efficiency and increase adoption of renewable energy.



### WATER

Maximise water efficiency and increase adoption of rainwater harvesting.



### MOBILITY

Increase use of public transport, cycling, walking and other low carbon modes.



### WASTE

Reduce the amount of waste that goes into the landfills.



### GREENERY

Maintain or increase the number of trees and green spaces in the city.

The awards also aim to provide participating organisations with visibility to share and promote their carbon reduction efforts.



## EMGS Award

The Energy Management Gold Standard (EMGS) Award is held to recognise organisations that have successfully implemented Sustainable Energy Management Systems in compliance with standards set under the ASEAN Energy Management Scheme (AEMAS). Launched in 2015, the annual award showcases best practices to managed energy better and be more energy efficient.



## 2019 Highlights

To date NEA has identified and recognised **34 organisations** with **27** of them went on to win at the prestigious ASEAN Energy Awards showcasing their best practises and positioned Malaysia as the regional player in the area of sustainable energy.

This is indeed encouraging, as it demonstrates the growing commitment and confidence of businesses and institutions in Malaysia in adopting sustainable practices in their operations as this would enable Malaysia to **achieve its 20% RE generation capacity** mix by 2025 from just 2% in 2016 and contribute towards the country's climate commitment under the Paris Agreement, in which Malaysia has pledged to **reduce its carbon emissions per GDP by 45% in 2030**.

NEA2019 Awards dinner was graced by YB Yeo Bee Yin, Minister of Energy, Science, Technology, Environment & Climate Change and presented 11 awards for Category 1 (Energy Efficiency) and 4 awards for Category 2 (Renewable Energy).

In addition to this and upon strong recommendation by NEA panel of judges and Technical Committee, Merit Awards was presented to **5 companies** due the competitiveness of the category and good quality report submissions on having **scored more than 75%**. Other guest includes key industry stakeholders such as Malaysia Green Building Council (MGBC) and Malaysia Society of Heating, Refrigerating and Air-Conditioning Engineers (MASHRAE) including association & chambers such as Federation of Malaysian Manufacturing (FMM), Pertubuhan Arkitek Malaysia (PAM). Winners list of NEA 2019 and AEA 2019 can be referred in the appendix on page 143. More information at [www.nationalenergyaward.com.my](http://www.nationalenergyaward.com.my).





The 2019 Low Carbon Cities Awards ceremony was held at the Kuala Lumpur Convention Centre (KLCC) in conjunction with the 10<sup>th</sup> IGEM. **Ten Low Carbon Zones** and **nine Low Carbon Partners received** the Diamond Recognition for reducing their carbon emissions across four elements – energy, water, mobility and waste – while increasing their carbon sequestration by planting more trees. The award ceremony was attended by 135 guests including seven mayors and representatives from 33 local authorities as well as 20 Presidents (Yang di-Pertua) of various municipalities.



The EMGS Award Ceremony 2019 was held on 10 October 2019 at KLCC. A total of 84 organisations attended the ceremony that saw **76 organisations received the EMGS Certificate: one for the 3-Star Rating, 43 for the 2-Star Rating and 32 for the 1-Star Rating.** Institut Jantung Negara (IJN) became the first from the healthcare sector and the second organisation in the country to receive the 3-Star rating, after Universiti Teknologi Malaysia (UTM).



### What's Next >>

NEA 2020 will be widening the scope to include Energy Performance Contracting (EPC) projects, local private and public universities and financial institutions that provide access to financing for energy-related projects in the country. This is part of efforts to recognise other key players within the energy sector.

NEA will encompass the mobility, waste and building sectors in the awards programme in due course.

## EXPERIENTIAL LEARNING

One of the best approaches to promote green technology is to enable potential users to experience the products and services first hand. In this regard, MGTC has been providing experiential learning since the Green Energy Office, more commonly known as the GEO building, was commissioned in 2007. Using insights gleaned, demonstration projects have been developed to create awareness and experiential learning opportunities.



### Industry and Public Experiencing Green Building

The GEO building is MGTC's headquarters in Bangi, about 40km south of Kuala Lumpur. Located on a five-acre site, the building is designed to be exceptionally energy efficient, with a building energy index (BEI) of 65Wh/m<sup>2</sup>/year as compared to the norm of 250-300kWh/m<sup>2</sup>/year for conventional office buildings in Kuala Lumpur.

Incorporating advanced green technologies, the GEO building serves as a model for the design and construction of sustainable living/working spaces in the region. Among its green solutions are innovative energy management systems and rainwater harvesting systems. MGTC has hosted visitors from ministries, foreign delegations and green technology organisations to showcase Malaysia's green building technology. The tour programme is also open to members of the public.

MGTC's headquarters in Bangi is designed to be exceptionally energy efficient, with a building energy index (BEI) of 65Wh/m<sup>2</sup>/year as compared to the norm of 250-300kWh/m<sup>2</sup>/year





## Public Experiencing Electric Mobility

A crucial component of a robust electric vehicles (EV) market is a strong ecosystem of charging infrastructure and backend support. Recognising this, in 2016, the Government granted MGTC RM5 million for the first phase of rolling out EV charging points across Malaysia, which entailed the installation of 200 charging points in the Peninsular.

On 17 August 2016, MGTC introduced ChargeEV, its public EV charging station network brand. The charging station infrastructure also serves as an instrument for the public to experience an EV lifestyle. With the collaboration of Sarawak Energy Berhad, ChargeEV has now reached East Malaysia, where four stations have been set up in Kuching. As at December 2019, the network of ChargeEV stations in the country comprised 300 units.



To further expand this network, at the last meeting of the Minister of Energy, Science, Technology, Environment and Climate Change (MESTECC) and members of the Council of State Governments in January 2020, MGTC requested support from the state governments for the installation of more ChargeEV stations in public areas to promote usage of electric and hybrid vehicles on roads nationwide.

**The Government granted RM5 million for the first phase of rolling out EV charging points across Malaysia, which entailed the installation of 200 charging points**

## 2019 Highlights

MGTC and Tenaga Nasional Bhd's wholly-owned unit **TNB Energy Services Sdn Bhd (TNBES)** to install **100 ChargeEV stations at shopping malls** and selected 5-star hotels. Installation work is being carried out by TNBES and MGTC's joint venture company, Tenaga E Mobility Solutions Sdn Bhd, which will also explore potential businesses related to smart mobility.



*TNBES Managing Director Dr Ahmad Jaafar Abd Hamid Ahmad Jaafar and Minister of Energy, Science, Technology, Environment & Climate Change Yeo Bee Yin launched TNBES at MGTC's EV infrastructure expansion project in conjunction with IGEM 2019.*

### What's Next >>

MGTC is working to promote greater green technology adoption by state governments under a new strategy which is expected to be rolled out in 2020. Eleven state secretariat buildings have been identified to serve as models of energy efficiency that would both reduce consumption and utility costs. Malaysia's state governments are currently studying our proposal to undertake Energy and Retrofit Management Projects in these buildings using Energy Performance Contracting (EPC).



## 2019 Highlights

### PUBLIC ENGAGEMENT THROUGH ACTIVE LIFESTYLE

Another public engagement strategy is through the promotion of active lifestyle programmes, which is strongly correlated to the adoption of green lifestyles. Activities such as walking and cycling are some of the lifestyle solutions that support the green agenda.



In **2019, MGTC organised the first GreenTech Run** to promote an eco-friendly lifestyle by engaging the public on the Government's green initiatives and promoting products and services by MGTC. The run, taglined "Don't be mean, just go green!", attracted around 700 participants.

Winners of the 10km men's and women's categories were **rewarded with RM500** and a medal, RM300 and a medal and RM200 and medal for first, second and third placing respectively. Those who came in fourth to sixth received RM150 and a medal, while seventh to 10th finishers received RM100 and a medal. All those who completed the run received a medal.



### What's Next >>



MGTC is currently conceptualising the Karnival Gaya Hidup Hijau (GAH) 2020 to encourage a green lifestyle among local authorities, strategic and business partners, local SMEs, non-governmental organisations (NGOs), university and college students and society in general.



## CALENDAR OF EVENTS 2019

Q1

### Batu Pahat sets the pace on low carbon cities

Officiated by the Minister of MESTECC, the session was attended by more than 100 participants. The City Council also signed an MOU with 13 organisations on transforming Bandar Penggaram into a low-carbon city.



### Collaboration with German agency on SCP

MGTC to collaborate with Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH on a pilot LCC project, MyRelamp.



### We appreciate you!

MGTC Appreciation Night is a ceremony to celebrate its employees and to recognise their achievements throughout the year.

Q2



### Malaysia participation in Expo 2020 Dubai

A contract was signed with Expo officials confirming Malaysia's participation at Expo 2020 Dubai.



### Collaboration under UKPACT programme

MGTC entered into a collaboration with the Government of United Kingdom under Partnering for Accelerated Climate Transitions (UKPACT) Cooperation to strengthen, promote and develop climate change and low carbon initiatives.



### 21st Annual General Meeting

Malaysian Green Technology and Corporation's 21st Annual General Meeting was held to convene on strategic review of Annual Report to membership and shareholder.



### Hello Penang!

GreenTech Malaysia Open Day in Penang.



### Jakarta: MGTC in AEMAS National Council Meeting

MGTC attended the annual ASEAN Centre of Energy (ACE) meeting on the ASEAN Energy Management Scheme (AEMAS).



### Regional Workshop on Green Public Procurement

MGTC organised a Green Government Procurement (GGP) workshop for stakeholders from Indonesia and the Philippines.



# Q3

## EV Charging Membership Road Tour

Marketing promotion to create awareness of EV Charging Membership.



## Stakeholder Engagement Workshop on the Development of Electric Vehicle (EV) Roadmap and Training Need, Capacity Building and Standards to Support EV Value Chain in Malaysia

The session focused on SWOT analysis for the development of an EV Roadmap. The most recent update on the training needs was also presented during the session.



## Low Carbon Cities 2030 Challenge launched by YBM, MESTECC

At the launch of LCC2030C by the Minister of MESTECC, 29 organisations and university representatives signed a pledge to undertake the challenge.



## Stakeholder Consultation Workshop (Low Carbon Mobility Blueprint and Action Plan Draft Final Report)

The Final LCMB report was presented to stakeholders and was approved.

## National Energy Awards 2019

NEA 2019 gave out Merit Awards to five organisations for their high-quality report and due to the competitiveness of the category NEA 2019 selected 22 organisations to represent Malaysia at the ASEAN Energy Awards 2019 held in Thailand, where 16 organisations went on to win regional awards.



## Expansion of ChargeEV Network to East Malaysia

MGTC collaborated with Sarawak Energy to install 5 EV charging stations in Kuching, Sarawak.

## CALENDAR OF EVENTS 2019

## Q4



### Unveiling of Malaysia Pavilion Concept & Design for EXPO 2020 Dubai

MESTECC officially unveiled "The Rainforest Canopy" concept and design for Malaysia Pavilion at EXPO 2020 Dubai to reflect the theme "Energising Sustainability".

### The Inaugural Climate Change Conversations

MGTC, in partnership with Shell Malaysia, organised the inaugural Climate Change Conversations forum targeting CEOs, industry captains and the top brass from local companies.



### Low Carbon Cities Awards 2019

Ceremony to award Provisional Certificates and Diamond Recognition based on participants' LCC2030C outcomes.



### Rebranded as Malaysian Green Technology and Climate Change Centre

Malaysian Green Technology Corporation was rebranded as Malaysian Green Technology and Climate Change Centre to strengthen institutional capability and capacity for delivering on the climate change agenda.



### Malaysia Pavilion at EXPO 2020 Dubai to be carbon free

Announcement and official launch of Malaysia's Net Zero Carbon Pavilion, an initiative to offset the carbon from the construction and operations of Malaysia Pavilion, including the embodied materials used.



### TNBES-MGTC EV Charging Stations Expansion Launch

TNBES-MGTC launched an initiative to install up to 100 charging stations across Malaysia.



# Q4



## EMGS Awards 2019

EMGS has positively impacted the environment and economy, contributing to RM34.6 million in annual cost savings, while mitigating 54.7 kilotonnes of CO<sub>2</sub>e emissions every year.



## First Energy Manager Convention

The first convention for energy managers in Malaysia featured speakers from Malaysia, Thailand, the Philippines and Indonesia.

## Ground breaking Malaysia Pavilion at EXPO 2020 Dubai

Construction of Malaysia's "Rainforest Canopy" Pavilion kicked off following a ground-breaking ceremony at the Sustainability District of the 4.38km<sup>2</sup> World Expo site.



## First GreenTech Run by MGTC

Held in December 2019, the event promoted an eco-friendly lifestyle by informing the public of the Government's green initiatives while highlighting products and services by MGTC.

# > FINANCIAL STATEMENTS



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## DIRECTORS' REPORT

The directors hereby submit their report and the audited financial statements of the Group and of the Company for the financial year ended 31 December 2019.

### PRINCIPAL ACTIVITIES

The principal activities of the Company is to act as the focal point for the development of green technology in Malaysia by undertaking advisory services, driving and facilitating the implementation and growth of green technology industry and compiling data by way of coordination, development, training, transfer, adoption, research and development, innovation and commercialisation in green technology.

The principal activities of the subsidiaries are set out in Note 5 to the financial statements. There have been no significant changes in the nature of these activities during the financial year.

### CHANGE OF NAME

On 6 February 2020, the Company changed its name from Malaysian Green Technology Corporation to Malaysian Green Technology and Climate Change Centre.

### RESULTS

	The Group RM	The Company RM
Profit after taxation for the financial year	924,368	966,261

### DIVIDENDS

The Company is prohibited from paying any dividend under Section 45(2)(b) of the Companies Act 2016 in Malaysia.

### RESERVES AND PROVISIONS

There were no material transfers to or from reserves or provisions during the financial year.

### ISSUES OF SHARES AND DEBENTURES

The Company is a company limited by guarantee and does not have any share capital. No debentures have been issued by the Company.

### BAD AND DOUBTFUL DEBTS

Before the financial statements of the Group and the Company were made out, the directors took reasonable steps to ascertain that action had been taken in relation to the writing off of bad debts and the making of allowance for impairment losses on receivables and satisfied themselves that there are no known bad debts and that no allowance for impairment losses on receivables is required.

At the date of this report, the directors are not aware of any circumstances that would require the writing off of bad debts, or the allowance for impairment losses on receivables in the financial statements of the Group and of the Company.

### CURRENT ASSETS

Before the financial statements of the Group and of the Company were made out, the directors took reasonable steps to ensure that any current assets, which were unlikely to be realised in the ordinary course of business, including their value as shown in the accounting records of the Group and of the Company, have been written down to an amount which they might be expected so to realise.

At the date of this report, the directors are not aware of any circumstances which would render the values attributed to the current assets in the financial statements misleading.

## DIRECTORS' REPORT

### VALUATION METHODS

At the date of this report, the directors are not aware of any circumstances which have arisen which render adherence to the existing methods of valuation of assets or liabilities of the Group and of the Company misleading or inappropriate.

### CONTINGENT AND OTHER LIABILITIES

At the date of this report, there does not exist:-

- (a) any charge on the assets of the Group and of the Company that has arisen since the end of the financial year which secures the liabilities of any other person; or
- (b) any contingent liability of the Group and of the Company which has arisen since the end of the financial year.

No contingent or other liability of the Group and of the Company has become enforceable or is likely to become enforceable within the period of twelve months after the end of the financial year which, in the opinion of the directors, will or may substantially affect the ability of the Group and of the Company to meet their obligations when they fall due.

### CHANGE OF CIRCUMSTANCES

At the date of this report, the directors are not aware of any circumstances not otherwise dealt with in this report or the financial statements of the Group and of the Company which would render any amount stated in the financial statements misleading.

### ITEMS OF AN UNUSUAL NATURE

The results of the operations of the Group and of the Company during the financial year were not, in the opinion of the directors, substantially affected by any item, transaction or event of a material and unusual nature.

There has not arisen in the interval between the end of the financial year and the date of this report any item, transaction or event of a material and unusual nature likely, in the opinion of the directors, to affect substantially the results of the operations of the Group and of the Company for the financial year in which this report is made.

