

# Harnessing energy efficiency for recovery

That's the theme of this year's National Energy Efficiency Conference as businesses rebuild after the pandemic. **REPORTS BY NARENDRA AGGARWAL**

**S**INGAPORE'S ongoing national effort to promote energy efficiency in the country is now focused on harnessing energy efficiency as businesses get on the road to recovery from the impact of the Covid-19 pandemic. This is the theme of the National Energy Efficiency Conference (NEEC) 2021 organised by the National Environment Agency (NEA), the Economic Development Board and the Energy Market Authority, which starts on Oct 12.

In spite of the pandemic, the NEA is continuing to hold the NEEC together with the presentation of the Energy Efficiency National Partnership (EENP) Awards 2021, as a virtual event. At the two-day meeting, participants can learn how companies are pushing ahead with energy efficiency to reap energy and cost savings, and turning challenges into opportunities.

This is the seventh NEEC organised by the NEA, the EDB and the EMA. The conference is part of the learning network of the Energy Efficiency National Partnership (EENP) programme. The main objective of the EENP programme is to provide thought leadership in energy efficiency, bringing together energy efficiency experts and industry energy professionals to share the best practices and case studies of successful projects.

An important part of the ongoing national effort to promote energy efficiency in the country is recognising the organisations and individuals who have done well in the past year so that others can learn from their efforts. This is done through the annual Energy Efficiency National Programme (EENP) Awards which aim to foster a culture of sustained energy efficiency improvement in industry, especially the major energy consuming industries.

The EENP Awards also aim to encourage companies to adopt a proactive approach towards energy management by identifying and sharing best practices for other companies to emulate. There are six categories in total for the annual EENP Awards:

- Excellence in Energy Management;
- Best Practices;
- Outstanding Energy Manager of the Year;
- Outstanding Energy Services Provider of the Year;
- Outstanding SME of the Year; and
- Best Energy Efficiency Practices in the Public Sector

The EENP 2021 Awards will be presented virtually during the opening ceremony this afternoon after the opening speech by the guest of honour, Minister for Sustainability and the Environment Grace Fu. The award recipients will also be featured in an awards video at the virtual event.

Altogether, 13 companies, organisations and individuals will be receiving the Awards under five different categories this year. There is no award winner for the Outstanding Energy Manager of the Year category this year. Not all awards are necessarily presented every year. Last year, there was no winner in the Outstanding Energy Services Provider of the Year category.

Overall, the benefit of the annual EENP Awards organised by the NEA, the Economic Development Board and the Energy Market Authority is that the Awards foster a culture of sustained energy efficiency improvements in the industry and the public sector.

The EENP programme, which is an industry focused programme, was launched by the NEA on 29 Apr 2010, with 49 founding partners. Importantly, the EENP is a voluntary partnership programme for companies who wish to be more energy efficient, thereby enhancing their long-term business competitiveness and reducing the carbon footprint.

The EENP programme aims to support companies in their energy efficiency efforts through learning network activities, provision of energy efficiency related resources, incentives, and recognition. As of July 1, 2021, a total of 320 companies had joined the EENP programme as partners, representing more than 75 per cent of the total primary energy consumption in Singapore.

One way the EENP programme supports partners in their energy efficiency efforts is through learning network activities. Over the years, more than 206 learning events – such as technical workshops on common industrial systems, share and learn sessions and the biennial NEEC, have been organised to promote sharing among the partners as well as enhance their competencies in energy management.

## Actions and benefits

The theme of the NEEC this year "Harnessing Energy Efficiency for the Road to Recovery" lays emphasis on how Singapore's economy has begun its journey to recovery amid the uncertainties caused by the Covid-19 pandemic, and under the shadow of the many issues related to global climate change.

The Covid-19 pandemic is transforming how countries think about their economies. In preparing themselves to be part of a stronger and more sustainable future, businesses can tap on energy efficiency as a key long-term strategy to achieve both environmental and economic objectives. The benefits of an energy efficient approach will extend along the whole supply chain, and into other business areas, compounding the overall benefits for companies.

Two keynote presentations are among the highlights of the NEEC this year. The first one on *Moving Forward on Singapore Decarbonisation*, will be delivered by Antonio Della Pelle, director of advisory consulting, Asia, Kellogg Brown and Root Asia Pacific. The presentation topic of the second keynote is: *Road to Great Energy Performance* and the speaker is Josh Watts, manufacturing director, Concentrate Manufacturing (Singapore) Pte Ltd, which is one of PepsiCo's manufacturing plants.

One of the plenary sessions at the annual two-day NECC conference starting today is on *Uncovering Opportunities with Energy Management and Technologies*, which will cover topics such as the digitalisation of the Energy Management System (EnMS) and the benefits of having an Energy Management Information System (EMIS).

