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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 minuses 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

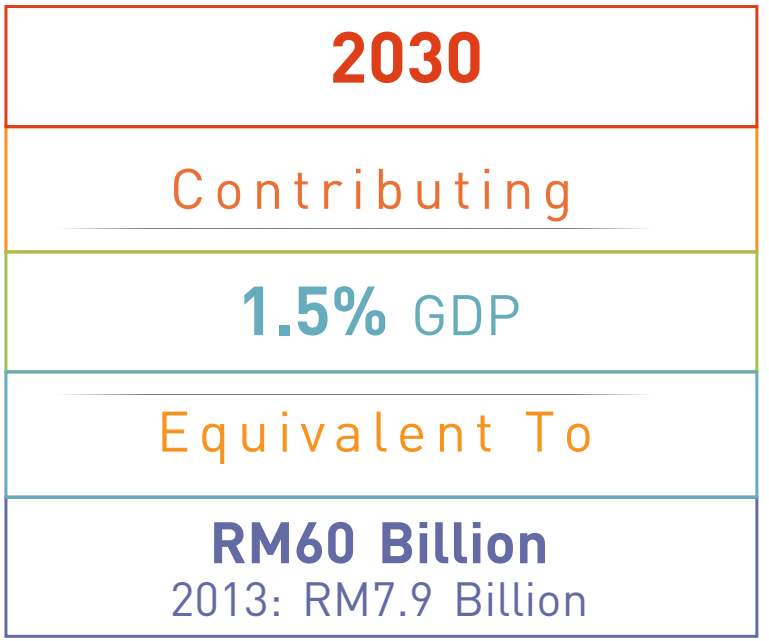
- More cities, townships and communities to be classified as **Green Townships**
- **Green Technology culture** becomes a part of our **lives**
- **Improved quality** of **life** in Malaysia

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)

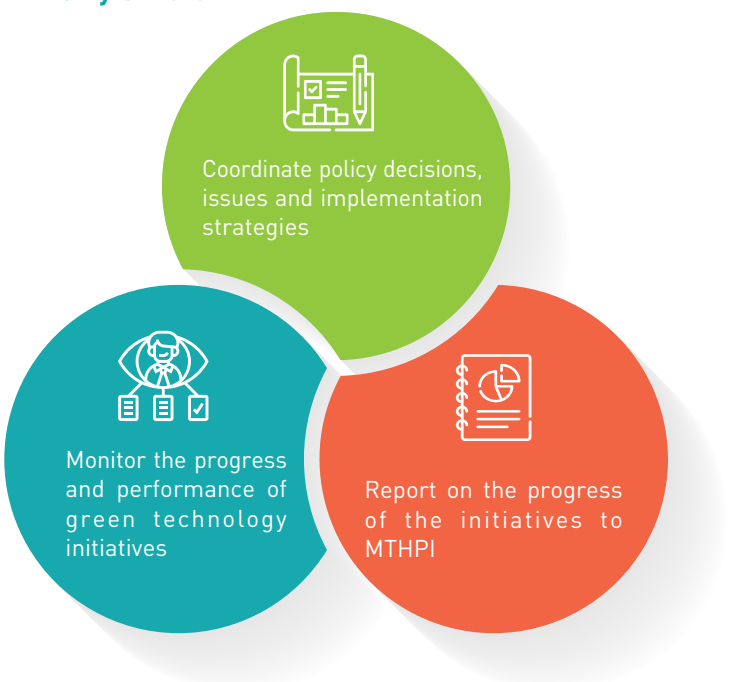
MTHPI was set up following the launch of the NGTP to provide a direction on green growth and the nation's sustainability agenda. Today, it continues to address strategic issues in the implementation of GTMP, deciding on matters pertaining to green technology and climate change. It also serves to identify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



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

CLIMATE CHANGE

PRIOR TO 2019

MITIGATION SECTORS

- ENERGY
- WASTE

OCTOBER 2019 – SCOPE EXPANDED

MITIGATION SECTORS

- ENERGY
- INDUSTRIAL PROCESS & PRODUCT USE
- WASTE
- AGRICULTURE
- LAND USE, LAND USE CHANGE & FORESTRY

ADAPTATION SECTORS

- WATER SECURITY
- FOOD SECURITY & AGRICULTURE
- COASTAL PROTECTION
- FORESTRY & BIODIVERSITY
- PUBLIC HEALTH
- INFRASTRUCTURE

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.

NGTP **Strategic** Thrust **02**

CONDUCIVE 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

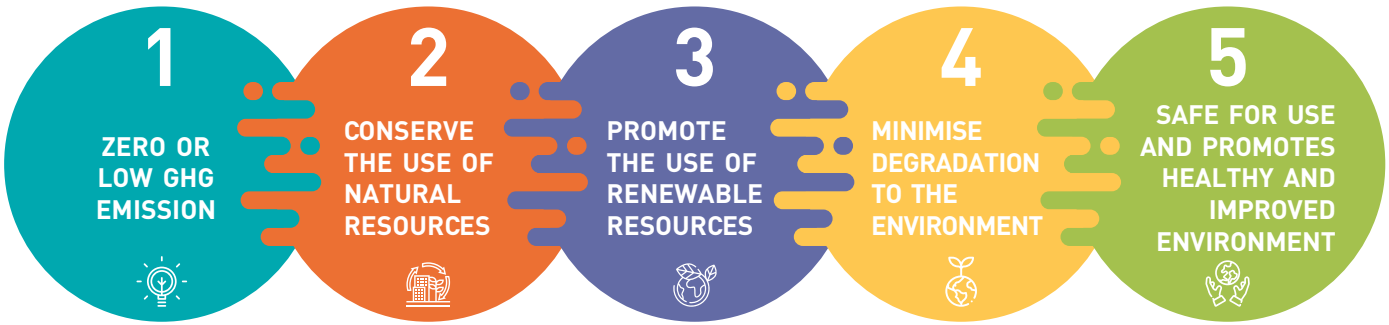
Three key incentive programmes are offered to encourage greater adoption of green technology hence develop the industry:

- 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.

319 Projects Approved

RM3.64 Billion Financing Amount

28 Financing Institutions

Together, these projects have resulted in:

