**Transitioning The Nation Towards** 

# Sustainable Energy



Anniversary



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# Chairman's



Let me be the first to express how proud I am of SEDA Malaysia's accomplishments since our inception in 2011. The past decade has been one exciting journey, filled with unprecedented opportunities, challenges and successes in supporting the Government to realise its SE aspirations.

In addition to playing a key role in the implementation of Feed-in Tariff (FiT) and Net Energy Metering (NEM), SEDA Malaysia has expanded its scope of services in human capital investment within both the renewable energy (RE) and energy efficiency (EE) sectors. These include addressing the competency gap for solar PV technology; conducting workshops on biomass, biogas and small hydro; developing and implementing energy management; as

well as providing RE and EE trainings - all

of which successively led to numerous collaborations and introduction of SEDA Malaysia's SE programmes and initiatives that are in place today.

Further, the development of the Malaysia Renewable Energy Roadmap 2035 (formerly known as Renewable Energy Transition Roadmap 2035) by SEDA Malaysia sets the foundation to realise the national RE target towards low-carbon power sector. Malaysia had initially set a target of 20% RE in power capacity mix by 2025. Looking at the current progress as well as encouraging participation from all stakeholders

in growing the RE industry, and in delivering Malaysia's global climate commitment, a higher RE target was set to 31% RE in power capacity mix in 2025 and 40% by 2035. I would like to highlight that SEDA Malaysia's move to digitalise significant parts of its operations not only expanded the Authority's reach domestically and internationally, but also provided an important lifeline to ensure business continuity in these unprecedented times of the COVID-19 pandemic. We were able to reach out various RE and EE sectors via virtual meetings, and provided assistance when needed. We also engaged numerous focus group discussions with key stakeholders, such as the relevant ministries and government agencies to ensure that businesses can operate as usual during lockdowns.

With Malaysia's energy landscape steadily transitions towards greater adoption of RE and EE, it can be expected that SEDA Malaysia will continue to reform its organisation to support this. After all, it is our corporate vision to promote the deployment of sustainable energy measures as part of the solutions towards achieving energy security and autonomy, and we intend to see this through.

SEDA Malaysia would like to express our sincerest gratitude to the Authority's past chairpersons, CEOs and other authority members for their contributions in providing strategic guidance to the Authority over the last decade.

To all staff, management team and authority members of SEDA Malaysia, thank you for your dedication and hard work over the years. I look forward to your continued support and contributions as we venture into the next decade of our operations.

SEDA Malaysia would also like to extend our heartiest congratulations to YB Datuk Seri Takiyuddin bin Hassan for his appointment as the Minister of Energy and Natural Resources.

YB. TUAN LUKANISMAN AWANG SAUNI CHAIRMAN SEDA MALAYSIA



# SEDA MALAYSIA TRAINING PROGRAMMES



# **Energy Management & Energy Efficiency**

# **Awareness & Technical Trainings:**



- Energy Management in Building: Eligible for 12 Hours CDP for Registered Electrical Energy Manager (REEM) by **Energy Commission**
- Principles and Applications of Malaysia Standard MS1525: Code of Practice on Energy Efficiency and Use of Renewable Energy for Non-Residential Buildings; Eligible for 8 Hours CDP for Registered Electrical Energy Manager (REEM) by **Energy Commission**
- Energy Efficiency Management for Air-Conditioning and Mechanical Ventilation (ACMV) System:

Eligible for 8 Hours CDP for Registered Electrical Energy Manager (REEM) by **Energy Commission** 

Energy Audit in Building;

Eligible for 10 Hours CDP for Registered Electrical Energy Manager (REEM) by **Energy Commission** 

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The Sustainable Energy Development Authority (SEDA) Malaysia is a statutory body formed under the Sustainable Energy Development Authority Act 2011 [Act 726]. The key role of SEDA is to administer and manage the implementation of the feed-in tariff mechanism which is mandated under the Renewable Energy Act 2011 [Act 725].

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#### SEDA Publication No:

SEM Volume 5 Issue 12 Tri-annual Publications

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> Conceptualised, produced and published for Sustainable Energy Development Authority (SEDA) Malaysia

By Hijau Setiajaya Sdn Bhd (1197440-P)

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> Printed by: Mercprint Sdn Bhd (1106010-H)

No.18 & 20, Jalan Pbs 14/13, Kawasan Perindustrian Bukit Serdang, 43300 Seri Kembangan, Selangor.



# A Glorious Decade

ince the Ninth Malaysia Plan (2006-2010), Malaysia has started numerous initiatives to increase the share of use of non-fossil fuel energy. Subsequent Malaysia Plans saw the deployment of these initiatives including the Feed-in Tariff (FiT) mechanism, spearheaded by SEDA Malaysia in conjunction with the National Renewable Energy Policy and Action Plan (NREPAP), implemented during the Tenth Malaysia Plan (2011-2015). The country's green growth for sustainability and resilience was the main objective under the Eleventh Malaysia Plan (2016-2020).

During the tabling of the Twelfth Malaysia Plan (2021-2025) recently, Prime Minister YAB Dato' Sri Ismail Sabri bin Yaakob announced that the Government pledged to transform Malaysia into a carbon neutral country by 2050 at the earliest as well as introducing other measures to accelerate green growth. To boost the renewable energy (RE) generation, the contribution of solar, biomass and biogas is targeted to increase to 31%.

The Ministry of Energy and Natural Resources (KeTSA) is confident that through RE programmes such as Large Scale Solar (LSS), Feed-in Tariff (FiT), Net Energy Metering (NEM), Self-Consumption (SELCO) and New Enhanced Dispatch Arrangement (NEDA), in which SEDA Malaysia contributed through NEM and FiT programmes, Malaysia is on course to realise its targets and commitments. Case in point, as of December 2020, RE generation in the installed capacity mix has reached ~23% or 8.45GW with approximately 20,000 jobs created.

Apart from accelerating the green growth, the power sector is being heralded as one of the areas to accelerate the economy post-pandemic. The boosted national RE target also supports ASEAN's aspiration in realising 35% of RE in the capacity mix while demonstrating Malaysia's good governance in managing RE projects thus far.

In this special edition of SEM magazine, I wish to extend our heartiest congratulations to SEDA Malaysia on your 10th anniversary. The Authority's dedication and hard work have been instrumental in the development of sustainable energy in the country. The Ministry looks forward to SEDA Malaysia's continued commitment in the development of sustainable energy, for the betterment of the country and the well-being of the Rakyat.

#### YB DATUK SERI TAKIYUDDIN BIN HASSAN

MINISTER

THE MINISTRY OF ENERGY AND NATURAL RESOURCES (KeTSA)





limate change and its impacts have been long-standing issues that continue to be an urgent global priority to this day, and embracing renewable energy (RE) transition has long been Malaysia's tradition to address this threat. In view of the country's commitment to Paris Agreement 2015 and our national decarbonisation agenda, the need to shift to RE has become more imminent.

Over the last few years, Malaysia has taken a progressive step in transitioning from fossil fuels to RE. The advancement in the clean energy transition was the result of the several legislations tabled, such as the Fifth Fuel Policy, Renewable Energy Act (RE Act 2011), and the Sustainable Energy Development Authority Act 2011 [Act 726] where SEDA Malaysia is established, carrying the mandate of developing and promoting RE and energy efficiency (EE) measures in the country.

The establishment of SEDA Malaysia has brought on positive improvement and expansion of the country's sustainable energy (SE) landscape over the last decade. The Authority has efficiently managed and deployed the Ministry's SE programmes and initiatives, while continuously building new strategic partnerships with domestic and international stakeholders to diversify and complement our existing SE portfolio, and advocate the public towards accepting responsibility in a paradigm shift towards living sustainably.

The RE industry remains resilience in spite of the recent challenges brought on by the COVID-19 pandemic and this proves that SEDA Malaysia, being the leading agency in spearheading the country's SE agenda, has successfully ensures the smooth operation of the energy sector and thus safeguards the continuous flow of RE supply to the national grid. Well done, SEDA Malaysia!

Where we are right now, Malaysia is progressing from strength to strength in our clean energy transition and subsequently contributes to the global efforts to combat climate change. I have high expectations for SEDA Malaysia being at the forefront of developing the country's SE industry further moving forward.

Happy 10th anniversary SEDA Malaysia!

YB DATUK ALI ANAK BIJU

**DEPUTY MINISTER** 

THE MINISTRY OF ENERGY AND NATURAL RESOURCES (KeTSA)





# An Empowering Presence

t gives me great pleasure to share my thoughts in this special edition of Sustainable Energy Magazine (SEM) to commensurate the 10th anniversary of the establishment of the Sustainable Energy Development Authority or better known as SEDA Malaysia.

SEDA Malaysia was founded as a dedicated agency to oversee the implementation of the Feed-in Tariff (FiT) mechanism in Malaysia. The implementation of FiT is part of the Government's greater aspiration to diversify the country's energy mix in power generation, through the sustainable utilisation of indigenous renewable energy (RE) resources.

The total RE installed capacity from localised generation in electricity supply was approximately only 105MW during the pre-FiT period.

Fast forward to today, the RE landscape in Malaysia has transformed tremendously since the implementation of FiT in 2011. The total RE installed capacity from localised generation has increased to approximately 2,400MW, in which 639MW or ~26.6% are from RE projects in operation under the FiT mechanism. Local industries, which support the implementation of FiT projects along with the renewable energy supply and value chain, have grown and flourished.

It goes to show that FiT under SEDA Malaysia has played a pivotal role in spearheading RE development in Malaysia. The FiT mechanism has successfully created new sources of economic growth for the country, creating new local jobs and economic activities as well as nurturing a pool of entrepreneurs, and RE experts in various fields including solar, biomass, biogas and small hydro. SEDA Malaysia is also instrumental in providing the needed human capital development training for RE implementation in Malaysia. SEDA Malaysia has successfully trained 11,557 persons in RE since year 2011.

I commend SEDA Malaysia for its achievements over the past decade. I hope that SEDA Malaysia will continue to strive and aim to be at the forefront of RE development in the country.

Congratulations SEDA Malaysia on your 10th anniversary!

#### YBHG. DATUK ZURINAH BINTI PAWANTEH

SECRETARY-GENERAL
THE MINISTRY OF ENERGY AND NATURAL RESOURCES (KeTSA)



# The Magnificent 10

EDA Malaysia was established on 1st September 2011 with the mandate to promote the sustainable energy industry in the country, on top of being the implementer for the Feed-in Tariff (FiT) mechanism.

Since the establishment of SEDA Malaysia, a host of achievements were made and countless challenges were resolved over the last decade. As the leading agency in the administration and implementation of the FiT mechanism and the Net Energy Metering (NEM) scheme, the Authority takes its role to heart in ensuring the full utilisation of renewable energy (RE) resources to meet the target set by the Government; 31% of installed RE capacity mix by 2025.

SEDA Malaysia is also making an impact through energy efficiency (EE) initiatives such as the Zero Energy Building (ZEB) Programme and the Energy Audit Conditional Grant (EACG), among others, which complement our currently-running RE programmes. With the deployment of both the RE and EE programmes by the Authority, I believe we are on the right track to promote sustainable energy measures as part of the solutions towards achieving energy security and autonomy.

As much as the past decade has been a significant milestone for SEDA Malaysia, the coming years pose a bigger and greater responsibility for us. The Authority hopes to continue realising the sustainable energy agenda in the country through various programmes and initiatives introduced by the Government.

With the continued support from stakeholders, industry players and the state governments, SEDA Malaysia is confident of its strength in overcoming the challenges ahead in making the aspirations set in the national sustainable energy agenda a reality.

Happy 10th Anniversary SEDA Malaysia!

YBHG. DATO' HAMZAH BIN HUSSIN
CHIEF EXECUTIVE OFFICER
SEDA MALAYSIA





# With Compliments

SPECIAL NOTES FROM

# **AUTHORITY MEMBERS**



It gives me great pleasure to congratulate SEDA Malaysia on its 10th Anniversary. This is indeed a momentous occasion for SEDA Malaysia as we reached the first decade of operations! I applaud everyone, the past and present, for their undivided commitment in bringing the Authority's vision to life. Let's move forward and achieve another decade of achievements.

YBHG, DATUK IR, AHMAD FAUZI BIN HASAN

It is known that the success of an organisation lies on the combined efforts of every individual. Therefore, it has been a pleasure working alongside staff, management and other Authority Members of SEDA Malaysia who are dedicated in steering the nation towards a more environmentally sustainable future, and may this synergy continues moving forward.

YBHG. DATUK HANG TUAH BIN DIN @ MOHAMED DIN



Since its inception, SEDA Malaysia has gone through leaps and bounds to be where it is today – playing the all-important role in shaping the country's sustainable energy landscape. The journey may not have been easy, but it has been fulfilling indeed. Let's look forward to more successes in the years to come.

YB. DATO' HAJI MOHD SALIM BIN SHARIF @ MOHD SHARIF





We started small, but today SEDA Malaysia has become a leading agency in championing the country's energy transition over the past decade. Reaching the 10th year mark is an achievement to be very proud of, and I look forward to another decade of success. Happy anniversary!

YBHG. DATIN SETIA NIK ROSLINI BINTI RAJA ISMAIL

Happy anniversary to SEDA Malaysia! This special occasion not only commemorates the inception of the Authority, but also celebrates our past glories and future achievements. May our journey of corporation success continue even in the years to come.

YBRS. PUAN USHA NANDHINI JAYARAM

# BEACON OF SUSTAINABLE A G E N D A

The 29.667MWp rooftop solar PV system installed at Xinyi, Malaysia's largest project under NEM 2.0 programme.



# YEAR 2000 - 2010 THE EARLY YEARS

The Malaysian Fifth Fuel Policy was initiated since the year 2000, triggered the country's sustainable energy (SE) agenda, namely the generation of electricity via renewable resources. In the early years, Malaysia undertook renewable energy (RE)related programmes, namely the Small Renewable Energy Power Programme (SREP); the Biogen Full-Scale Model Demonstration Project (Biogen FSM); the Malaysia Building Integrated Photovoltaic Project (MBIPV); and the Centre for Education and Training in Renewable Energy and Energy Efficiency (CETREE). Lessons learnt from the implementation and the challenges of these RE-related programmes yielded an important conclusion: Malaysia was in need of a policy with a dynamic action plan. On 2nd April 2010, the then Cabinet approved the National Renewable Energy Policy and Action Plan (NREPAP), setting Malaysia's SE agenda into a higher gear.

The NREPAP is critical to provide a clear policy regarding RE development and the accompanying approaches to achieve the national targets set. It is a convergence of energy, industry, environment, green technology and information dissemination policies. It also provides the market with clear signals, which are translated into investment decisions by businesses. This unambiguous and robust policy is necessary to overcome business inertia, which can act as an impediment to change.

Out of the NREPAP emerged the Renewable Energy (RE) Act 2011 [Act 725], which was passed in Parliament on 27th April 2011, to provide for the establishment and implementation of the Feed-in Tariff (FiT) mechanism to boost the RE generation and to provide for any other related matters. The FiT is fundamental to the success of Malaysia's RE policy and the cornerstone of RE industry development for the country.







By guaranteeing access to the grid and setting a favourable price per unit of energy generated, the FiT mechanism ensures that RE becomes a viable long-term investment for companies, industries and even individuals.

- The 1.5MW Sri Jelutong Biogas Power Plant, Pahang.
- A 170.2kWp solar photovoltaic (PV) system under FiT programme on the rooftop of Suria KLCC shopping mall.
- A 2.5MW biogas plant at Tenaga Sulpom Sdn. Bhd., Dengkil, Selangor.

Compared to other RE policies, the FiT mechanism has the highest number of countries adopting it due to its effectiveness and efficiency. The FiT mechanism in Malaysia, launched on 1st December 2011, obliges the Distribution Licensees (DLs) to buy RE from Feed-in Approval Holders (FiAHs). The rates to be paid are as set out in the Schedule of the RE Act 2011. For a specific time, DLs would pay for each unit of renewable energy supplied to their respective electricity grids. By guaranteeing access to the grid and setting a favourable price per unit of energy generated, the FiT mechanism ensures that RE becomes a viable long-term investment for companies, industries and even individuals. The effective period or duration in which the RE can be sold to DLs depends on the type of indigenous resource.

