CSC STEEL

2022 SEAISI Steel Mega Event & Expo

Technology

Construction

Sustainability

Towards Sustainable Development via ENERGY MANAGEMENT

CSC STEEL SDN. BHD. MALAYSIA

By CHIENG DEE HUAT

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Company Profile

CSC Steel is a mid-stream flat steel producer and marketer of pickled and oiled steel coils, cold rolled steel coils, galvanized steel coils and pre-painted galvanized steel coils.

Energy Profile

CSC Steel main energy uses in manufacturing factory are **Electricity** and **Natural Gas**.

Electricity

48 %

Natural Gas

41%

ENERGY Management System

EnMS

ISO 50001

P **Plan**

Context of the organization, energy policy and an energy management team, risks & opportunities, energy review, identify Significant Energy Uses, energy baselines, energy performance indicators, objectives and energy targets and action plans

D **Do**

Implement the energy management action plans, ensure competence and consider energy performance in procurement.

C **Check**

Monitor and measure processes and the key characteristic of its operations. Audit and management review.

A **Act**

Take action to continually improve energy performance and the Energy Management System

ENERGY Management System

Energy Conservation

Largely based on behavioral & operational practices.

Renewable Energy

When the system is modified to use efficiency, adopt renewable energy is needed

Energy Efficiency

Replace the old equipment and installing efficient equipment and process.

Energy
Solution

ENERGY Management System

Energy Hierarchy

Most Effective

Least Effective

Elimination
Totally stop/cut-off the excessive energy supply

Substitution
Replace old equipment with new technology or high efficiency equipment

Engineering Controls
Modification of equipment

No-Cost Measures
Work practices

Maintain
Maintain the energy consumption

Sustainability Program

Energy Program

① Roofing Solar System

⑦LED Lighting System

← Hot Water return

Water Cooling System

Compressed air →

④ Optimize Compressor system

Cold Rolling Mill

← Steam

⑤ High Efficiency Pump

⑥ VSD

③ High Efficiency motors (IE3)