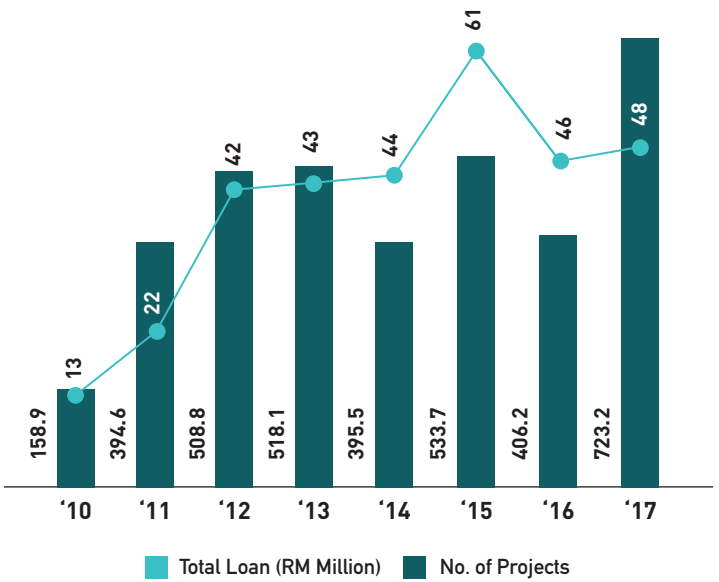
RESULTS

4,909 Jobs Created

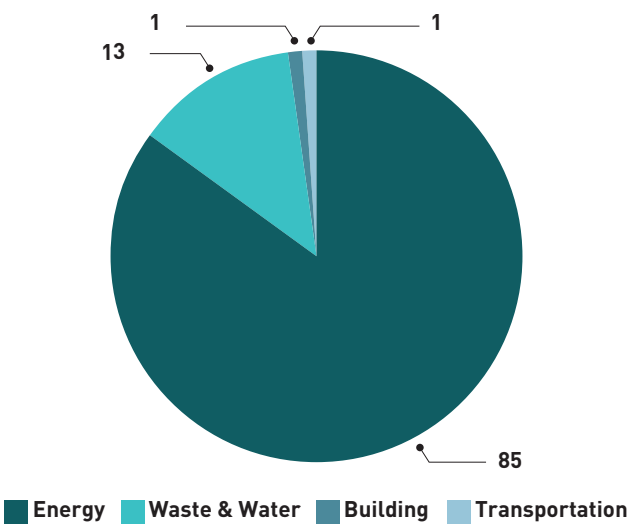
RM7.053 Billion Green Investments

3.784 Million tCO_2/Year Emissions Reduction

Financing Offer from Participating Institutions 2010-2017



Project Funding from 2010-2017, by Sector



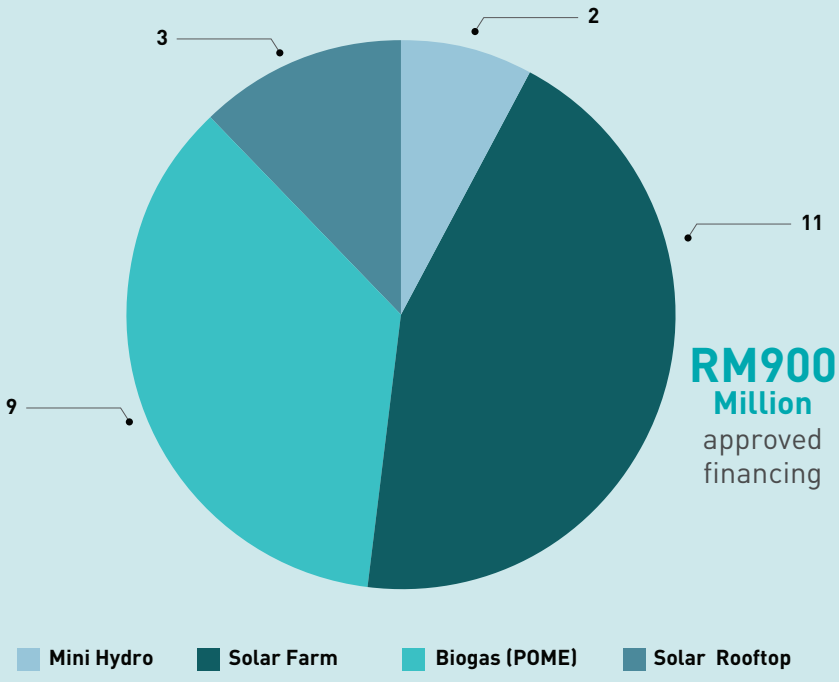
2019 Highlights

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



RM900 Million
approved
financing

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.

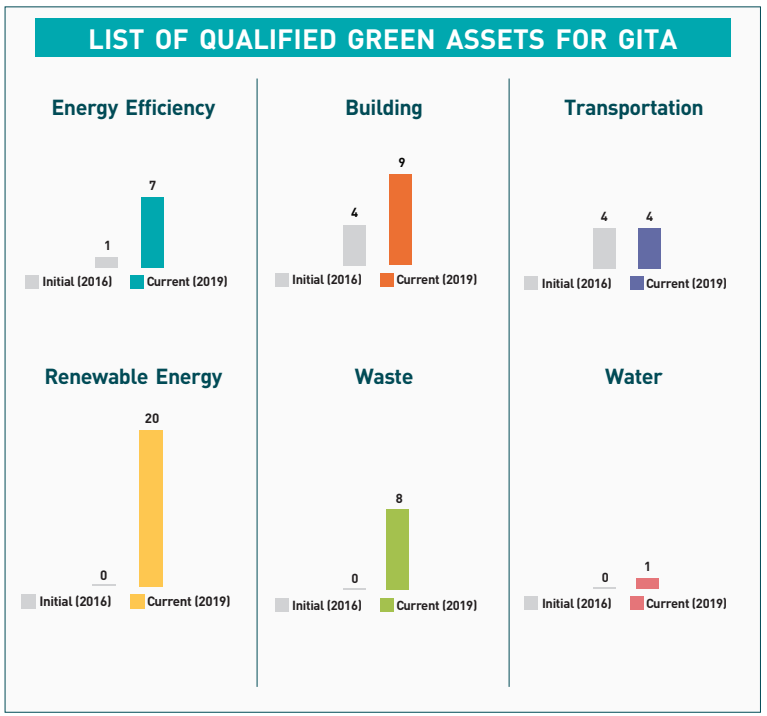
Green Technology Tax Incentives

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

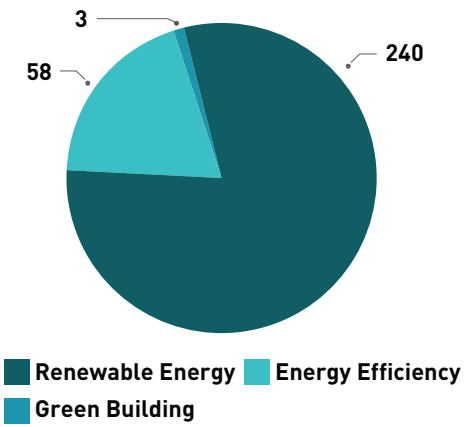
Under Budget 2019, the Government expanded the list of green assets that qualify for GITA from nine to 49, a large number of which fall under the renewable energy (RE) category. RE, waste and water were new sector added to the incentive which previously focused only on energy efficiency, building and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



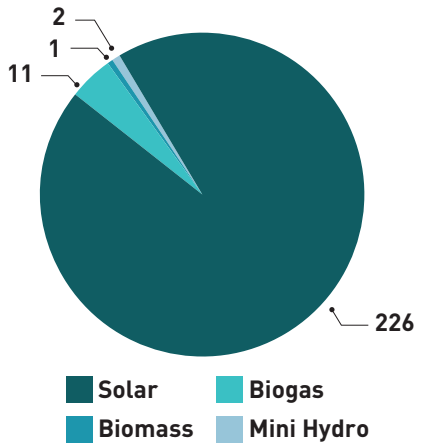
Achievements

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:

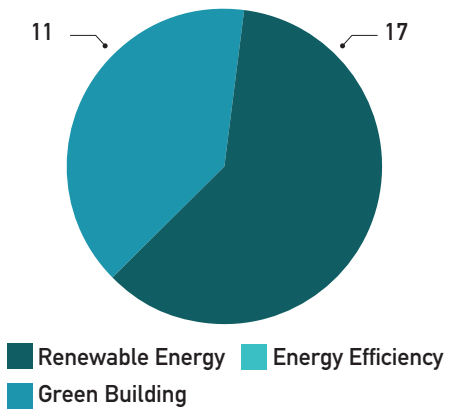
Approved GITA Projects (2016-2019)



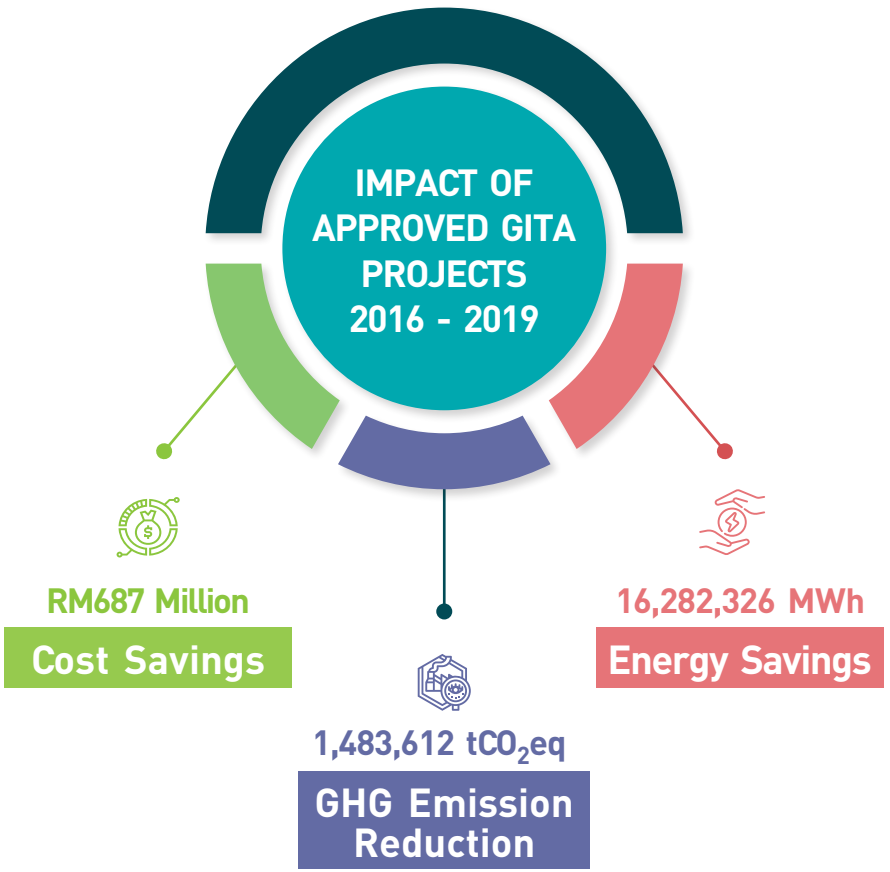
Approved GITA Projects by RE Subsector (2016-2019)