The RE Act 2011 also facilitates the formation of the RE Fund which is to finance the implementation of the FiT mechanism. Provided under Section 23 of the law, it is derived through the collection of a certain percentage from the total electricity bill invoiced by the DLs such as Tenaga Nasional Berhad to their consumers. However, domestic electricity consumers who are using 300kWh and less of electricity per month are exempted from contributing to the RE Fund. It is based on a 'polluterpays' concept, where the ones who pollute the most, pay the most. The Government has provided a grant of RM300 million as the initial RE Fund to expedite the implementation of the FiT mechanism in Malaysia.



## YEAR 2011 - 2015 **ENTERS SEDA MALAYSIA**

With the introduction of the FiT mechanism and the RE Fund into the development of Malaysia's RE sector, the formation of an implementing agency to oversee them is imminent. SEDA Malaysia was then established as a statutory body on 1st September 2011. It was mandated under the Sustainable Energy Development Authority Act 2011 [Act 726]. SEDA Malaysia, among other things, has the main role of administering and managing the implementation of the FiT mechanism. This was mandated under the RE Act 2011.

SEDA Malaysia officially opened its main office in Putrajaya on 22nd November 2011. The first quota for the FiT mechanism was released via an e-FiT online system on 1st December 2011 at 12:01am. The total quota offered was for a period from the point of launch until the first half year of 2014. SEDA Malaysia has allocated a total of 505MW guotas for various RE resources. The allocation made was 190MW each for the year 2011/2012 and 2013, while for the first half of 2014, a total of 125MW was offered for applications by prospective RE developers.





The official launching of SEDA Malaysia, which took place in 2012.

#### **TABLE ON FIT QUOTA 2011**

YEAR	BIOGAS SEWAGE	BIOGAS	BIOMASS	BIOMASS - SOLID WASTE	SMALL HYDRO	SOLAR PV < 1MW	SOLAR PV > 1MW	TOTAL (MW)
	MW	MW	MW	MW	MW	MW	MW	
2011/2012	20	10	60	20	30	10	40	190
2013	20	10	50	30	30	10	40	190
H1 2014	10	5	25	15	45	5	20	125





Apart from the FiT mechanism and the RE Fund to promote the widespread deployment of RE resources, SEDA Malaysia is also entrusted to implement energy efficiency (EE) projects mandated and authorised by the Government. EE is a key element of a good SE policy. By making the commitment towards EE, changes have been made in the way energy is supplied and used.

- On 7th November 2012, SEDA Malaysia launched its inaugural International Sustainable Energy Summit (ISES).
- The solar photovoltaic (PV) system installation on the roof of JAKIM building in Putrajaya, one of the Government-owned buildings selected for GLBE project.

Apart from the FiT mechanism and the RE Fund to promote the widespread deployment of RE resources, SEDA Malaysia is also entrusted to implement energy efficiency (EE) projects mandated and authorised by the Government. EE is a key element of a good SE policy. By making the commitment towards EE, changes have been made in the way energy is supplied and used. Opportunities for improvement on the demand side of the energy equation are as diverse as those on the supply side, and often provide significant benefits.

SEDA Malaysia also undertook two EE-related projects during its inception year. The first project is the Government Lead By Example (GLBE), where the Government will spearhead the practice in efficient use of energy in Government-owned buildings. The second project is the Sustainability Achieved Via Energy Efficiency (SAVE) programme through smart collaborations with the key stakeholders including the Energy Commission (EC), Public Works Department, SIRIM, Sabah Electricity Sdn. Bhd. (SESB) and SESCO Berhad as well as brand owners of selected home electrical appliances and also retailers throughout Malaysia. The SAVE programme is a pilot initiative to increase sales of energy efficient appliances by providing rebates to purchase 5-Star energy efficient-rated home appliances namely refrigerators and air-conditioners. and the installation of energy efficient chillers for commercial buildings. The programme was launched on 7th July 2011.





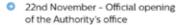
- In 2012, SEDA Malaysia participated in IGEM and was able to leverage on the trade event for greater exposure and shared with visitors the core functions of the Authority, which spans over administrating the Feed-in Tariff (FiT), the implementation of the SAVE programme under the EPP 9, the promotion of Solar Rooftop Programme and trainings for renewable energy technologies.
- A SEDA Malaysia's officer addressing inquiries from the public during IGEM 2012, which attracted over 61,000 trade visitors, and an apt platform for the Authority to promote awareness on sustainable energy.

The year 2012 marked another milestone for SEDA Malaysia. It was a year where SEDA Malaysia expanded its reach into human capital investment. Being a knowledge-based organisation, SEDA Malaysia is also tasked to increase the human capacity development in the RE industry. This includes addressing the competency gap for solar PV technology, conducting workshops on biomass, biogas, and small hydro. The year 2012 also saw SEDA Malaysia's collaboration with Universiti Teknologi MARA (UiTM) and Selangor Human Resource Development Centre (SHRDC) to conduct the ISPQaccredited training course on the design of grid-connected PV systems. In the same year, SEDA Malaysia targeted to initiate the solar PV training course for chargeman and wireman, and the solar PV training course for solar PV installers by 2013. On 7th November 2012, SEDA Malaysia launched its inaugural International Sustainable Energy Summit (ISES) that has become the key knowledge and networking platform for the SE industry and investors. The ISES 2012 was a resounding success, attended by nearly 400 participants including members of the press with renowned international, regional, and local speakers. The ISES was made a biennial event. On 7th November 2012, SEDA Malaysia also inked a Memorandum of Understanding (MoU) with Perak Hi-Tech Park Sdn. Bhd. (PHTP) on small hydro technology. The year also saw the Authority initiate the Retrofitting and Energy Efficiency

Programme of Government Buildings. The programme involved Ministry of Natural Resources and Environment (MNRE) and the Malaysian Administrative Modernization and Management Planning Unit (MAMPU). Subsequently, MAMPU registered a total electricity savings of RM76,804.00 while the MNRE recorded savings of RM145,276.00 between July 2012 and November 2012.

SEDA Malaysia then continued to register landmark achievements in the coming years. The year 2013 saw various training modules related to Grid-Connected Photovoltaic (GCPV) Design Systems were published. Similarly, modules for EE and Energy Management were published in the same year too. The Authority also established an Energy Demand Management Unit in 2013. Collaborations with higher learning institutions and research institutes were made in 2013, appointing them as training partners in the efforts to raise the level of competency in RE-related areas for Malaysia's labour force. The solar PV sector received a shot in the arm in 2014 when the Authority introduced the New Quota Allocation Mechanism for solar PV for non-individual applicants. SEDA Malaysia completed its Government Lead By Example (GLBE) Project - GCPV Systems Installation at selected 25 government buildings in Putrajaya in 2015.





- 1st December Implementation of the Feed-in Tariff in Malaysia via e-FiT online system (First Quota release)
- Implementation of the Entry Point Project (EPP 9) under the Oil, Gas and Energy (OGE) National Key Economic Areas (NKEA) Economic Transformation Programme (ETP): Government Lead By Example (GLBE) for 105 Government entities
- Sustainability Achieved Via Energy Efficiency (SAVE) programme



- Introduction of RE Industry Directory
- 24th September
   – Implementation of Solar Rooftop Programme (under FiT scheme)
- 7th November MoU with Perak Hi-Tech Park Sdn. Bhd. (PHTP) on Small Hydro technology
- Retrofitting and Energy Efficiency Programme of Government Buildings involving Ministry of Natural Resources and Environment (MNRE) and the Malaysian Administrative Modernization and Management Planning Unit (MAMPU)
- 7th and 8th November Inaugural ISES



2012





Established Energy Demand Management (EDM) unit

 Development of Sustainable Low Carbon Building Framework and Guidelines

 Published Energy Efficiency and Energy Management Modules



2013

# 2014

#### Implementation of New Quota Allocation Mechanism for solar PV for non-individual applicants

- A balloting mechanism for solar PV with rated capacities up to 425kW
- A merit-point system was adopted to allocate quota for FiA applications received manually for solar PV with rated capacities above 425kW up to and including 1MW:
  - 16th July Solar PV quota released for community
  - · Gazetted FiT for Geothermal category
- 18th and 19th March 2nd ISES
- Introduction of Registered PV Service Provider (RPVSP) Directory
- Demonstration Project under United Nations
   Development Programme (UNDP) -The Building Sector
   Energy Efficiency Project (BSEEP) at the Authority's Low
   Energy Office (Branch office: Kota Kinabalu)
- Appointed as one of the key members in the Building Sector Energy Efficiency Project Technical and steering Committee at the national level

- Completion of Government Lead By Example (GLBE) Project – GCPV Systems Installation at selected 25 Government Buildings in Putrajaya
- Initiation of Low Carbon Building Facilitation Programme for Local Authorities, State Governments and Government Agencies
- Development of a Low Carbon ICT Guide: Energy and Carbon Emission Baseline Study of Typical Government Data Centres
- Study on Energy and Carbon Emission Baseline Study of the Malaysian Telecommunications (TelCo) Sector
- Establishment of Energy Audit in Building Reference (for commercial buildings)



2015



# 2020

- SEDA Malaysia has activated its corporate social responsibility (CSR) initiatives to support Malaysians combating the COVID-19 pandemic and those whose livelihood are affected by the current situation and the MCO
- Participated in the Second Malaysia Energy Roundtable (MER), which is part of the World Economic Forum's (WEF) Energy Programme in ASEAN, to deliberate on the priorities of Malaysia's energy transition including the high-level principles of Malaysia's National Energy Policy
- Jointly organised a webinar with the International Renewable Energy Agency (IRENA) to deliberate on innovations for a decentralised renewable powered system.





Anniversary



# 2019

- Continuation of e-bidding for Biogas and inaugural e-bidding for small hydro
- The launching of NEM calculator to assist the public in estimating their investment costs in solar PV system under the NEM
- Introduction of new financing mechanisms for rooftop solar PV such as solar leasing and power purchase agreement (PPA)
- SEDA Malaysia established a new directory in 2019 for PV investors
- SEDA Malaysia facilitated an increasing number of local authorities (such as Kuala Lumpur City Hall, Petaling Jaya City Council, Shah Alam City Council, Sepang Municipal Council, Hang Tuah Jaya Municipal Council, Putrajaya Corporation, and others) through capacity enhancement and facilitation on development of low carbon cities
- SEDA Malaysia is also involved in a city-to-city collaboration between Kuala Lumpur City Hall and Tokyo Metropolitan Government in which the Authority and UTM represent local technical partners whilst the Institute for Global Environmental Strategies (IGES) represent technical partner from Japan. This facilitation programme is funded by the Ministry of Environment Japan
- SEDA Malaysia has been mandated to develop the Renewable Energy Transition Roadmap (RETR) 2035



- Inaugural e-bidding for Biogas
- Introduction of NEM 2.0 programme
- SEDA Malaysia has fulfilled the target set for commercial buildings and achieved a cumulative total of 44 approved applications under EACG programme
- SEDA Malaysia has completed two studies: one on Low Carbon Island Model Desktop Study (LCIMDS) which showcased Langkawi as a low carbon Island in Malaysia and another study on On-Site Waste Management and Waste Characterisation in Cyberjaya
- The 4th ISES 2018

2018

- 28th January Inaugural e-Balloting on Solar Photovoltaic (PV) Applications for Individuals
- 5th and 6th April 3rd ISES
- 1st November Implementation of Net Energy Metering (NEM) programme
- Completion of Comprehensive Wind Mapping at selected sites in Malaysia
- Published Solar Irradiation Data for Malaysia
- Appointed as implementing agency for Energy Audit Conditional Grant (EACG) for Commercial Buildings (Under 11th Malaysia Plan)
- Development of Sustainable Low Carbon Building Assessment by using Green Performance Assessment System (GreenPASS) under the Construction Industrial Standard (CIS 20)
- Appointed as the lead consultant for Mitigation Projects from United Nations Development Programme (UNDP) - Green Technology Application for the Development of Low Carbon Cities (GTALCC)

- The Implementation of MySuria programme
- 500MW of FIT projects Achieved Commercial Operation in June
- First National Steering Committee (NSC) Meeting for GTALCC Project
- Inaugural Sustainable Energy Malaysia (SEM) Magazine

2017

2016







NEM 1.0 programme - a 675.3kW solar PV system installed on the buildings of Lean Lee Trading Company Sdn. Bhd.

# YEAR 2016 THE HALFWAY MARK

As SEDA Malaysia approached the halfway mark of its 10th anniversary, the Authority has added a host of feathers in its cap. Between the year of its inception in 2011 and 2016, the Authority has strategically deployed numerous programmes, training modules and policies to keep the development of Malaysia's RE as well as the EE sectors abreast with the current needs and challenges.

Among the notable events of the year 2016 were the Energy Audit Conditional Grant (EACG) where SEDA Malaysia is the implementing agency for commercial sector; the inception of the Green Technology Application for the Development of Low Carbon Cities (GTALCC) project; the maiden e-Balloting on Solar PV Applications for Individuals on 28th January 2016; completion of Comprehensive Wind Mapping at selected sites in Malaysia, and the Geothermal Assessment Study (Magnetotelluric Study) in Ulu Slim Perak; and the implementation of Net Energy Metering (NEM) programme.

The NEM programme has come into the picture following the overwhelming response from the stakeholders, particularly from the solar PV segment, for the FiT mechanism. With the NEM programme in place, those who generated electricity via solar PV resource are allocated with their quota via such a programme, while the biogas, biomass and mini hydro industry players secured theirs through the FiT mechanism.

Between the year of its inception in 2011 and 2016, the Authority has strategically deployed numerous programmes, training modules and policies to keep the development of Malaysia's RE sector abreast with the current needs and challenges.



The Authority has conducted various facilitations, trainings, and capacity building programmes for the purpose of knowledge improvement and to address the human capital needs in the area of SE in Malaysia.



Starting from 1st November 2016, the then new NEM programme was deployed to complement the successful FiT mechanism. Under the NEM programme, the electricity produced from the solar PV system installed will be consumed in situ by building owners and any excess of the generated electricity will be exported and sold to the DL such as Tenaga Nasional Berhad and SESB at the prevailing displaced cost as prescribed by the Energy Commission. As NEM helps to reduce consumption of imported electricity from the utility companies, it is an energy efficient as well as an energy cost savings measure.

Energy transition has become the buzzword for 2016. It is a global phenomenon as more countries are jumping into the bandwagon. Many countries adopted high RE targets in their future energy mix. During the 22nd Conference of the Parties (COP 22) to the United Nations Framework Convention on Climate Change (UNFCCC), a total of 47 developing countries pledged to transit to 100% RE. Even companies have pledged to do the same by a certain period. Malaysia ratified the Paris Climate Agreement along with the deposition of instrument with the UN Headquarters in 2016. Malaysia's Nationally-Determined Contribution (NDC) is to reduce the country's greenhouse gas (GHG) emissions intensity of Gross Domestic Product (GDP) by 45% by the year 2030 relative to 2005 levels. This consists of 35% on an unconditional basis while a further

10% is conditional upon the receipt of support from developed countries in terms of climate finance, technology transfer and capacity building.

At the regional front meanwhile, the meetings at the ASEAN level in 2016 also concluded on a high note with renewed affirmation for the need for stronger energy cooperation towards connectivity and integration in the spirit of the ASEAN Economic Community. In particular, the inception meeting between ASEAN Centre of Energy (ACE), International Renewable Energy Agency (IRENA) and Renewable Energy Support Programme (RESP) in Manila, Republic of the Philippines, on 14th March, looked into the development of an RE Outlook for ASEAN- REmap Analysis to support the RE energy target of 23% by 2025.

Malaysia's greater commitment on energy transition at the international level as well as at the regional level raised further the importance and significance of SEDA Malaysia in the nurturing and development of the SE sector in the country.

By the end of 2016, the Authority had approved 3,825 Feed-in Approval (FiA) applications, representing 232.0434MW of RE installed capacities. This represented a year-on-year growth of 20.11%, with solar PV for individuals as the largest contributor for the number of applications with 3,448 applications. In

terms of approved RE installed capacities, small hydro was the largest contributor with 73.65MW, followed by solar PV for non-individual with 65.9450MW, geothermal with 37MW, biogas with 33.3480MW, solar PV individual with 32.1940MW, biomass with 23.50MW, and lastly solar PV community with 3.4064MW. The cumulative number of FiA applications approved increased to 11,264, representing 1,386.3634MW of approved RE capacity for the year under review.