### DIRECTORS

The names of directors of the Company who served during the financial year and up to the date of this report are as follows:-

Datuk Wira Jalilah Binti Baba (Re-appointed on 1.7.2019)  
 Datuk Nagulendran A/L Kangayatkarasu (Appointed on 26.8.2019)  
 Datuk Hiswani Binti Harun (Appointed on 4.10.2019)  
 Professor Dato' Ir. Dr. A Bakar Bin Jaafar (Appointed on 4.10.2019)  
 Ahmad Kamal Bin Wasis @ Waksis (Appointed 4.10.2019)  
 Hartini Binti Mohd Nasir (Appointed on 4.10.2019)  
 Datuk Poh Pai Kong (Resigned on 30.6.2019)  
 Baskaran A/L Madhavan Nair (Resigned on 30.9.2019)

The names of directors of the Company's subsidiaries who served during the financial year and up to the date of this report, not including those directors mentioned above, are as follows:-

T/Sharifah Hanif Binti Tengku Hamzah  
 Noor Azmin Azali Bin Ramli  
 Syed Ahmad Bin Syed Mustafa

### DIRECTORS' INTERESTS

The Company is a company limited by guarantee and does not have any share capital.

### DIRECTORS' BENEFITS

Since the end of the previous financial year, no director has received or become entitled to receive any benefit by reason of a contract made by the Company or a related corporation with the director or with a firm of which the director is a member, or with a company in which the director has a substantial financial interest.

Neither during nor at the end of the financial year was the Group or the Company a party to any arrangements whose object is to enable the directors to acquire benefits by means of the acquisition of shares in or debentures of the Company or any other body corporate.



## DIRECTORS' REMUNERATION

There were no directors' remuneration paid or payable during the financial year.

## INDEMNITY AND INSURANCE COST

During the financial year, there is no indemnity given to or professional indemnity insurance effected for directors, officers or auditors of the Company.

## SUBSIDIARIES

The details of the Company's subsidiaries are disclosed in Note 5 to the financial statements.

## SIGNIFICANT EVENT OCCURRING AFTER THE FINANCIAL PERIOD

The significant event occurring after the financial period is disclosed in Note 29 of the financial statements.

## AUDITORS

The auditors, Crowe Malaysia PLT, have expressed their willingness to continue in office.

The details of the auditors' remuneration are disclosed in Note 24 to the financial statements.

Signed in accordance with a resolution of the directors dated 12 June 2020.



**Datuk Wira Jalilah Binti Baba**



**Professor Dato' Ir. Dr. A Bakar Bin Jaafar**

**STATEMENT BY DIRECTORS**

PURSUANT TO SECTION 251(2) OF THE COMPANIES ACT 2016

We, Datuk Wira Jalilah Binti Baba and Professor Dato' Ir. Dr. A Bakar Bin Jaafar, being two of the directors of Malaysian Green Technology And Climate Change Centre (formerly known as Malaysia Green Technology Corporation), state that, in the opinion of the directors, the financial statements set out on pages 101 to 136 are drawn up in accordance with Malaysian Financial Reporting Standards, International Financial Reporting Standards and the requirements of the Companies Act 2016 in Malaysia so as to give a true and fair view of the financial position of the Group and of the Company as of 31 December 2019 and of their financial performance and cash flows for the financial year ended on that date.

Signed in accordance with a resolution of the directors dated 12 June 2020.



Datuk Wira Jalilah Binti Baba



Professor Dato' Ir. Dr. A Bakar Bin Jaafar

**STATUTORY DECLARATION**

PURSUANT TO SECTION 251(1)(b) OF THE COMPANIES ACT 2016

I, Shamsul Bahar Mohd Nor, being the officer primarily responsible for the financial management of Malaysian Green Technology And Climate Change Centre (formerly known as Malaysia Green Technology Corporation), do solemnly and sincerely declare that the financial statements set out on pages 101 to 136 are, to the best of my knowledge and belief, correct and I make this solemn declaration conscientiously believing the declaration to be true, and by virtue of the Statutory Declarations Act 1960.

Subscribed and solemnly declared by the abovementioned Shamsul Bahar Mohd Nor, NRIC Number: 640221-08-5905, at Kuala Lumpur in the Federal Territory on this 12 June 2020.



SUITE C-5-9  
BLOK C LEVEL 7,  
MENARA UNCANG EMAS,  
85, JALAN LOKE YEW,  
55200 KUALA LUMPUR  
TEL: 012-300 8300

Before me



Shamsul Bahar Mohd Nor

## INDEPENDENT AUDITORS' REPORT

TO THE MEMBERS OF MALAYSIAN GREEN TECHNOLOGY AND CLIMATE CHANGE CENTRE  
(FORMERLY KNOWN AS MALAYSIAN GREEN TECHNOLOGY CORPORATION)  
(INCORPORATED IN MALAYSIA) REGISTRATION NO: 199801006110 (462237 - T)

### REPORT ON THE AUDIT OF THE FINANCIAL STATEMENTS

#### Opinion

We have audited the financial statements of Malaysian Green Technology And Climate Change Centre (formerly known as Malaysia Green Technology Corporation), which comprise the statements of financial position as at 31 December 2019 of the Group and of the Company, and the statements of profit or loss and other comprehensive income, statements of changes in equity and statements of cash flows of the Group and of the Company for the financial year then ended, and notes to the financial statements, including a summary of significant accounting policies, as set out on pages 101 to 136.

In our opinion, the accompanying financial statements give a true and fair view of the financial position of the Group and of the Company as at 31 December 2019, and of their financial performance and their cash flows for the financial year then ended in accordance with Malaysian Financial Reporting Standards, International Financial Reporting Standards and the requirements of the Companies Act 2016 in Malaysia.

#### Basis for Opinion

We conducted our audit in accordance with approved standards on auditing in Malaysia and International Standards on Auditing. Our responsibilities under those standards are further described in the *Auditors' Responsibilities for the Audit of the Financial Statements* section of our report. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

#### Independence and Other Ethical Responsibilities

We are independent of the Group and of the Company in accordance with the *By-Laws (on Professional Ethics, Conduct and Practice)* of the Malaysian Institute of Accountants ("By-Laws") and the International Ethics Standards Board for Accountants' *Code of Ethics for Professional Accountants ("IESBA Code")*, and we have fulfilled our other ethical responsibilities in accordance with the By-Laws and the IESBA Code.

#### Information Other than the Financial Statements and Auditors' Report Thereon

The directors of the Company are responsible for the other information. The other information comprises the Directors' Report, but does not include the financial statements of the Group and of the Company and our auditors' report thereon.

Our opinion on the financial statements of the Group and of the Company does not cover the Directors' Report and we do not express any form of assurance conclusion thereon.

In connection with our audit of the financial statements of the Group and of the Company, our responsibility is to read the Directors' Report and, in doing so, consider whether the Directors' Report is materially inconsistent with the financial statements of the Group and of the Company or our knowledge obtained in the audit or otherwise appears to be materially misstated.

If, based on the work we have performed, we conclude that there is a material misstatement of this Directors' Report, we are required to report that fact. We have nothing to report in this regard.

#### Responsibilities of the Directors for the Financial Statements

The directors of the Company are responsible for the preparation of the financial statements of the Group and of the Company that give a true and fair view in accordance with Malaysian Financial Reporting Standards, International Financial Reporting Standards and the requirements of the Companies Act 2016 in Malaysia. The directors are also responsible for such internal control as the directors determine is necessary to enable the preparation of financial statements of the Group and of the Company that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements of the Group and of the Company, the directors are responsible for assessing the Group's and the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the directors either intend to liquidate the Group and the Company or to cease operations, or have no realistic alternative but to do so.

## INDEPENDENT AUDITORS' REPORT

### Auditors' Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements of the Group and of the Company as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with approved standards on auditing in Malaysia and International Standards on Auditing will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with approved standards on auditing in Malaysia and International Standards on Auditing, we exercise professional judgement and maintain professional skepticism throughout the audit. We also:-

- Identify and assess the risks of material misstatement of the financial statements of the Group and of the Company, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's and the Company's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the directors.
- Conclude on the appropriateness of the directors' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's or the Company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditors' report to the related disclosures in the financial statements of the Group and of the Company or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditors' report. However, future events or conditions may cause the Group or the Company to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements of the Group and of the Company, including the disclosures, and whether the financial statements of the Group and of the Company represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the financial statements of the Group. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with the directors regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

### OTHER MATTERS

This report is made solely to the members of the Company, as a body, in accordance with Section 266 of the Companies Act 2016 in Malaysia and for no other purpose. We do not assume responsibility to any other person for the content of this report.



**Crowe Malaysia PLT**  
201906000005 (LLP0018817-LCA) & AF 1018  
Chartered Accountants



**Ooi Song Wan**  
02901/10/2020 J  
Chartered Accountant

Kuala Lumpur  
12 June 2020



**STATEMENTS OF FINANCIAL POSITION**

AT 31 DECEMBER 2019

	Note	The Group		The Company	
		2019 RM	2018 RM	2019 RM	2018 RM
<b>ASSETS</b>					
NON-CURRENT ASSETS					
Investment in subsidiaries	5	-	-	2,500,000	2,500,000
Investment in a joint venture	6	-	5,173	-	-
Property and equipment	7	14,936,844	18,466,304	14,936,844	18,466,304
Right-of-use assets	8	2,958,252	-	2,958,252	-
Deferred expenditure		4,449,975	1,031,905	4,449,975	1,031,905
		<b>22,345,071</b>	19,503,382	<b>24,845,071</b>	21,998,209
CURRENT ASSETS					
Trade receivables	9	4,200,029	7,281,931	4,200,029	7,168,142
Other receivables, deposits and prepayments	10	845,286	845,444	845,286	845,444
Amount owing by subsidiaries	11	-	-	465,059	506,340
Current tax assets		266,397	418,397	266,397	418,397
Fixed deposits with licensed banks	12	49,676,707	33,931,215	49,676,707	33,931,215
Cash and bank balances		5,664,072	4,957,370	3,141,431	2,436,581
		<b>60,652,491</b>	47,434,357	<b>58,594,909</b>	45,306,119
<b>TOTAL ASSETS</b>		<b>82,997,562</b>	66,937,739	<b>83,439,980</b>	67,304,328

	Note	The Group		The Company	
		2019 RM	2018 RM	2019 RM	2018 RM
<b>EQUITY AND LIABILITIES</b>					
EQUITY					
Retained profits	13	25,212,083	24,287,715	25,693,426	24,727,165
NON-CURRENT LIABILITIES					
Government grants	14	27,681,924	15,975,145	27,681,924	15,975,145
Deferred income	15	560,804	430,018	560,804	430,018
Building fund	16	16,168,308	16,869,563	16,168,308	16,869,563
Lease liabilities	17	36,778	-	36,778	-
		<b>44,447,814</b>	33,274,726	<b>44,447,814</b>	33,274,726
CURRENT LIABILITIES					
Trade payables	18	8,355,703	5,711,202	8,355,703	5,656,713
Other payables and accruals	19	4,963,620	3,649,256	4,924,695	3,630,884
Amount owing to a related party	20	-	14,840	-	14,840
Lease liabilities	17	18,342	-	18,342	-
		<b>13,337,665</b>	9,375,298	<b>13,298,740</b>	9,302,437
<b>TOTAL LIABILITIES</b>		<b>57,785,479</b>	42,650,024	<b>57,746,554</b>	42,577,163
<b>TOTAL EQUITY AND LIABILITIES</b>		<b>82,997,562</b>	66,937,739	<b>83,439,980</b>	67,304,328

The annexed notes form an integral part of these financial statements

**STATEMENTS OF PROFIT OR LOSS AND OTHER COMPREHENSIVE INCOME**

FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2019

	Note	The Group		The Company	
		2019 RM	2018 RM	2019 RM	2018 RM
REVENUE	21	<b>10,556,294</b>	8,927,587	<b>10,556,294</b>	8,927,587
COST OF SALES	22	<b>(5,541,875)</b>	(3,939,571)	<b>(5,541,875)</b>	(3,939,571)
GROSS PROFIT		<b>5,014,419</b>	4,988,016	<b>5,014,419</b>	4,988,016
OPERATING GRANT		<b>4,500,000</b>	4,500,000	<b>4,500,000</b>	4,500,000
OTHER INCOME	23	<b>13,465,356</b>	15,160,647	<b>13,465,356</b>	15,160,647
ADMINISTRATIVE EXPENSES	24	<b>(20,627,056)</b>	(20,991,816)	<b>(20,585,163)</b>	(20,866,573)
OTHER EXPENSES		<b>(731,728)</b>	(810,584)	<b>(731,728)</b>	(810,584)
FINANCE COST		<b>(2,209)</b>	-	<b>(2,209)</b>	-
SHARE OF NET LOSS OF EQUITY ACCOUNTED JOINT VENTURE		-	(1,006)	-	-
PROFIT BEFORE TAXATION		<b>1,618,782</b>	2,845,257	<b>1,660,675</b>	2,971,506
INCOME TAX EXPENSE	25	<b>(694,414)</b>	-	<b>(694,414)</b>	-
PROFIT AFTER TAXATION		<b>924,368</b>	2,845,257	<b>966,261</b>	2,971,506

	Note	The Group		The Company	
		2019 RM	2018 RM	2019 RM	2018 RM
OTHER COMPREHENSIVE INCOME		-	-	-	-
TOTAL COMPREHENSIVE INCOME FOR THE FINANCIAL YEAR		<b>924,368</b>	2,845,257	<b>966,261</b>	2,971,506
PROFIT AFTER TAXATION ATTRIBUTABLE TO:-					
Owner of the Company		<b>924,368</b>	2,845,257	<b>966,261</b>	2,971,506
TOTAL COMPREHENSIVE INCOME ATTRIBUTABLE TO:-					
Owner of the Company		<b>924,368</b>	2,845,257	<b>966,261</b>	2,971,506

The annexed notes form an integral part of these financial statements

**STATEMENTS OF CHANGES IN EQUITY**

FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2019

	Retained Profits RM	Total Equity RM
<b>The Group</b>		
Balance at 1.1.2018	21,442,458	21,442,458
Profit after taxation for the financial year/ Total comprehensive income for the financial year	2,845,257	2,845,257
Balance at 31.12.2018/1.1.2019	24,287,715	24,287,715
Profit after taxation for the financial year/ Total comprehensive income for the financial year	924,368	924,368
Balance at 31.12.2019	25,212,083	25,212,083

	Retained Profits RM	Total Equity RM
<b>The Company</b>		
Balance at 1.1.2018	21,755,659	21,755,659
Profit after taxation for the financial year/ Total comprehensive income for the financial year	2,971,506	2,971,506
Balance at 31.12.2018/1.1.2019	24,727,165	24,727,165
Profit after taxation for the financial year/ Total comprehensive income for the financial year	966,261	966,261
Balance at 31.12.2019	25,693,426	25,693,426

**STATEMENTS OF CASH FLOWS**

FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2019

	The Group		The Company	
	2019 RM	2018 RM	2019 RM	2018 RM
CASH FLOWS FROM/(FOR) OPERATING ACTIVITIES				
Profit before taxation	<b>1,618,782</b>	2,845,257	<b>1,660,675</b>	2,971,506
Adjustments for:-				
Depreciation of property and equipment	<b>679,312</b>	810,584	<b>679,312</b>	810,584
Depreciation of right-of-use assets	<b>52,416</b>	-	<b>52,416</b>	-
Amortisation of building fund	<b>(701,255)</b>	(701,253)	<b>(701,255)</b>	(701,253)
Gain on disposal of equipment	<b>(2,967)</b>	(6,810)	<b>(2,967)</b>	(6,810)
Interest income	<b>(1,985,175)</b>	(2,260,057)	<b>(1,985,175)</b>	(2,260,057)
Interest expenses	<b>2,209</b>	-	<b>2,209</b>	-
Share of results of a joint venture	-	1,006	-	-
Operating (loss)/gain before working capital changes	<b>(336,678)</b>	688,727	<b>(294,785)</b>	813,970
Increase in deferred expenditure	<b>(3,418,070)</b>	(681,230)	<b>(3,418,070)</b>	(681,230)
Increase in deferred income	<b>130,786</b>	77,223	<b>130,786</b>	77,223
Decrease/(Increase) in trade and other receivables	<b>3,082,060</b>	(4,160,875)	<b>2,968,271</b>	(4,160,875)
Increase/(Decrease) in trade and other payables	<b>3,958,865</b>	(3,674,120)	<b>3,992,801</b>	(3,670,120)
Decrease/(Increase) in amount owing by subsidiaries	-	-	<b>41,281</b>	(129,186)
Decrease in amount owing to a related party	<b>(14,840)</b>	-	<b>(14,840)</b>	-

	The Group		The Company	
	2019 RM	2018 RM	2019 RM	2018 RM
CASH FROM/(FOR) OPERATIONS	<b>3,402,123</b>	(7,750,275)	<b>3,405,444</b>	(7,750,218)
Income tax paid	<b>(542,414)</b>	(372,693)	<b>(542,414)</b>	(372,693)
NET CASH FROM/(FOR) OPERATING ACTIVITIES	<b>2,859,709</b>	(8,122,968)	<b>2,863,030</b>	(8,122,911)