Approved GITE Services (2016-2019)



Achievements GITA Projects

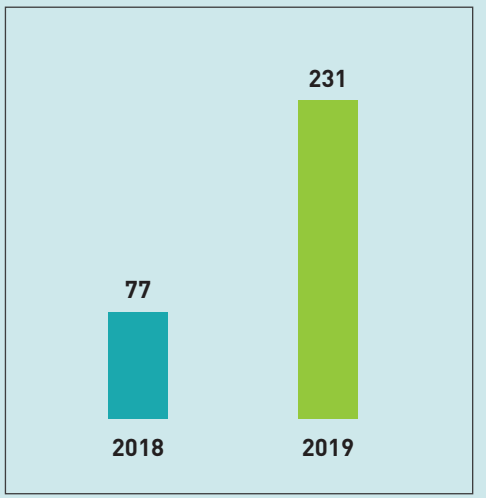


2019 Highlights and What's Next

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.

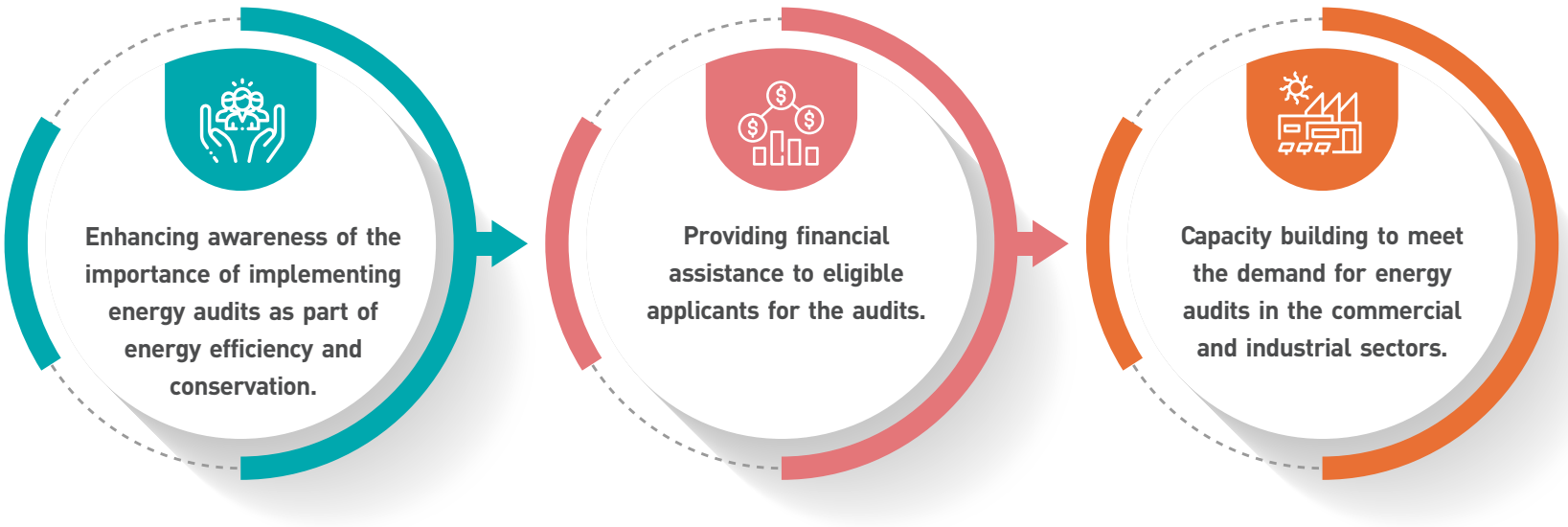
No. of Approved GITA & GITE Compared at Year End



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:

50.119 GWh
Reduction in Energy Consumption

RM17.145 Million
In Cost Savings From a Total Investment of RM32.386 Million

31,539 Tonnes/Year
Decrease in Carbon Emissions

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 uin carbon emissions

EACG achievement in 2019

49.186 GWh
Reduction in Energy Consumption

RM19.677 Million
In Cost Savings From a Total Investment of RM24.597 Million

34,121.36 Tonnes/Year
Decrease in Carbon Emissions

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 12th 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.

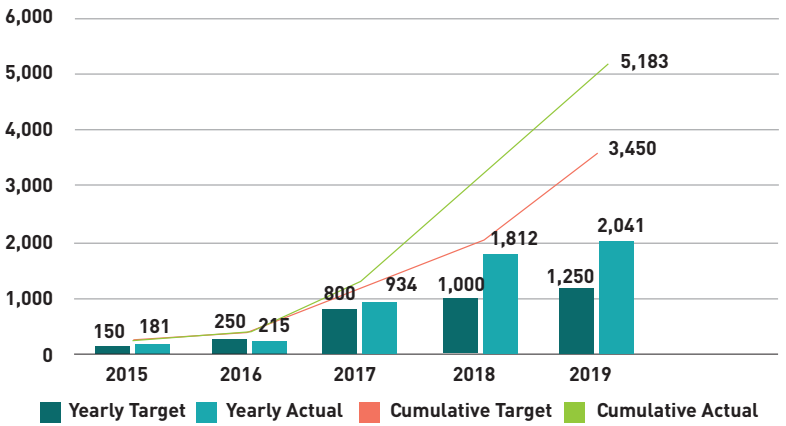
2015 More than 200 products and services registered under the MyHIJAU Mark, and a target was set for at least 20% of all Government purchases being green by 2020.

2018 MyHIJAU app was launched enabling consumers to download the Directory from Play Stores and App Stores.

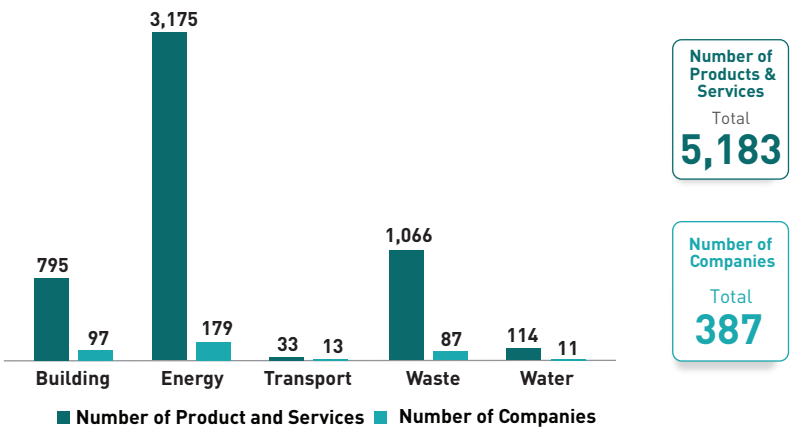
Achievements

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

MyHIJAU Mark Registration Until 31st December 2019



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



Number of Products & Services
Total
5,183

Number of Companies
Total
387

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 10th IGEM. 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 & Varification Partners

SIRIM, SPAN, mtcc, FRIM, GreenRE, CIDB, SIRIM QAS, MPOB, QAV, TÜV, bsi., GREEN TAG, SGS, SLS, TÜVRheinland

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:

1-Star

Equivalent to ISO 50001, with additional criteria. It indicates the complete establishment of the Energy Management System (EnMS).

2-Star

Requires that the organisation not only have an established EnMS but also proven savings from at least 5% energy reduction compared to the baseline.

3-Star

Requires that the EnMS is fully embedded into the organisational culture and integrated with other systems; and that the organisation has achieved energy savings for three consecutive years.

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
1st 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.