Efforts towards fulfilling the nation's RE agenda gained an additional boost in 2016 as talks on formulating Malaysia's RE Transition Roadmap were triggered during the year. The initial stage of formulating the roadmap saw the Authority providing inputs for Malaysia's energy transition from fossil fuel to sustainable RE to the then Ministry of Energy, Green Technology and Water (MESTECC).



## YEAR 2017 - 2019 EXPANSION OF SPECIALISED SERVICES

The year 2017 saw the technical expertise in EE from the SEDA Malaysia's energy demand management (EDM) unit propelled the Authority's name to new heights. SEDA Malaysia oversaw six programmes under the EE mechanism in 2017 due to high demand from the industry. In one of the programmes – Low Carbon Building Facilitation Programme – the Authority was honoured to be able to work with the Selangor State Economic Planning Unit (UPEN) to promote energy efficiency and create awareness to the public.

SEDA Malaysia's trade journal dubbed as the Sustainable Energy Malaysia (SEM) also made its debut in 2017. The quarterly magazine provided a platform for SEDA Malaysia's to interact with its stakeholders on the latest developments of Malaysia's SE sector as well as alerting them on the available services extended by the Authority.

A history was made in the FiT domain in 2018. For the first time, the biogas quota for the year was released based on an e-bidding concept. This aligned with the call by the then Ministry to improve price discovery of the tariff offered by the FiT. The inaugural e-bidding for 30MW of biogas at the end of 2018 was a success. The Authority received 28 bids with a total capacity of 51.80MW. The range of basic bid tariff (excluding bonuses) submitted by the bidders was from RMO.2210/kWh to RMO.3184/kWh while the ceiling basic bid tariff was RMO.3184/kWh. Another landmark development was made

- SEDA Malaysia is in-charge of promoting public participation and improving public awareness on matters related to sustainable energy in the country (taken from National Science Week 2019)
- The SEM magazine aims to provide an update to the Authority's stakeholders on a regular basis, and provide latest information related to both renewable energy and energy efficiency.
- One of the Authority's roles is implementing measures to promote on matters related to sustainable energy through the annually held SEDA Open Day.

The quarterly magazine provided a platform for SEDA Malaysia's to interact with its stakeholders on the latest developments of Malaysia's SE sector as well as alerting them on the available services extended by the Authority.

- SEDA Malaysia's Sustainable Energy Malaysia (SEM) trade journal





for the NEM programme which posted a passive performance in 2018.

Besides the FiT mechanism, the Net Energy Metering (NEM) as at end of 2018 continued its moderate performance. The total NEM applications approved was 520 applications with total capacity of 27.81MW while the total projects achieving operation was 223 with total capacity of 9.01MW, leaving a balance of 472.19MW of NEM quota which would be available until the end of 2020. In October 2018, the Government made an important announcement to enhance the NEM concept to allow excess solar electricity to be compensated on a one-onone offset basis instead of the displaced cost. This paved the way for the implementation of NEM 2.0 on 2nd January 2019. Expectations were high then that there would be an improved take up rate with the NEM 2.0 in place.

With the NEM 2.0, a total of 1,252 applications, representing 102.41MW of NEM, was approved in 2019, bringing the cumulative approved capacity of NEM to 130.21MW. The response for the NEM programme in the year alone was overwhelming, with an increase of nearly 3.68 times the total capacity approved from 2016 to 2018.

The e-bidding for the FiT quota expanded to include small hydro industry players in 2019. SEDA Malaysia also launched the NEM calculator in 2019 to assist the public in estimating their investment cost should they invest in the solar PV system under the NEM 2.0. In addition, the year also saw SEDA Malaysia establish a new 2019 directory for PV investors.



- 1. SEDA Malaysia launched the NEM calculator to assist the public in estimating their capital investment and savings from their rooftop PV
- 2. A full house with an enthusiastic crowd during the Awareness Briefing Session on NEM programme







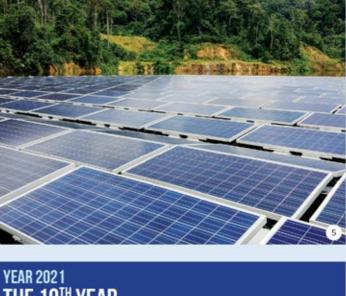
# YEAR 2020 BUSINESS AS USUAL UNDER NEW NORMAL

The year 2020 caught the world by surprise. The COVID-19 pandemic altered so many routines that a new normal emerged from the global outbreak. As the implementing agency of numerous RE and EE policies and programmes, SEDA Malaysia does not have the luxury to keep its activities and operations on hold. Its operations are crucial for Malaysia's RE agenda. SEDA Malaysia activated its business continuity plan during the movement control order (MCO) period. It initiated several virtual meetings with the RE industry players, conducted capacity building activities, and public awareness programmes. The challenging year saw SEDA Malaysia participated in the Second Malaysia Energy Roundtable (MER), which is part of the World Economic Forum's (WEF) Energy Programme in



ASEAN, to deliberate on the priorities of Malaysia's energy transition including the high-level principles of Malaysia's National Energy Policy. It managed to jointly organise a webinar with the IRENA to deliberate on innovations for a decentralised renewable powered system.

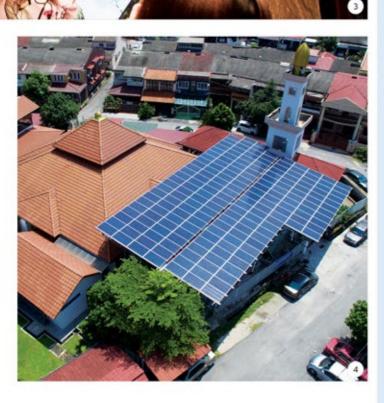
By the end of the year, the entire NEM 2.0 quota of 500MW was exhausted, way ahead of its closing date, which was end-2020. Anticipation was high then among the RE industry players that the NEM 3.0 will be introduced. On 29th December 2020, the NEM 3.0 was announced by the Government with a fresh 500MW quota to be offered. The application for the quota under the NEM 3.0 was set to begin in phases starting from 1st February 2021 and will end 31st December 2023. Unlike the NEM 2.0, which was categorised into four categories, namely Residential, Commercial, Industrial and Agriculture, the NEM 3.0 is divided into three programmes, namely NEM Rakyat, NEM Government Ministries and Entities (GoMEn) and Net Offset Virtual Aggregation (NOVA).





The early part of the year 2021 saw SEDA Malaysia launched the Sustainability Achieved Via Energy Efficiency (SAVE) 2.0 programme to encourage consumers to buy energy efficient refrigerators and conditioners. Initial responses to the NEM 3.0 indicated that local RE industry players are keen to be part of the circular economic activities.

SEDA Malaysia is celebrating its 10th year anniversary on 1st September 2021. The outlook for the RE industry remains challenging but the prospects are bright as the world steps up its energy transition efforts to address climate change and greenhouse gas emission issues. SEDA Malaysia is also finalising Malaysia Renewable Energy Roadmap 2035 (formerly known as Renewable Energy Transition Roadmap 2035). The roadmap is planned to pave the direction towards realizing the national RE target towards low-carbon power sector. The Roadmap is a formulation of strategic framework and calls for concerted and coordinated actions between various stakeholders in enabling Malaysia to tap into the huge potential made available through RE projects in promoting for improved economic, environmental and social outcomes.



- 1. The 6MW Amcorp Perting Hydro site, Bentong, Pahang under FiT programme.
- 2. Cenviro through its subsidiary Kualiti Alam Sdn. Bhd., owns and operates Malaysia's first integrated Waste Management Centre in Negeri Sembilan, which has been in operation since 1998.
- 3. One of the most successful event, the 4th ISES 2018. The Summit broke its own record with more than 900 attendees on the first day: 77 thought leaders around the globe were invited as Speakers and Chairs.
- 4. As a FiAH Community under community quota, Surau Darussalam in Ampang, Selangor is entitled to sell renewable energy (RE) at the Feed-in Tariff (FiT) rate.
- 5. Sterling Fiesta Sdn. Bhd.'s 270kW Floating Solar.



# Strategic liaison

for Future Success

On behalf of the ASEAN Centre for Energy, let me begin by expressing my deep appreciation to Mr Lukanisman Awang Sauni, the Chairman of SEDA Malaysia and congratulations for SEDA Malaysia on the celebration the 10th anniversary. I believe SEDA Malaysia will continue grow stronger with the spirit of SEDA Malaysia vision, "To promote the deployment of sustainable energy measures as part of the solutions towards achieving energy security and autonomy".

As Malaysia is currently the coordinator for the ASEAN Renewable Energy Sub-sector Network (RE-SSN). I hope that ACE and SEDA Malaysia will continuously work together to support the implementation of the ASEAN Plan of Action for Energy Cooperation (APAEC) Phase II: 2021 - 2025, especially in achieving the aspirational regional target of having 23% RE in Total Primary Energy Supply and 35% RE mix in the installed power capacity.

Thank you!

DR NUKI AGYA UTAMA EXECUTIVE DIRECTOR ASEAN CENTRE FOR ENERGY (ACE)









# **Trainings for Qualified Person/Technical**

- Grid-Connected Photovoltaic (GCPV) System Design
- Off-Grid Photovoltaic (OGPV) System Design
- Grid-Connected Photovoltaic (GCPV) for Wireman & Chargeman
- Grid-Connected Photovoltaic (GCPV) Installation and Maintenance
- Operation and Maintenance of Biogas Power Plant
- Continuous Development Programme for Continuous Development Programme (CDP) for SEDA Malaysia Grid-Connected Solar PV Systems Design Qualified Persons (QPs)

# **Awareness Trainings:**

 Introductory Training on Grid-Connected Photovoltaic (GCPV) System for Non-Technical Persons

For more information, please visit our website www.seda.gov.my



# Conquer the present, for Tomorrow and Beyond

The establishment of the Sustainable Energy Development Authority (SEDA) Malaysia in 2011 was a major milestone as it was a testament to Malaysia's determination in driving the agenda of sustainability for the sake of our society.

Much has been achieved by SEDA Malaysia in the last 10 years. These include the culmination of a mature solar photovoltaic (PV) industry with export capacity by the local solar PV service providers. In other words, Malaysia is no longer a mere exporter of solar manufactured goods.

In the last two years, we also witnessed the listing of three local companies with solar PV services as their core business. Meanwhile, our national installed solar PV capacity has increased from less than 30MW in 2012 to more than 1GW currently.

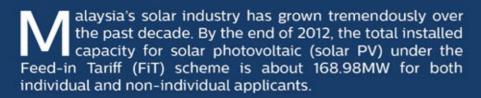
All this could not have been achieved without SEDA. Bravo and Happy 10th Anniversary!

DAVIS CHONG
PRESIDENT
MALAYSIAN PHOTOVOLTAIC INDUSTRY ASSOCIATION (MPIA)



# TRANSFORMING MALAYSIA INTO A SERIOUS

# SOLAR PLAYER



As of July 2021, the total installed capacity for solar PV recorded has skyrocketed to about 903.8846MW, a whopping 435% increase over 10 years.



### .: SUCCESS DRIVERS :.

From the surface level, it is no surprise for a tropical nation like Malaysia, which is blessed with abundant natural daylight, to experience exponential growth in the solar industry. However, the truth is government policies, and implementation by various stakeholders, play a larger role for any industry's growth.

When it comes to the Malaysian solar industry's success, part of the credit to the success goes to the implementing agency, the Sustainable Energy Development Authority (SEDA) Malaysia.

SEDA Malaysia, a statutory body formed under the Sustainable Energy Development Authority Act 2011 [Act 726], is authorised to realise a level of sustainability in energy production and usage, ensuring that the current energy requirements are met without compromising the ability of future generations to meet their needs.

Within the solar industry space, the Government introduced several initiatives to grow the industry, with two key initiatives being mandated to SEDA Malaysia as the implementer. These initiatives are the Feed-in Tariff (FiT) mechanism and the Net Energy Metering (NEM) programme.



The 16kW solar PV system on the rooftop of Galeria PjH in Putrajaya which houses the Authority's headquarters

Within the solar industry space, the Government introduced several initiatives to grow the industry, with two key initiatives being mandated to SEDA Malaysia as the implementer.

## .: FEED-IN TARIFF :.

FiT, which was introduced in 2011, allows its certified Feed-in Approval Holders (FiAH) to sell or export the excess energy to the national power grid at a recommended rate for a specific period.

Certified FiAH are entitled to benefits like the generation tariff and export tariff payment - where the producers get paid for the electricity generated and other incentives offered under the green technology and the renewable energy programmes.

During the early years, the sustainable energy resources eligible for the FiT scheme were biogas, biomass, small hydro and solar PV.

At the end of 2012, the total installed capacity of FiT applications for solar PV is 168.98MW, for both individual applicants (12.33MW) and non-individual applicants (156.65MW). By the end of 2013, this figure grew by 82% to 208.98MW, which make out of 26.28MW for the individual applicants and 182.70MW for the non-individual applicants.

In 2014, a new community category was added to FiT's solar PV application. During the same year, the total installed capacity is 252.28MW, a 20.7% increase from the previous

year. The individual applicants contributed 40.15MW, while the community contributed 1.72MW, and 210.41MW are from the non-individual applicants.

For 2015, the total installed capacity for solar PV grew by 28.7% compared to 2014 to 324.81MW. The individual applicants registered 60.54MW, while the non-individual applicants recorded 258.01MW and 6.26MW comes from the community applicants.

2016 is a remarkable year for the global solar PV industry. For the first time in history, the global solar PV installed capacity overtook wind in installed capacity. Solar PV recorded 71GW while wind registered 51GW. Likewise, in Malaysia, the total installed capacity for solar PV increased by 31.2% compared to the same period a year ago, to 426.42MW. 92.67MW are from the individual applicants, while the non-individual recorded 324.10MW and 9.65MW are from the community applicants.

Towards the end of 2016, a new programme was introduced to complement the successful FiT mechanism.

# .: NET ENERGY METERING (NEM) :.

### The Evolution

On 1st November 2016, a Net Energy Metering (NEM) mechanism was launched. The concept of NEM is that the electricity produced from the solar PV system installed will be consumed in situ by building owners and any excess of the generated electricity will be exported and sold to the Distribution Licensees such as Tenaga Nasional Berhad and Sabah Electricity Sdn. Bhd. (SESB) at the prevailing displaced cost as prescribed by the Energy Commission.







The 2.5MWp rooftop solar PV system installed at Goodyear Malaysia Bhd, Malaysia's project under NEM programme.

Malaysians can apply and install these solar PV systems on their homes, office buildings or even factories rooftop. Successful applicants of NEM programmes will not get cash in return for the excess electricity exported to the distribution system.

Instead, these applicants will enjoy lower electricity bills as the excess energy may offset part of the electricity bill. The NEM programme, also was known as NEM 1.0, had a low take-up rate with only 27.8MW installed capacity by the end of 2018. The low take-up rate was partly due to the expensive PV modules and the lack of awareness of solar PV.

The Authority then assessed the concern raised in the NEM 1.0 mechanism and addressed the issues by conducting awareness and engagement sessions to increase the service providers and provided a leasing model in the market, as more people understood better the potential in the nation's solar industry.

In 2019, the Ministry reviewed the price mechanism and reintroduced the programme as NEM 2.0. The Authority also introduced various supporting services to further promote the NEM mechanism. These include NEM Calculator; the Registered PV Service Providers (RPVSP); and the Registered Solar PV Investor (RPVI) Directory.

The NEM 2.0 revived the NEM applications, and the installed capacity shot up to 103.22MW in 2019 and 295.85MW in September 2020.

Correspondingly, the whole 500MW quota for NEM 2.0 was fully taken up ahead of its closing date at the end of 2020. Due to the overwhelming response for the NEM 2.0, the Ministry of Energy and Natural Resources (KeTSA) announced the launch of NEM 3.0 on 29th December 2020, giving a new 500MW quota to Malaysians by phases.