The annexed notes form an integral part of these financial statements



Note	The Group		The Company	
	2019 RM	2018 RM	2019 RM	2018 RM
CASH FLOWS FROM INVESTING ACTIVITIES				
Interest received	<b>1,985,175</b>	2,260,057	<b>1,985,175</b>	2,260,057
Decrease/(Increase) in fixed deposits with licensed bank with tenure more than 3 months	<b>9,685,680</b>	(1,237,313)	<b>9,685,680</b>	(1,237,313)
(Increase)/Decrease in pledged fixed deposits with a licensed bank	<b>(987,450)</b>	2,031,217	<b>(987,450)</b>	2,031,217
Proceed from disposal of equipment	<b>2,996</b>	6,810	<b>2,996</b>	6,810
Purchase of equipment	<b>(87,718)</b>	(367,650)	<b>(87,718)</b>	(367,650)
Proceed from disposal of investment in a joint venture	<b>5,173</b>	-	-	-
NET CASH FROM INVESTING ACTIVITIES	<b>10,603,856</b>	2,693,121	<b>10,598,683</b>	2,693,121
CASH FLOWS FROM/ (FOR) FINANCING ACTIVITIES				
Interest paid	<b>(2,209)</b>	-	<b>(2,209)</b>	-
Net addition/ (utilisation) of government grants	<b>11,706,779</b>	(4,511,850)	<b>11,706,779</b>	(4,511,850)
Repayment of lease liabilities	<b>(17,711)</b>	-	<b>(17,711)</b>	-

The annexed notes form an integral part of these financial statements

Note	The Group		The Company	
	2019 RM	2018 RM	2019 RM	2018 RM
NET CASH FROM/ (FOR) FINANCING ACTIVITIES	<b>11,686,859</b>	(4,511,850)	<b>11,686,859</b>	(4,511,850)
NET INCREASE/ (DECREASE) IN CASH AND CASH EQUIVALENTS	<b>25,150,424</b>	(9,941,697)	<b>25,148,572</b>	(9,941,640)
CASH AND CASH EQUIVALENTS AT BEGINNING OF THE FINANCIAL YEAR	<b>8,704,270</b>	18,645,967	<b>6,183,481</b>	16,125,121
CASH AND CASH EQUIVALENTS AT END OF THE FINANCIAL YEAR	<b>33,854,694</b>	8,704,270	<b>31,332,053</b>	6,183,481

## NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2019

### 1. GENERAL INFORMATION

The Company is a company limited by guarantee and domiciled in Malaysia. The registered office and principal place of business are as follows:-

Registered office	: Suite C-5-4, Wisma Goshen, Plaza Pantai, Jalan Pantai Baharu, 59200 Kuala Lumpur.
Principal place of business	: No. 2, Jalan 9/10, Persiaran Usahawan, Seksyen 9, Bandar Baru Bangi, 43650 Selangor Darul Ehsan.

The financial statements were authorised for issue by the Board of Directors in accordance with a resolution of the directors dated 12 June 2020.

### 2. PRINCIPAL ACTIVITIES

The principal activities of the Company is to act as the focal point for the development of green technology in Malaysia by undertaking advisory services, driving and facilitating the implementation and growth of green technology industry and compiling data by way of coordination, development, training, transfer, adoption, research and development, innovation and commercialisation in green technology.

The principal activities of the subsidiaries are set out in Note 5 to the financial statements. There have been no significant changes in the nature of these activities during the financial year.

### 3. BASIS OF PREPARATION

The financial statements of the Group are prepared under the historical cost convention and modified to include other bases of valuation as disclosed in other sections under significant accounting policies, and in compliance with Malaysian Financial Reporting Standards ("MFRSs"), International Financial Reporting Standards and the requirements of the Companies Act 2016 in Malaysia.

### 3. BASIS OF PREPARATION (CONT'D)

- 3.1 During the current financial year, the Group has adopted the following new accounting standards and interpretations (including the consequential amendments, if any):-

#### **MFRSs and/or IC Interpretations (Including The Consequential Amendments)**

MFRS 16 Leases  
IC Interpretation 23 Uncertainty Over Income Tax Treatments  
Amendments to MFRS 9: Prepayment Features with Negative Compensation  
Amendments to MFRS 119: Plan Amendment, Curtailment or Settlement  
Amendments to MFRS 128: Long-term Interests in Associates and Joint Ventures  
Annual Improvements to MFRS Standards 2015 – 2017 Cycles

The adoption of the above accounting standards and interpretations (including the consequential amendments, if any) did not have any material impact on the Group's financial statements except as follows:-

MFRS 16 sets out the principles for the recognition, measurement, presentation and disclosure of leases and replaced the previous guidance on lease accounting. Under MFRS 16, the classification of leases as either finance leases or operating leases is eliminated for lessees. All lessees are required to recognise their lease assets and the related lease obligations in the statement of financial position (with limited exceptions) as right-of-use assets and lease liabilities respectively. The right-of-use assets are subject to depreciation and the interest on lease liabilities are calculated using the effective interest method. The impacts on the financial statements of the Group upon its initial application of MFRS 16 are disclosed in Note 30 to the financial statements.

### 3. BASIS OF PREPARATION (CONT'D)

3.2 The Group has not applied in advance the following accounting standards and/or interpretations (including the consequential amendments, if any) that have been issued by the Malaysian Accounting Standards Board ("MASB") but are not yet effective for the current financial year:-

MFRSs and/or IC Interpretations (Including The Consequential Amendments)	Effective Date
MFRS 17 Insurance Contracts	1 January 2021
Amendments to MFRS 3: Definition of a Business	1 January 2020
Amendments to MFRS 9, MFRS 139 and MFRS 7: Interest Rate Benchmark Reform	1 January 2020
Amendments to MFRS 10 and MFRS 128: Sale or Contribution of Assets between an Investor and its Associate or Joint Venture	Deferred
Amendments to MFRS 101 and MFRS 108: Definition of Material	1 January 2020
Amendments to MFRS 101: Classification of Liabilities as Current or Non-current	1 January 2022
Amendments to References to the Conceptual Framework in MFRS Standards	1 January 2020

The adoption of the above accounting standards and/or interpretations (including the consequential amendments, if any) is expected to have no material impact on the financial statements of the Group upon their initial application.

### 4. SIGNIFICANT ACCOUNTING POLICIES

#### 4.1 CRITICAL ACCOUNTING ESTIMATES AND JUDGEMENTS

##### *Key Sources of Estimation Uncertainty*

Management believes that there are no key assumptions made concerning the future, and other key sources of estimation uncertainty at the reporting date, that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year other than as disclosed below:-

##### **(a) Depreciation of Property and Equipment**

The estimates for the residual values, useful lives and related depreciation charges for the property and equipment are based on commercial factors which could change significantly as a result of technical innovations and competitors' actions in response to the market conditions. The Group anticipates that the residual values of its property and equipment will be insignificant. As a result, residual values are not being taken into consideration for the computation of the depreciable amount. Changes in the expected level of usage and technological development could impact the economic useful lives and the residual values of these assets, therefore future depreciation charges could be revised. The carrying amount of property and equipment as at the reporting date is disclosed in Note 7 to the financial statements.

##### **(b) Impairment of Non-financial Assets**

The Group determines whether an item of its non-financial assets is impaired by evaluating the extent to which the recoverable amount of the asset is less than its carrying amount. This evaluation is subject to changes such as market performance, economic and political situation of the country. A variety of methods is used to determine the recoverable amount, such as valuation reports and discounted cash flows. For discounted cash flows, significant judgement is required in the estimation of the present value of future cash flows generated by the assets, which involve uncertainties and are significantly affected by assumptions used and judgements made regarding estimates of future cash flows and discount rates.

## NOTES TO THE FINANCIAL STATEMENTS

### FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2019

#### 4. SIGNIFICANT ACCOUNTING POLICIES (CONT'D)

##### 4.1 CRITICAL ACCOUNTING ESTIMATES AND JUDGEMENTS (CONT'D)

###### *Key Sources of Estimation Uncertainty (Cont'd)*

###### **(c) Impairment of Trade Receivables**

The Group uses the simplified approach to estimate a lifetime expected credit loss allowance for all trade receivables. The Group develops the expected loss rates based on the payment profiles of past sales and the corresponding historical credit losses, and adjusts for qualitative and quantitative reasonable and supportable forward-looking information. If the expectation is different from the estimation, such difference will impact the carrying value of trade receivables. The carrying amounts of trade receivables as at the reporting date are disclosed in Note 9 to the financial statements.

###### **(d) Impairment of Non-Trade Receivables**

The loss allowances for non-trade financial assets are based on assumptions about risk of default and expected loss rates. The Group uses judgement in making these assumptions and selecting appropriate inputs to the impairment calculation, based on the past payment trends, existing market conditions as well as forward-looking estimates at the end of each reporting period. The carrying amounts of other receivables and amounts owing by subsidiaries as at the reporting date are disclosed in Notes 10 and 11 to the financial statements.

###### **(e) Income Taxes**

There are certain transactions and computations for which the ultimate tax determination may be different from the initial estimate. The Group recognises tax liabilities based on its understanding of the prevailing tax laws and estimates of whether such taxes will be due in the ordinary course of business. Where the final outcome of these matters is different from the amounts that were initially recognised, such difference will impact the income tax expense and deferred tax balances in the period in which such determination is made.

#### 4. SIGNIFICANT ACCOUNTING POLICIES (CONT'D)

##### 4.1 CRITICAL ACCOUNTING ESTIMATES AND JUDGEMENTS (CONT'D)

###### *Critical Judgements Made in Applying Accounting Policies*

Management believes that there are no instances of application of critical judgement in applying the Group's accounting policies which will have a significant effect on the amounts recognised in the financial statements other than as disclosed below:-

###### **(a) Lease Terms**

Some leases contain extension options exercisable by the Group before the end of the non-cancellable contract period. In determining the lease term, management considers all facts and circumstances including the past practice and any cost that will be incurred to change the asset if an option to extend is not taken. An extension option is only included in the lease term if the lease is reasonably certain to be extended (or not terminated).

###### **(b) Coronavirus Disease 2019 (COVID-19)**

The current outbreak of COVID-19 has resulted in the occurrence of a multitude of associated events such as temporarily closing of businesses, travel restrictions and quarantine measures across the globe. These measures and policies affect supply chains and the production of goods and services and lower economic activity which is likely to result in reduced demand for the Company's goods and services. The Company exercises judgement, in light of all facts and circumstances, to assess what event in this series of events provides additional evidence about the condition that existed at the reporting date and therefore affects the recognition and measurement of the Company's assets and liabilities at 31 December 2019.



## 4. SIGNIFICANT ACCOUNTING POLICIES (CONT'D)

### 4.2 BASIS OF CONSOLIDATION

The consolidated financial statements include the financial statements of the Company and its subsidiaries made up to the end of the reporting period.

Subsidiaries are entities controlled by the Group. The Group controls an entity when the Group is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. Potential voting rights are considered when assessing control only when such rights are substantive. The Group also considers it has de facto power over an investee when, despite not having the majority of voting rights, it has the current ability to direct the activities of the investee that significantly affect the investee's return.

Subsidiaries are consolidated from the date on which control is transferred to the Group up to the effective date on which control ceases, as appropriate.

Intragroup transactions, balances, income and expenses are eliminated on consolidation. Intragroup losses may indicate an impairment that requires recognition in the consolidated financial statements. Where necessary, adjustments are made to the financial statements of subsidiaries to ensure consistency of accounting policies with those of the Group.

#### (a) Business Combinations

Acquisitions of businesses are accounted for using the acquisition method. Under the acquisition method, the consideration transferred for acquisition of a subsidiary is the fair value of the assets transferred, liabilities incurred and the equity interests issued by the Group at the acquisition date. The consideration transferred includes the fair value of any asset or liability resulting from a contingent consideration arrangement. Acquisition-related costs, other than the costs to issue debt or equity securities, are recognised in profit or loss when incurred.

In a business combination achieved in stages, previously held equity interests in the acquiree are remeasured to fair value at the acquisition date and any corresponding gain or loss is recognised in profit or loss.

## 4. SIGNIFICANT ACCOUNTING POLICIES (CONT'D)

### 4.2 BASIS OF CONSOLIDATION (CONT'D)

#### (a) Business Combinations (Cont'd)

Non-controlling interests in the acquiree may be initially measured either at fair value or at the non-controlling interests' proportionate share of the fair value of the acquiree's identifiable net assets at the date of acquisition. The choice of measurement basis is made on a transaction-by-transaction basis.

#### (b) Non-controlling Interests

Non-controlling interests are presented within equity in the consolidated statement of financial position, separately from the equity attributable to owners of the Company. Profit or loss and each component of other comprehensive income are attributed to the owners of the Company and to the non-controlling interests. Total comprehensive income is attributed to non-controlling interests even if this results in the non-controlling interests having a deficit balance.

#### (c) Changes in Ownership Interests in Subsidiaries without Change of Control

All changes in the parent's ownership interest in a subsidiary that do not result in a loss of control are accounted for as equity transactions. Any difference between the amount by which the non-controlling interest is adjusted and the fair value of consideration paid or received is recognised directly in equity of the Group.

#### (d) Loss of Control

Upon the loss of control of a subsidiary, the Group recognises any gain or loss on disposal in profit or loss which is calculated as the difference between:-

- (i) the aggregate of the fair value of the consideration received and the fair value of any retained interest in the former subsidiary; and
- (ii) the previous carrying amount of the assets (including goodwill), and liabilities of the former subsidiary and any non-controlling interests.

## NOTES TO THE FINANCIAL STATEMENTS

### FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2019

#### 4. SIGNIFICANT ACCOUNTING POLICIES (CONT'D)

##### 4.2 BASIS OF CONSOLIDATION (CONT'D)

###### (d) Loss of Control (Cont'd)

Amounts previously recognised in other comprehensive income in relation to the former subsidiary are accounted for in the same manner as would be required if the relevant assets or liabilities were disposed of (i.e. reclassified to profit or loss or transferred directly to retained profits). The fair value of any investments retained in the former subsidiary at the date when control is lost is regarded as the fair value of the initial recognition for subsequent accounting under MFRS 9 or, when applicable, the cost on initial recognition of an investment in an associate or a joint venture.

##### 4.3 FUNCTIONAL AND FOREIGN CURRENCIES

The individual financial statements of each entity in the Group are presented in the currency of the primary economic environment in which the entity operates, which is the functional currency.

The consolidated financial statements of the Group are presented in Ringgit Malaysia ("RM"), which is the Group's functional and presentation currency.

##### 4.4 FINANCIAL INSTRUMENTS

Financial assets and financial liabilities are recognised in the statement of financial position when the Group has become a party to the contractual provisions of the instruments.

Financial instruments are classified as financial assets, financial liabilities or equity instruments in accordance with the substance of the contractual arrangement and its definitions in MFRS 132. Interest, dividends, gains and losses relating to a financial instrument classified as liability are reported as an expense or income. Distributions to holders of financial instruments classified as equity are charged directly to equity.

Financial instruments are offset when the Group has a legally enforceable right to offset and intends to settle either on a net basis or to realise the asset and settle the liability simultaneously.

#### 4. SIGNIFICANT ACCOUNTING POLICIES (CONT'D)

##### 4.4 FINANCIAL INSTRUMENTS (CONT'D)

A financial instrument is recognised initially at its fair value (other than trade receivables without significant financing component which are measured at transaction price as defined in MFRS 15 - Revenue from Contracts with Customers at inception). Transaction costs that are directly attributable to the acquisition or issue of the financial instrument (other than a financial instrument at fair value through profit or loss) are added to/deducted from the fair value on initial recognition, as appropriate. Transaction costs on the financial instrument at fair value through profit or loss are recognised immediately in profit or loss.

Financial instruments recognised in the statements of financial position are disclosed in the individual policy statement associated with each item.

###### (a) Financial Assets

All recognised financial assets are measured subsequently in their entirety at either amortised cost or fair value (through profit or loss, or other comprehensive income), depending on the classification of the financial assets.

###### *Debt Instruments*

###### (i) Amortised Cost

The financial asset is held for collection of contractual cash flows where those cash flows represent solely payments of principal and interest. Interest income is recognised by applying the effective interest rate to the gross carrying amount of the financial asset. When the asset has subsequently become credit-impaired, the interest income is recognised by applying the effective interest rate to the amortised cost of the financial asset.

The effective interest method is a method of calculating the amortised cost of a financial asset and of allocating interest income over the relevant period. The effective interest rate is the rate that discounts estimated future cash receipts (including all fees and points paid or received that form an integral part of the effective interest rate, transaction costs and other premiums or discounts), excluding expected credit losses, through the expected life of the financial asset or a shorter period (where appropriate).