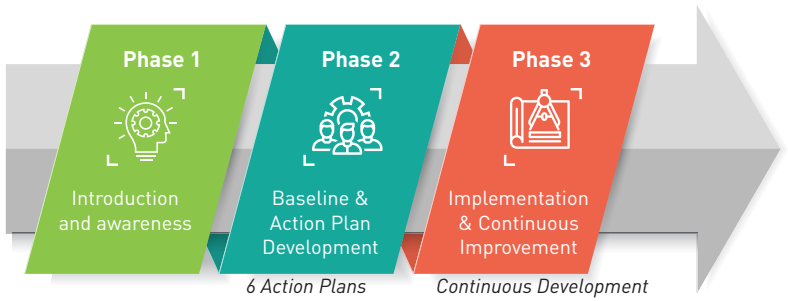
Low-Carbon Cities Framework (LCCF) Diamond Certification

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:

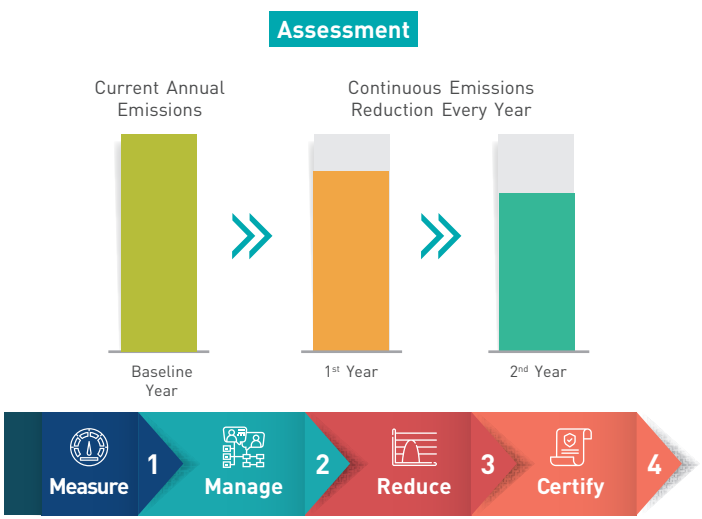
- Measure & quantify the actual carbon emissions
- Guide Local Authorities (PBT) in transforming their cities into LCC
- Create awareness and promote LCC in Malaysia

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_2 reduction achieved. An Assessment and Recognition system is used to evaluate the local councils' efforts, based on the CO_2 reduction achieved in designated zones.

Assessment & Recognition



Recognition

Provisional Certificate

Develop baseline and pledge commitment to reduce emissions

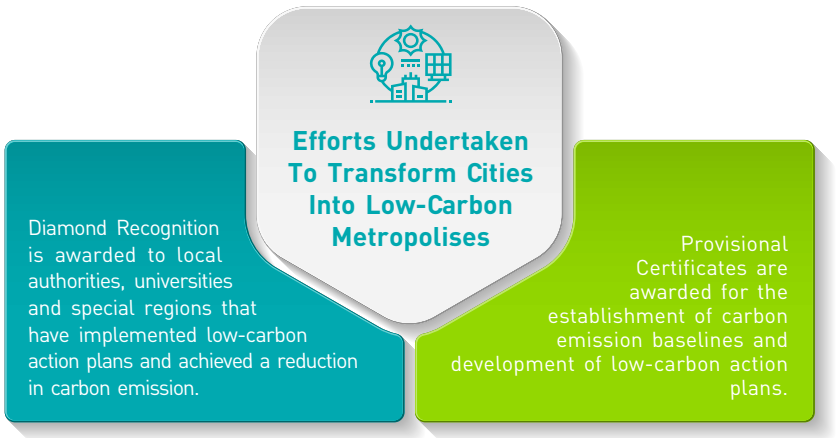
Diamond Recognition

Achieve emissions reduction based on the scale below

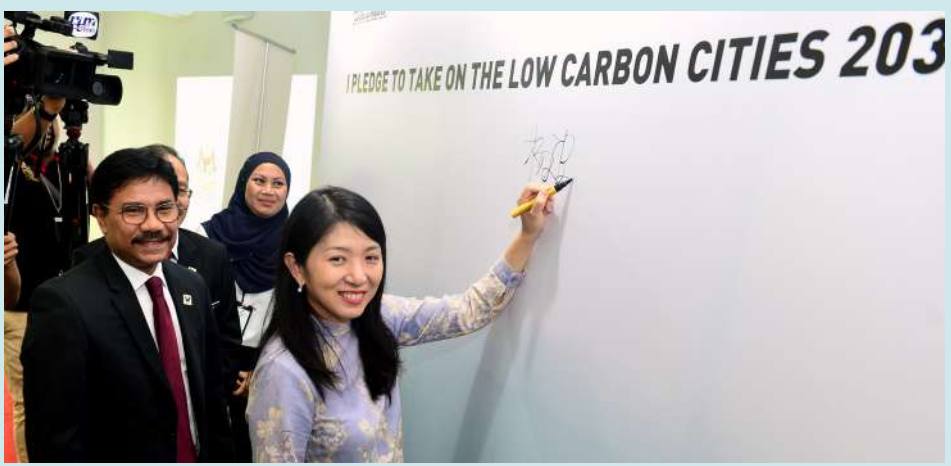
- 1%
- 5%
- 10%
- 25%
- 45%

Progress

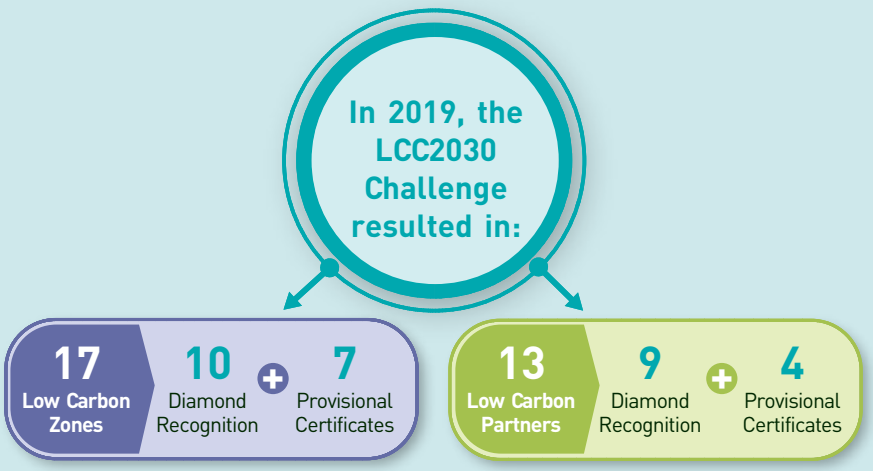
In recognition of efforts undertaken to transform cities into low-carbon metropolises, MGTC together with the Ministry of Energy, Science, Technology, Environment & Climate Change (MESTECC) organises the annual Low Carbon Cities Awards.