### The Birth of NEM 3.0

Application for NEM 3.0 had begun in phases starting from 1st February 2021, and will end on 31st December 2023. Unlike the NEM 2.0, which groups the applicants into four categories: Residential, Commercial, Industrial and Agriculture, the NEM 3.0 is categorised into three programmes. The programmes include NEM Rakyat, NEM Government Ministries and Entities (GoMEn) and Net Offset Virtual Aggregation (NOVA).

The NEM Rakyat is for the residential consumers occupying private dwelling premises and is not for business or commercial activities. A fresh 100MW quota has been allocated, and each applicant is entitled to a maximum capacity of 4kW for Single-phase power supply units and 10kW for Three-phase power supply units.

As for the NEM GoMEn, 100MW of quota was allocated for this. It is open to all ministries and agencies, their departments and government statutory bodies. It is for all levels of the administration, such as federal, state or district. The maximum capacity of the PV installation is limited to 1,000kW.

The NEM Rakyat and NEM GoMEn applications are opened to those who had not installed any solar PV systems under previous programmes.

Sustainable Energy Malaysia | Volume !

Meanwhile, the NOVA programme, specially targeted for commercial and industrial applicants, has begun receiving applications on 1st April 2021. The quota allocated is 300MW.

As of 2nd September 2021, 13.7743MW of the 100MW quota allocated for NEM Rakyat has been approved, while 13.4935MW of the 100MW quota allocated for the NEM GoMEn has been approved. The NEM NOVA has seen a tremendous response with all its 300MW allocation being applied, and 210.1027MW were approved.

With SEDA Malaysia's continuous effort in driving growth in the sustainable energy industry, including the solar industry, it will be possible to transform Malaysia into a regional, or even a global player in the solar industry. Solar PV may well be the best RE resources to tap for individuals, to do their parts in contributing to the national pursuit of raising the energy mix to 31% from renewable resources.

A fresh 100MW quota has been allocated, and each applicant is entitled to a maximum capacity of 4kW for Single-phase power supply units and 10kW for Three-phase power supply units.

- The NEM Rakvat



# MALAYSIA'S LEADING PV MONITORING & PERFORMANCE DATABASE

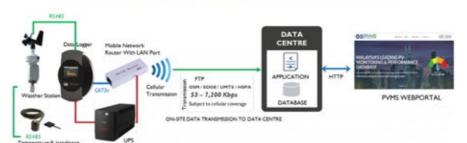
UP-TO-DATE INFORMATION, REAL-TIME MONITORING AND REPORTS ON SOLAR PHOTOVOLTAIC (PV) IN MALAYSIA. HARNESS AND ENERGISE TOMORROW'S ENERGY, TODAY.

The National PV Monitoring & Performance Database via the PV Monitoring System (PVMS) is an initiative to monitor selected grid-connected solar PV systems for performance and reliability. This programme is funded by Akaun Amanah Industri Bekalan Elektrik (AAIBE) or the Malaysian Electricity Supply Industries Trust Account (MESITA).

For a start, 148 grid-connected solar PV systems (up to 1MW capacity) throughout Malaysia are being monitored on a real-time basis. Both data and system performance analyses are available upon subscription. The Database will become the reference for designing national energy policies and programmes in the future.



# THE PVMS SYSTEM ARCHITECTURE





# **PVMS REPORT**

What's included?



SUMMARY Energy Generation



# METEOROLOGICAL DATA

Global Irradiance,
Ambient Temperature,
Wind Speed, Wind
Direction & PV Module
Temperature



# PLANT PERFORMANCE

Performance Ratio, Reference Yield, Specific Yield & Final Yield



# **IRRADIATION DATA**

**Daily Irradiation** 

# SUBSCRIBE NOW



# Enhanced collaborations to unlock Green Economy Opportunities

I would like to congratulate SEDA Malaysia for commemorating its 10th year anniversary.

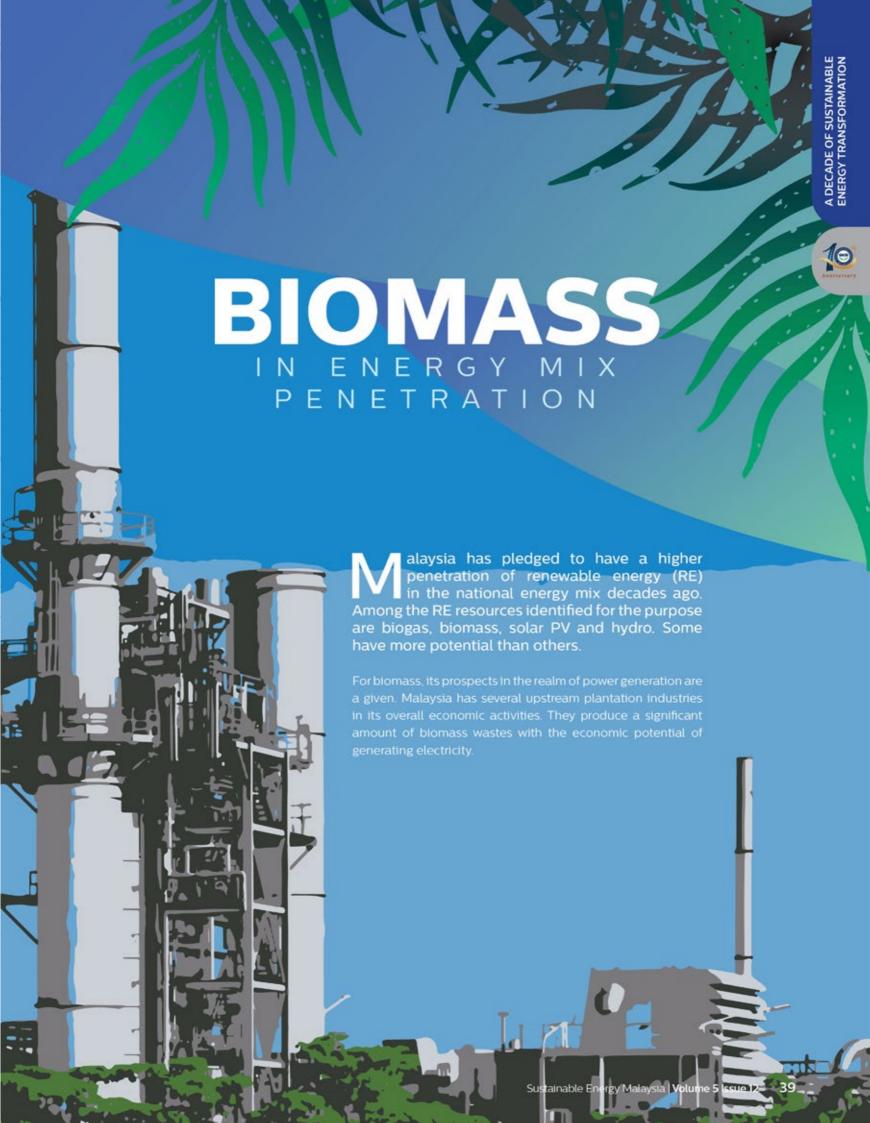
On behalf of the Malaysia Biomass Industries Confederation (MBIC), I am honoured to pen our congratulatory message in conjunction this auspicious event. Over the years, MBIC has been working with SEDA to advocate the agenda of bio-energy. MBIC has been regularly invited by SEDA Malaysia to address the bioenergy stakeholders at their International Sustainable Energy Summit (ISES), ministerial and stakeholders dialogue session. Similarly, MBIC has also invited SEDA Malaysia to deliver the latest updates on biogas and biomass power development under Feed-in Tariff (FiT) schemes in MBIC's annual biomass industry networking seminar.

Due to vast potential of bioenergy sector in Malaysia, MBIC looks forward to enhance working relationship with SEDA Malaysia and relevant government authorities as well as industry stakeholders to address barriers and unlock green economy opportunities. More intervention is expected by various government agencies to address the current issues haunting the development of bioenergy such as access to feedstock, government incentives, green finance, green lane approval etc.

Last but not least, MBIC sincerely hope SEDA Malaysia will drive the national bioeconomy agenda to greater heights for the benefit of the country to address climate change issues and opportunities.

Thank you.

DATO' LEONG KIN MUN
PRESIDENT
MALAYSIA BIOMASS INDUSTRIES CONFEDERATION (MBIC)





Top on the list is the palm oil industry, while the municipal solid waste is the far second. Other biomass resource contributors are the coconut, sugar cane, forestry and paddy sectors.

Compared to RE resources like solar PV, biomass can be stored. The biomass can be deployed to fire up generators at any time of the day to produce electricity. For solar PV, it depends on sunshine.

Another plus point for biomass is that it could be converted into pellets for co-firing purposes in conventional power plants. These pellets can substitute coal and natural gas in the co-firing process hence, ensuring energy security for future generations. Co-firing offers several environmental benefits such as reducing the emission of harmful gases that contribute to raising the greenhouse gas level.

In September 2011, the biomass sector secured an added advantage in the power generation business in the form of Feed-in Tariff (FiT) mechanism which is provided for by the RE Act 2011. Prior to the FiT mechanism, the biomass gained perks via the Small Renewable Energy Power (SREP) programme.

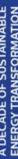
SEDA Malaysia launched the FiT mechanism on 1st December 2011 at 12:01am. The period to submit bids was from the launching date until the first half of 2014. A total of 505MW quotas for various RE resources was allocated for the year 2011/2012 and 2013, while for the first half 2014 was 125MW.





<sup>1.</sup> A worker monitoring work in progress at a biomass power plant.

SEDA Malaysia's team visited the 20MW Waste-to-Energy (WtE) plant by Cypark Smart Technology Sdn. Bhd.







Between the years 2012 and 2016, the biomass segment recorded the highest volume in terms of energy generation from RE projects that have achieved commercial operations.

The quota for biomass was 60MW for 2011/2012; 50MW for 2013; and 25MW for the first half of 2014. SEDA Malaysia received 25 Feed-in Approval (FiA) applications for the 2011-2014 biomass quota, of which 13 applications were accepted for a combined capacity of 131.8MW.

By the fifth year of its implementation, the FiT mechanism has further strengthened the foothold of the biomass sector in the power generation business.

Between the years 2012 and 2016, the biomass segment recorded the highest volume in terms of energy generation from RE projects that have achieved commercial operations. The total combined energy generation for the five-year period from the biomass sector was 974.40GWh. Solar PV sector was second at 252.66GWh.

1. A 7MW biomass plant at Tenaga Sulpom Sdn. Bhd., Dengkil, Selangor. 2. A 12MW biomass power plant at Cash Horse Sdn. Bhd., Sandakan, Sabah.



The energy generation from the biomass segment was on the uptrend from 2012 to 2015. Its energy generation however dipped to slightly below 200GWh in 2016 where solar PV took the lead at 232.29GWh. The significant solar PV growth commensurate with the abundant availability of solar energy in the country, being strategically located along the Sun Belt.

As SEDA Malaysia celebrates its 10th Anniversary this year, the biomass sector joined the historic phase through the inaugural e-bidding exercise last June.

The FiT quota application via e-bidding was first introduced in 2018 with the focus on biogas quota. This concept was then extended to include the small hydro quota in 2019 and now, the biomass quota in 2021.

The total quota for the e-bidding exercise in June 2021 is 187.805MW, of which 31.805MW for biogas; 126MW for small hydro; and 30MW for biomass projects.



# Great Beginnings

When we first ventured into Malaysia renewable energy (RE) industry as a project developer in 2014, SEDA Malaysia was one of the government agencies we sought guidance on the highs and lows in biogas project development. In the same year, Asia Pacific Biogas Alliance (APBA) was formed by a group of like-minded industrial players across the Asia Pacific region as an informal alliance to promote the biogas community in the region. Members in Malaysia had to be guided by SEDA Malaysia as there were not many biogas project developers during these early years that had experiences in FiT mechanism, since the roll out of the Renewable Energy Act 2011.

The valuable guidance and assistance by SEDA Malaysia from the FiT quota application process to FiT Commencement Date has helped the industry players to focus on the importance of the project milestones and achieve our Commercial Operation Date timeously. We have to say that SEDA Malaysia has effectively engaged all stakeholders from both public and private sectors through sustainable energy programs implementation, especially from the outset that were unprecedented and challenging times. These stakeholders' engagement sessions such as the International Sustainable Energy Summit, Townhall with the Ministry and multiple Industry Engagement Sessions provided useful platforms for industry players to voice out our concerns and suggestions for the betterment of the RE industry.

In just a decade, SEDA Malaysia has established itself as an excellent benchmark in executing nationwide mechanisms such as FiT and NEM for the development of sustainable energy in this region and successfully grew the number of reputable RE players in Malaysia.

Happy 10th Anniversary to SEDA Malaysia and we wish you more success in the years ahead for the industry in Malaysia and the region.

CHAIRMAN
ASIA PACIFIC BIOGAS ALLIANCE (APBA)

10

# HARVESTING RGANIC WASTES OR BIOGAS-BASED ENERGY

nlike other renewable resources for power generation in Malaysia, the biogas segment is tapping the country's organic wastes for developing bioenergy. By that logic, the biogas industry has a dual role -- producing sustainable energy (SE) and treating the world's rising volume of organic wastes.

Anaerobic digestion process of the organic wastes releases gas such as methane and carbon dioxide. For electricity generation, higher methane content is more preferable. Wastes from agricultural, municipal, animal and sewage complement the biogas industry, supplying it with the needed resources for its objective.



The year 2016 saw the local biogas sector picking up its stride, primarily due to the boom in Malaysia's oil palm industry, whose milling activities led to the output of palm oil mill effluent (POME).

For Malaysia, the Government policies have given the biogas industry the needed boost. Biogas was considered as a fuel under the Fifth Fuel Policy, which was implemented decades ago. The inclusion of biogas as a benefactor of the Feed-in Tariff (FiT) mechanism when the perk was introduced in late 2011 gave the sector the extra nudge to prosper further. The FiT mechanism is provided through the Renewable Energy Act 2011, and it is administered by SEDA Malaysia.

When the first FiT mechanism was announced in December 2011, SEDA Malaysia had allocated a total of 505MW quotas for the periods of 2011/2012, 2013 and first half (1H) 2014. The quota was 190MW each for 2011/2012 and 2013, while the 1H2014 was 125MW.

From the various quotas, the biogas segments, namely the biogas and biogas sewage, were allocated with a combined 30MW for 2011/2012 period; 30MW for 2013; and 15MW for the 1H2014. Apart from the biogas sector, other benefactors of the FiT mechanism are biomass (including solid waste), small hydro and solar PV.

The year 2016 saw the local biogas sector picking up its stride, primarily due to the boom in Malaysia's oil palm industry, whose milling activities led to the output of palm oil mill effluent (POME). Coincidently, POME is a good source to produce bioenergy. Furthermore, the palm oil millers were rushing to meet a deadline where by 2020, those with new and upgraded mills are required to set up biogas capture facilities for environmental reasons. Biogas production from the POME turned out to be the obvious answer. Only mills with a biogas plant or with plans of biogas plants are able to extend their licences.

Until December 2016, a total of 6,885 FiT projects with a total capacity of 420.94MW had achieved commercial operation, and this comprised of 30.89MW from biogas, 75.40MW from biomass, 30.30MW from small hydro and 284.35MW from solar PV.

In terms of approved RE installed capacities, small hydro was the largest contributor with 73.65MW, followed by solar PV for non-individual with 65.9450MW, geothermal with 37MW, biogas with 33.3480MW, solar PV individual with 32.1940MW, biomass with 23.50MW, and lastly solar PV community with 3.4064MW. By the end of 2016, the cumulative number of FiA applications approved increased to 11,264 representing 1,386.3634MW of approved RE capacity.

According to the Malaysian Palm Oil Board, there are 453 palm fresh fruit bunch (FFB) millers, with a combined capacity of 117.08 million tonnes at the end of June 2021.



The year 2017 recorded the highest increase in activity in the biogas sector. As of end-2017, there were a total of cumulative 30 biogas FiT projects that have achieved commercial operations, with installed capacity of 55.83MW.