## 4. SIGNIFICANT ACCOUNTING POLICIES (CONT'D)

### 4.4 FINANCIAL INSTRUMENTS (CONT'D)

#### (a) Financial Assets (Cont'd)

##### *Debt Instruments (Cont'd)*

#### (ii) Fair Value through Other Comprehensive Income

The financial asset is held for both collecting contractual cash flows and selling the financial asset, where the asset's cash flows represent solely payments of principal and interest. Movements in the carrying amount are taken through other comprehensive income and accumulated in the fair value reserve, except for the recognition of impairment, interest income and foreign exchange difference which are recognised directly in profit or loss. Interest income is calculated using the effective interest rate method.

#### (iii) Fair Value through Profit or Loss

All other financial assets that do not meet the criteria for amortised cost or fair value through other comprehensive income are measured at fair value through profit or loss.

The Group reclassifies debt instruments when and only when its business model for managing those assets change.

##### *Equity Instruments*

All equity investments are subsequently measured at fair value with gains and losses recognised in profit or loss except where the Group has elected to present the subsequent changes in fair value in other comprehensive income and accumulated in the fair value reserve at initial recognition.

The designation at fair value through other comprehensive income is not permitted if the equity investment is either held for trading or is designated to eliminate or significantly reduce a measurement or recognition inconsistency that would otherwise arise.

## 4. SIGNIFICANT ACCOUNTING POLICIES (CONT'D)

### 4.4 FINANCIAL INSTRUMENTS (CONT'D)

#### (a) Financial Assets (Cont'd)

##### *Equity Instruments (Cont'd)*

Dividend income from this category of financial assets is recognised in profit or loss when the Group's right to receive payment is established unless the dividends clearly represent a recovery of part of the cost of the equity investments.

#### (b) Financial Liabilities

##### (i) Financial Liabilities at Fair Value through Profit or Loss

Fair value through profit or loss category comprises financial liabilities that are either held for trading or are designated to eliminate or significantly reduce a measurement or recognition inconsistency that would otherwise arise. The changes in fair value of these financial liabilities are recognised in profit or loss.

##### (ii) Other Financial Liabilities

Other financial liabilities are subsequently measured at amortised cost using the effective interest method.

The effective interest method is a method of calculating the amortised cost of a financial liability and of allocating interest expense over the relevant period. The effective interest rate is the rate that exactly discounts estimated future cash payments (including all fees and points paid or received that form an integral part of the effective interest rate, transaction costs and other premiums or discounts), through the expected life of the financial liability or a shorter period (where appropriate).

#### (c) Equity Instruments

Equity instruments classified as equity are measured initially at cost and are not remeasured subsequently.

## NOTES TO THE FINANCIAL STATEMENTS

### FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2019

#### 4. SIGNIFICANT ACCOUNTING POLICIES (CONT'D)

##### 4.4 FINANCIAL INSTRUMENTS (CONT'D)

###### (d) Derecognition

A financial asset or part of it is derecognised when, and only when, the contractual rights to the cash flows from the financial asset expire or when it transfers the financial asset and substantially all the risks and rewards of ownership of the asset to another entity. On derecognition of a financial asset measured at amortised cost, the difference between the carrying amount of the asset and the sum of the consideration received and receivable is recognised in profit or loss. In addition, on derecognition of a debt instrument classified as fair value through other comprehensive income, the cumulative gain or loss previously accumulated in the fair value reserve is reclassified from equity to profit or loss. In contrast, there is no subsequent reclassification of the fair value reserve to profit or loss following the derecognition of an equity investment.

A financial liability or a part of it is derecognised when, and only when, the obligation specified in the contract is discharged or cancelled or expires. On derecognition of a financial liability, the difference between the carrying amount of the financial liability extinguished or transferred to another party and the consideration paid, including any non-cash assets transferred or liabilities assumed, is recognised in profit or loss.

##### 4.5 INVESTMENTS IN SUBSIDIARIES

Investments in subsidiaries are stated at cost in the statement of financial position of the Company, and are reviewed for impairment at the end of the reporting period if events or changes in circumstances indicate that the carrying values may not be recoverable. The cost of the investments includes transaction costs.

On the disposal of the investments in subsidiaries, the difference between the net disposal proceeds and the carrying amount of the investments is recognised in profit or loss.

#### 4. SIGNIFICANT ACCOUNTING POLICIES (CONT'D)

##### 4.6 JOINT ARRANGEMENTS

Joint arrangements are arrangements of which the Group has joint control, established by contracts requiring unanimous consent for decisions about the activities that significantly affect the arrangements returns.

Investments in joint arrangements are classified as either joint operations or joint ventures depending on the contractual rights and obligations of each investor. The Group has assessed the nature of its joint arrangements and determined them to be joint ventures.

###### (a) Joint Operations

A joint operation is a joint arrangement whereby the parties that have joint control of the arrangement have rights to the assets, the obligations for the liabilities, relating to the arrangement. The Group accounts for each of its interest in the joint operations the assets, liabilities, revenue and expenses (including its share of those held or incurred jointly with the other investors) in accordance with the applicable accounting standards.

###### (b) Joint Ventures

A joint venture is a joint arrangement whereby the Group has rights only to the net assets of the arrangement.

The investment in a joint venture is accounted for in the consolidated financial statements using the equity method, based on the financial statements of the joint venture made up to the end of the reporting period. The Group's share of the post-acquisition profits and other comprehensive income of the joint venture is included in the consolidated statement of profit or loss and other comprehensive income, after adjustment if any, to align the accounting policies with those of the Group, from the date that joint control commences up to the effective date when the investment ceases to be a joint venture or when the investment is classified as held for sale. The Group's interest in the joint venture is carried in the consolidated statement of financial position at cost plus the Group's share of the post-acquisition retained profits and reserves. The cost of investment includes transaction costs.

When the Group's share of losses exceeds its interest in a joint venture, the carrying amount of that interest is reduced to zero, and the recognition of further losses is discontinued except to the extent that the Group has an obligation.



## 4. SIGNIFICANT ACCOUNTING POLICIES (CONT'D)

### 4.6 JOINT ARRANGEMENTS (CONT'D)

#### (b) Joint Ventures (Cont'd)

Unrealised gains on transactions between the Group and the joint venture are eliminated to the extent of the Group's interest in the joint venture. Unrealised losses are eliminated unless cost cannot be recovered.

The Group discontinues the use of the equity method from the date when the investment ceases to be a joint venture or when the investment is classified as held for sale. When the Group retains an interest in the former joint venture and the retained interest is a financial asset, the Group measures the retained interest at fair value at that date and the fair value is regarded as the initial carrying amount of the financial asset in accordance with MFRS 9. Furthermore, the Group also reclassifies its share of the gain or loss previously recognised in other comprehensive income of that joint venture to profit or loss when the equity method is discontinued. However, the Group will continue to use the equity method when an investment in a joint venture becomes an investment in an associate. Under such change in ownership interest, the retained investment is not remeasured to fair value but a proportionate share of the amounts previously recognised in other comprehensive income of the joint venture will be reclassified to profit or loss where appropriate. All dilution gains or losses arising in investments in joint ventures are recognised in profit or loss.

### 4.7 PROPERTY AND EQUIPMENT

All items of property and equipment are initially measured at cost. Cost includes expenditure that is directly attributable to the acquisition of the asset and other costs directly attributable to bringing the asset to working condition for its intended use.

Subsequent to initial recognition, all property and equipment are stated at cost less accumulated depreciation and any impairment losses.

Subsequent costs are included in the asset's carrying amount or recognised as a separate asset, as appropriate, only when the cost is incurred and it is probable that the future economic benefits associated with the asset will flow to the Group and the cost of the asset can be measured reliably. The carrying amount of parts that are replaced is derecognised. The costs of the day-to-day servicing of property and equipment are recognised in profit or loss as incurred.

## 4. SIGNIFICANT ACCOUNTING POLICIES (CONT'D)

### 4.7 PROPERTY AND EQUIPMENT (CONT'D)

Depreciation on property and equipment is charged to profit or loss (unless it is included in the carrying amount of another asset) on the straight-line method to write off the depreciable amount of the assets over their estimated useful lives. Depreciation of an asset does not cease when the asset becomes idle or is retired from active use unless the asset is fully depreciated.

The principal annual rates used for this purpose are:-

Leasehold land	Not applicable (2018 - over 99 years)
Building	2%
Computers	40%
Energy audit equipment	20%
Furniture and fittings	20%
Motor vehicles	20%
Office equipment	20%
Renovation	10%
Solar system	10%

The depreciation method, useful lives and residual values are reviewed, and adjusted if appropriate, at the end of each reporting period to ensure that the amounts, method and periods of depreciation are consistent with previous estimates and the expected pattern of consumption of the future economic benefits embodied in the items of the property and equipment. Any changes are accounted for as a change in estimate.

When significant parts of an item of property and equipment have different useful lives, they are accounted for as separate items (major components) of property and equipment.

An item of property and equipment is derecognised upon disposal or when no future economic benefits are expected from its use. Any gain or loss arising from derecognition of the asset, being the difference between the net disposal proceeds and the carrying amount, is recognised in profit or loss.

## NOTES TO THE FINANCIAL STATEMENTS

### FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2019

#### 4. SIGNIFICANT ACCOUNTING POLICIES (CONT'D)

##### 4.8 LEASES

The Group assesses whether a contract is or contains a lease, at the inception of the contract. The Group recognises a right-of-use asset and corresponding lease liability with respect to all lease arrangements in which it is the lessee, except for low-value assets and short-term leases with 12 months or less. For these leases, the Group recognises the lease payments as an operating expense on a straight-line method over the term of the lease unless another systematic basis is more representative of the time pattern in which economic benefits from the leased assets are consumed.

The Group recognises a right-of-use asset and a lease liability at the lease commencement date. The right-of-use assets and the associated lease liabilities are presented as a separate line item in the statements of financial position.

The right-of-use asset is initially measured at cost. Cost includes the initial amount of the corresponding lease liability adjusted for any lease payments made at or before the commencement date, plus any initial direct costs incurred, less any incentives received.

The right-of-use asset is subsequently measured at cost less accumulated depreciation and any impairment losses, and adjustment for any remeasurement of the lease liability. The depreciation starts from the commencement date of the lease. If the lease transfers ownership of the underlying asset to the Group or the cost of the right-of-use asset reflects that the Group expects to exercise a purchase option, the related right-of-use asset is depreciated over the useful life of the underlying asset. Otherwise, the Group depreciates the right-of-use asset to the earlier of the end of the useful life of the right-of-use asset or the end of the lease term. The estimated useful lives of the right-of-use assets are determined on the same basis as those equipment.

The lease liability is initially measured at the present value of the lease payments that are not paid at the commencement date, discounted by using the rate implicit in the lease. If this rate cannot be readily determined, the Group uses its incremental borrowing rate.

#### 4. SIGNIFICANT ACCOUNTING POLICIES (CONT'D)

##### 4.8 LEASES (CONT'D)

The lease liability is subsequently measured at amortised cost using the effective interest method. It is remeasured when there is a change in the future lease payments (other than lease modification that is not accounted for as a separate lease) with the corresponding adjustment is made to the carrying amount of the right-of-use asset or is recognised in profit or loss if the carrying amount has been reduced to zero.

##### *Accounting Policies Applied Until 31 December 2018*

##### (a) Finance Leases

A lease is recognised as a finance lease if it transfers substantially to the Group all the risks and rewards incidental to ownership. Upon initial recognition, the leased asset is measured at an amount equal to the lower of its fair value and the present value of the minimum lease payments. Subsequent to initial recognition, the asset is accounted for in accordance with the accounting policy applicable to that asset. The corresponding liability is included in the statement of financial position as hire purchase payables.

Minimum lease payments made under finance leases are apportioned between the finance costs and the reduction of the outstanding liability. The finance costs, which represent the difference between the total leasing commitments and the fair value of the assets acquired, are recognised in the profit or loss and allocated over the lease term so as to produce a constant periodic rate of interest on the remaining balance of the liability for each accounting period.

##### (b) Operating Leases

All leases that do not transfer substantially to the Group all the risks and rewards incidental to ownership are classified as operating leases and, the leased assets are not recognised on the statement of financial position of the Group and of the Company.

Payments made under operating leases are recognised as an expense in the profit or loss on a straight-line method over the term of the lease. Lease incentives received are recognised as a reduction of rental expense over the lease term on a straight-line method. Contingent rentals are charged to profit or loss in the reporting period in which they are incurred.

## 4. SIGNIFICANT ACCOUNTING POLICIES (CONT'D)

### 4.9 IMPAIRMENT

#### (a) Impairment of Financial Assets

The Group recognises a loss allowance for expected credit losses on investments in debt instruments that are measured at amortised cost.

The expected credit loss is estimated as the difference between all contractual cash flows that are due to the Group in accordance with the contract and all the cash flows that the Group expects to receive, discounted at the original effective interest rate.

The amount of expected credit losses is updated at each reporting date to reflect changes in credit risk since initial recognition of the respective financial instrument. The Group always recognises lifetime expected credit losses for trade receivables using the simplified approach. The expected credit losses on these financial assets are estimated using a provision matrix based on the Group's historical credit loss experience and are adjusted for forward-looking information (including time value of money where appropriate).

For all other financial instruments, the Group recognises lifetime expected credit losses when there has been a significant increase in credit risk since initial recognition. However, if the credit risk on the financial instrument has not increased significantly since initial recognition, the Group measures the loss allowance for that financial instrument at an amount equal to 12-month expected credit losses.

The Group recognises an impairment gain or loss in profit or loss for all financial instruments with a corresponding adjustment to their carrying amount through a loss allowance account, except for investments in debt instruments that are measured at fair value through other comprehensive income, for which the loss allowance is recognised in other comprehensive income and accumulated in the fair value reserve, and does not reduce the carrying amount of the financial asset in the statement of financial position.

## 4. SIGNIFICANT ACCOUNTING POLICIES (CONT'D)

### 4.9 IMPAIRMENT (CONT'D)

#### (b) Impairment of Non-financial Assets

The carrying values of assets, other than those to which MFRS 136 - Impairment of Assets does not apply, are reviewed at the end of each reporting period for impairment when an annual impairment assessment is compulsory or there is an indication that the assets might be impaired. Impairment is measured by comparing the carrying values of the assets with their recoverable amounts. When the carrying amount of an asset exceeds its recoverable amount, the asset is written down to its recoverable amount and an impairment loss shall be recognised. The recoverable amount of an asset is the higher of the assets' fair value less costs to sell and its value in use, which is measured by reference to discounted future cash flows using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset. Where it is not possible to estimate the recoverable amount of an individual asset, the Group estimates the recoverable amount of the cash-generating unit to which the asset belongs.

An impairment loss is recognised in profit or loss.

When there is a change in the estimates used to determine the recoverable amount, a subsequent increase in the recoverable amount of an asset is treated as a reversal of the previous impairment loss and is recognised to the extent of the carrying amount of the asset that would have been determined (net of amortisation and depreciation) had no impairment loss been recognised. The reversal is recognised in profit or loss immediately.

### 4.10 CASH AND CASH EQUIVALENTS

Cash and cash equivalents comprise cash in hand, bank balances, demand deposits, and short-term, highly liquid investments that are readily convertible to known amounts of cash and which are subject to an insignificant risk of changes in value with original maturity periods of three months or less.

## NOTES TO THE FINANCIAL STATEMENTS

### FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2019

#### 4. SIGNIFICANT ACCOUNTING POLICIES (CONT'D)

##### 4.11 EMPLOYEE BENEFITS

###### (a) Short-term Benefits

Wages, salaries, paid annual leave and bonuses are measured on an undiscounted basis and are recognised in profit or loss in the period in which the associated services are rendered by employees of the Group.

###### (b) Defined Contribution Plans

The Group's contributions to defined contribution plans are recognised in profit or loss in the period to which they relate. Once the contributions have been paid, the Group has no further liability in respect of the defined contribution plans.

##### 4.12 INCOME TAXES

###### (a) Current Tax

Current tax assets and liabilities are the expected amount of income tax recoverable or payable to the taxation authorities.

Current taxes are measured using tax rates and tax laws that have been enacted or substantively enacted at the end of the reporting period and are recognised in profit or loss except to the extent that the tax relates to items recognised outside profit or loss (either in other comprehensive income or directly in equity).

###### (b) Deferred Tax

Deferred tax is recognised using the liability method for all temporary differences other than those that arise from goodwill or from the initial recognition of an asset or liability in a transaction which is not a business combination and at the time of the transaction, affects neither accounting profit nor taxable profit.