2019 Highlights



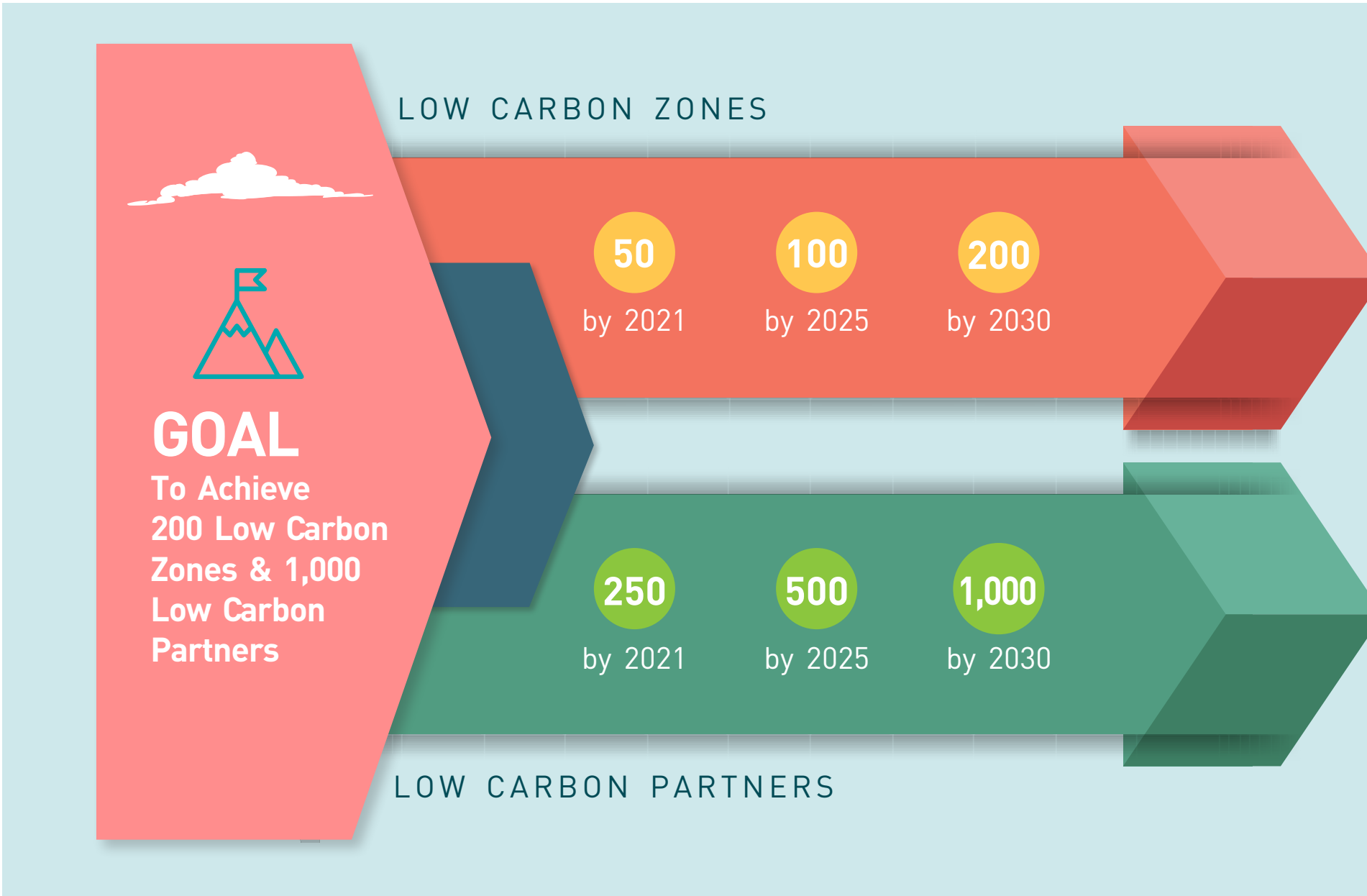
The **Low Carbon Cities 2030 Challenge (LCC2030C)** was launched by the Minister of Energy, Science, Technology, Environment & Climate Change (MESTECC) which sets the target of attaining 200 Low Carbon Zones and 1,000 Low Carbon Partners by 2030.



*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_2e** across 4 elements (energy, water, waste and mobility).*

LOW CARBON CITIES 2030 CHALLENGE



REDUCE EMISSIONS & INCREASE SEQUESTRATION

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 landfils.

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

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 munipalities have pledged to support the Low Carbon Cities 2030 Challenge.

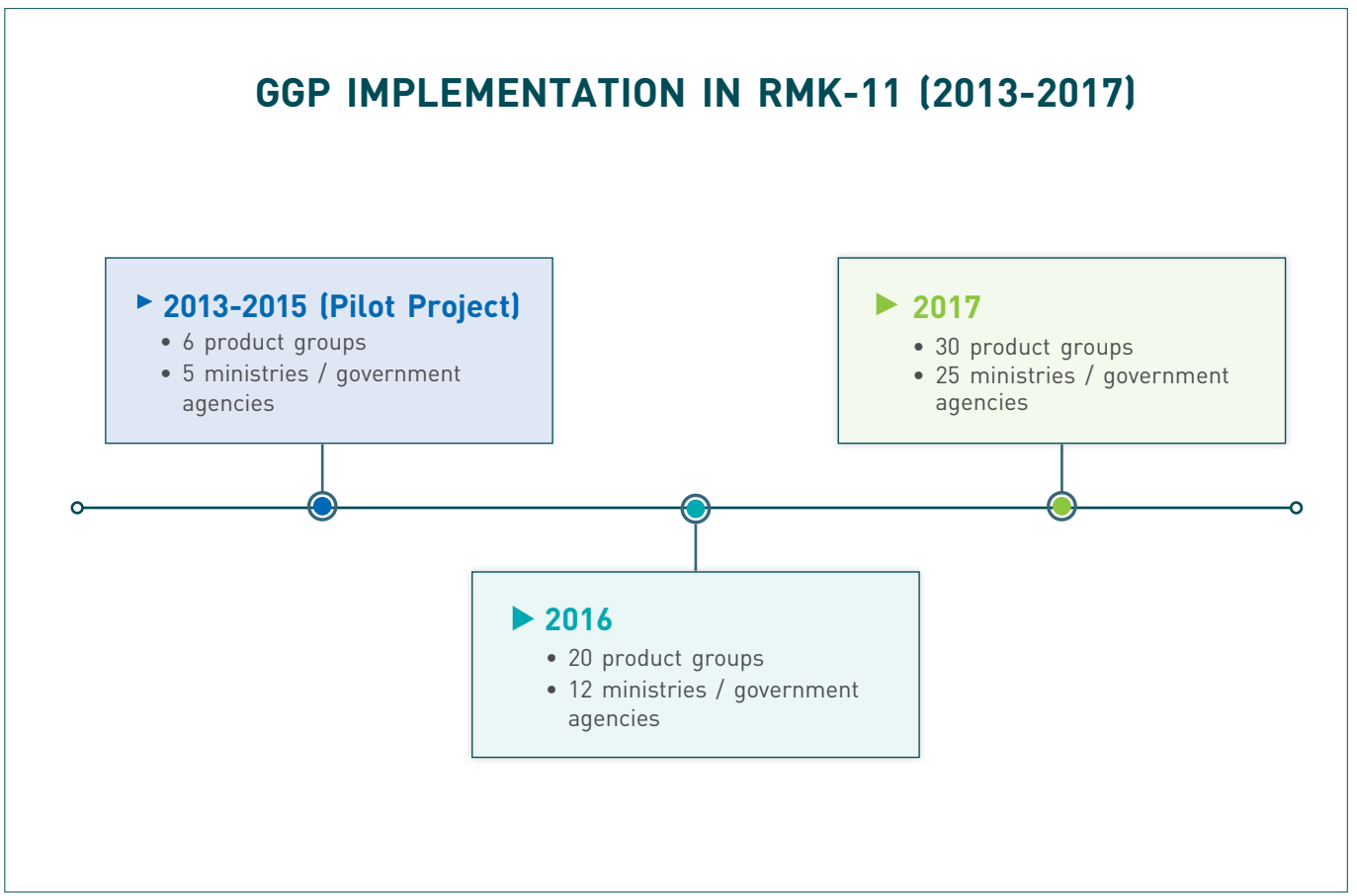
GREEN PROCUREMENT

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



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.

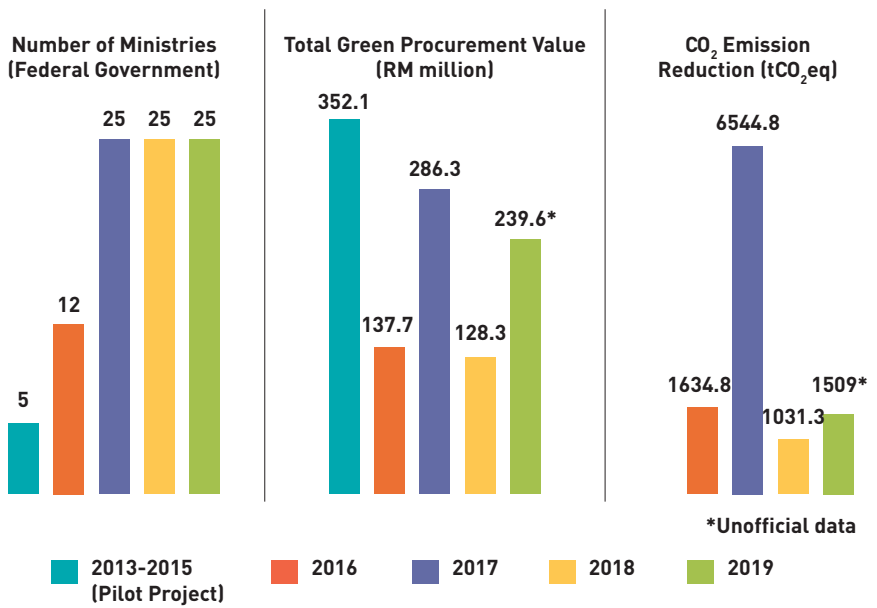
2015 Under the guidance of MGTC, the MOF, Ministry of Energy, Green Technology and Water (KeTTHA) and Economic Planning Unit (EPU) implemented various strategies to spearhead GGP in tandem with the Government's 11th Malaysia Plan aspiration of 20% green government procurement by 2020.