Come fourth quarter (4Q) 2018, SEDA Malaysia introduced the maiden e-bidding system for the biogas under the FiT mechanism to facilitate price discovery and promote healthier competition. The average effective rate for the e-bidding was RMO.4055/kWh and the 2nd e-bidding in July 2019 was at RMO.4058/kWh.

The fourth e-bidding for biogas quota was held from 1st to 15th June 2021. A total of 24 companies successfully submitted their bids for various capacities from the total quota of 31.805MW for biogas. The expected commercial operations for the offered quota are latest by the second half (2H) of the year 2024.

The biogas industry is set to have a place in Malaysia's SE agenda. Its capability of addressing environmental issues while producing bioenergy will keep the industry relevant for many years to come.





- His Majesty Yang Maha Mulia Seri Paduka Baginda Yang di-Pertuan Agong XVI Al-Sultan Abdullah Ri'ayatuddin Al-Mustafa Billah Shah Ibni Almarhum Sultan Haji Ahmad Shah Al-Musta'in Billah during the launching of the 1.5MW Sri Jelutong Biogas Power Plant, Pahang.
- Digester Tanks located at United Plantation Berhad Biogas Plant in Pantai Remis, Perak.
- 3. The Lepar Hilir Biogas Plant at Concord Green Energy Sdn. Bhd.



# Forging ahead together for Sustainable Energy Future

In conjunction with SEDA Malaysia 10th anniversary, the Malaysian Small Hydro Industry Association (MASHIA) would like to express our heartfelt appreciation for its remarkable assistance in raising and highlighting rational issues and feasible conditions pertaining to small hydropower (SHP) projects.

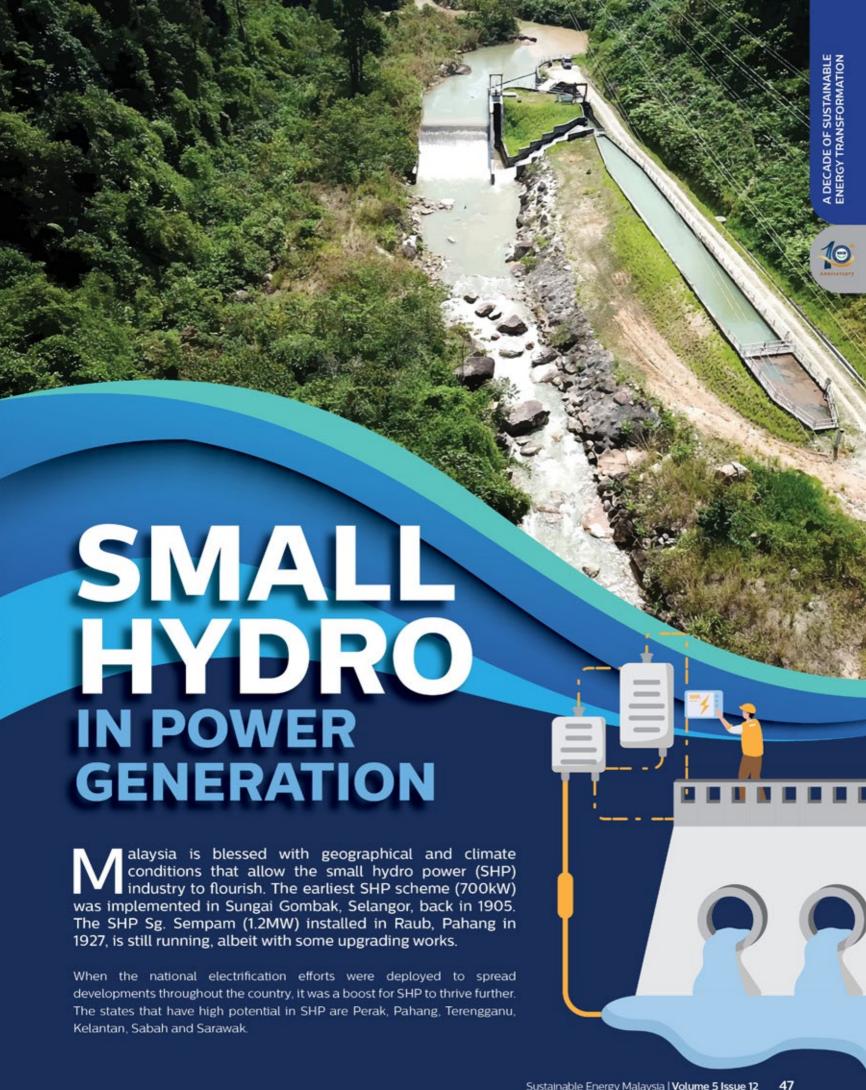
SEDA Malaysia, a statutory body under the supervision of the Ministry of Energy and Natural Resources (KeTSA), plays an important role as a facilitator in coordination with other agencies and authorities. To date, many projects have been successfully completed to the operational stage. Incentives are also given to assist the industry players to improve cash flow rate so that projects are more viable.

MASHIA, which comprises small hydroelectric industry players, suppliers, contractors, consultants and related stakeholders, has always been committed and consistent in promoting SHP projects in Malaysia. With continuous support from the Government in line with the target to achieve 25% generation through renewable energy (RE) by 2025, MASHIA will forge ahead in our effort to assist the country in reducing dependence on fossil fuels.

To end this note, on behalf of MASHIA, I wish to emphasize that we will continue with our involvement and support in planning the energy needs towards the implementation of RE projects. By working together, we can maintain a sustainable, secure, reliable, and resilient energy future for all of us.

Congratulations to SEDA Malaysia and may it achieve its aspirations and vision in guiding and succeeding the renewable resource-based energy projects in this country.

IR. SHAN SULEIMAN
PRESIDENT
MALAYSIAN SMALL HYDRO INDUSTRY ASSOCIATION (MASHIA)





Energy provided by SHP is considered a renewable alternative that will reduce dependence on fossil fuels, while substantially reducing greenhouse gas emissions. SHP is considered one of the most cost-effective and environment-friendly energy generation technologies.

Prior to the Feed-in Tariff (FiT) programme, of which SEDA Malaysia is the implementing agency, SHP project developers were incentivised via the Small Renewable Energy Power (SREP) programme whose duration went on until the year 2010. The then Special Committee on Renewable Energy (SCORE) administered the SREP programme and defined eligible projects as those up to 10MW of installed capacity.

These projects could sell electricity to Tenaga Nasional Berhad in Peninsular Malaysia or Sabah Electricity Sdn. Bhd. (SESB) in Borneo. Project developers had to negotiate their Renewable Energy Power Purchasing Agreement (REPPA) with the relevant utility companies on a willing buyer-willing seller model and were granted a licence for 21 years after the commissioning of a plant.

The sector received a shot in the arm when the FiT programme was implemented on 1st December 2011 at 12:01am by SEDA Malaysia via the e-FiT online system. The Government, via SEDA Malaysia has allocated a total of 505MW quotas for various sources of renewable energy, where the SHP was

allocated with 30MW for 2011/2012 period, 30MW for 2013 and 45MW for the first six months of 2014. By the end of 2011, SEDA Malaysia received a total of nine SHP Feed-in Approval (FiA) applications for the 2011-2014 quota. Six were approved but only four were accepted with a combined capacity of 11.70MW.

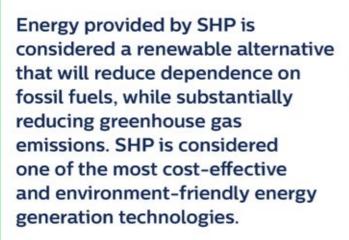
Unlike the SREP programme, the FiT mechanism obliges energy utilities to buy renewable energy from producers, at a mandated price. By guaranteeing access to the grid and setting a favourable price per unit of power, it ensures that renewable energy is a sound long-term investment for various parties including companies, industry, and individuals, thereby creating a strong economic incentive for investing in renewable energy.

Each Feed-in Approval (FiA) application undergoes a thorough evaluation process by SEDA Malaysia to ensure that the renewable energy projects achieve commercial operations within the year of quota allocation. This includes reviewing supporting documents which show that the application has received approvals from all the relevant local authorities and that the proposed project is both financially and technically feasible to implement.

After five years of implementation, SEDA Malaysia has approved 3,825 FiA applications representing 232.0434MW of RE installed capacities by 2016. In terms of approved

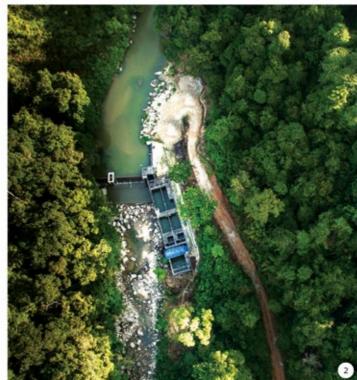






RE installed capacities, SHP was the largest contributor with 73.65MW, followed by solar PV for non-individual with 65.9450MW, biogas with 33.3480MW, solar PV individual with 32.1940MW, biomass with 23.50MW, and lastly solar PV community with 3.4064MW. By the end of 2016, the cumulative number of Feed-in Approval Holder (FiAH) applications approved increased to 11,264, representing 1,386.3634MW of approved RE capacity.

The year 2019 saw the SHP entered a new chapter in the exercise to secure the FiT mechanism quota. On 2nd September 2019, SEDA Malaysia introduced an e-bidding





- A mini hydro plant by Kerian Energy San. Bhd.
- 2. The 6MW Amcorp Perting Hydro site, Bentong, Pahang.
- 3. Briefing Session conducted by SEDA to small hydro players

application for SHP. The online bidding exercise for the FiT quota started from 2nd September until 23rd September 2019. Thirteen companies were shortlisted as successful bidders from the exercise with proposed installed capacities ranging from 2.20MW to 30MW. As of end-2019, the cumulative installed renewable energy capacity under the FiT mechanism stood at 630.64MW of which SHP's was 70.30MW.

For 2021, SEDA Malaysia called for an e-bidding submission for SHP under the FiT mechanism guota of 126MW with the date of projects' completion on the first half of 2026. Bid submission was from 8th to 29th June 2021.



# Extraordinary Service

For important endeavours ahead

Happy 10th Anniversary, SEDA Malaysia!

Congratulations on your dedicated efforts in raising awareness on sustainable energy development in Malaysia among our stakeholders such as the Ministries, Government agencies, industries and the public. Thank you for providing continuous support to the Energy Commission, especially on the successful collaborations in numerous programmes organised over the last 10 years.

On behalf of the Energy Commission, we applaud your extraordinary service to the country and all the best in your future endeavours.

"Be Energy Smart"

ABDUL RAZIB DAWOOD
CHIEF EXECUTIVE OFFICER
ENERGY COMMISSION









Continued success for

# Future Generations

On behalf of Sabah Electricity Sdn. Bhd. (SESB), I would like to express my sincere congratulations to the Board Members and Management as well as staff of the Sustainable Energy Development Authority (SEDA) Malaysia on your 10th anniversary.

We are greatly appreciative of SEDA Malaysia in playing an active role in administering and managing the implementation of Feed-in Tariff (FiT) mechanism in Sabah, and hope that SEDA Malaysia, being an authority body to encourage, promote, monitor and develop sustainable energy in the country, will maintain relevant in ensuring Malaysia can achieve its ambition of becoming a nation that has successfully develop and implement renewable energy that is sustainable and environmentally friendly.

SESB strongly supports the Government's good intentions and SEDA Malaysia's initiatives in promoting the use of Renewable Energy, which has become more viable and reliable. We are confident that this is an all-important step as we are not only contributing to the country's economy development, but also playing a key role to ensure that the environment is well preserved for future generations, InsyaAllah.

Finally, once again on behalf of SESB, congratulations to SEDA Malaysia on your 10th Anniversary, and thank you for all your efforts, enthusiam and determination in sustaining the energy consumption in Malaysia.

Wabillahitaufik Walhidayah Wasalamualaikum Waramatullahi Wabarakatuh.

CHIEF EXECUTIVE OFFICER
SABAH ELECTRICITY SDN. BHD. (SESB)



Transitioning The Nation Towards -

# Sustainable Energy

**ADVERTISING** RATE CARD 2022







# **ADVERTISING RATE**

PAGINATION		RM
Run On Page (ROP)		10,000
Premium Position Inside Front Cover Spread (IFCS) Inside Front Cover (IFC) Outside Back Cover (OBC) Inside Back Cover (IBC) Facing Editor's Note (FEN) Facing Content Page (FCP) Facing Inside Front Cover Page (FIFCP)	)	25,000 15,000 18,000 15,000 13,000 13,000
1 Issue Package - Two-page write-up - One-page ROP advertisement - 1X Facebook banner posting	Normal rate (3 pgs X 10k) Package rate	30,000 25,000
3 Issues Package - Six-page write-up - Three pages of ROP advertisement - 3X Facebook banner posting	Normal rate (9 pgs X 10k) Package rate	90,000

# **DEADLINES**

**Booking Deadline** 6 weeks before the publication date

Material Deadline 4 weeks before the publication date

### Cancellation

### **TERMS AND CONDITIONS**

Prime positions are non-cancellable.

All confirmed bookings must be published within the agreed calendar year. A surcharge based on the normal rate will be levied for unutilised insertions.

### **PAYMENT TERMS**

The advertiser is required to make the payment before the publication date. Payment is due within thirty (30) calendar days following the date of invoice.

No cancellations once booking is confirmed All final decisions on magazine artwork lie with SEDA Malaysia.

# WHY SUSTAINABLE ENERGY MAGAZINE?

Sustainable Energy Malaysia Magazine is the country's premier source of sustainable energy (SE) content for white collar professionals as it covers extensively on SE development, policies, and market outlooks for all SE industry players in Malaysia.

A vast majority of our magazine's audience consist of executives or managers working at the top line of various organisations in the country. It serves as a platform for investment which enables your newest innovations to reach the right target groups and support lead generation. Apart from helping to improve local customer sentiment, the magazine aims to provide a global perspective on the deployment of SE developments in tandem with the nation's efforts in advocating the global climate agenda.

# SUSTAINABLE ENERGY MAGAZINE PUBLICATION DETAILS /

Publisher
Category
Target Audience
Frequency
Number of Pages
Size
Circulation

Distribution

SEDA Malaysia
Industry Professionals & Enterprises
20 years old and above
3 times a year
Min 48 pages (Including cover)
29.7cm (H) x 23cm (W)
2,000 print run
Government bodies and Agencies
Financial Institutions

**Industry Professionals and Investors** 

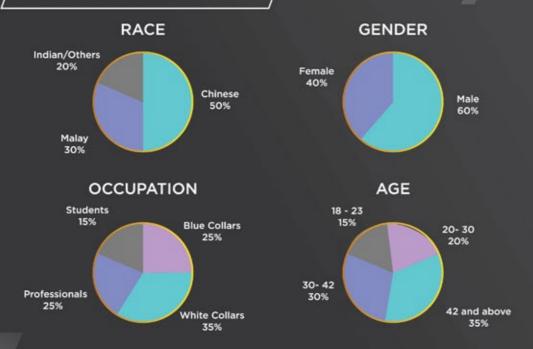
Sustainable Energy

Sustainable Energy

TRANSITIONING TO REPATH TOWARDS THE FUTURE

TRANSITIONING THE PATH TOWARDS THE

# READERSHIP PROFILES







# **GOVERNMENT LEAD BY EXAMPLE (GLBE)**

For the GLBE initiative, SEDA Malaysia has rolled out a programme to introduce energy management and efficiency systems in Government buildings through their main activities.

The programme comprises:

- Promotion of energy management and efficiency systems;
- Capacity building of energy management and efficiency systems among civil servants and facility maintenance through seminars and training;
- Implementation of energy saving measures (ESMs) in Government buildings;
- · The retrofitting of Government buildings; and
- Promote the implementation of Energy Performance Contracting (EPC) mechanism at national level.

When the GLBE initiative was started in 2011, SEDA Malaysia has identified a total of 105 Government buildings under the Efficient Management of Electrical Energy Regulations 2008 (EMEER 2008) as intensive electricity users. The hosts of these buildings are ministries, departments, agencies, universities, and hospitals. A key performance indicator (KPI) 2012 was established to measure the success of the initiative in that year.