↑ Hydraulic

Hydraulic System

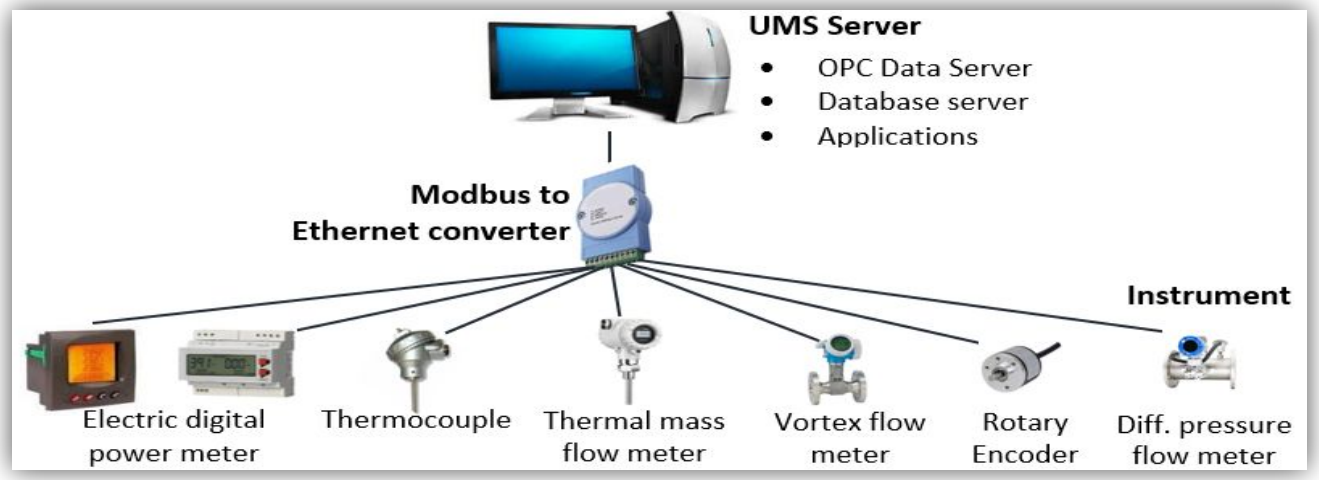
② High Efficiency Boiler

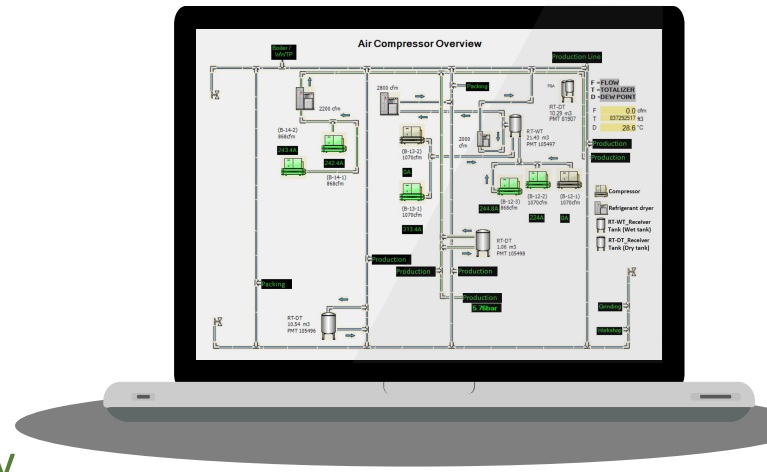
Cool Water →

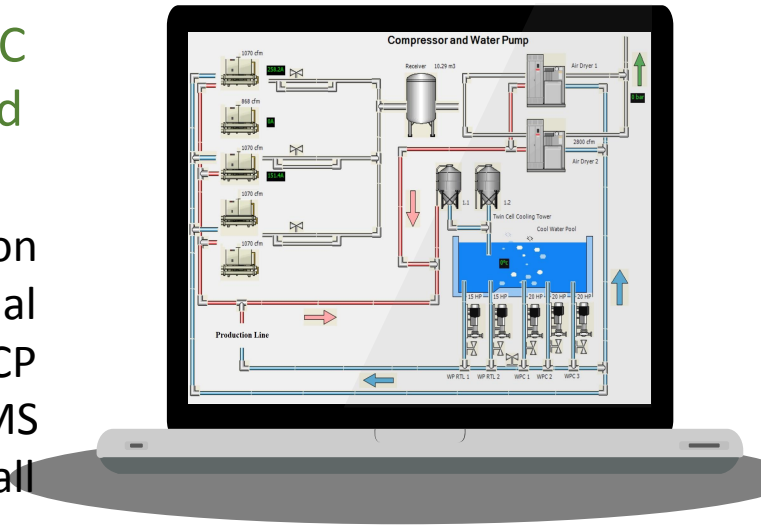
Sustainability Program

Utility

Monitoring System







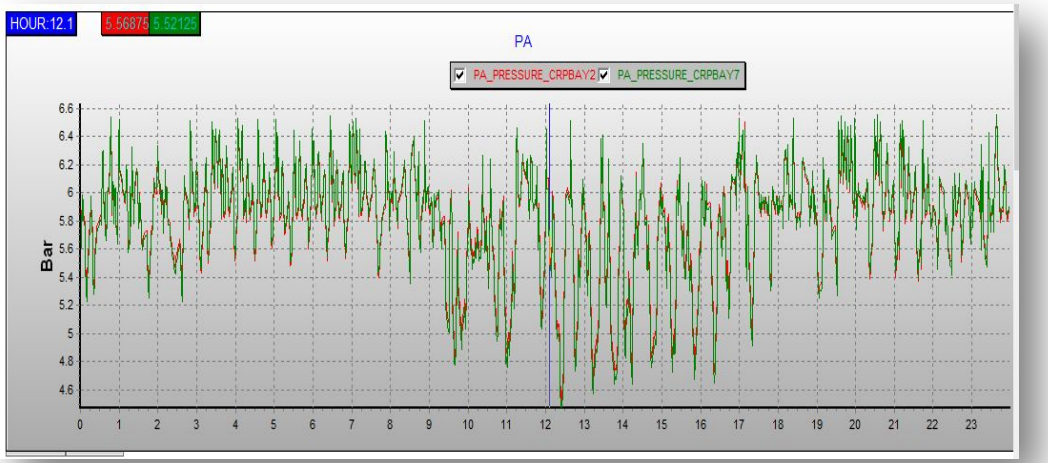
To **integrating all the energy consumption data**, an in-house energy monitoring tool, Utility Monitoring System (UMS) has been developed by CSC Steel to monitors electricity, steam, natural gas, cooling water and compressed air consumption.