Funding is available for up to 50 per cent for installation of an EMIS. Such systems are critical in helping companies track and analyse data on the real time energy use in their operations. It is an online system that enables the different levels of an organisation, individuals and departments, to plan, monitor and take effective action to continually improve and maintain energy performance.

Starting this year, companies under the Energy Conservation Act (ECA) are required to implement a struc-



At the two-day event, participants can learn how to push ahead with energy efficiency to reap energy and cost savings, and turn challenges into opportunities. Seen here is SMU Connexion (foreground), a fully solar-powered Green Mark Platinum (Zero Energy) building. PHOTO: SMU

## Award winners say

"While energy efficiency is the core of how the company does its business, Covid-19 has highlighted an urgent need to drive positive change, not just for the business but also for the community and employees."

**Josh Watts, plant director, Concentrate Manufacturing Singapore Pte Ltd**

"We have built a dedicated energy management team involving members from different departments, invested in training, and established new data driven processes on energy usage tracking and performance monitoring."

**Amy Chung, CEO, Containers Printers Pte Ltd**

"We believe that by digitalising you can achieve sustainability and energy efficiency goals as well."

**Anoop Sharma, energy management consultant, Digital Enterprise Services Asean, Siemens Pte Ltd**

"We have proven that with data, we can accurately carry out effective measures to ensure productive energy efficiency measures."

**Peter Goh, vice president, Sunseap Solutions and Sunseap Energy Ventures**

"Businesses can take a wide range of approaches to promote energy efficiency in their own operating systems. Apart from the environmental benefit, doing so reduces the operating cost and generates more cash flow for the company. It sometimes also enhances productivity."

**Beh Cho Hwa, energy manager, CCD Singapore**

"Our energy efficiency efforts have not only reaped cost savings, but it also means improved equipment reliability and increased equipment availability. Actual annual savings on a system level is 34.2 per cent and 3.2 per cent on a facility level with no capex outlay."

**Sean Spencer, vice president and managing director, Afton Chemical Asia Pte Ltd**

"As part of the ExxonMobil Global Energy Management System best practices, the plant is on a constant lookout for opportunities to improve its energy use – big and small. And Covid-19 has not stopped the ef-

forts to improve the way it uses energy in its Singapore plants."

**Raymen Chee, technical director, ExxonMobil Singapore Chemical Plant**

"There is awareness across the organisation that energy efficiency sustenance is an on-going team effort hence employees are encouraged to come together to make suggestions such as to improve operational efficiencies."

**Francis Tan, energy manager, Petrochemical Corporation of Singapore (Private) Limited**

"Promoting energy efficiency is an ongoing effort at Senoko Energy, and it is not curtailed because of the pandemic. As part of its long-term strategic planning, the company strives to produce energy more efficiently and generating cleaner energy is high on its list of priorities."

**Tan Cheng Teck, executive vice president, operations & maintenance, Senoko Energy**

"Plans are being put into action to elevate the performance of our Green Mark Platinum standard buildings to Super Low Energy buildings in the coming years."

**Sundaravadevelan Selvam, vice president, campus infrastructure and services, Singapore Management University**

"Improving energy efficiency reduces the greenhouse effect and global warming, which helps to combat climate change. Our daily energy demand generates primary greenhouse gas which can be reduced if we use energy more efficiently."

**Alan Thing, director of Ngee Ann Polytechnic's Estate, Eco & Safety Office**

"The building sector can significantly reduce energy use by incorporating energy efficient strategies into the design, construction, and operation of new buildings, and retrofitting existing building to improve their efficiency."

**Loh Wai Soong, principal engineer, JTC**

"JTC is currently working with relevant stakeholders to promote BCA's latest Green Mark super low energy accreditation. It hopes to further improve the energy efficiency of its building operations together with its facilities management partners and industrial partners."

**Nagarajan Ratha, senior mechanical engineer, JTC**

## This year's winners

### Excellence in Energy Management

This award recognises companies that have demonstrated a high level of commitment to excellence in energy management. The award recipient under this category is:

- Concentrate Manufacturing Singapore Pte Ltd

### Outstanding SME of the Year

This award recognises SMEs (in manufacturing or industrial business activities) that have demonstrated a high level of commitment to energy management. The award recipient under this category is:

- Containers Printers Pte Ltd

### Outstanding Energy Services Provider of the Year

The award recognises companies whose services to their clients have led to outstanding improvement in energy performance and other non-energy benefits, and contribute to the development of the energy efficiency industry. The award recipient is:

- Siemens Pte Ltd

Under this category, one other company also received the Outstanding Energy Services Provider of the Year (Honourable Mention) Award:

- Sunseap Solutions Pte Ltd

### Best Practices

This award recognises corporate teams who had implemented energy efficiency projects that have led to improvements in the energy performance of their facilities. The award recipient under this category is:

- CCD (Singapore) Pte Ltd

Under this category, four other companies also received the Best Practices (Honourable Mention) Award:

- Afton Chemical Asia Pte Ltd
- ExxonMobil Asia Pacific Pte Ltd Singapore Chemical Plant
- Petrochemical Corporation of Singapore (Private) Limited
- Senoko Energy Pte Ltd

### Best Energy Efficiency Practices in the Public Sector

The award recognises outstanding public sector agencies that have demonstrated exemplary performance and commitment to energy management efforts and have been proactive in implementing EE improvements. The award recipients are:

### Organisation

- Ngee Ann Polytechnic
- Singapore Management University

### Individual

- Loh Wai Soong – JTC Corporation
- Nagarajan Ratha – JTC Corporation

tured energy management system (EnMS). The requirements are based on the Plan-Do-Check-Act (PDCA) continual improvement framework and incorporate energy management into existing organisational practices.

Data is critical in monitoring and continually improving energy performance. EMIS serves as a critical tool in the EnMS framework which helps to automate data collection, with regards to energy performance of Significant Energy Uses (SEUs), through integrated functions for tracking, real time monitoring, customised reporting (according to different user levels), alerting (when there are significant deviations in energy performance) and capturing data at appropriate intervals for storage and analysis.

The NEA says EMIS is an online system that enables different levels of an organisation, the individuals and departments, to plan, monitor and take effective action to continually improve and maintain energy performance.

It can capture and consolidate energy performance related plant data, provides dashboards for visualisation and monitoring and includes reporting and analysis tools to spur identification of performance gaps and opportunities. Reliable system level data enables companies to un-

derstand and manage their energy consumption and identify and implement energy improvement opportunities, it adds.

NEA also has the Energy Efficiency Fund which supports the efforts of businesses with industrial facilities to improve their energy efficiency. Activities supported under this fund include: energy efficient technologies, energy assessment, energy management information system, resource efficient design and low global warming potential (GWP) refrigerant chillers.

### Grants and funding

For instance, energy efficient technologies funding is available for up to 50 per cent for investing in energy efficient equipment or technologies, such as installation of LED lighting as well as energy efficient air-conditioning systems. Companies can also tap on the low GWP refrigerant chillers grant to make an early switch to low-GWP refrigerant water-cooled chillers before the ban on sales of high GWP refrigerant water-cooled chillers from the fourth quarter of 2022.

There is also up to 50 per cent funding available for resource efficient design – capped at \$5600,000 for conducting design workshops for new facilities and major expansions. NEA says that energy efficient facilities are most effectively developed through a focused and collaborative

design workshop from the beginning of the project design.

A design workshop is an intensive two to three-day session that fosters cross-disciplinary interaction by bringing together multi-disciplinary internal experts ("home team") and external experts ("visiting team") at the design stage to identify technical opportunities to improve resource efficiency in areas like energy and water. Other outcomes of the design workshop include conceptual designs for high efficiency systems; and preliminary estimates of net cost and payback period.

Similarly, for energy efficient technologies funding is available for up to 50 per cent for investing in energy efficient equipment or technologies.

The government has also been working to help companies identify energy efficiency opportunities and introduced the Energy Efficiency Opportunities Assessments for companies under the Energy Conservation Act (ECA). This is to allow companies to identify energy saving opportunities within their facilities. The first submission of the assessment reports will be at the end of the year.

With effect from 1 Jan 2020, a registered corporation under the ECA must, for each relevant business activity under its operational control, conduct an Energy Efficiency Opportunities Assessment (EEOA) for the relev-

ant business activity, and submit an assessment report to NEA before the expiry of the respective assessment period.

For the first EEOA, a registered corporation that established operational control of a relevant business activity on or before 2 Jun 2017 must conduct it for the relevant business activity; and submit to the Director-General an assessment report by 31 Dec 2021.

A registered corporation that established operational control of a relevant business activity after 2 Jun 2017 must conduct an EEOA for the relevant business activity and submit to the Director-General an assessment report within six years from the day the registered corporation established operational control of the relevant business activity.

For small and medium enterprises, NEA has partnered with the Singapore Institute of Technology (SIT) to set up the Energy Efficiency Technology Centre, to ensure that low-cost energy audits are available to smaller companies.

SIT's Energy Efficiency Technology Centre (EETC) aims to be the leading technology innovation centre supporting local industries in energy efficiency initiatives. It aspires to promote and develop energy efficiency capability and adoption of new technologies in the local energy ecosystem for industrial sectors.