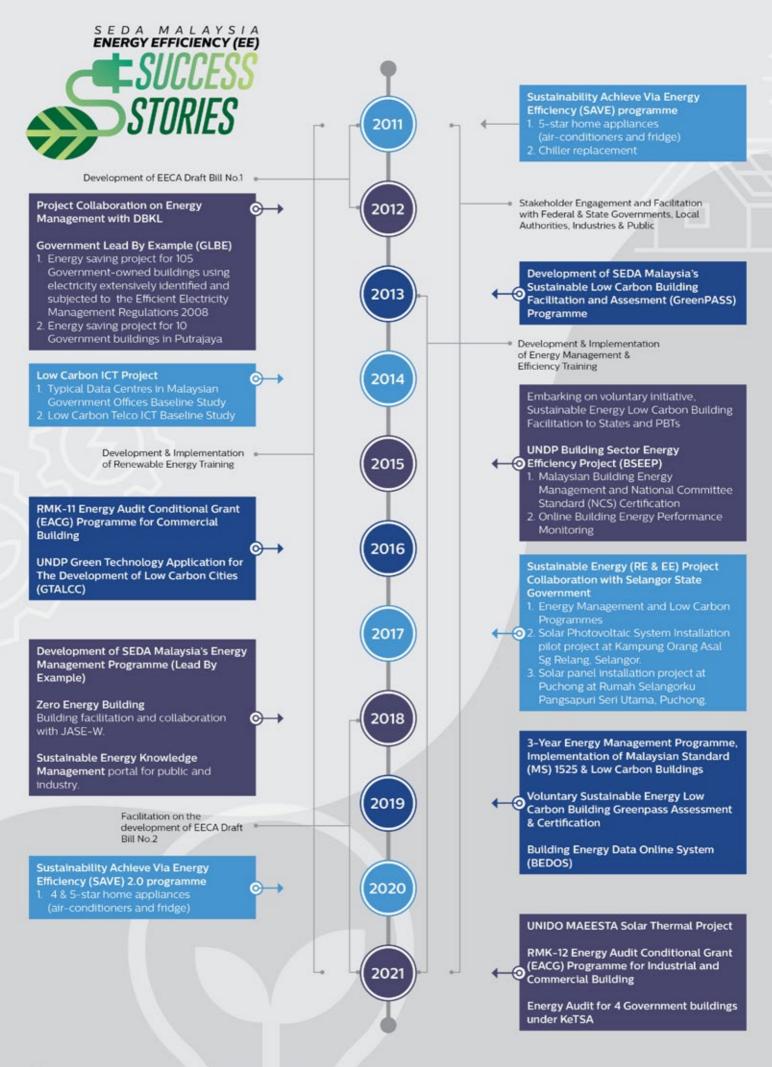
The 2012 KPI for GLBE were:

- savings of 3% electricity among the 93 government buildings owned by entities such as state government, agencies, universities, and hospitals; and
- savings of 10% electricity among the 12 identified ministerial buildings in Putrajaya.

By the end of 2012, out of the 93 selected government buildings, 48 of them had successfully achieved the 3% electricity savings target and this translated to 122 million kWh saving and a reduction of 83,000 tonnes of  $CO_2$  emission. As for the ministry buildings in Putrajaya, all 12 had successfully achieved a savings of 10.4% reduction in electricity consumption equivalent to a saving of 11 million kWh and a reduction of 7,800 tonnes of  $CO_2$  emission.

By the end of 2012, out of the 93 selected government buildings, 48 of them had successfully achieved the 3% electricity savings target and this translated to 122 million kWh saving and a reduction of 83,000 tonnes of CO<sub>2</sub> emission.





# RETROFITTING AND EE PROGRAMME OF **GOVERNMENT BUILDINGS**

The buildings of the then Ministry of Natural Resources and Environment (MNRE) and the Malaysian Administrative Modernization and Management Planning Unit (MAMPU) were the subject of the Retrofitting and EE Programme of Government Buildings in the early days of SEDA Malaysia. The cost of retrofitting MNRE's building was RM810,000 while for MAMPU the cost was RM378.000.

Subsequently, MAMPU's building achieved an average of total energy savings of RM238,200 a year while MNRE achieved an average of total energy savings of RM660,000 a year within the same period (based on energy consumption data with comparison to energy audit baseline data in 2010). The retrofitting of MNRE and MAMPU buildings results in annual reduction of 1,390 tonnes of CO, and 501 tonnes of CO, respectively. The retrofitting and energy management exercise for both buildings showed a very attractive return of investment and the Government hoped these demonstration projects will motivate building owners in the private sector to follow suit.

MAMPU's building achieved an average of total energy savings of RM238,200 a year while MNRE achieved an average of total energy savings of RM660,000 a year within the same period.

### ADVISORY AND TRAINING PROGRAMMES

The Authority also engages in EE-related and low carbon building facilitation programmes; advisory, training and capacity building programmes; awareness promotional programmes and others.

It offers the following training and capacity building:

- Application of Malaysian Standard MS 1525: Code of Practice on Energy Efficiency and Use of Renewable Energy for Non-Residential Buildings:
- Energy Efficiency in Air-condition and Mechanical Ventilation (ACMV) Management:
- Energy Audit in Buildings; and
- Energy Management in Buildings.

The target groups for these trainings are the Government officials in the management level, technical staff, building facilities maintenance including the officers in local authorities that were involved in energy management and efficient, and those from the private sector.

Throughout the years since its inception, SEDA Malaysia had continued to conduct and deployed various programmes to further promote the EE culture among Government agencies, Malaysian companies and consumers.



# LOW CARBON INFORMATION AND COMMUNICATIONS TECHNOLOGIES (ICT)

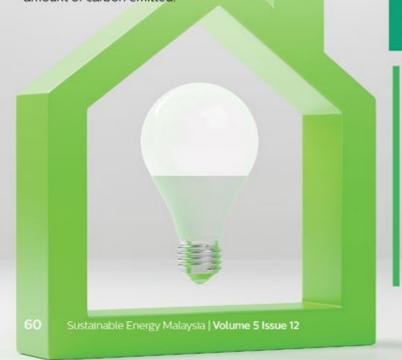
In 2014, the Authority completed the Low Carbon Information and Communications Technologies (ICT) project, a programme aimed to reduce the energy consumption and carbon emissions in the ICT sector as ICT equipment and systems provided a significantly high number of electricity consumption in buildings. This is crucial considering the digitalisation era is spreading fast in the world. The ICT sector is expected to grow between 7% and 10% in Malaysia annually and this will increase energy consumption in buildings.

The Authority completed its low-carbon ICT baseline study of typical government data centres in 2017. It overs the study conducted on carbon emissions from electrical energy usage in 10 selected data centres. This study is part of the Low Carbon ICT Project, conducted by SEDA Malaysia in collaboration with Malaysia Green ICT Committee, Malaysian Technical Forum Sdn Bhd (MTFSB), which is an agency under the Malaysian Communications and Multimedia Commission (MCMC).

The baseline study includes:

- Measure and evaluate current performance of the data centres.
- 2. Study the effectiveness of the current design, and;
- Proposed general mitigation actions that able to make data centres operating more energy efficient and emits lower carbon emission.

The Low-carbon ICT project seeks to quantitatively assess the energy usage and carbon emissions of an ICT system, through the use of the carbon conversion factor formula. Having assessed the energy usage, the project looks for measures and methods to reduce the energy usage, and consequently, the carbon emissions of the ICT system. The main purpose of the Low-carbon ICT project is to understand the current energy consumption pattern which is then converted to the amount of carbon emitted.



# ZERO ENERGY BUILDING (ZEB)

SEDA Malaysia is also an active advocate of the Zero Energy Building (ZEB) concept in Malaysia. ZEB programme is a global programme involving the development of super energy efficient buildings that are integrated with renewable energy applications, which are actively promoted by European Union (EU), Japan, Singapore and countries committed to energy and carbon reduction.

ZEB development in Malaysia was started in the early 2000 when the Integrated Energy Efficient Building Design Programme and the promotion of the use of MS1525 – Code of Practice Use of Energy Efficiency & Renewable Energy for Non-residential Buildings were introduced.

According to the United Nations Environment Protection – Sustainable Building & Construction Initiatives (UNEP-SBCI), the building sector contributes 2/3 to carbon emissions in the atmosphere. In some countries, the building sector is the second largest carbon dioxide contributor after the transport sector. As such, ZEB Programme is crucial to lower CO<sub>2</sub> emissions by buildings.

The effort to promote EE in Malaysia went up a notch following a collaboration among SEDA Malaysia, the Energy Conservation Centre Japan (ECCJ) and its partner the Japanese Business Alliances of Smart Energy Worldwide (JASE-W). A Memorandum of Understanding (MoU) was signed in 2018 by the three signatories. The MoU is a collaboration on development and promotion of super energy efficient building/ZEB in Malaysia.

Subsequently, the first ZEB online training was held on 14th December 2020 in collaboration with JASE-W, ECCJ and the Association for Overseas Technical Cooperation and Sustainable Partnerships (AOTS) via a virtual platform. The online workshop was attended by 18 participants from various backgrounds (industries, local authorities, academicians and associations). Few experts including some from Japan were invited to share their knowledge on ZEB with the attendees.

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Worldwide (JASE-W).



# ENERGY AUDIT CONDITIONAL GRANT (EACG) PROGRAMME

As part of its strategy to raise the awareness of energy management and importance of having energy audit, and hence, reduce the electricity consumption, the Malaysian Government has introduced the Energy Audit Conditional Grant (EACG). The EACG programme was introduced in the 11th Malaysia Plan, which spanned from 2016 to 2020, with SEDA Malaysia was mandated as the implementing agency for this programme.

The grant is allocated to commercial building owners to collaborate with local Energy Service Companies (ESCOs) registered with the Energy Commission (ST) to conduct energy audit in their buildings. Due to the positive response by the public, and its impact to the overall SE agenda, the programme is continued under the Twelfth Malaysia Plan (2021–2025). The programme was approved with a total allocation of RM86.73 million under the Twelfth Malaysia Plan.

# GREEN TECHNOLOGY APPLICATION FOR THE DEVELOPMENT OF LOW CARBON CITIES (GTALCC) PROJECT

The year 2016 saw SEDA Malaysia initiate the Green Technology Application for the Development of Low Carbon Cities (GTALCC). It is a project with the key objective of facilitating the implementation of low carbon initiatives in at least five cities in Malaysia.

GTALCC complements Malaysia's initiative to reduce its GHG emissions intensity of GDP by 45% by 2030, relative to 2005 levels as pledged by Malaysia at the 21st Conference of the Parties (COP21) in Paris at the end of 2015.

The Authority is the lead consultant for the project, providing support for the implementation process as well as administration and technical services.

# VOLUNTARY SUSTAINABLE ENERGY LOW CARBON BUILDING ASSESSMENT

SEDA Malaysia had introduced the Voluntary Sustainable Energy Low Carbon Building Facilitation and Assessment initiative in 2016. It is a voluntary and industry-driven initiative by the Authority.

The initiative is targeted at building owners; developers; local authorities; private sector and Government as well as any EE building projects (new/retrofit building). One of the buildings recognised by SEDA Malaysia for having low carbon emission is the Management and Science University (MSU), a private university based in Shah Alam. It was awarded by the Authority the Low Carbon Building (LCB) 2-Diamond rating under the Sustainable Energy Development Authority (SEDA) Malaysia Voluntary Sustainable Low Carbon Building Performance Assessment-GreenPASS and Certification.

Other buildings that have received the Sustainable Energy Development Authority (SEDA) Malaysia Voluntary Sustainable Low Carbon Building Performance Assessment- GreenPASS and Certification include:

- · Galeria PjH;
- Universiti Teknikal Malaysia (UTeM); and
- Majlis Perbandaran Sepang.

The Voluntary SEDA's Low Carbon Building Performance Assessment-GreenPASS and Certification Programme, which focuses on actual energy used and reduced in buildings thereby making an accurate reflection of the emissions and reduction contributed to the environment, represents an annual electricity savings of 5,646,661kWh or 3,918.78 tonnes of carbon dioxide equivalent (CO<sub>3</sub>eq) in 2020.



# Stronger partnership for Greater Accomplishments

We at the Japanese Alliance for Smart Energy Worldwide (JASE-W) would like to extend our sincere congratulations to SEDA Malaysia on its 10th anniversary.

Over the past few years, JASE-W has been collaborating with SEDA Malaysia to promote Net Zero Energy Buildings by holding workshops and seminars on the topic not only in Malaysia but also in Japan.

In 2018, JASE-W and SEDA Malaysia have signed a Memorandum of Understanding (MoU) on the development of Zero Energy Building (ZEB) in Malaysia; we are currently strengthening and accelerating cooperative activities despite the recent difficulties caused by COVID-19. In the same year, JASE-W has taken the initial step in formulating the International Standard for ZEB, and the great news is that it will soon be issued as a Technical Specification TS23764 in the ISO.

I believe the next step for Malaysia in disseminating ZEB is to establish a national promotional framework by referencing this Technical Specification, and SEDA Malaysia is expected to play the all-important role in leading Malaysia to become a pioneering country in ZEB. In this respect, JASE-W will spare no effort to cooperate with SEDA Malaysia based on the strong partnership between the two organizations.

I hope that SEDA Malaysia will make remarkable success and greater accomplishments in the next decade to pave a greener pathway towards energy sustainability and carbon neutrality in Malaysia and for the world.

> MASANORI KOMORI SECRETARY GENERAL JASE-W. JAPAN

Japanese Business Alliance for Smart Energy Worldwide





Stellar leadership in forging



SEDA Malaysia has been a pioneer in Malaysia's journey in transitioning to renewable energy, and the various programmes under the Authority have continued to ensure that Malaysia progresses on its sustainable energy agenda.

In collaboration with the Government of Malaysia and the Ministry of Energy and Natural Resources (KeTSA), UNDP is proud to have had a strong partnership with SEDA Malaysia over the years, starting in the early years of SEDA Malaysia's formation through collaboration under the UNDP-Global Environment Facility (GEF) supported project on Malaysia Building Integrated Photovoltaic (MBIPV), to the current shared mission on mitigating climate change under the UNDP-GEF Green Technology Application for the Development of Low Carbon Cities project.

On behalf of all of us at UNDP Malaysia, our heartfelt congratulations to SEDA Malaysia for the success achieved over the past 10 years, and we look forward to growing this partnership from strength to strength. We are committed to supporting SEDA Malaysia in its mission to accelerate the deployment of renewable energy in Malaysia towards the achievement of the Sustainable Development Goals by 2030.

## NILOY BANERJEE

UNDP RESIDENT REPRESENTATIVE FOR MALAYSIA, SINGAPORE AND BRUNEI DARUSSALAM UNITED NATIONS DEVELOPMENT PROGRAMME (UNDP)



# SAVE PROGRAMME: SAVINGS FOR THE RAKYAT

n 20th September 2010, the Malaysian government has launched a comprehensive Economic Transformation Programme (ETP) in an effort to propel Malaysia into becoming a high-income nation by year 2020. Managed by the Performance Management and Delivery Unit (PEMANDU), ETP sets to lift the country's gross national income (GNI) per capita from US\$6,700 or RM23,700 in 2009 to more than US\$15,000 or RM48,000 in 2020, putting Malaysia amongst other high-income nations. This GNI growth of 6% per annum will allow the country to achieve its targets set under Vision 2020.

The establishment of ETP sets forth the 12 National Key Economic Areas (NKEA), from which 131 entry point projects (EPP) were identified across sectors. Under the oil, gas and energy (OGE) sector, two entry point projects were identified, one of which is to stimulate sales of energy efficient equipment and appliances. This in turn became the core foundation of the Sustainability Achieved Via Energy Efficiency (SAVE) programme.



### THE BEGINNING: SAVE 1.0

The SAVE programme was first announced on 13th June 2011 under NKEA's EPP 9 strategy to improve energy efficiency in the country. It covers five main initiatives including:

- Government Lead By Example (GLBE) programme;
- ii. Stimulate sales of energy efficient equipment and appliances (new appliances);
- iii. The Government to collaborate with TNB in ensuring economic viability (co-generation);
- iv. To ensure all buildings are properly insulated; and
- v. To encourage the sale of energy efficient vehicles.