Deferred tax assets and liabilities are measured at the tax rates that are expected to apply in the period when the asset is realised or the liability is settled, based on the tax rates that have been enacted or substantively enacted at the end of the reporting period.

#### 4. SIGNIFICANT ACCOUNTING POLICIES (CONT'D)

##### 4.12 INCOME TAXES (CONT'D)

###### (b) Deferred Tax (Cont'd)

Deferred tax assets are recognised for all deductible temporary differences, unused tax losses and unused tax credits to the extent that it is probable that future taxable profits will be available against which the deductible temporary differences, unused tax losses and unused tax credits can be utilised. The carrying amounts of deferred tax assets are reviewed at the end of each reporting period and reduced to the extent that it is no longer probable that the related tax benefits will be realised.

Current and deferred tax items are recognised in correlation to the underlying transactions either in profit or loss, other comprehensive income or directly in equity. Deferred tax arising from a business combination is adjusted against goodwill or negative goodwill.

Current tax assets and liabilities or deferred tax assets and liabilities are offset when there is a legally enforceable right to set off current tax assets against current tax liabilities and when the deferred taxes relate to the same taxable entity (or on different tax entities but they intend to settle current tax assets and liabilities on a net basis) and the same taxation authority.

##### 4.13 FAIR VALUE MEASUREMENTS

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date, regardless of whether that price is directly observable or estimated using a valuation technique. The measurement assumes that the transaction takes place either in the principal market or in the absence of a principal market, in the most advantageous market. For non-financial asset, the fair value measurement takes into account a market's participant's ability to generate economic benefits by using the asset in its highest and best use or by selling it to another market participant that would use the asset in its highest and best use.



#### 4. SIGNIFICANT ACCOUNTING POLICIES (CONT'D)

##### 4.13 FAIR VALUE MEASUREMENTS (CONT'D)

For financial reporting purposes, the fair value measurements are analysed into level 1 to level 3 as follows:-

- Level 1: Inputs are quoted prices (unadjusted) in active markets for identical assets or liability that the entity can access at the measurement date;
- Level 2: Inputs are inputs, other than quoted prices included within level 1, that are observable for the asset or liability, either directly or indirectly; and
- Level 3: Inputs are unobservable inputs for the asset or liability.

The transfer of fair value between levels is determined as of the date of the event or change in circumstances that caused the transfer.

##### 4.14 REVENUE FROM CONTRACTS WITH CUSTOMERS

Revenue from contracts with customers is measured based on the consideration specified in a contract with a customer in exchange for transferring services to a customer net of sales and service tax, returns, rebates and discounts. The Group recognises revenue when (or as) it transfers control over a service to customer. Depending on the substance of the contract, revenue is recognised when the performance obligation is satisfied, which may be at a point in time or over time.

##### Rendering of Services

Revenue from providing services is recognised when the services are rendered.

#### 4. SIGNIFICANT ACCOUNTING POLICIES (CONT'D)

##### 4.15 OTHER OPERATING INCOME

###### (a) Government grants

Government grants are recognised at their fair value when there is reasonable assurance that they will be received and all conditions attached will be met.

Grants that compensate the Group for expenses incurred are recognised in profit or loss on a systematic basis over the period necessary to match them with the related expenses which they are intended to compensate for. These grants are presented as other income in profit or loss.

###### (b) Interest income

Interest income is recognised on an accrual basis using the effect interest method.

## NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2019

### 5. INVESTMENT IN SUBSIDIARIES

	The Company	
	2019 RM	2018 RM
Unquoted shares, at cost	2,500,000	2,500,000

The details of the subsidiaries are as follows:-

Name of Subsidiaries	Principal Place of Business/ Country of Incorporation	Percentage of Issued Share Capital Held by Parent		Principal Activities
		2019 %	2018 %	
<b>Subsidiary of the Company</b>				
Greentech Malaysia Alliances Sdn. Bhd. ("GTMA")	Malaysia	100	100	Engaged in investment holding and business as promoters of green technology development.
<b>Subsidiaries of GTMA</b>				
Greentech Ideaslab Sdn. Bhd.	Malaysia	100	100	Dormant.
Greentech Catalyst Sdn. Bhd.	Malaysia	100	100	Dormant.

### 6. INVESTMENT IN A JOINT VENTURE

	The Group	
	2019 RM	2018 RM
Unquoted shares, at cost	-	30,000
Share of post-acquisition losses	-	(24,827)
	-	5,173

The details of the joint venture are as follows:-

Name of Joint Venture	Principle Place of Business	Effective Equity Interest		Principal Activity
		2019 %	2018 %	
Kloth Lifestyle Sdn. Bhd. *	Malaysia	-	30	Sales of sustainable products made from recycled polyster.

\* During the current financial year, the Group has disposed of its equity interest of this joint venture.

In the previous financial year:-

- (a) The Group's involvement in joint arrangements was structured through separate vehicles which provided the Company rights to the net assets of the entities. Accordingly, the Group had classified this investment as joint venture.

## 6. INVESTMENT IN A JOINT VENTURE (CONT'D)

(b) The summarised financial information of the joint venture was as follow:-

	2018 RM
<b>At 31 December</b>	
Current assets	66,797
Current liabilities	(49,554)
<hr/>	
Net assets	17,243
<hr/>	
Revenue	199,851
Loss for the financial year	(3,355)
<hr/>	
Group's share of loss for the financial year	(1,006)
<hr/>	
Group's share of net assets above/Carrying amount of the Group's interest in this joint venture	5,173

## NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2019

### 7. PROPERTY AND EQUIPMENT

	←----- 1.1.2019 ----->			Additions RM	Disposal RM	Depreciation Charges RM	At 31.12.2019 RM
	As Previously Reported RM	Initial Application of MFRS 16 RM	At Restated RM				
<b>The Group/The Company</b>							
<b>2019</b>							
<i>Carrying Amount</i>							
Leasehold land	2,937,837	(2,937,837)	-	-	-	-	-
Building	14,811,433	-	14,811,433	-	-	(384,752)	14,426,681
Computers	124,944	-	124,944	62,568	(29)	(78,370)	109,113
Energy audit equipment	27	-	27	-	-	-	27
Furniture and fittings	18,162	-	18,162	-	-	(6,432)	11,730
Motor vehicles	225,969	-	225,969	-	-	(137,372)	88,597
Office equipment	24,868	-	24,868	21,300	-	(11,426)	34,742
Renovation	121,234	-	121,234	3,850	-	(31,260)	93,824
Solar system	201,830	-	201,830	-	-	(29,700)	172,130
	<b>18,466,304</b>	<b>(2,937,837)</b>	<b>15,528,467</b>	<b>87,718</b>	<b>(29)</b>	<b>(679,312)</b>	<b>14,936,844</b>



## 7. PROPERTY AND EQUIPMENT (CONT'D)

	At 1.1.2018 RM	Additions RM	Depreciation Charges RM	At 31.12.2018 RM
<b>2018</b>				
<i>Carrying Amount</i>				
Leasehold land	2,971,605	-	(33,768)	2,937,837
Building	15,196,186	-	(384,753)	14,811,433
Computers	90,852	188,649	(154,557)	124,944
Energy audit equipment	27	-	-	27
Furniture and fittings	20,048	4,150	(6,036)	18,162
Motor vehicles	250,916	139,876	(164,823)	225,969
Office equipment	13,490	18,289	(6,911)	24,868
Renovation	134,584	16,686	(30,036)	121,234
Solar system	231,530	-	(29,700)	201,830
	18,909,238	367,650	(810,584)	18,466,304

The Group/The Company	At Cost RM	Accumulated Depreciation RM	Carrying Amount RM
<b>2019</b>			
Building	19,077,708	(4,651,027)	14,426,681
Computers	1,923,516	(1,814,403)	109,113
Energy audit equipment	157,945	(157,918)	27
Furniture and fittings	1,449,200	(1,437,470)	11,730
Motor vehicles	942,747	(854,150)	88,597
Office equipment	244,972	(210,230)	34,742
Renovation	312,918	(219,094)	93,824
Solar system	3,334,713	(3,162,583)	172,130
	27,443,719	(12,506,875)	14,936,844

## 7. PROPERTY AND EQUIPMENT (CONT'D)

The Group/The Company	At Cost RM	Accumulated Depreciation RM	Carrying Amount RM
<b>2018</b>			
Leasehold land	3,343,056	(405,219)	2,937,837
Building	19,077,708	(4,266,275)	14,811,433
Computers	1,959,034	(1,834,090)	124,944
Energy audit equipment	157,945	(157,918)	27
Furniture and fittings	1,449,200	(1,431,038)	18,162
Motor vehicles	942,747	(716,778)	225,969
Office equipment	223,672	(198,804)	24,868
Renovation	309,068	(187,834)	121,234
Solar system	3,334,713	(3,132,883)	201,830
	30,797,143	(12,330,839)	18,466,304

## NOTES TO THE FINANCIAL STATEMENTS

### FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2019

#### 8. RIGHT-OF-USE ASSETS

	1.1.2019			Depreciation Charges RM	At 31.12.2019 RM
	As Previously Reported RM	Initial Application of MFRS 16 RM	As Restated RM		
The Group/ The Company					
Leasehold land	-	2,937,837	2,937,837	(33,769)	2,904,068
Office equipment	-	72,831	72,831	(18,647)	54,184
	-	3,010,668	3,010,668	(52,416)	2,958,252

Analysed by:-

	RM
Cost	3,415,887
Accumulated depreciation	(457,635)
	2,958,252

The comparative information is not presented as the Group has applied MFRS 16 using the modified retrospective approach.

- The Group has entered into non-cancellable operating lease agreements for the use of land. The leases are for a period of 99 years with no renewal or purchase option included in the agreements.
- The Group has leased a number of photocopier machines for 3 - 5 years, with an option to renew the lease after that date.

#### 9. TRADE RECEIVABLES

The Group's normal trade credit term is 30 days (2018 - 30 days) from the date of invoice. Other credit terms are assessed and approved on a case-by-case basis.

#### 10. OTHER RECEIVABLES, DEPOSITS AND PREPAYMENTS

	The Group/The Company	
	2019 RM	2018 RM
Other receivables	69,916	69,916
Deposits	555,499	555,499
Prepayments	79,589	79,747
GST receivables	140,282	140,282
	845,286	845,444

#### 11. AMOUNT OWING BY SUBSIDIARIES

The amount owing by subsidiaries represents non-trade balances, unsecured, interest free and payments made on behalf. The amount owing is receivable on demand and is to be settled in cash.

#### 12. FIXED DEPOSITS WITH LICENSED BANKS

- The fixed deposits with licensed banks of the Group and the Company at the end of the reporting period bore effective interest rates ranging from 2.70% to 3.50% (2018 - 2.95% to 3.65%) per annum. The fixed deposits have maturity periods ranging from 1 to 12 (2018 - 1 to 12) months for the Group and the Company respectively.
- Included in the fixed deposits with licensed banks of the Group at the end of the reporting period was an amount of RM1,025,483 (2018 - RM38,033) which has been pledged to a licensed bank as security for banking facilities granted to the Company.

### 13. RETAINED PROFITS

The Company is prohibited to distribute any dividend to its members under Section 45(2)(b) of the Companies Act 2016 in Malaysia.

### 14. GOVERNMENT GRANTS

	The Group/The Company	
	2019 RM	2018 RM
At 1 January	15,975,145	20,486,995
Additions during the financial year	22,441,148	8,527,628
Utilisation during the financial year	(10,734,369)	(13,039,478)
At 31 December	27,681,924	15,975,145

### 15. DEFERRED INCOME

The deferred income represents advances received from Tesla car buyers.

### 16. BUILDING FUND

	The Group/The Company	
	2019 RM	2018 RM
Cost	25,037,500	25,037,500
Accumulated amortisation	(8,869,192)	(8,167,937)
At 31 December	16,168,308	16,869,563
Accumulated amortisation:-		
At 1 January	8,167,937	7,466,684
Amortisation for the financial year	701,255	701,253
At 31 December	8,869,192	8,167,937

Building fund is a grant received from the Ministry of Energy, Green Technology and Water, Malaysia to build Pusat Tenaga Malaysia Zero Energy Office ("PTM ZEO") Building.

## NOTES TO THE FINANCIAL STATEMENTS

### FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2019

#### 17. LEASE LIABILITIES

	The Group/ The Company 2019 RM
At 1 January:	
Initial application of MFRS 16	72,831
Interest expense recognised in profit or loss	2,209
Repayment of principal	(17,711)
Repayment of interest expense	(2,209)
At 31 December	55,120

	2019 RM
Analysed by:-	
Current liability	18,342
Non-current liability	36,778
	55,120

The comparative information is not presented as the Group has applied MFRS 16 using the modified retrospective approach.

#### 18. TRADE PAYABLES

The normal trade credit terms granted to the Group range from 14 to 30 (2018 - 14 to 30) days.

#### 19. OTHER PAYABLES AND ACCRUALS

	The Group		The Company	
	2019 RM	2018 RM	2019 RM	2018 RM
Other payables	595,098	964,457	573,184	963,096
Accruals	4,153,034	2,420,274	4,136,023	2,403,263
	4,748,132	3,384,731	4,709,207	3,366,359
Sales and service tax	215,488	264,525	215,488	264,525
	4,963,620	3,649,256	4,924,695	3,630,884

#### 20. AMOUNT OWING TO A RELATED PARTY

During the last financial year, the amount owing represented non-trade balances, unsecured payments made on behalf. The amount owing was repayable on demand and was settled in cash.

#### 21. REVENUE

	The Group/The Company	
	2019 RM	2018 RM
Services rendered	10,556,294	8,857,166
Tesla project	-	70,421
	10,556,294	8,927,587



**22. COST OF SALES**

	The Group/The Company	
	2019 RM	2018 RM
Services rendered	<b>5,541,875</b>	3,869,150
Tesla project	-	70,421
	<b>5,541,875</b>	3,939,571

**23. OTHER INCOME**

	The Group/The Company	
	2019 RM	2018 RM
Project with grants	<b>10,676,187</b>	12,129,632
Interest income	<b>1,985,175</b>	2,260,057
Amortisation of building fund	<b>701,255</b>	701,253
Gain on disposal of equipment	<b>2,967</b>	6,810
Others	<b>99,772</b>	62,895
	<b>13,465,356</b>	15,160,647

**24. ADMINISTRATIVE EXPENSES**

	The Group		The Company	
	2019 RM	2018 RM	2019 RM	2018 RM
Project with grants	<b>10,735,487</b>	12,129,632	<b>10,735,487</b>	12,129,632
Staff costs	<b>7,785,444</b>	6,777,899	<b>7,785,444</b>	6,676,155
Others	<b>2,016,125</b>	1,999,285	<b>1,991,232</b>	1,992,786
Auditors' remuneration	<b>90,000</b>	85,000	<b>73,000</b>	68,000
	<b>20,627,056</b>	20,991,816	<b>20,585,163</b>	20,866,573

## NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2019

### 25. INCOME TAX EXPENSE

	The Group		The Company	
	2019 RM	2018 RM	2019 RM	2018 RM
Current tax expense:				
– for the financial year	512,000	360,000	512,000	360,000
– under/(over)provision in the previous financial year	182,414	(360,000)	182,414	(360,000)
	<b>694,414</b>	–	<b>694,414</b>	–

### 25. INCOME TAX EXPENSE (CONT'D)

A reconciliation of income tax expense applicable to the profit before taxation at the statutory tax rate to income tax expense at the effective tax rate of the Group and of the Company is as follows:-

	The Group		The Company	
	2019 RM	2018 RM	2019 RM	2018 RM
Profit before taxation	1,618,782	2,845,257	1,660,675	2,971,506
Tax at the statutory tax rate of 24%	388,508	682,862	398,562	713,161
Tax effects of:-				
Share of results in a joint venture	–	241	–	–
Non-deductible expenses	298,033	166,917	287,980	136,859
Non-taxable income	(168,301)	(168,301)	(168,301)	(168,301)
Utilisation of deferred tax assets previously not recognised	(6,240)	(321,719)	(6,240)	(321,719)
Under/(over)provision in the previous financial year	182,414	(360,000)	182,414	(360,000)
Income tax expense for the financial year	<b>694,414</b>	–	<b>694,414</b>	–

Domestic income tax is calculated at the Malaysian statutory tax rate of 24% (2018 - 24%) of the estimated assessable profit for the financial year. The taxation of other jurisdictions is calculated at the rates prevailing in the respective jurisdiction.