UMS using common OPC protocol to collect data from equipment. The communication protocols used are Modbus RTU and Modbus TCP (Ethernet). Various equipment signal output will be converted into Modbus RTU, and finally converted to Modbus TCP (Ethernet) protocol. The data is then read by an OPC data server running in the UMS server, and stored in the database. The UMS HMI is the application that displays all energy information to the user.

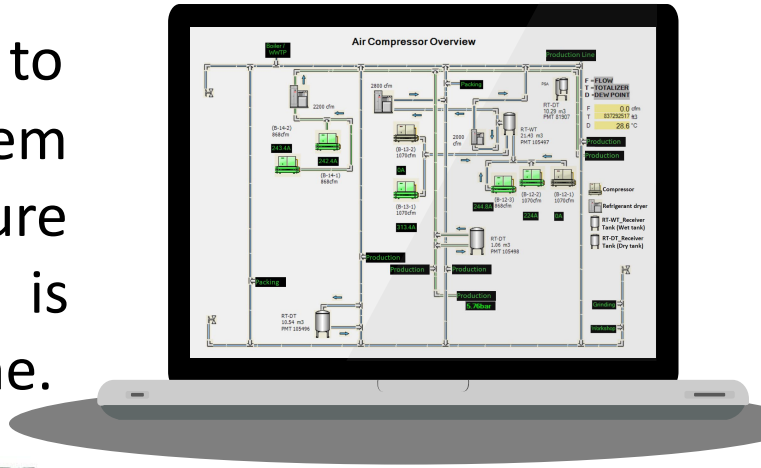
Sustainability Program

Utility

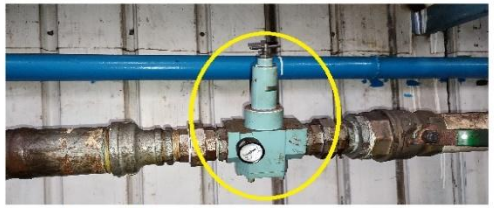
Monitoring System

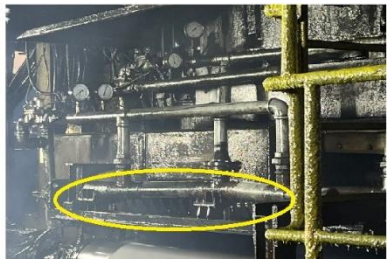


Monitoring the **air pressure system** to determine the system performance, make sure sufficient air pressure is provided to production line.

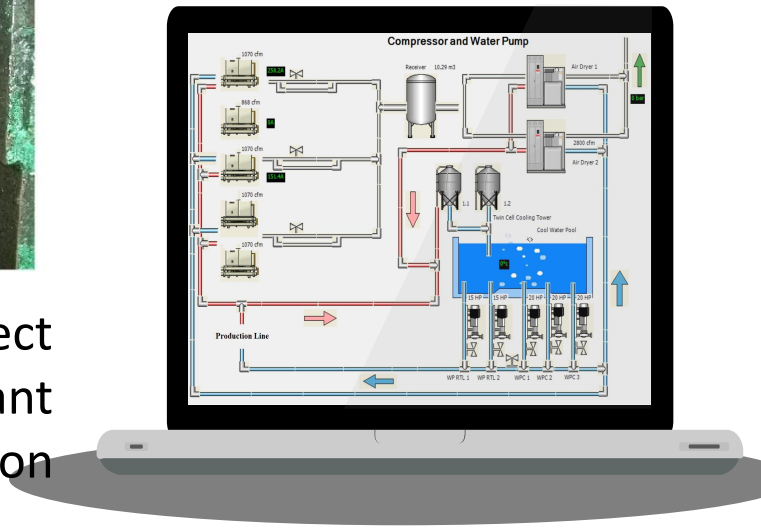


Install regulator to enhance the regulator system to match usage and optimise compressed air consumption