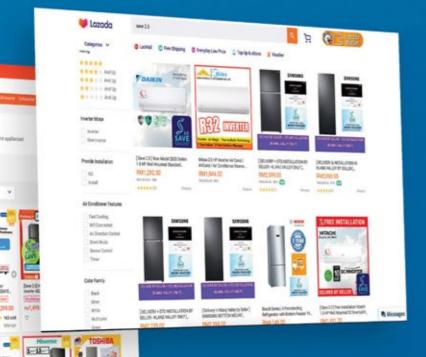
It is hoped that SAVE programme will become a successful platform to generate long-term energy savings under EPP 9. which has an intended target of US\$4.4 billion by 2020.

The SAVE programme was officially launched on 7th July 2011 with the objectives to increase the sale of 5-star energy efficient-rated home appliances as well as to promote and create a culture of efficient energy use amongst the public and business entities. The SAVE programme is managed via an online web-based system for rebate voucher distribution, retailers registration and rebate voucher verification, refund process and management including real time progress monitoring.

The SAVE programme is divided into two parts where rebates are provided for the purchase of energy efficient equipment. For the first part, the SAVE programme rebate voucher entitles Malaysians to purchase 5-star energy efficient rated refrigerators and air-conditioners on a first come first served basis. The programme was supported by three utility companies - Tenaga Nasional Berhad (TNB), Sabah Electricity Sdn. Bhd. (SESB) and Syarikat SESCO Berhad - a company under Sarawak Energy Berhad (SEB) - as well as the Energy Commission, the national electricity regulator. Out of 165,000 vouchers offered (100,000 vouchers for refrigerators and 65,000 vouchers for air-conditioners), 164,648 vouchers or 99.78% have been claimed.

The second rebate is given to private entities, which had completed the replacement of existing inefficient chillers to new efficient ones. The rebates are limited to electrical chillers types only and the newly installed chillers must meet the minimum requirement of coefficient of performance (COP) as stated by the standard, MS1525:2007 Code of Practise Use of Energy Efficiency and Renewable Energy for Non-residential Building. Meanwhile, the replacement of chillers programme saw 52 applications with 61,980RT (Refrigeration Tonnes), equivalent to 86.06% of the allocated capacity.

A national survey conducted by SEDA Malaysia in late 2012 concluded that the SAVE programme can help Malaysia to add RM1.5 billion to the GNI by the year 2020. It has also helped achieve energy saving of 127.26GWh, equivalent to savings of RM32.04 million based on the current electricity tariff. From its launch to 31st March 2012, the SAVE programme has helped save RM22.58 million off electricity bills, and CO, emissions are expected to be reduced by 9,101,065 tonnes over the lifespan of the energy efficient appliances.





"SAVE 2.0 has helped SMEs and retailers shift towards digitalization by promoting their products online, and timely with the various movement control orders in place to combat the recent pandemic outbreak. Further, the collaboration between SEDA Malaysia and e-commerce platforms for SAVE 2.0 has provided buyers with more product choices at competitive rates from a wide range of sellers nationwide. By encouraging Malaysians to buy and use energy efficient appliances, this campaign also directly helps reduce their electricity consumption."





## THE CONTINUATION: SAVE 2.0

Following the encouraging response received since its introduction, the Government has announced a new edition of SAVE programme during the Budget 2021 speech last year with an allocation of RM30 million and is expected to benefit about 150,000 households.

Dubbed SAVE 2.0, the programme retains the core objective to encourage the sale and use of energy efficient appliances amongst the public and business entities. To make the initiative a success and to embrace the future digital world, SEDA Malaysia takes an initiative to collaborate with major e-commerce players namely Shopee, Lazada and PG Mall, as well as various electrical appliances companies. Through the SAVE 2.0 programme, Malaysians are able to purchase 4 and 5-star energy-efficient rated appliances – in particular refrigerator and air-conditioner – at a RM200 rebate.

Under the SAVE 2.0, there are four brands of air-conditioners – Acson, Daikin, Hitachi and Panasonic – with over 100 models available for consumers. There are also 17 brands of refrigerators with more than 150 models available under the scheme. SEDA Malaysia hopes that SAVE 2.0 can help Malaysians to reduce their electricity usage and bills, which is largely powered by fossil fuels. As of June 2021, a total of 52,440 rebates quota have been redeemed with savings enjoyed by buyers amounted to RM10.49 million.

In view of these positive responses and facts, as well as potential savings by the end of the programme period, SEDA Malaysia is confident that SAVE programme will not only help the Rakyat and the country to save costs but also protects the environment as well.

"Since Lazada partnered with SEDA Malaysia, there's a surge in the sale of energy efficient refrigerators and airconditioners thanks to the RM200 rebate offered through SAVE 2.0, and the fast respond of the programme that ensures smooth transaction for every purchase. Without doubt SAVE 2.0 can be the key to encourage and build mindsets towards energy saving products, for both sellers and buyers. By merging SAVE 2.0 with e-commerce platform, it gives more leverage to e-sellers and their offerings of energy efficient home appliances, and provides an alternative channel for buyers to purchase them."



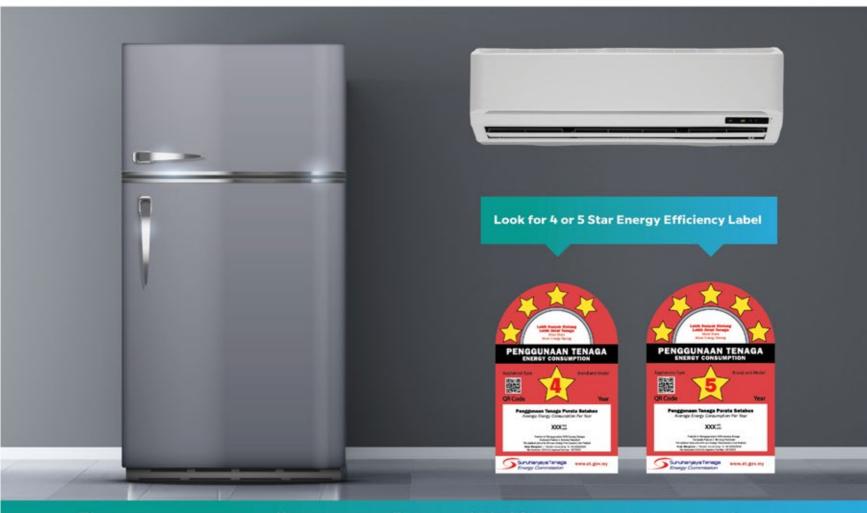
"SAVE 2.0 made it possible for e-commerce platforms to become the go-to buying destination for large appliances that meet consumers' needs without requiring them to travel. As one of the platform partners, PG Mall has indeed gained greater visibility and credibility from SEDA as the SAVE programme paves the way for us to discover and work on acquiring energy large appliances for our shoppers."



# SAVE 2.0



Save Money • Save Energy • Save The Environment



The government now offers you an e-Rebate of RM200 when you buy selected 4 or 5 star energy efficient air conditioner / refrigerator.

For more information visit www.saveenergy.gov.my











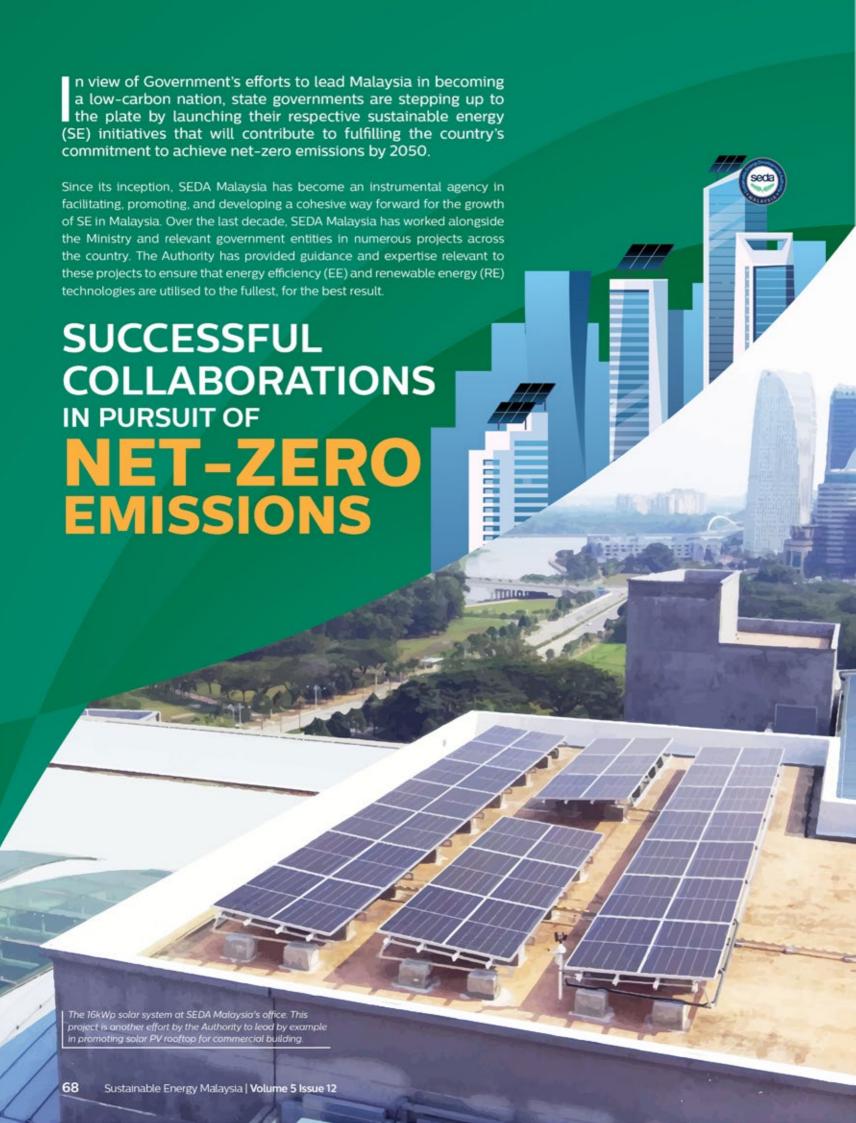












# PROJECT: ORANG ASAL VILLAGE SG RELANG, GOMBAK

Off-Grid Solar PV System Installation

The project was first proposed as one of Selangor's initiatives, which addresses the inadequate supply of electricity in Orang Asal village, especially those located in remote areas across the State. This is in line with the Smart Selangor agenda that all citizens of the State should have access to basic amenities including electricity.

The project took off on 31st October 2017, with 12 homes was identified to participate. SEDA Malaysia was brought onboard on 28th May 2018 as the implementing agency to install the off-grid solar PV to these homes.

Upon site inspections, it was determined that an off-grid solar photovoltaic (PV) system would be most ideal for the project as it operates independently using solar batteries, which can also store electricity generated from the solar PV system. This implementation method is considered to be more economical due to the geographical features of the Orang Asal villages and other factors relevant to the project. Further, the infrastructure

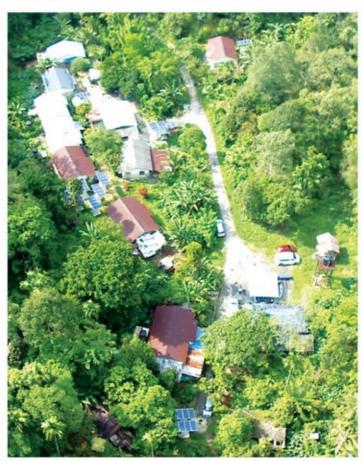


12 Orang Asal houses were equipped with 1.2kWp solar PV system including battery storage and basic electrical appliances such lighting and fan for every household

cost to connect the villages to the National Grid is relatively high, and a challenging feat to accomplish, as they are located too far away from the National Grid network or even to the nearest substation. The use of off-grid solar PV system is also an environmentally friendly solution compared to using a generator set that requires constant supply of fuel to operate, and produces a lot of noise and green house gaseous.

For the project, SEDA Malaysia recommended the use of a stand-alone or smart home solar PV system based on the position and distance of the homes in each village, and the surrounding environment. Each home was installed with a solar PV system that has a minimum capacity of 1.2kW complete with solar charge controllers, inverters, solar batteries with a capacity of 6kW, and distribution boards, as well as five LED lighting units, and one energy-efficient fan. The installation process also includes wiring in the homes along with power sockets, distribution board and electrical protection devices. This package was determined based on an earlier report, which indicated that each home would have a daily power consumption of about 2,159.94VAh.

The successful completion of the project made a huge impact for the State Government in realising the Selangor Green Technology Action Plan 2016 - 2018. In addition to promoting the adoption of EE and RE technologies among the Orang Asal community, the project paves the way for others to follow suit, especially those living in areas without access to electricity.



The Off-Grid Solar PV Project Kampung Orang Asal Sg Relang in Gombak, Selangor

# PROJECT: RUMAH SELANGORKU PANGSAPURI SERI UTAMA, PUCHONG

Grid-Connected Solar PV System Installation

On 28th May 2018, the Selangor State Economic Planning Unit (UPEN) through the Selangor State Green Technology Standing Committee has appointed SEDA Malaysia to take the lead in a pilot project involving the installation of a grid-connected solar photovoltaic (PV) system at Pangsapuri Seri Utama, Puchong. The installation process took four months to be completed.

The main objective of the project was not only to meet the Green Building Index (GBI) rating criteria, but also to provide savings on the building's monthly electricity bills through the energy source generated from the PV system.

The PV system chosen for the project was determined through indirect connection on the Distribution Board (DB)-ERF/B1 located on the roof level of the Block 1 building. A total of 173 pieces of solar panels were installed for the project; each panel has a capacity of 280W and 285W. The overall capacity of the system is 50.3kW, divided into two configurations:

- System 1: 143 pcs x 280 watts = 40,040 watts
- System 2: 36 pcs x 285 watts = 10,260 watts

The solar panels are connected to an inverter, which converts Direct Current (DC) produced to alternating current (AC) with a capacity of 50kW and 10kW for System 1 and System 2.

The installation was completed on 18th January 2019, with a 12-month Defect Liability Period DLP) from 19th January 2019 to 18th January 2020. A special training was conducted on 5th March 2019 at the site to provide exposure and information related to the grid-connected PV system installed at the apartment complex to the party who will maintain the system once the DLP period is over.



# ENERGY MANAGEMENT AND LOW CARBON PROGRAMMES

SEDA Malaysia is actively involved in numerous energy management activities such as government energy efficiency and awareness promotional programme, energy audits & retrofitting, low carbon green building programme, energy monitoring and verifications, etc. Among SEDA Malaysia's projects on energy management are the energy audit & retrofitting of the National Resource and Environment (NRE) and MAMPU buildings; and managing the audit that includes re-lamping activity of Ministry of Finance building.

Between September to October 2013, SEDA Malaysia had conducted an Energy Management in Buildings Programme for the technical and non-technical staff of Tenaga Nasional Berhad (TNB) across four regions of the Peninsular Malaysia. The awareness-training programme provided comprehensive insight on energy management in commercial buildings in order to achieve low carbon building performance, including energy saving measures and fact related to energy in Malaysia that includes energy policy, understanding electric tariff, energy performance contracting (EPC), and others topic presented such as landscape element and low carbon building implementation.

SEDA Malaysia is actively involved in numerous energy management activities such as government energy efficiency and awareness promotional programme, energy audits & retrofitting, low carbon green building programme, energy monitoring and verifications, etc.

Aerial view of 50kWp Grid-Connected Photovoltaic (GCPV) System at Rumah Selangorku, Pangsapuri Seri Utama, Puchong, Selangor On 23rd May 2017, SEDA Malaysia was appointed as the implementing agency of the Energy Management Programme and Building Energy Audit - District and Land Office Buildings under the Selangor State Government and the Implementation of the Low Carbon Building Programme, with the objectives:

- i. to identify potential buildings energy savings and CO, gas
- ii. to create an outline on energy management for the District and Land offices:
- iii. to assist UPEN Selangor in integrating sustainable energy component into urban development projects;
- iv. to enhance the technical capacity of professionals particularly on energy management;
- v. to create awareness and develop human capital capacity building:
- vi. to assist UPEN Selangor in reducing their electricity bills;
- vii. to support the implementation of low carbon programmes in Selangor.