**25. INCOME TAX EXPENSE (CONT'D)**

No deferred tax assets are recognised for the following items:-

	The Group/The Company	
	2019 RM	2018 RM
Accelerated capital allowances	(42,000)	(46,000)
Unutilised tax losses	-	144,000
Other provisions	544,000	430,000
	<b>502,000</b>	<b>528,000</b>

**26. CASH FLOW INFORMATION**

(a) The reconciliation of liability arising from financing activities (besides movement of government grants) is as follows:-

	2019 RM
<b>Lease liabilities</b>	
At 1 January:-	
- as previously reported	-
- effects on adoption of MFRS 16	72,831
At 1 January, as restated	72,831
<u>Change in Financing Cash Flows</u>	
Repayment of principal	(17,711)
Repayment of interests	(2,209)
	(19,920)
<u>Non-cash Change</u>	
Interest expense	2,209
At 31 December	55,120

## NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2019

### 26. CASH FLOW INFORMATION (CONT'D)

(b) The cash and cash equivalents comprise the following:-

	The Group		The Company	
	2019 RM	2018 RM	2019 RM	2018 RM
Fixed deposits with licensed banks	<b>49,676,707</b>	33,931,215	<b>49,676,707</b>	33,931,215
Cash and bank balances	<b>5,664,072</b>	4,957,370	<b>3,141,431</b>	2,436,581
	<b>55,340,779</b>	38,888,585	<b>52,818,138</b>	36,367,796
Less:-				
Fixed deposits with maturity of more than 3 months	<b>(20,460,602)</b>	(30,146,282)	<b>(20,460,602)</b>	(30,146,282)
Fixed deposits pledged to a licensed bank	<b>(1,025,483)</b>	(38,033)	<b>(1,025,483)</b>	(38,033)
	<b>33,854,694</b>	8,704,270	<b>31,332,053</b>	6,183,481

### 27. RELATED PARTY DISCLOSURES

#### Identities of Related Parties

Parties are considered to be related to the Group if the Group or the Company has the ability, directly or indirectly, to control or jointly control the party or exercise significant influence over the party in making financial and operating decisions, or vice versa, or where the Group or the Company and the party are subject to common control.

In addition to the information detailed elsewhere in the financial statements, the Group has related party relationships with its directors, key management personnel and entities within the same group of companies.

### 28. FINANCIAL INSTRUMENTS

The Group's activities are exposed to a variety of market risk (including foreign currency risk, interest rate risk and equity price risk), credit risk and liquidity risk. The Group's overall financial risk management policy focuses on the unpredictability of financial markets and seeks to minimise potential adverse effects on the Group's financial performance.

#### 28.1 FINANCIAL RISK MANAGEMENT POLICIES

The Group's policies in respect of the major areas of treasury activity are as follows:-

##### (a) Market Risk

###### (i) Foreign Currency Risk

The Group does not have any transactions or balances denominated in foreign currencies and hence, is not exposed to foreign currency risk.

###### (ii) Interest Rate Risk

The Group does not have any interest-bearing borrowings and hence, is not exposed to interest rate risk.



## 28. FINANCIAL INSTRUMENTS (CONT'D)

### 28.1 FINANCIAL RISK MANAGEMENT POLICIES (CONT'D)

#### (a) Market Risk (Cont'd)

##### (iii) Equity Price Risk

The Group does not have any quoted investments and hence, is not exposed to equity price risk.

#### (b) Credit Risk

The Group's exposure to credit risk, or the risk of counterparties defaulting, arises mainly from trade and other receivables. The Group manages its exposure to credit risk by the application of credit approvals, credit limits and monitoring procedures on an ongoing basis. For other financial assets (including cash and bank balances), the Group minimises credit risk by dealing exclusively with high credit rating counterparties.

##### (i) Credit Risk Concentration Profile

The Group's major concentration of credit risk relates to the amount owing by 3 customers which constituted approximately 37% of its trade receivables as at the end of the reporting period.

##### (ii) Exposure to Credit Risk

At the end of the reporting period, the maximum exposure to credit risk is represented by the carrying amount of each class of financial assets recognised in the statement of financial position of the Group and of the Company after deducting any allowance for impairment losses (where applicable).

##### (iii) Assessment of Impairment Losses

At each reporting date, the Group assesses whether any of financial assets at amortised cost are credit impaired.

The gross carrying amounts of those financial assets are written off when there is no reasonable expectation of recovery (i.e. the debtor does not have assets or sources of income to generate sufficient cash flows to repay the debt) despite they are still subject to enforcement activities.

## 28. FINANCIAL INSTRUMENTS (CONT'D)

### 28.1 FINANCIAL RISK MANAGEMENT POLICIES (CONT'D)

#### (b) Credit Risk (Cont'd)

##### (iii) Assessment of Impairment Losses (Cont'd)

###### *Trade Receivables*

The Group applies the simplified approach to measuring expected credit losses which uses a lifetime expected loss allowance for all trade receivables.

To measure the expected credit losses, trade receivables have been grouped based on shared credit risk characteristics and the days past due.

For certain large customers or customers with a high risk of default, the Group assesses the risk of loss of each customer individually based on their financial information, past trends of payments an external credit rating, where applicable.

The Group considers any receivables having financial difficulty or with significant balances outstanding for more than 365 days, are deemed credit impaired.

The expected loss rates are based on the payment profiles of sales over a period of a year from the measurement date and the corresponding historical credit losses experienced within this period.

## NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2019

### 28. FINANCIAL INSTRUMENTS (CONT'D)

#### 28.1 FINANCIAL RISK MANAGEMENT POLICIES (CONT'D)

##### (b) Credit Risk (Cont'd)

##### (iii) Assessment of Impairment Losses (Cont'd)

##### *Trade Receivables (Cont'd)*

The information about the exposure to credit risk and the loss allowances calculated under MFRS 9 for trade receivables are summarised below:-

	Gross Amount	Individual Impairment	Collective Impairment	Carrying Amount
The Group	RM	RM	RM	RM
<b>2019</b>				
Current (not past due)	782,637	-	-	782,637
1 to 30 days past due	676,515	-	-	676,515
31 to 60 days past due	271,149	-	-	271,149
61 to 90 days past due	281,585	-	-	281,585
91 to 365 days past due	1,712,043	-	-	1,712,043
Credit impaired	476,100			476,100
	<b>4,200,029</b>	<b>-</b>	<b>-</b>	<b>4,200,029</b>

### 28. FINANCIAL INSTRUMENTS (CONT'D)

#### 28.1 FINANCIAL RISK MANAGEMENT POLICIES (CONT'D)

##### (b) Credit Risk (Cont'd)

##### (iii) Assessment of Impairment Losses (Cont'd)

##### *Trade Receivables (Cont'd)*

The information about the exposure to credit risk and the loss allowances calculated under MFRS 9 for trade receivables are summarised below (Cont'd):-

	Gross Amount	Individual Impairment	Collective Impairment	Carrying Amount
The Group	RM	RM	RM	RM
<b>2018</b>				
Current (not past due)	1,586,779	-	-	1,586,779
1 to 30 days past due	2,893,714	-	-	2,893,714
31 to 60 days past due	350,614	-	-	350,614
61 to 90 days past due	78,118	-	-	78,118
91 to 365 days past due	1,397,429	-	-	1,397,429
Credit impaired	975,277			975,277
	<b>7,281,931</b>	<b>-</b>	<b>-</b>	<b>7,281,931</b>

**28. FINANCIAL INSTRUMENTS (CONT'D)****28.1 FINANCIAL RISK MANAGEMENT POLICIES (CONT'D)****(b) Credit Risk (Cont'd)**

## (iii) Assessment of Impairment Losses (Cont'd)

*Trade Receivables (Cont'd)*

The information about the exposure to credit risk and the loss allowances calculated under MFRS 9 for trade receivables are summarised below (Cont'd):-

	Gross Amount	Individual Impairment	Collective Impairment	Carrying Amount
The Company	RM	RM	RM	RM
<b>2019</b>				
Current (not past due)	782,637	-	-	782,637
1 to 30 days past due	676,515	-	-	676,515
31 to 60 days past due	271,149	-	-	271,149
61 to 90 days past due	281,585	-	-	281,585
91 to 365 days past due	1,712,043	-	-	1,712,043
Credit impaired	476,100			476,100
	<b>4,200,029</b>	<b>-</b>	<b>-</b>	<b>4,200,029</b>

**28. FINANCIAL INSTRUMENTS (CONT'D)****28.1 FINANCIAL RISK MANAGEMENT POLICIES (CONT'D)****(b) Credit Risk (Cont'd)**

## (iii) Assessment of Impairment Losses (Cont'd)

*Trade Receivables (Cont'd)*

The information about the exposure to credit risk and the loss allowances calculated under MFRS 9 for trade receivables are summarised below (Cont'd):-

	Gross Amount	Individual Impairment	Collective Impairment	Carrying Amount
The Company	RM	RM	RM	RM
<b>2018</b>				
Current (not past due)	1,586,779	-	-	1,586,779
1 to 30 days past due	2,893,714	-	-	2,893,714
31 to 60 days past due	350,614	-	-	350,614
61 to 90 days past due	78,118	-	-	78,118
91 to 365 days past due	1,397,429	-	-	1,397,429
Credit impaired	861,488			861,488
	<b>7,168,142</b>	<b>-</b>	<b>-</b>	<b>7,168,142</b>

## NOTES TO THE FINANCIAL STATEMENTS

### FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2019

## 28. FINANCIAL INSTRUMENTS (CONT'D)

### 28.1 FINANCIAL RISK MANAGEMENT POLICIES (CONT'D)

#### (b) Credit Risk (Cont'd)

##### (iii) Assessment of Impairment Losses (Cont'd)

##### *Other Receivables*

Other receivables are also subject to the impairment requirements of MFRS 9, the identified impairment loss was immaterial and hence, it is not provided for.

##### *Fixed Deposits with Licensed Banks, Cash and Bank Balances*

The Group considers these banks and financial institutions have low credit risks. In addition, some of the bank balances are insured by Government agencies. Therefore, the Group is of the view that the loss allowance is immaterial and hence, it is not provided for.

##### *Amount Owing By Subsidiaries*

The Company applies the 3-stage general approach to measuring expected credit losses for all inter-companies balances. No expected credit loss is recognised on amount owing by subsidiaries as it is negligible.

#### (c) Liquidity Risk

Liquidity risk arises mainly from general funding and business activities. The Group practises prudent risk management by maintaining sufficient cash balances with funds granted by the government.

## 28. FINANCIAL INSTRUMENTS (CONT'D)

### 28.1 FINANCIAL RISK MANAGEMENT POLICIES (CONT'D)

#### (c) Liquidity Risk (Cont'd)

##### *Maturity Analysis*

The following table sets out the maturity profile of the financial liabilities at the end of the reporting period based on contractual undiscounted cash flows (including interest payments computed using contractual rates or, if floating, based on the rates at the end of the reporting period):-

The Group	Weighted Average Effective Interest Rate %	Carrying Amount RM	Contractual Undiscounted Cash Flows RM	Within 1 Year RM	1 – 5 years
<b>2019</b>					
<u>Non-derivative Financial Liabilities</u>					
Trade payables	-	8,355,703	8,355,703	8,355,703	-
Other payables and accruals	-	4,748,132	4,748,132	4,748,132	-
		13,103,835	13,103,835	13,103,835	-
<u>Other financial liabilities</u>					
Lease liabilities	3.50	55,120	57,955	19,920	38,035
		13,158,955	13,161,790	13,123,755	38,035



**28. FINANCIAL INSTRUMENTS (CONT'D)****28.1 FINANCIAL RISK MANAGEMENT POLICIES (CONT'D)****(c) Liquidity Risk (Cont'd)***Maturity Analysis*

The following table sets out the maturity profile of the financial liabilities at the end of the reporting period based on contractual undiscounted cash flows (including interest payments computed using contractual rates or, if floating, based on the rates at the end of the reporting period):-

The Group	Weighted Average Effective Interest Rate %	Carrying Amount RM	Contractual Undiscounted Cash Flows RM	Within 1 Year RM	1 – 5 years RM
<b>2018</b>					
<u>Non-derivative Financial Liabilities</u>					
Trade payables	-	5,711,202	5,711,202	5,711,202	-
Other payables and accruals	-	3,384,731	3,384,731	3,384,731	-
Amount owing to a related party	-	14,840	14,840	14,840	-
		9,110,773	9,110,773	9,110,773	-

**28. FINANCIAL INSTRUMENTS (CONT'D)****28.1 FINANCIAL RISK MANAGEMENT POLICIES (CONT'D)****(c) Liquidity Risk (Cont'd)***Maturity Analysis (Cont'd)*

The maturity profile of the financial liabilities at the end of the reporting period based on contractual undiscounted cash flows (including interest payments computed using contractual rates or, if floating, based on the rates at the end of the reporting period) (Cont'd):-

The Company	Weighted Average Effective Interest Rate %	Carrying Amount RM	Contractual Undiscounted Cash Flows RM	Within 1 Year RM	1 – 5 years RM
<b>2019</b>					
<u>Non-derivative Financial Liabilities</u>					
Trade payables	-	8,355,703	8,355,703	8,355,703	-
Other payables and accruals	-	4,709,207	4,709,207	4,709,207	-
		13,064,910	13,064,910	13,064,910	-
<u>Other financial liabilities</u>					
Lease liabilities	3.50	55,120	57,955	19,920	38,035
		13,120,030	13,122,865	13,084,830	38,035

## NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2019

### 28. FINANCIAL INSTRUMENTS (CONT'D)

#### 28.1 FINANCIAL RISK MANAGEMENT POLICIES (CONT'D)

##### (c) Liquidity Risk (Cont'd)

###### Maturity Analysis (Cont'd)

The maturity profile of the financial liabilities at the end of the reporting period based on contractual undiscounted cash flows (including interest payments computed using contractual rates or, if floating, based on the rates at the end of the reporting period) (Cont'd):-

The Company	Weighted Average Effective Interest Rate %	Carrying Amount RM	Contractual Undiscounted Cash Flows RM	Within 1 Year RM	1 - 5 years
<b>2018</b>					
<u>Non-derivative Financial Liabilities</u>					
Trade payables	-	5,656,713	5,656,713	5,656,713	-
Other payables and accruals	-	3,366,359	3,366,359	3,366,359	-
Amount owing to a related party	-	14,840	14,840	14,840	-
		9,037,912	9,037,912	9,037,912	-

### 28. FINANCIAL INSTRUMENTS (CONT'D)

#### 28.2 CAPITAL RISK MANAGEMENT

The Company has no bank borrowings. No debt-to-equity ratio is presented.

#### 28.3 CLASSIFICATION OF FINANCIAL INSTRUMENTS

	2019		2018	
	The Group RM	The Company RM	The Group RM	The Company RM
<b>Financial Asset</b>				
<u>Amortised Cost</u>				
Trade receivables	4,200,029	4,200,029	7,281,931	7,168,142
Other receivables	69,916	69,916	69,916	69,916
Amount owing by subsidiaries	-	465,059	-	506,340
Fixed deposits with licensed banks	49,676,707	49,676,707	33,931,215	33,931,215
Cash and bank balances	5,664,072	3,141,431	4,957,370	2,436,581
	<b>59,610,724</b>	<b>57,553,142</b>	46,240,432	44,112,194
<b>Financial Liability</b>				
<u>Other Financial Liabilities</u>				
Trade payables	8,355,703	8,355,703	5,711,202	5,656,713
Other payables and accruals	4,748,132	4,709,207	3,384,731	3,366,359
Amount owing by a related party	-	-	14,840	14,840
	<b>13,103,835</b>	<b>13,064,910</b>	9,110,773	9,037,912

## 28. FINANCIAL INSTRUMENTS (CONT'D)

### 28.4 GAINS ARISING FROM FINANCIAL INSTRUMENTS

	The Group/The Company	
	2019 RM	2018 RM
<b>Financial Asset</b>		
<u>Amortised Cost</u>		
Net gain recognised in profit or loss	<b>1,985,175</b>	2,260,057

### 28.5 FAIR VALUE INFORMATION

At the end of the reporting period, there were no financial instruments carried at fair values in the statements of financial position.

The financial value of the financial assets and financial liabilities of the Group and of the Company that maturing within the next 12 months approximated their carrying amounts due to the relatively short-term maturity of the financial instruments or repayable on demand terms.

## 29. SIGNIFICANT EVENT OCCURRING AFTER THE REPORTING PERIOD

The outbreak of Coronavirus Disease 2019 (COVID-19) in early 2020 has affected the business and economic environments of the Group and hence, may impact its performance and financial position in the future. However, given the unpredictability associated with the COVID-19 outbreak and any further contingency measures that may be put in place by the governments and various private corporations, the potential financial impact of the COVID-19 outbreak on the Group's 2020 financial statements could not be reasonably quantified at this juncture.