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_2eq 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 12th 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 IGEM
- 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, IGEM 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, IGEM 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 **10th 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

Business Consultation

Meeting with **140** Companies

Sector

- Manufacturing: 9 Projects
- Services: 73 Projects

RM5.685 Bil Investment Leads

International Sourcing Programme (INSP)

352 Business Meetings with 23 Foreign Companies

Top Potential Sales (Product/Services)

1. Building Material for Construction
2. Sustainable Waste Water Management
3. Energy Efficiency

RM300 Mil Potential Exports

B2B Mobile App

9,056 Total Users

3,341 Meetings Requested

1,198 Meetings Scheduled

08

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

17 countries

RM1.6b business leads

10k visitors

What's Next ››

MGTC is currently co-organising the 11th 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^2 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 Achivements | Outcomes of Malaysia Pavilion

Trade and Business Showcase	KPI	Outcomes
Malaysian Companies Participated	50 Companies	118 Companies
Potential Trade and Investment	RM1.0 Billion	RM12.67 Billion
MOU Signed	10	14
Business Matching with Kazakhstan and International Companies	-	195
Malaysian Companies Participated in Business Matching	-	97

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 4th Industrial Revolution**
- **Malaysia Sustainability Week & Water**

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

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

GREEN ADVISORY

- Organisation
- Local Authorities

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

PLUS

Highway Operator (PLUS)

JohorPort

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 Lightning Project (LED Project) @ HQ

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

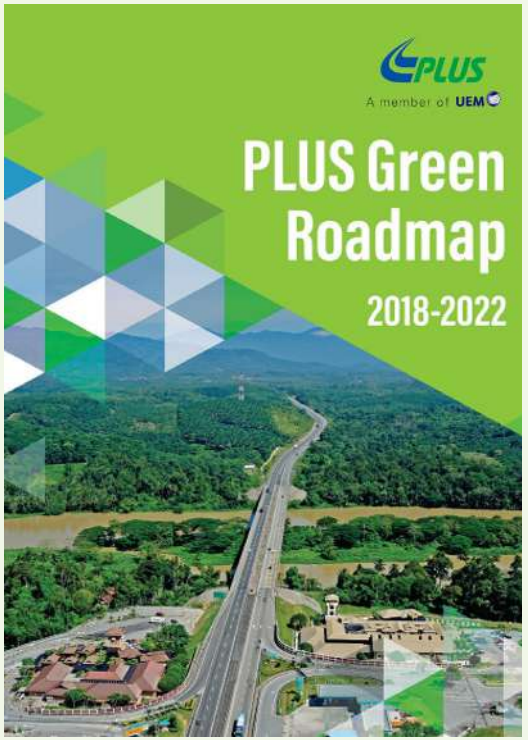
2018
Solar Energy Project

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

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

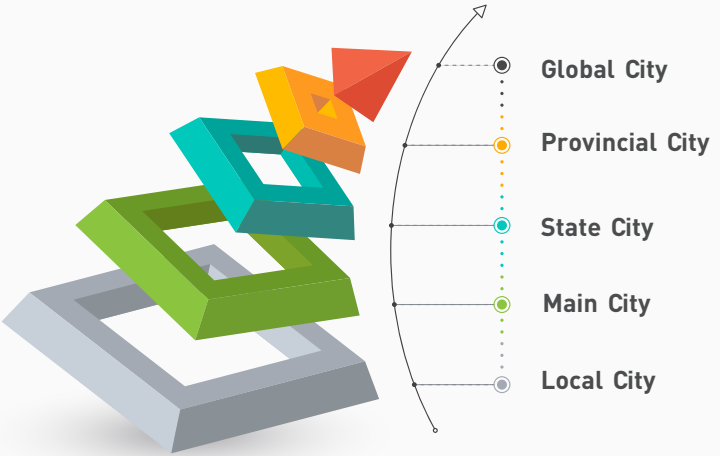
2019 Highlights

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.

Urban Hierarchy, 2nd National Municipal Policy



Progress

2009
Reduction of **GHG emissions** intensity of GDP by **40% by 2020**

2011
Launch of LCCF @ IGEM2011
- Awareness Programme
- Pilot Projects
- Strategic Partnerships
- Baseline Studies
- Diamond Rating

2015
COP 21 – Paris – Reduction of **GHG emission** Intensity by **45% by 2030**

Q3 2016: Miri **Mesyuarat PBT-PBT Seluruh Malaysia** introduced **LCCF** to all local authorities

2016
22 Local Authorities have applied **LCCF** up to 2016
UPEN **Selangor** has declared all **12 PBT to apply LCF**

RMK 11

LCCF V2 Released

2017
- **4 Local Authorities** have received **Provisional Certificates**
- **2 Local Authorities and 2 Universities** have achieved **CO_2 reduction** and have been awarded **Diamond Recognition**

2020
- All **154 Local Authorities aware and understand** low carbon city concept
- **52 cities implement LCCF** & have its own **baseline CO_2** by 2020

Ongoing Project Implementation

2030
Contribute to Malaysia's commitment to reduce **45% GHG emissions intensity by 2030**

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
83rd (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
3rd 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.

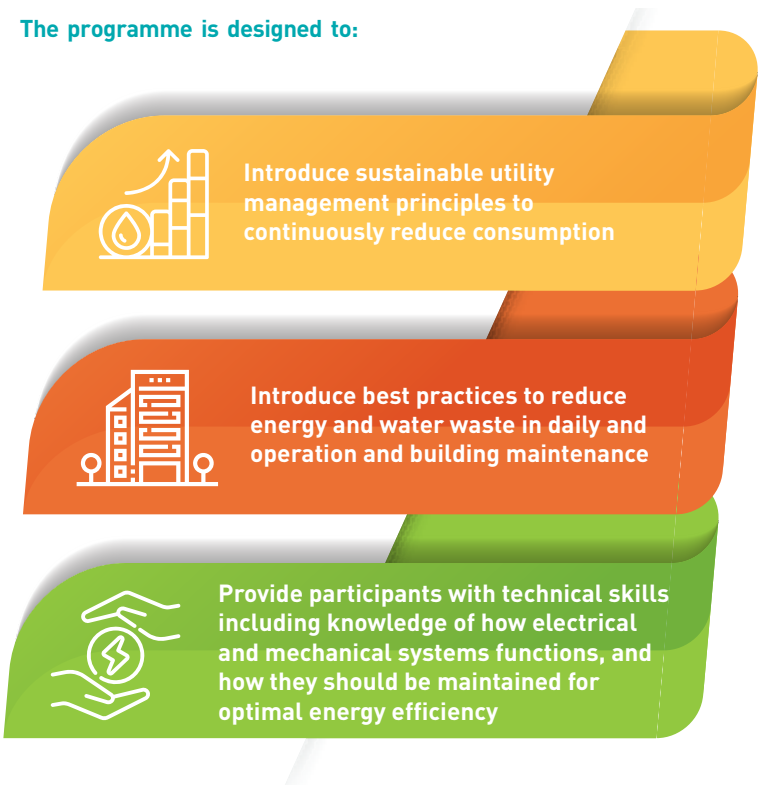
Energy Auditor Training Course (EATC)

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.

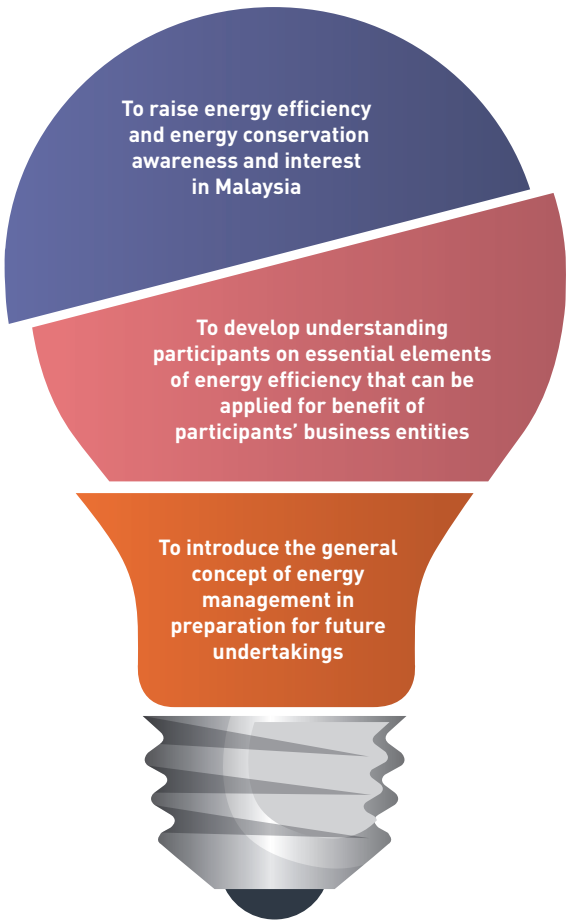
The programme is designed to:



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.