SEDA Malaysia took the lead in the first phase of the programme, which involved the implementation of energy audit.



Additionally, SEDA Malaysia, alongside with UPEN Selangor, had organised a special workshop on 30th January 2018 to promote and facilitate energy management in office buildings in Selangor. Attended by representatives from all local authorities and District & Land offices in the State as well as distinguished guests, the workshop offered an in-depth view on energy management and the importance of establishing building energy policy and regulations, as well as the responsibilities of energy management committee members in each building.



- 1. A seminar on Energy Audit Conditional Grant (EACG) RMK-12 For Industrial and Commercial Sector, jointly organised by SEDA Malaysia, the Ministry of Energy and Natural Resources (KeTSA) and Energy Commission (EC) held on 27th April 2021 at Everly Hotel, Putrajaya. The module of the seminar includes the latest information regarding the country's electricity supply industry as well as the registration, procedures, and ESCO's role in the EACG.
- 2. The Authority is involved in energy management and low carbon building activities such as EE and low carbon building facilitation programmes; advisory, training and capacity building programmes; awareness promotional programmes









Since its inception in September 2011, the Sustainable Energy Development Authority (SEDA) Malaysia has been an instrumental agency in shaping the future of Malaysia's sustainable energy sector. Among the Authority's earlier key responsibilities were the administering and managing of the Feedin Tariff (FiT) mechanism, and the Net Energy Metering (NEM) programme.

The Digital Services Division (formerly the ICT Division) is a supporting yet crucial division that works alongside other divisions in SEDA Malaysia and the industry to ensure the smooth implementation of initiatives and programmes spearheaded by the Authority, particularly the management of the e-FiT system.



# SPECIALISED DIGITAL SERVICES

The Feed-in Tariff (FiT) mechanism was introduced under the National Renewable Energy Policy and Action Plan (NREPAP) 2010 to catalyse generation of RE, up to 30MW in size. The mechanism allows electricity produced from indigenous renewable energy resources namely solar photovoltaic, biomass, biogas and small hydro, to be sold to power utilities at a fixed premium price for a specific duration.

Being the first nation to implement FiT mechanism digitally, via the Authority's e-FiT system, there were high expectations that digitization can promote efficiency and transparency of the programme. In the early years, the ICT infrastructure of SEDA Malaysia was in its infancy compared to today's standard; key components like data centre, communication, security and other functions were still under development at the time. SEDA Malaysia had initially outsourced the development of e-FiT system. However, due to rapid technological changes and the urgency to adapt to the industry needs, the enhancement of the system was undertaken in-house by the Digital Services Division to expedite delivery. The division also developed two more platforms, the Registered Service Provider (RSPI) and Registered PV Investor (RPVI), to support the FiT mechanism.

Apart from FiT, the Digital Services Division's team of experts also developed other platforms mandated to SEDA Malaysia such as the Net Energy Metering (NEM) and the Sustainability Achieved Via Energy Efficiency (SAVE) programme. While the division has gained valuable experience in managing ICT environment and rapid system development, there were still lingering challenges that needed to be addressed. These include meeting the stakeholders' dynamic requirements within a short period of time, and ensuring the ICT infrastructure as well as the systems currently in place are secured and reliable.

The strength of the Digital Services Division has made it possible for SEDA Malaysia to expand its portfolio of sustainable energy offerings. For instance, SEDA Malaysia has launched the first national solar PV monitoring system (PVMS) in 2018. Funded by Akaun Amanah Industri Bekalan Elektrik (AAIBE) under MESTECC (now under the Ministry of Energy and Natural Resources, KeTSA), PVMS was developed to provide real-time monitoring of grid-connected solar PV systems (below 1MW) for its performance and reliability on the key components such as the PV modules, inverters, and others. The aim is not only to build confidence that solar PV is a viable source to generate electricity, but also to provide relevant and viable data for local PV providers, the industry, and academicians for research and benchmarking purposes.

In the last quarter of 2018, the Authority has introduced the e-bidding mechanism to facilitate price discovery for renewable energy (RE) with the focus on biogas quota. This concept was then extended to include the small hydro quota in 2019 and the biomass quota in 2021. In comparison with the traditional procurement process, the e-bidding mechanism implemented entirely online, thus reduces costs and promotes paperless transactions. For each e-bidding exercise, selection and quota allocation are automated, with all processes tracked and recorded in audit logs. Despite imposed lockdowns and most companies working from home due to the on-going pandemic, the bidding process can be carried out as all documents are stored online upon submission.

As at end-June 2019, SEDA Malaysia had approved 12,540 FiT applications with a total capacity of 1,744.38MW — consisting of 34.6% small hydro, 25.4% solar photovoltaic (PV), 23.5% biomass, 14.4% biogas and 2.1% geothermal.







# BUSINESS CONTINUITY UNDER NEW NORMAL

In recent years, the Digital Services Division has been hard at work to enhance the digital technology adoption in SEDA Malaysia to improve the Authority's operations and processes. This effort was also timely when the world was struck by the COVID-19 pandemic, which saw 'Work From Home' (WFH) as the new corporate culture for many businesses across industries.

With SEDA Malaysia shifting major parts of its operations online, the Digital Services Division has formulated several solutions in part of the Authority's Business Continuity Plan to facilitate the digital transition and to support the business-as-usual concept with the least amount of disruptions. These include:

- Providing all staff with laptops
- Digital Document Management
- Video Conference
- Online Monitoring
- Remote Support Procedures

As SEDA Malaysia is in compliance with the Standard Accounting System for Government Agencies, Business Continuity Plan is mandatory. In times of pandemic, the Digital Services Division has established business continuity plans for numerous critical systems to ensure their reliability, and to provide adequate remote support for SEDA Malaysia's staff during these unprecedented times.

Since the pandemic outbreak followed by the imposed movement control orders, and despite the fact that the Authority is operating from home, SEDA Malaysia is able to stay connected with its stakeholders and various RE sectors via virtual meetings and discussions.

SEDA Malaysia also took full advantage on the fact that knowledge sharing implemented via digital platforms has become a new normal in the corporate world. Over the last two years, SEDA Malaysia has worked alongside its stakeholders such as the Ministry, Regulators, Local Authorities, and industry players to host numerous webinars to promote the country's sustainable energy transformation. For instance, on 25th August 2020, SEDA Malaysia had collaborated with the International Renewable Energy Agency (IRENA) to host a webinar to deliberate on innovations for a decentralised renewable powered system. The webinar received overwhelming response and was attended by more than 1,000 participants worldwide. The Authority had also organised the 3rd GTALCC Low Carbon Cities Webinar 'Renewable Energy is the Future: Myth or Fact?' on 7th June 2021 to provide new updates on renewable energy in Malaysia.

Trainings related to RE, EE and low carbon programmes also went virtual during this time, and are still being carried out to this day. These include the online training on Grid-Connected Photovoltaic (GCPV) systems for Non-Technical Persons held on 23rd to 24th June 2021, and the Energy Management and Energy Audit in Buildings, as part of the three-year collaboration between SEDA Malaysia and Majlis Bandaraya Petaling Jaya (MBPJ), which was held on 6th July 2021.

As we are now in the fourth industrial revolution or IR 4.0, which focuses heavily on interconnectivity, automation, machine learning, and real-time data, the inner workings of the sustainable energy industry as we know it has transformed immensely in recent years. For instance, Malaysia's national energy grid is currently shifting towards becoming a smart energy grid, and this will indeed facilitate the renewable energy installation, particularly the variable renewable energy (VRE). The task involving reporting and managing the demand and supply of electricity within the country can now be carried more efficiently with the support of big data technology to process and analyse the energy data. As more data are processed, more automation can be deployed and thus enhances the efficiency of the national energy grid. With more changes are expected to take place in the foreseeable future, SEDA Malaysia, with the support of the Digital Services Division, is fully capable of meeting the industry's needs in spite of the fast-paced digital transformation.

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One of SEDA Malaysia's roles is to implement measures to promote public participation and to improve public awareness on matters relating to sustainable energy [Section 15(I) of SEDA Act 2011]. In this regard, SEDA Malaysia endeavours to develop and implement strategic communication programmes to reach our stakeholders.

The primary objective of such programmes is to raise greater acceptance and participation by the general public as well as the private sector in the sustainable energy initiatives administered by SEDA Malaysia.

In addition to the awareness programmes, the initiatives include stakeholders' engagements via seminars/workshops, open days, exhibitions, and collaboration with NGO partners as well as international liaisons.



# 7 MAY 2021 Distribution of dates with YBrs. Puan Usha Nandhini Jayaram

As part of SEDA Malaysia's Tautan Kasih Ramadan Programme, Authority Member YBrs. Puan Usha Nandhini Jayaram led the distribution of dates to the employees of Sungai Buloh Prison and the media at Wisma Bernama.



SEDA Malaysia CEO YBhg. Dato' Hamzah Bin Hussin shared on the issues and challenges of Renewable Energy in Malaysia during the Industry in Lectures programme, hosted by the Faculty of Business, Economy and Social Development, Universiti Malaysia Terengganu (UMT).

### 31 MAY 2021

# Knowledge sharing session on Renewable Energy Landscape in Malaysia

SEDA Malaysia had a virtual knowledge sharing session titled 'Renewable Energy Landscape in Malaysia' with the top management of SME Bank including the Chairman, Datuk Seri Nazir Ariff.

Represented by Mr. Ibrahim Ariffin, Director (Energy Analyst) Strategic Planning Division and Mr. Syeikh Mohd Iqbal, Senior Asst. Director Strategic Communication, SEDA Malaysia aims to increase the awareness on renewable energy industry in Malaysia and its potential to various stakeholders.





7 JUNE 2021

3rd GTALCC Low Carbon Cities Webinar: Renewable Energy is the Future - Myth or Fact?

Mr. Ibrahim Ariffin, Director (Energy Analyst) Strategic Planning Division, represented SEDA Malaysia at the 3rd GTALCC Low Carbon Cities Webinar where he shared the latest updates on renewable energy in Malaysia.

# 23-24 JUNE 2021

Introduction to Grid-Connected Photovoltaic (PV) System online training

The Online Training on Introduction of Grid-Connected Photovoltaic (GCPV) Systems for Non-Technical Persons was conducted by SEDA Malaysia to educate the participants on Grid-Connected Photovoltaic (GCPV) Systems and also includes solar PV modules, inverters, and other associated equipment.





# 16 JULY 2021

Yasin citation and Tazkirah Korban, and 'CEO Power Hour' session

Warga SEDA Malaysia had organized a Yasin citation and 'Tazkirah Korban' led by YBrs. Al-Fadhil Ustaz Hj. Zakaria Othman from Department of Islamic Development Malaysia (JAKIM).

The event was followed by the 'CEO Power Hour' session with SEDA Malaysia CEO YBhg. Dato' Hamzah Bin Hussin who shared his views and information on the increasingly challenging COVID-19 pandemic situation so that Authority's targets can still be achieved.

# 6 JULY 2021

Three Years Programme of Energy Management, Implementation of Energy Efficiency and Use of Renewable Energy for Non-Residential Building - Code of Practice ("MS 1525") & Low Carbon Building (2020-2023)

As part of the three years collaboration between SEDA Malaysia and Majlis Bandaraya Petaling Jaya (MBPJ), an online training was conducted on Energy Management and Energy Audit in Building for 17 participants from MBPJ on 29th to 30th June 2021.



The programme is one of MBPJ's initiatives to encourage it staff and stakeholders in supporting the City Council's efforts to reduce carbon emissions in buildings by 2030. It is also part of the training and facilitation activities offered by SEDA Malaysia in Sustainable Energy & Low Carbon Facilitation front.

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### 17 JULY 2021

# Donation of essential goods to Rumah Bakti Al-Kausar, Bangi

SEDA Malaysia has donated various essentials good to 33 residents of Rumah Bakti Al-Kausar (RBAK), Bangi. The CSR activity is part of the Authority's efforts to help ease the burden faced by the welfare homes in times of COVID-19 pandemic.



# 21 JULY 2021 Tautan Kasih CSR: Aidiladha

Authority Member YBhg. Datuk Hang Tuah Bin Din @ Mohamed Din took the lead in distributing Qurban meat to 220 residents of Gopeng, Perak.

Meanwhile, Authority Member YB. Dato' Haji Mohd Salim Sharif to distribute Qurban meat to 320 residents of Jempol, Negeri Sembilan.

The CSR activity is part of SEDA Malaysia's Tautan programme, aimed at assisting the B40 Group and those affected by the COVID-19 pandemic. It was carried out in accordance to SOP imposed by the Government.





# 6 AUGUST 2021

# Yasin Citation and Talk in conjunction with Maal Hijrah

Warga SEDA had organized a Yasin Citation and Talk in conjunction with Maal Hijrah. The virtual event invited Tuan Faisalludin Bin Mohamat Yusuff, from Faisalludin Yusuff & Partners law firm, who shared the appropriate measures in dealing with unexpected deaths in order to protect loved ones.



# **5 AUGUST 2021**

Energy Audit Conditional Grant (EACG) and Energy Management Programme Webinar

The webinar was organized by SEDA Malaysia with the objective to provide the latest information on the Energy Efficient Management of Electricity (EMEER) Regulations, and to elaborate on the registration of Energy Services Company (ESCO).

### 2 AUGUST 2021

Energy Management and Efficiency & SAVE 2.0 Initiative Webinar

SEDA Malaysia organized an Energy Management and Efficiency & SAVE 2.0 Initiative Webinar that was attended by 140 participants.







# **6 AUGUST 2021 CEO Power Hour 2.0**

Warga SEDA got up close and personal with SEDA Malaysia CEO YBhg. Dato' Hamzah Bin Hussin at the CEO Power Hour 2.0.

Among the topics discussed during the knowledge sharing session is "Urgency", which puts the spotlight on "toxic urgency" and ways to overcome it.





# 24 AUGUST 2021 The SEDA Malaysia Food Basket Project

SEDA Malaysia safely delivered food aid to the first group of recipients comprising 67 families who were badly affected by the COVID-19 pandemic. A total of 11 families also received cash donations.

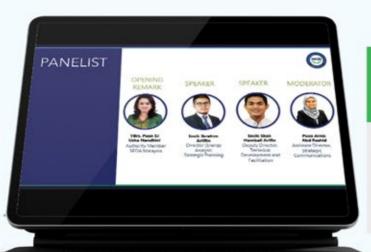
The SEDA Malaysia Food Basket Project is one of the Authority's ongoing corporate social responsibility (CSR) activities to help the local community in need, and is carried out with Warga SEDA.





# 17, 24, 31 AUGUST 2021 & 8 SEPTEMBER 2021 Care package distribution to frontliners in Ipoh, Perak

Authority Member YBhg. Datuk Hang Tuah Bin Din @ Mohamed Din distributed care package to frontliners in Ipoh, Perak, as part of SEDA Malaysia's Tautan Kasih programme. The care package includes packed food, mineral water and face masks.



# 3 SEPTEMBER 2021

# Malaysia's Sustainable Energy Landscape: Current and Future State Webinar

The webinar was jointly organized by SEDA Malaysia and Yayasan Strategik Sosial.

Authority Member YBrs. Puan Usha Nandhini Jayaram delivered the opening remark, while Mr. Ibrahim Ariffin and Mr. Hambali Arifin presented the topic.

# 8 SEPTEMBER 2021

Tautan Kasih CSR: Rumah Sejahtera Orang Tua Jimah, Negeri Sembilan

Authority Member YBrs. Puan Usha Nandhini Jayaram lent a helping hand to residents of Rumah Sejahtera Orang Tua Jimah, Negeri Sembilan.



# 11 SEPTEMBER 2021

Tautan Kasih CSR: Pusat Jagaan Telaga Kasih Nur Muhammad, Kota Damansara

Pusat Jagaan Telaga Kasih Nur Muhammad di Kota Damansara received donations from Authority Member YBrs. Puan Usha Nandhini Jayaram.

The CSR activity was carried out in conjunction with SEDA Malaysia's 10th anniversary, with an alm to help the less fortunate and those affected by the pandemic.



# EMPOWERING ENERGY TRANSITION

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# Thank Mou!

Our heartiest gratitude to our stakeholders for their relentless support throughout the years.



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