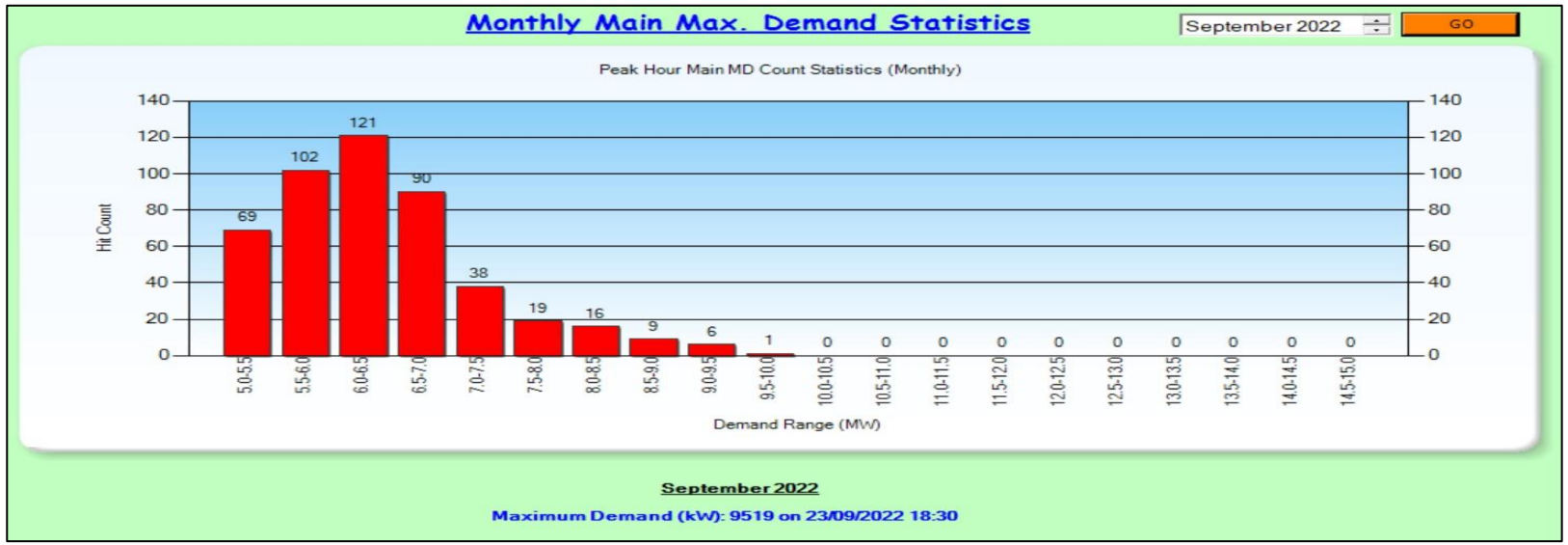
Using preferred nozzle type and correct nozzle offset angle purging are important for optimizing compressed air utilization according to process conditions



Sustainability Program

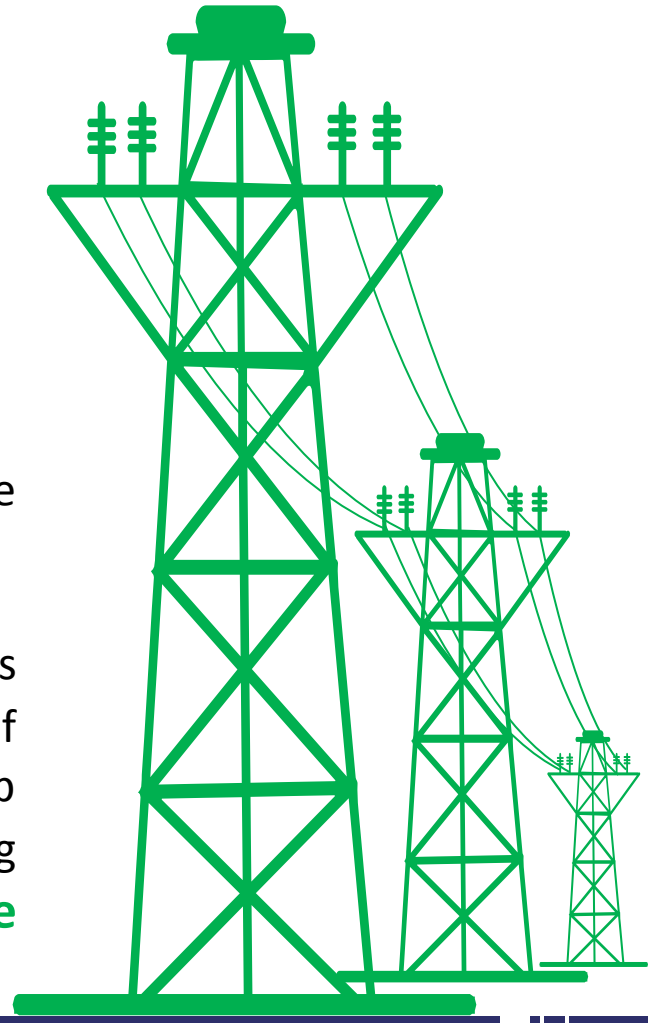
Electricity

Maximum Demand



The **self-developed Maximum Demand (MD) monitoring system** is integrated with the UMS for MD monitoring and control.