## 30. INITIAL APPLICATION OF MFRS 16

The Group has adopted MFRS 16 using the modified retrospective approach under which the cumulative effect of initial application is recognised as an adjustment to the retained profits as at 1 January 2019 (date of initial application) without restating any comparative information.

The Group has applied MFRS 16 only to contracts that were previously identified as leases under MFRS 117 'Leases' and IC Interpretation 4 'Determining Whether an Arrangement Contains a Lease'. Therefore, MFRS 16 has been applied only to contracts entered into or changed on or after 1 January 2019.

### Lessee Accounting

At 1 January 2019, for leases that were classified as operating leases under MFRS 117, the Group measured the lease liabilities at the present value of the remaining lease payments, discounted using the Group's incremental borrowing rate at that date of 3.50%. The right-of-use assets were measured at the amount equal to the lease liability, adjusted by the amount of any prepaid or accrued lease payments relating to that lease.

The Group has used the following practical expedients in applying MFRS 16 for the first time:-

- Applied a single discount rate to a portfolio of leases with reasonably similar characteristics;
- Applied for the exemption not to recognise operating leases with a remaining lease term of less than 12 months as at 1 January 2019;
- Excluded initial direct costs for the measurement of the right-of-use asset at the date of initial application; and
- Used hindsight in determining the lease term where the lease contract contains options to extend or terminate the lease.

## NOTES TO THE FINANCIAL STATEMENTS

### FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2019

### 30. INITIAL APPLICATION OF MFRS 16 (CONT'D)

#### Lessee Accounting (Cont'd)

The following table explains the difference between the operating lease commitments disclosed in the last financial year (determined under MFRS 117) and the lease liabilities recognised as at 1 January 2019:-

	The Group RM
Operating lease commitments as at 31 December 2018 as disclosed in last financial year	75,380
Discounted using the incremental borrowing rate/lease liabilities recognised as at 1 January 2019	72,831

## NOTICE OF ANNUAL GENERAL MEETING

NOTICE IS HEREBY GIVEN THAT the Twenty-Second Annual General Meeting of **MALAYSIAN GREEN TECHNOLOGY AND CLIMATE CHANGE CENTRE** (“the Company”) will be held at Malaysian Green Technology and Climate Change Centre, No. 2, Jalan 9/10, Persiaran Usahawan, Seksyen 9, 43650 Bandar Baru Bangi, Selangor Darul Ehsan on Thursday, **23<sup>rd</sup> July 2020** at **11.00 a.m.** for the following purposes:

### AGENDA

#### As Ordinary Business

- |    |  |   |
|----|--|---|
| 1. | To Lay and Receive the Audited Financial Statements for the financial year ended 31 December 2019 together with the Reports of the Directors and Auditor therein.  | <b>(Please refer to Explanatory Note 2)</b> |
| 2. | Re-election of Auditor<br>To Re-elect Messrs. Crowe Malaysia PLT (AF: 1018) (previously known as Messrs Crowe Horwath) as the Auditors of the Company for the financial year 2020 until the conclusion of the next Annual General Meeting; and to authorise the Directors to fix their remuneration. | <b>Ordinary Resolution No.1</b>             |

#### As Special Business

To consider and, if deemed fit, to pass the following resolution:-

- |    |   |   |
|----|---|---|
| 3. | Proposed Amendment of the Articles of Association of the Company  | <b>(Please refer to Explanatory Note 3)</b> |
|    | That the approval be and is hereby given to amend the existing Article 1 of the Articles of Association of the Company as follows:- | <b>Special Resolution No. 1</b>             |

- (a) That, an interpretation be hereby deleted under Article 1 of the Articles of Association as follows:  
“MESTECC: Ministry of Energy, Science Technology, Environment and Climate Change”.
- (b) That, a new interpretation be hereby inserted under Article 1 of the Articles of Association as follows:  
“Supervising Minister”: Means the Minister of Environment and Water or any other person or body designated by the relevant authorities from time to time charged with the responsibility in respect of MGTC”.
- (c) That all references to the “Minister of MESTECC” wherever it appears in the Memorandum and Articles of Association of the Company be hereby deleted and replaced with the “Supervising Minister”.

BY ORDER OF THE BOARD

**NOR AZRINA BINTI ZAKARIA**  
Company Secretary LS 0009161

KUALA LUMPUR

Date: 2 July 2020



## NOTICE OF ANNUAL GENERAL MEETING

### NOTE

#### 1. Proxy:

- (i) A member of the Company entitled to attend and vote at the meeting is entitled to appoint a proxy to attend and vote in his stead. All proxies must be members of the Company.
- (ii) In the case of a corporate member, the instrument appointing a proxy shall be under its Common Seal or under the hand of an officer of the corporation duly authorised on that behalf.
- (iii) The instrument appointing a proxy must be deposited at the Registered Office of the Company at Suite C-5-4, Wisma Goshen, Plaza Pantai, Jalan Pantai Baharu, 59200 Kuala Lumpur (Tel: 03-2283 4007/Fax: 03-2287 7006) not less than 48 hours before the meeting set for holding the meeting or any adjournment thereof.

#### 2. Explanatory Notes to the Agenda No.1

This agenda item is meant for discussion only, as the provision of Section 340(a) of the Companies Act, 2016 does not require a formal approval of the shareholders for the Audited Financial Statements. Hence, this Agenda item is not put forward for voting.

#### 3. Explanatory Notes to Agenda No. 3

Since its incorporation, MGTC reports directly to the Ministry of Energy, Green Technology and Water (KeTTHA). After the general election in May 2018 KETTHA was restructured and a new Ministry was formed, Ministry of Energy, Science Technology, Environment & Climate Change (MESTECC). MGTC was placed under the purview of MESTECC. However, subsequent to restructuring of the Ministry effective 10 March 2020, MGTC was placed under the purview of Ministry of Environment and Water. Hence, all matters that refers to MESTECC in the Memorandum & Articles of Association of MGTC shall be replaced with "Supervising Minister" to ease each time the government change.

## MGTC MEMBERSHIP

### INDIVIDUAL MEMBERS

1. Y. Bhg. Prof. Ir. Dr. K.S. Kannan
2. Y. Brs. Ir. Hanafi Abdul Nasir
3. Y. Brs. Ir. Ismail Bin Hj Ishak
4. Leong Yeng Kit
5. Y. Bhg. Dato' Sri Ung Eng Huat
6. Y. Bhg. Dato' Cheah Kah Lip
7. Yong Sien Wae
8. YM Tengku Loreta Binti Tengku Ramli
9. Syed Ahmad Bin Syed Mustafa
10. Norhasliza Binti Mohd Mokhtar
11. Wan Faizal Bin Mohd Anwar
12. Y. Bhg. Dato' Ir. Dr. Dennis Ganendra
13. Elina Binti Jani
14. Y. Bhg. Dato' Shahrol Azral Bin Ibrahim Halmi
15. Tan Kang Chu
16. Y. Brs. Ts. Sofiuddin Bin Mohamad Isa
17. Y. Brs. Ir. Fatheeyah Binti Zainuddin
18. Noor Azmin Azali Bin Ramli
19. Saiful Adib Bin Abdul Munaff
20. Huzaimi Nor Bin Omar
21. Tengku Sharifah Hanif Binti Tengku Hamzah
22. Siti Hursiah Binti Ibrahim
23. Kamaradzaman Bin Mohd Bakri
24. Y. Brs. Ts. Ir. Ramlan Harun
25. Khairuzzamil Bin Kamarulzaman

### CORPORATE MEMBERS

1. YTL Power Generation Sdn. Bhd.
2. SFG Technology (M) Sdn. Bhd.
3. Infrakomas Sdn. Bhd.
4. VERITAS Architects Sdn. Bhd.
5. Airestec Sdn. Bhd.
6. Sapura Holdings Sdn. Bhd.
7. Lybase Sdn. Bhd.
8. Esona Technologies Sdn. Bhd.
9. ZOG Engineering Sdn. Bhd.
10. CMC Group Sdn. Bhd.
11. Feilo Sylvania (Malaysia) Sdn. Bhd.
12. Nova Spectra Energy Sdn. Bhd.
13. Bio Eneco Sdn. Bhd. (2020)
14. Engine Services Malaysia Sdn. Bhd. (2020)
15. I Controls Solutions (M) Sdn. Bhd. (2020)

### HONORARY MEMBERS

1. Y. Bhg. Dato'Hamzah Bakar
2. Y. Bhg. Tan Sri Nuraizah Abdul Hamid
3. YM Raja Datuk Zaharaton Raja Zainal Abidin
4. Y. Bhg. Professor Tan Sri Zakri Abdul Hamid
5. Y. Bhg. Prof. Emeritus Dato' Dr. Kamel Ariffin Mohd Atan
6. Y. Bhg. Dato' Dr. Mohd Ariff Araff
7. Tuan Haji Mohamed Zohari Mohamed Shaharun
8. Tan Keok Yin
9. Y. Bhg. Datin Husniarti Tamin
10. Y. Bhg. Prof. Ir. Dr. Zainal Abidin Bin Ahmad
11. Y. Bhg. Dato' Dr. Halim Shafie
12. Y. Bhg. Dato' Syed Hamzah Syed Othman
13. Y. Bhg. Prof. Dr. Muhamad Awang
14. Y. Brs. Dr. Mohd Zamzam Jaafar
15. Y. Bhg. Dato' Ir. Lew Chin Hoi
16. Tan Boon Lee
17. Amir Abdul Rahman
18. Y. Bhg. Dato' Teo Yen Hua
19. Leong Yee Heim
20. Y. Bhg. Datuk Che Azemi Bin Haron
21. Y. Bhg. Dato' Mohd Izzaddin Idris
22. Y. Brs. Dr. Mohd Farid Mohd Amin
23. Y. Bhg. Prof. Ir. Dr. Hassan Bin Ibrahim
24. Y. Bhg. Dato' Dr. Halim Man
25. Y. Bhg. Dato' Dr. Rosli Bin Mohamed
26. Y. Bhg. Datuk Loo Took Gee
27. Y. Bhg. Dato Paduka Profesor (Dr.) Ir Hj. Keizrul Bin Abdullah
28. YBhg. Datuk Hjh. Nor'aini Binti Abdul Wahab
29. Azhar Noraini
30. Y. Brs. Dr. Anuar Abdul Rahman
31. Y. Brs. Dr. Leong Yow Peng
32. Y. Brs. Dr. Theng Lee Chong
33. Y. Bhg. Dato' Dr Nadzri Yahya
34. Y. Bhg. Tan Sri Peter Chin Fah Kui
35. Hj. Mohamad Razif Bin Hj. Abd. Mubin
36. Y. Bhg. Dato' Hazim Bin Jamaluddin
37. Y. Bhg. Datuk Poh Pai Kong
38. Baskaran A/L Madhavan Nair
39. Y. Bhg. Prof. Datin Paduka Dr. Khatijah Binti Mohamad Yusoff
40. Y. Bhg. Datuk Harjeet Singh Hardev Singh
41. Y. Bhg. Datuk (Dr.) Hafsah Binti Hashim
42. Y. Bhg. Datuk Badriyah Binti Hj. Abd Malek

## APPENDICES

### GOVERNMENT AGENCIES GOVERNMENT LINKED COMPANIES AND GOVERNMENT SUPPLIERS/CONTRACTORS

DATE	EVENT
29-30 January	Workshop on Project Implementation for SCP-GGP Blueprint
17 April	Seminar on GGP for SIRIM Berhad
19 April	Seminar on GGP for Malaysia Productivity Corporation (MPC)
24 April	Seminar on GGP and MyHIJAU Mark for Telekom Malaysia
29-30 April	Seminar on GGP and LCC for Agensi Anti-Dadah Kebangsaan (AADK)
27 June	GGP Seminar for Perdana Digital Department, Prime Minister's Office
19 August	Seminar on Green Purchasing and Industry Development in Malaysia in collaboration with Ministry of Entrepreneur Development (MED) under the Vendor Development Programme (VDP)
12 September	Seminar on GGP for MCY 2019 companies and researchers
3 October	Seminar on GGP for Majlis Perbandaran Hang Tuah Jaya
2 October	3rd Expert Workshop on Sustainable Consumption and Production in Malaysia 2019 (LESTARI UKM)
16 October	Seminar on GGP for FMM Conference on Love Malaysia, Buy Made in Malaysia: Understanding Malaysian Government Procurement
17 October	Seminar on GGP for Lembaga Kenaf dan Tembakau Negara under Program Kenaf Industrial Programme
21 October	Seminar on GGP for Local R&D Products Development in the Government Sector
11 November	GGP Works Initiation Workshop, Sustainable Consumption and Production (SCP) – GGP Project at Pulse Grande Hotel, Putrajaya
13 November	Seminar on Green Purchasing and Industry Development in Malaysia (Malaysia Association of Cleaning Contractors)

## DIAMOND RECOGNITION

Local Authority Name	Low Carbon Zone	Baseline (tCO <sub>2</sub> e)	Audit (tCO <sub>2</sub> e)	Reduction (tCO <sub>2</sub> e)	%	Energy (&)	Water (%)	Waste (%)	Mobility (%)	Sequestration (tCO <sub>2</sub> )
Majlis Perbandaran Manjung	Markas Pangkalan Lumut	56,908.95	55,513.65	1,395.30	2.5	2.57	0.45	0	8.51	6,159.00
Majlis Bandaraya Shah Alam	Pusat Bandar Seksyen 14, Shah Alam	60,502.73	53,3668.74	7,133.99	11.79	9.35	10.31	24.15	42.85	6,462.40
Majlis Perbandaran Sepang	Cyber 1	7,858.46	5,210.90	2,647.56	33.69	39.18	-60.18	19.38	38.11	3,133.51
Majlis Perbandaran Pasir Gudang	LC Zone 1 Pasir Gudang	234,402.15	217,939.31	16,462.84	7.02	7.15	1.81	5.56	-	1,935.83
Majlis Bandaraya Pulau Pinang	Tanjung Pinang Straits Quay	-	5,967.63	171.86	2.80	-6.36	-4.21	11	-	157.64
Majlis Daerah Hulu Langat	Bandar Kuala Kubu Bahru	7,271.55	7,062.74	208.81	2.87	3.90	-12.05	11.91	-	30.00
Perbadanan Putrajaya	Presint 1, Putrajaya	80,603.37	64,366.60	16,236.77	20.14	2158	41.04	3.94	-	1,077.75
Majlis Perbandaran Langkawi	Kawasan Bandar Kuah	4,445.14	3,499.31	945.83	21.28	-	5.99	33.71	-	995.45
Majlis Perbandaran Hang Tuah	MITC	18,308.81	16,623.43	1,685.39	9.21	9.55	-34.46	-	-	1,408.89
Majlis Perbandaran Kajang	Pusat Bandar, Bandar Baru Bangi	1,876.88	1,059.45	817.43	43.55	-	-	43.55	-	71.73
	<b>Total tCO<sub>2</sub></b>	<b>478,317.53</b>	<b>430,611.76</b>	<b>47,705.78</b>						

## APPENDICES

## LIST OF PRODUCT GROUPS UNDER GGP

No.	GGP PRODUCTS
PG-01	ICT Equipment
PG-02	Paint & Coating
PG-03	Fibre Cement
PG-04	Energy Efficient Indoor Lighting
PG-05	Paper
PG-06	Textiles
PG-07	Furniture
PG-08	Multi Purpose Printer
PG-09	Air Conditioning System
PG-10	Biodegradable Packaging Products
PG-11	Water Efficient Appliances
PG-12	Rain Water Harvesting System
PG-13	Stationery (Paper Based Products)
PG-14	Rubber Based Products
PG-15	Cleaning Services
PG-16	Green Data Centre Services
PG-17	Building Facilities Management Services
PG-18	Automotive Workshop Services
PG-19	Paper Based Printing Services
PG-20	Hotel, Logistic & Training Services

## MOU/MOA FORGED DURING IGED 2019

No	MOU/MOA
1.	LCC 2030 Challenge MoU between MGTC and CDP Worldwide (UK)
2.	LCC 2030 Challenge MoU between MGTC and (MIP, PAM, IEM, MGBC, ACEM, MAESCO, MASHRA)
3.	MoU between MGTC and AmBank Islamic
4.	MoU between MGTC and SHELL
5.	MoU between MBI Kedah – LADA – MGTC
6.	MoU between SEDA and University Technology Malaysia
7.	MoU between Plus Solar and UOB Malaysia
8.	MoA of Nano Malaysia
9.	MoU between Petronas and University Technology Petronas (UTP)
10.	MoU between Malaysia Marine and Heavy Engineering and University Technology Petronas (UTP)
11.	MoU between MGTC and KC Express Co. Ltd
12.	MoU between MGTC and Dentou PVM Sdn Bhd
13.	MoU between MGTC and HISG Group of National Taiwan University of Science and Technology
14.	MoU between MGTC and MTEA
15.	McDonalds Announcement with MIDA