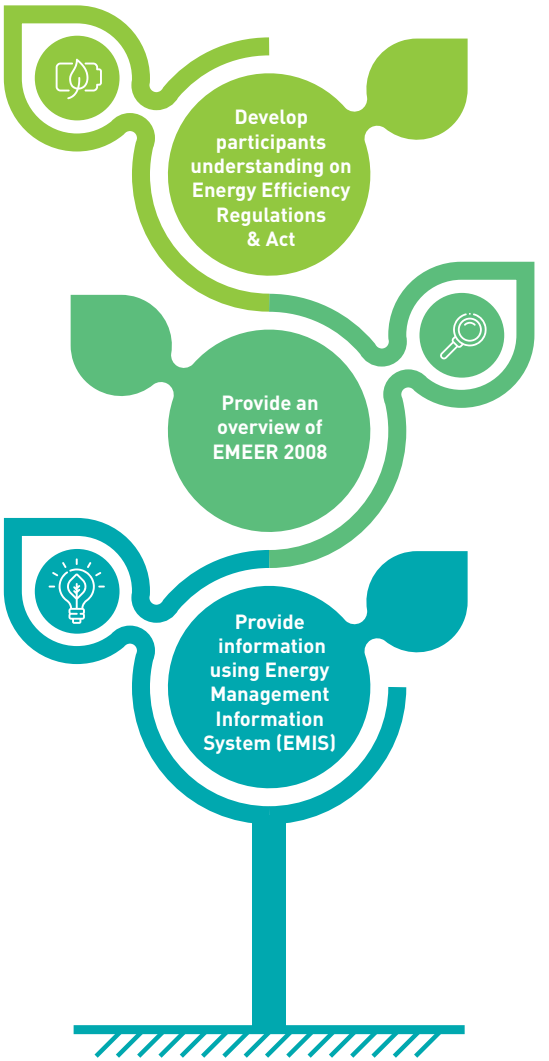
Programme objectives:



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:

- Develop understanding of the Energy Efficiency Regulations & Act
- Provide an overview of EMEER 2008
- Develop understanding of the EMGS 3-STAR certification framework
- Guide the submission of Sustainable Energy Management System reports
- Guide the submission of Energy Saving Measures reports

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

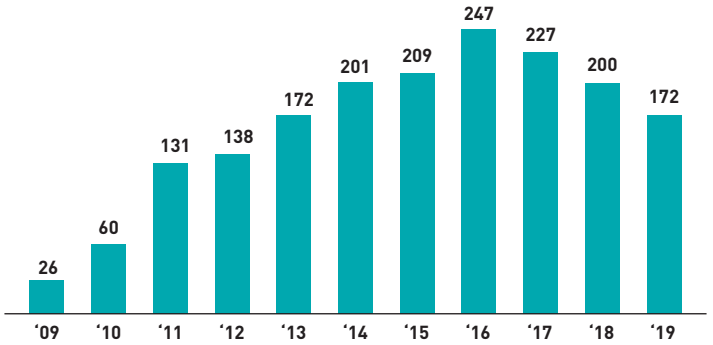
Using a mix of micro-learning, virtual sessions and simulations to leverage technology to meet learning needs

AEMAS EMTC session conducted in 2019 at MGTC.

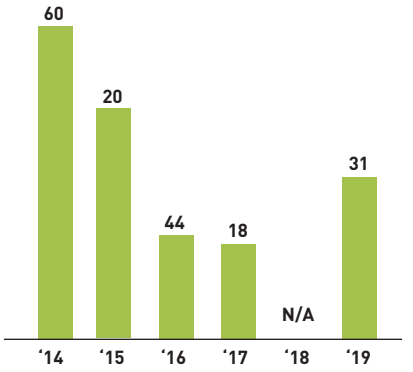
AEMAS EMTC session conducted in 2019 at Enderong Resort, Pahang.

Achievements

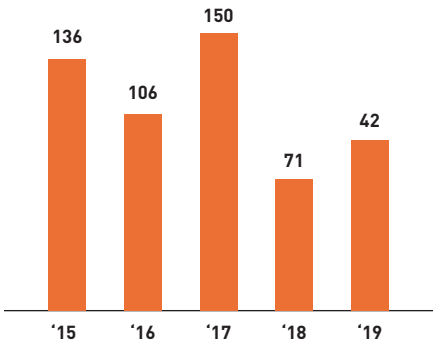
No. of Participants of the Different Training Programmes



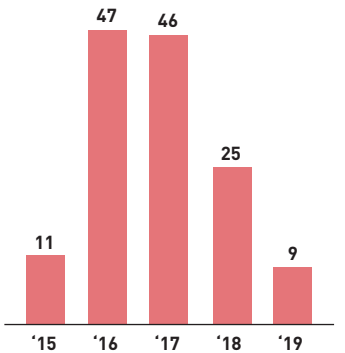
Energy Manager Training Course (EMTC)



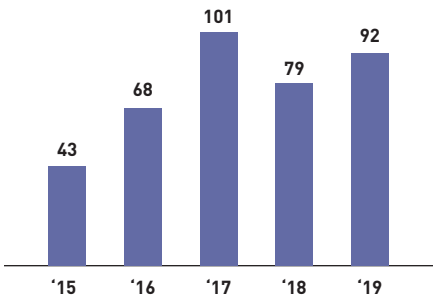
Energy & Water Management Training Programme (EWMT)



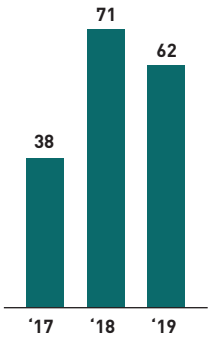
Energy Auditor Training Course (EATC)



Have We Done Enough To Save Energy Bills? (HDWE)



Certified Professional in M&V (CPMV)

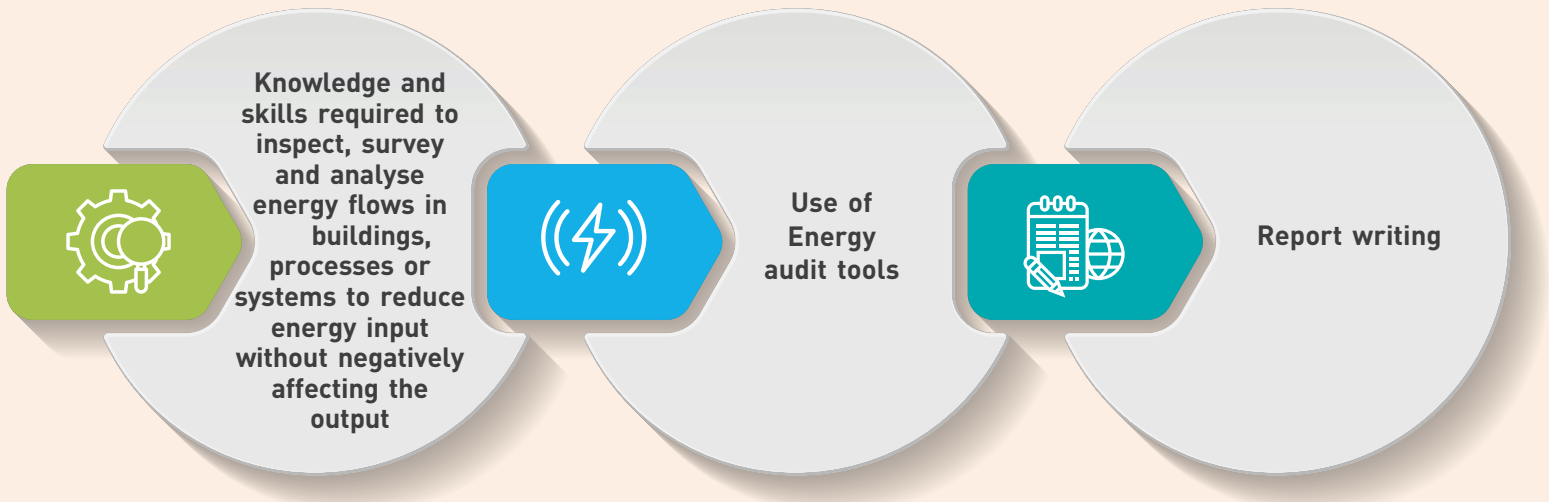


REEM

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_2 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 (GGP).**

2013

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

2019 Highlights

MGTC conducted **15 GGP 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)

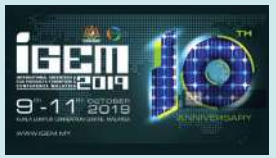
"Reduce! Rethinking Circular Economy" Global Knowledge Exchange on SDG 12 Policy Tools (Bangkok, Thailand)

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.