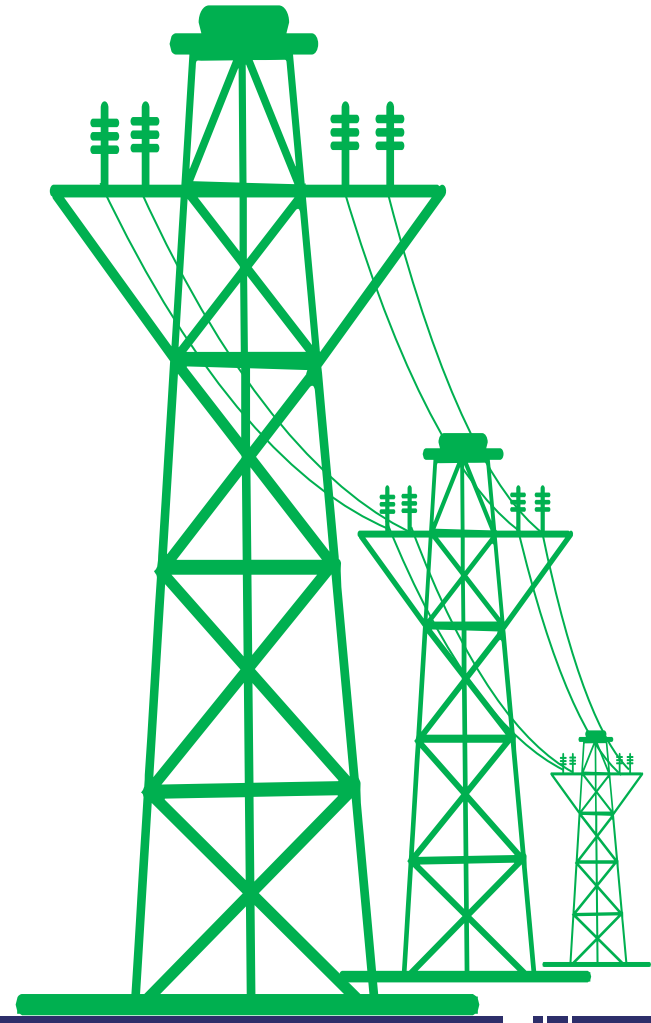
MD is affected by the amount of equipment being operated at the same time and it's **monitored in real-time** and production personnel will be notified by demand indicators if the MD has exceeded respective set point. Action can be taken to lower the demand and keep MD at target level. Other than existing control that **limits selected process speed** according to predicted demand value, CSC Steel also uses **exclusive production planning technique** to schedule those high power demand to run at off peak periods.



Sustainability Program

Electricity

Maximum Demand



Demand indicators had been installed in all production lines, which can display three colours of **GREEN**, **YELLOW** and **RED**.

When the predicted demand value reaches the warning value, the warning light will turn on **YELLOW** for warning. When the predicted demand value reaches the target value, the warning light will light up in **RED**. The main controller of the operating unit will operate according to the response measures set at the **YELLOW** or **RED** light, and it is expected that the MD can be controlled below the target value.

Sustainability Program

GREEN PRODUCT

SIRIM ECO-LABEL

In 2014, CSC Steel had been accredited with the SIRIM Eco-label certification (Green Coated Steel) for realzinc™ & realcolor® steel.

Sustainability Program

GREEN PRODUCT

MYHIJAU MARK

In 2015, CSC Steel had been accredited with the My Hijau Mark for realzinc™ & realcolor® product.