**MOU/MOA FORGED DURING IGEN 2019**

No	MOU/MOA
16.	Supply Agreement Renewable Energy (SARE) between GSPARX and Tati University College
17.	Cypark – Petronas Chemical Group Berhad
18.	Cypark – MBI Kedah
19.	Cypark – Sungrow Floating Module & Tech Co Ltd
20.	Cypark – Risen Energy
21.	MoA between University Malaysia Kelantan (UMK) and I Mediceal Cosmeceutical (M)
22.	MoU between Efinity Social Enterprise and The Giving Bank Organisation
23.	MoU between Am Zaideen Ventures Sdn Bhd Malaysia (UTM) and Brainstorm Worldwide Inc Japan
24.	MoU between Techkem Utilities Sdn Bhd and David Bromley Engineering Ltd (DBE)
<b>11 OCTOBER 2019</b>	
25.	Collaboration Agreement (on training programme) between MGTC and AFTA Tour Sdn Bhd (AFTA Tour)
26.	MoU between MGTC and UiTM

**NEA 2019 WINNERS LIST****CATEGORY 1: ENERGY EFFICIENCY**

SUB-CATEGORY	WINNERS	RUNNERS-UP
<b>Energy Management in Large Building</b>	Menara Komtar Pulau Pinang	Hospital Slim River, Perak
<b>Energy Management in Small Building</b>	Menara TM, MITC, Melaka	Wisma TNB Jalan Anson, Pulau Pinang
<b>Energy Management in Large Industry</b>	CSC Steel Sdn Bhd, Melaka	TG Medical Sdn Bhd (Factory 14), Selangor
<b>Energy Management in Small Industry</b>	No winner	No Runner-Up
<b>Green Building</b>	Environmental Preservation and Innovation Centre (EPIC), Negeri Sembilan	IKEA Cheras, Kuala Lumpur
<b>Retrofitted Building</b>	No winner	Subang Parade Mall, Selangor
<b>Energy Efficient Design</b>	KLIA 2, Sepang	Paramit Factory in the Forest, Pulau Pinang

**CATEGORY 2: RENEWABLE ENERGY**

SUB-CATEGORY	WINNERS	RUNNERS-UP
<b>National Grid</b>	Cypark Resource Sdn Bhd	Mattan Engineering Sdn Bhd
<b>Local-Grid</b>	FGV Palm Industries Sdn Bhd	No Runner-Up
<b>Off-Grid (Power)</b>	No winner	Universiti Malaysia Sarawak
<b>Off-Grid (Thermal)</b>	No winner	No Runner-Up

## APPENDICES

## ASEAN ENERGY AWARDS 2019

CATEGORY		OUTCOME	COMPANY NAME
Green Buildings Awards 2019	Small & Medium Building	Winner	Environmental Preservation and Innovation Centre (EPIC)
	Large Building	Winner	IKEA Cheras
Energy Management for Buildings & Industry Awards 2019	Small & Medium Building	1st Runner-up	Wisma TNB Penang
		2nd Runner-up	Melaka TM Tower
	Large Building	2nd Runner-up	KOMTAR Penang
	Small & Medium Industry	2nd Runner-up	Idaman Pharma Manufacturing Sdn. Bhd.
	Large Industry	2nd Runner-up	CSC Steel Sdn Bhd
Energy Efficient Building Awards 2019	New and Existing Building	1st Runner-up	Kuala Lumpur International Airport (KLIA) 2
		1st Runner-up	Paramit Factory in the Forest
	Retrofitted Building	1st Runner-up	Subang Parade Mall
Renewable Energy Awards 2019	Off-Grid – Power Category	Winner	Development of Micro Hydro Project For Kampung Assum, Padawan, Sarawak
		1st Runner-up	Sarawak Alternative Rural Electrification Scheme (SARES)
	On-Grid – National Grid	1st Runner-up	Building Integrated Solar PV with Agriculture and Aquaculture Activities (Mushroom Farm and Fish Farming) Solar Project (1MWp) to TNB 11 Kv Distributions in Chembong, Negeri Sembilan
	On-Grid – Local Grid	2nd Runner-up	Rural Electrification from Renewable Energy Biogas for UMAS Community
	Special Submission	Winner	Compressed Bio-natural Gas (CBG) for Green Mobility and Power Generation in Oil Palm Industry
Coal Awards 2019	Power Generation – Large Scale	1st Runner-up	TNB M5 Sharing of Best Practices in Clean Coal Use and Technology Innovations

## GLOSSARY

NO.	ABBREVIATIONS	FULL TERMS
1.	AADK	Agensi Anti-Dadah Kebangsaan
2.	ABMB	Alliance Bank Malaysia Berhad
3.	ACE	ASEAN Centre for Energy
4.	ACEM	Association of Consulting Engineers Malaysia
5.	Advance SCP	Advancing and Measuring Sustainable Consumption and Production
6.	AEA	ASEAN Energy Awards
7.	AEMAS	ASEAN Energy Management Scheme
8.	AFTA	Asian Free Trade Area
9.	APEC	Asia-Pacific Economic Cooperation
10.	ASB	Nail It, Scale It, Sail It
11.	ASB-MIT	Asia School of Business-MIT Sloan School of Management
12.	ASEAN	Association of Southeast Asian Nations
13.	BIOGEN	Biomass Power Generation and Co-Generation
14.	BEI	Building Energy Index
15.	BESC	Blockchain Energy Savings Consortium
16.	BIPV	Building-integrated photovoltaics
17.	BOD	Board of Directors
18.	B2B	Business-to-Business
19.	B2C	Business-to-Consumer
20.	B2G	Business-to-Government
21.	CDP	Continuous Data Protection
22.	CDP	Carbon Disclosure Project – UK

NO.	ABBREVIATIONS	FULL TERMS
23.	CEA	Certified Energy Auditor
24.	CEM	Certified Energy Manager
25.	CEO	Chief Executive Officer
26.	COO	Chief Operating Officer
27.	CLP	Climate Launchpad
28.	CO <sub>2</sub> /CO <sub>2</sub> e	Carbon Dioxide
29.	CPMV	Certified Professional in Measurement and Verification
30.	DBE	David Bromley Engineering Ltd.
31.	DBKL	Dewan Bandaraya Kuala Lumpur
32.	DOE	Department of Energy
33.	EACG	Energy Audit Conditional Grant
34.	EC	Energy Commission
35.	EE	Energy Efficiency
36.	EELCT	Energy Efficient Low Carbon Transport
37.	EMEER	Efficient Management of Electrical Energy Regulations
38.	EMGS	Energy Management Gold Standard
39.	EMT	Energy Management Training
40.	EMTC	Energy Manager Training Course
41.	EnMS	Energy Management System
42.	EPA	Environmental Protection Agency
43.	EPC	Energy Performance Contracts
44.	EPU	Economic Planning Unit

## GLOSSARY

NO.	ABBREVIATIONS	FULL TERMS
45.	ESCO	Energy Service Companies
46.	EV	Electric Vehicle
47.	EXPO	Exposition, Large-Scale Public Exhibition
48.	FDI	Foreign Direct Investment
49.	FGD	Focus Group Discussion
50.	FMM	Federation of Malaysian Manufacturers
51.	FTA	Free Trade Area
52.	GAH 2020	Karnival Gaya Hidup Hijau 2020
53.	GAP	Green Advisory Programme
54.	GCOM	Global Covenant of Mayors
55.	GDP	Gross Domestic Product
56.	GEF	Global Environment Facility
57.	GEO	Green Energy Office
58.	GGP	Government Green Procurement
59.	GHG	Greenhouse Gases
60.	GITA	Green Investment Tax Allowance
61.	GITE	Green Income Tax Exemption
62.	GIZ	Gesellschaft für Internationale Zusammenarbeit
63.	GMBH	Gesellschaft Mit Beschränkter
64.	GMC	Green Minds Challenge
65.	GT	Green Technology
66.	GTFS	Green Technology Financing Scheme

NO.	ABBREVIATIONS	FULL TERMS
67.	GTMA	Green Tech Malaysia Alliances Sdn. Bhd.
68.	GTMC	Global Technology and Management Consultancy
69.	GTMP	Green Technology Mater Plan
70.	GTNP	Green Technology National Policy
71.	GTYIC	Green Tech Youth Innovation Challenge
72.	GWh	Gigawatt Hours
73.	Hons	Honours
74.	HWDE	Have We Done Enough to Save Energy Bills
75.	ICLEI	International Council for Local Environmental Initiatives
76.	ICT	Information and Communication Technology
77.	IEM	The Institution of Engineers, Malaysia
78.	IESBA	The International Ethics Standards Board for Accountants
79.	IGEM	International Greentech & Eco Products Exhibition & Conference Malaysia
80.	IJN	Institut Jantung Negara
81.	IMIEV	Mitsubishi Innovative Electric Vehicle
82.	INSP	International Sourcing Programme
83.	INTAN	Institut Tadbiran Awam Negara / National Institute of Public Administration
84.	I&C	Information & Computation
85.	IP	Internet Protocol
86.	IUSGBC	International Urban Sustainability Green Building Conference

NO.	ABBREVIATIONS	FULL TERMS
87.	IVLP	International Visitor Leadership Programme
88.	JPA	Johor Port Authority
89.	JTA	Journey to Astana
90.	KASA	Kementerian Alam Sekitar dan Air / Ministry of Environment and Water
91.	keTSA	Ministry of Energy and Natural Resources
92.	KeTTHA	Ministry of Energy, Green Technology and Water
93.	Kloth	Kloth Malaysia Sdn Bhd
94.	KLEFF	Kuala Lumpur Eco Film Festival
95.	KPI	Key Performance Indicators
96.	LADA	Lembaga Pembangunan Langkawi
97.	LCC	Low-Carbon Cities
98.	LCC2030Challenge	Low-Carbon Cities 2030 Challenge
99.	LCCF	Low-Carbon Cities Framework
100.	LCCMP	Low-Carbon Cities Master Plan
101.	LCMB	Low-Carbon Mobility Blueprint
102.	LED	Light-Emitting Diode
103.	LLB	Literally Legum Baccalaureus
104.	LLP	Limited Liability Partnerships
105.	LRT	Light Rail Transit
106.	M&V	Measurement and Verification
107.	MAESCO	Malaysia Association of Energy Service Companies
108.	MaGIC	Malaysian Global Innovation and Creativity Centre

NO.	ABBREVIATIONS	FULL TERMS
109.	MalaysiaGBC	Malaysia Green Building Council
110.	MARA	Majlis Amanah Rakyat
111.	MASB	Malaysian Accounting Standards Board
112.	MBA	Master or Business Administration
113.	MBI Kedah	Menteri Besar Kedah Incorporated / Perbadanan Menteri Besar Kedah
114.	MBPIV	Malaysian Building Integrated Photovoltaic Technology Application
115.	MBSA	Majlis Bandaraya Shah Alam
116.	MCS	Modulation and Coding Scheme
117.	MCY	Malaysia Commercialisation Year
118.	MDBC	Malaysian Dutch Business Council
119.	MED	Ministry of Entrepreneur Development
120.	MESI	Malaysia Electricity Supply Industry 2.0
121.	MESTECC	Ministry of Energy, Science, Technology, Environment & Climate Change
122.	MEXCOE	Ministers of the Environment and the Members of the Council of Governments
123.	MFRS	Malaysian Financial Reporting Standards
124.	MGATS	Malaysia Green Attribute Tracking System
125.	MGBC	Malaysia Green Building Council
126.	MGTC	Malaysian Green Technology Corporation
127.	MICCI	Malaysian International Chamber of Commerce & Industry



## GLOSSARY

NO.	ABBREVIATIONS	FULL TERMS
128.	MIDA	Malaysian Investment Development Authority
129.	MIP	Malaysian Institute of Planners
130.	MISA	MDBC Innovation and Sustainability Awards
131.	MITC	Melaka International Trade Centre
132.	MITI	Ministry of International Trade and Industry
133.	MoA	Ministry of Agriculture & Food Industries / Kementerian Pertanian & Industri Makanan
134.	MOF	Ministry of Finance
135.	MoHE	Ministry of Higher Education
136.	MOSTI	Ministry of Science, Technology and Innovation
137.	MoU	Memorandum of Understanding
138.	MPC	Malaysia Productivity Corporation
139.	MPSJ	Majlis Perbandaran Subang Jaya
140.	MPSP	Seberang Perai City Council
141.	MRT	Mass Rapid Transit
142.	MTEA	Malaysian Taiwan Economic Association
143.	MTHPI	National Council on Green Technology and Climate Change
144.	MTPIN	Majlis Tindakan Perubahan Iklim Negara
145.	NEA	National Energy Awards
146.	NGO	Non-Governmental Organisation
147.	NGTP	National Green Technology Policy
148.	NLPTMP	National Land Public Transport Master Plan

NO.	ABBREVIATIONS	FULL TERMS
149.	NSW	New South Wales
150.	Of MESTECC	Meeting of the Minister
151.	PAIP	Pengurusan Air Pahang Berhad
152.	P2P	Peer-to-Peer
153.	PAM	Malaysian Institute of Architects / Pertubuhan Arkitek Malaysia
154.	PBT	Pihak Berkuasa Tempatan
155.	PDRM	Polis Diraja Malaysia
156.	PEFC	Programme for the Endorsement of Forest Certification
157.	PEX	Cross-linked Polyethylene
158.	PGP	Private Green Procurement
159.	PHD	Doctor of Philosophy
160.	PHEV	Plug-in-Hybrid Electric Vehicles
161.	POME	Palm Oil Mill Effluent
162.	PTM	Pusat Tenaga Malaysia
163.	PTM ZEO	Pusat Tenaga Malaysia Zero Energy Office
164.	PV	Photovoltaic
165.	RCEP	Regional Comprehensive Economic Partnership
166.	RE	Renewable Energy
167.	REEMs	Registered Electrical Energy Managers
168.	R&D	Research & Development
169.	RNR	Kawasan Rehat & Rawat
170.	RSA	Rest and Service Area

NO.	ABBREVIATIONS	FULL TERMS
171.	SA	Sales Assistance
172.	SARE	Supply Agreement Renewable Energy
173.	SCP	Sustainable Consumption and Production
174.	SD	Sustainable Development
175.	SDGs	Sustainable Development Goals
176.	SEDA	Sustainable Energy Development Authority
177.	SEMS	Sustainable Energy Management System
178.	SIA	Sustainable Innovation Awards
179.	SIRIM	Standard and Industrial Research Institute of Malaysia
180.	SME	Small and Medium Enterprises
181.	SMI	Small Medium Industry
182.	SMK	Sekolah Menengah Kebangsaan
183.	ST	Suruhanjaya Tenaga
184.	SWOT	Strength, Weakness, Opportunity and Threat
185.	tCO <sub>2</sub>	Total Carbon Dioxide
186.	tCO <sub>2</sub> e	Total Carbon Dioxide Equivalent
187.	TLDM	Tentera Laut Di Raja Malaysia
188.	TNB	Tenaga Nasional Berhad
189.	TNBES	TNB Energy Services Sdn Bhd
190.	UAE	United Arab Emirates
191.	UiTM	Universiti Teknologi Mara

NO.	ABBREVIATIONS	FULL TERMS
192.	UKPACT	United Kingdom Partnering for Accelerated Climate Transitions
193.	UKM	Universiti Kebangsaan Malaysia
194.	UMK	Universiti Malaysia Kelantan
195.	UN	United Nations
196.	UNCLOS	United Nations Conventions for The Law of The Sea
197.	UNEP	United Nations Environment Programme
198.	UNESCO	The United Nations Educational, Scientific and Cultural Organisation
199.	UNIDO	United Nations Industrial Development Organisation
200.	UNSW	The University of New South Wales
201.	UOB Malaysia	United Overseas Bank
202.	UPEN	Unit Perancangan Ekonomi Negara
203.	US EPA	United States Environmental Protection Agency
204.	UTM	Universiti Teknologi Malaysia
205.	UTP	University Technology Petronas
206.	VDP	Vendor Development Programme
207.	VSS	Voluntary Sustainable Scheme
208.	WTO	World Trade Organisation
209.	YaHijau	Yayasan Hijau Malaysia
210.	YBM	Yang Berhormat Mulia
211.	YDP	Yang Di Pertua

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