2019 Highlights

For the **10th 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.

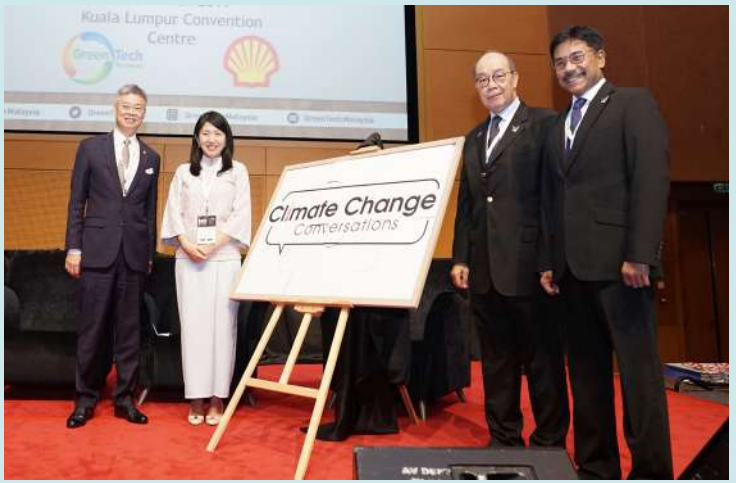


The 10th IGEM also saw the **launch of two MGTC-initiated programmes**, namely the **Climate Change Conversations™ Forum** and **Energy Management Convention**.

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.

The GTYIC Challenges
are organised for tertiary-level students to develop solutions to environmental issues using
Design Thinking Skills And 3-D Mechanical Design

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

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.

ECO-BIZ DREAM PROJECT

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, 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.

Green Minds Challenge Programme for Secondary School Students

2016 GMC – Winner Sekolah Sri Puteri

Magical Liquid

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 10th 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 aims to accelerate the growth of green technology-based start-up companies in Malaysia

1

Objective to shape innovative green business ideas into viable business solutions, attracting greater take-up by financial institutions and investors

2

Unlock The Potential of Malaysia's Green Economy as it develops successful green entrepreneurs and created more green job opportunities

3

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 IGEM 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

Better-Bev — **Best Innovative Waste Management Programme:** Better – Bev

SATELLIGENCE — **Best Digital Green Tech:** Satelligence

CONCORD GROUP — **Best Practice for Renewable Energy:** Concord Group

Besi — **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.

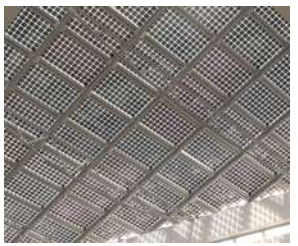
Solar Photovoltaic Innovation

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

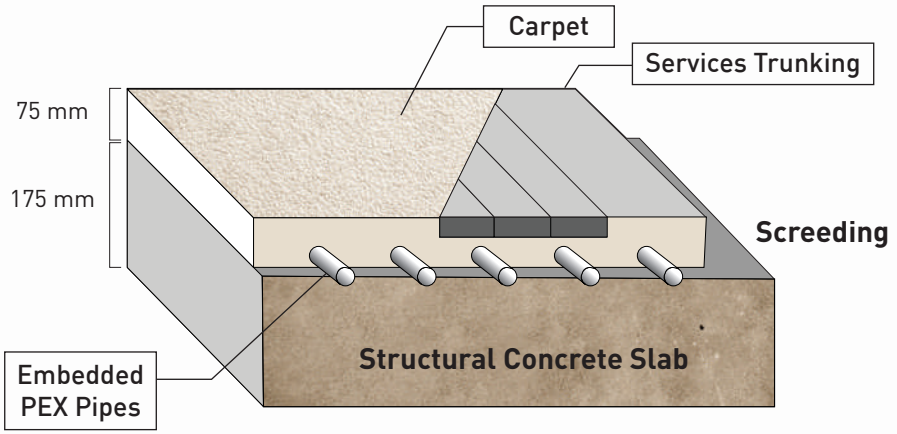
F **Systems E and F:** Thin Film CdTe

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 at 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:

- Building Orientation
- Roof light/Skylight
- Insulate interior from external heat using mineral wool, foam and aerated concrete block
- Optimum orientation with windows and doors faced towards North and South
- Self-shading design to prevent glare while maximising daylight usage



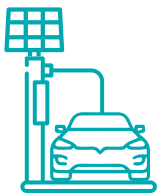
25 mm gap between PEX Pipes & Services Trunking
150 mm gap between each PEX Pipes

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 landfils.

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 an 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.

The 2019 Low Carbon Cities Awards ceremony was held at the Kuala Lumpur Convention Centre (KLCC) in conjunction with the 10th 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.

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

Industry and Public Experiencing Green Building

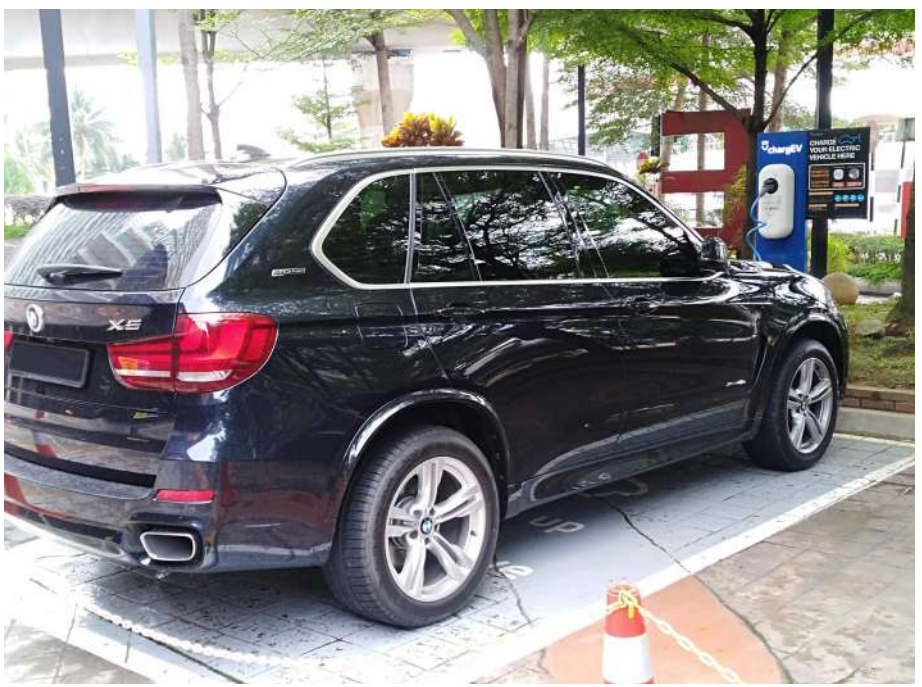
The GEO building is MGTC's headquarters in Bangi, about 40km south of Kuala Lumpur. Located on a five-acre site, the building is designed to be exceptionally energy efficient, with a building energy index (BEI) of 65Wh/m^2/year as compared to the norm of 250-300kWh/m^2/year for conventional office buildings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

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 ChargEV, 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, ChargEV has now reached East Malaysia, where four stations have been set up in Kuching. As at December 2019, the network of ChargEV 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 ChargEV 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 ChargEV 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).

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.

2019 Highlights

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

Gaya Hidup Hijau

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.