Sustainability Program

GREEN PRODUCT

THERMOSHIELD

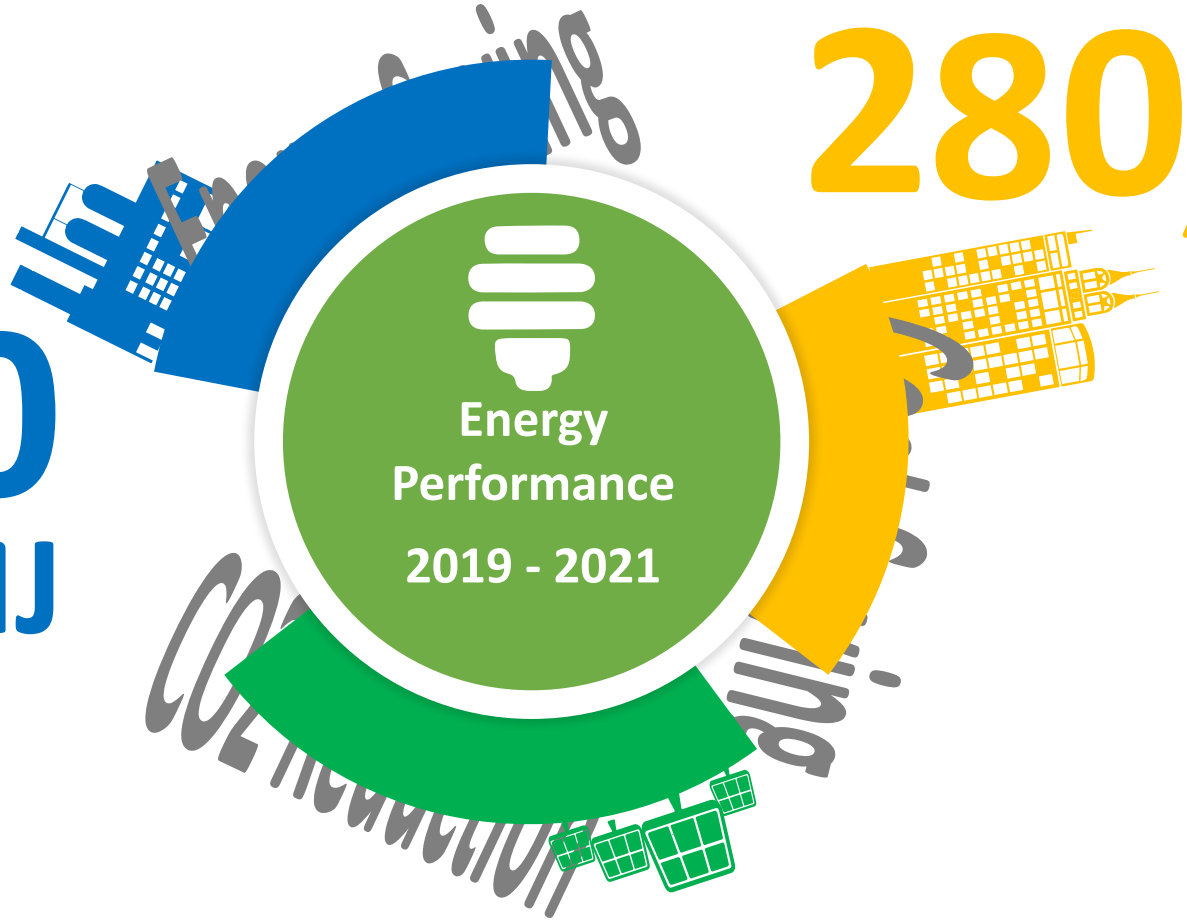
Thermoshield product provide excellent heat reflection that can achieved SRI ≥29 and the coating surface with hydrophilic material provide the self-cleaning function that resulting the surface looks new and clean as dirt can be washed by rainwater.

Thermoshield
realcolor

Sustainability Achievement

280,971
USD

36.40
million MJ



3,266 Tonnes

16

Sustainability Achievement

WINNER

nea NATIONAL ENERGY AWARDS 2022

CSC Steel was proud to be chosen as the WINNER for energy management towards efficient and sustainable process operations in large industry category at the **NEA 2022**.

Year 2022 National Energy Award (NEA)

13 September 2022 Virtual award ceremony

Sustainability Achievement

ASEAN ENERGY AWARDS 2022

WINNER

CSC Steel emerged as the WINNER for the Energy Management in Large Industry category at the **AEA 2022**.

Year 2022 Asean Energy Award (AEA)

15 September 2022 Virtual award ceremony

CONCLUSION

CSC Steel Energy Management System has achieved in adopting energy efficiency measures to reduce carbon footprint while improving overall competitiveness and it's already formed part of the CSC Steel's culture to embed the sustainable development thoughts in the business practices.

To align with Malaysia's goal of becoming carbon-neutral by 2050 and succeed in towards sustainable development via energy management in the industry, CSC Steel will continue to establish, implement, maintain and improve an energy management system through progressive adoption of energy efficient technologies, resource conservation and pollution control.

Thank You