DECARBONISE YOUR FACTORY
REDUCE ENERGY AND SAVE COSTS!

Mastercam Connect 2025

2 October 2025

SHIN SEIKI

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Founder & Commercial Director

- Startup company helping SME manufacturers to decarbonise via energy efficiency projects
- Small 5-person team

ICHI SEIKI

Business Development

- Family business founded in 1988
- Supplier of equipment and solutions for precision engineering

SINGAPORE BUSINESS FEDERATION
Apex Business Chamber

Roles in Trade Associations

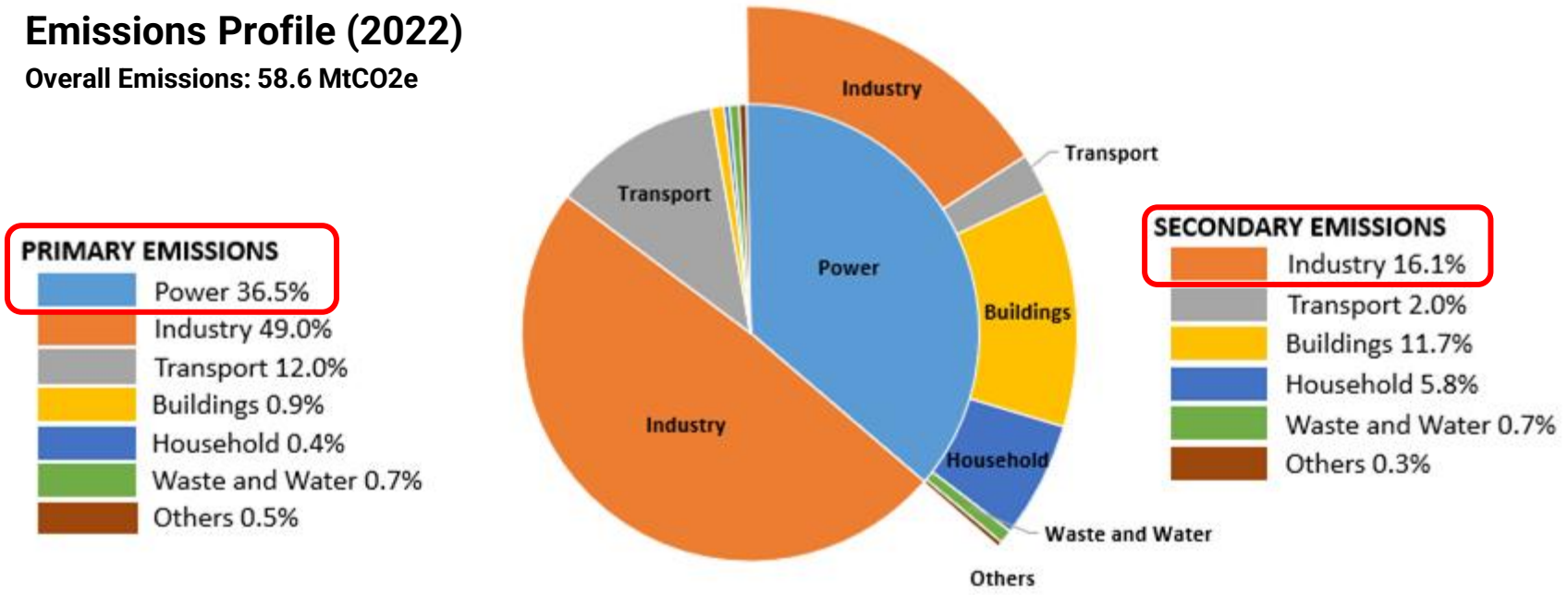
- SBF, SME Committee
- SCCCI, Sustainability Committee
- SPETA, Head of Sustainability

OPEN SUPPLY HUB

Board Member

- Global non-profit platform for supply chain transparency
- Represent production facilities

Industry is the Largest Contributor to Secondary Emissions in Singapore (i.e. power consumption) @ 16.1%



Source: https://www.nccs.gov.sg/singapores-climate-action/singapores-climate-targets/singapore-emissions-profile/

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Understanding where there is Greatest Opportunity for Emissions Reduction for SME Manufacturers

SPETA partnered with EETC, a collaboration between NEA and SIT, which provides **Low Cost High Quality Energy Assessments** for SME manufacturers

Typical Industrial Systems with High Energy Consumption
Boilers and Furnaces
Pumps and Motors
Compressor Systems
HVAC / ACMV
Cooling Tower
Lighting Systems
Production Equipment

SIT SINGAPORE INSTITUTE OF TECHNOLOGY

The Energy Efficiency Technology Centre (EETC) upskilled 200 professionals and conducted 120 audits to help Small and Medium-sized Enterprises (SMEs) optimise their energy usage in its first phase of operation.

The team at Energy Efficiency Technology Centre (EETC) aims to promote and develop energy efficiency capability and the adoption of new technologies in the local energy ecosystem for industrial sectors. (SIT Photo: Keng Photography/Tan Eng Keng)

After working for about a decade in various sustainability roles, Ms Kia Jiehui joined her family business - Ichi Seiki, an engineering solutions provider. She was eager to introduce changes to help make the company greener and more energy efficient.

In 2021, she turned to the Energy Efficiency Technology Centre (EETC) at the Singapore Institute of Technology (SIT). EETC sent a team, comprising an energy specialist and SITizens doing their Integrated Work Study Programme (IWSP), to perform a comprehensive energy assessment of Ichi Seiki's premises, and provide recommendations on reducing its energy usage.

Source: https://www.singaporetech.edu.sg/news/strong-start-boost-smes-energy-efficiency-and-upskilling

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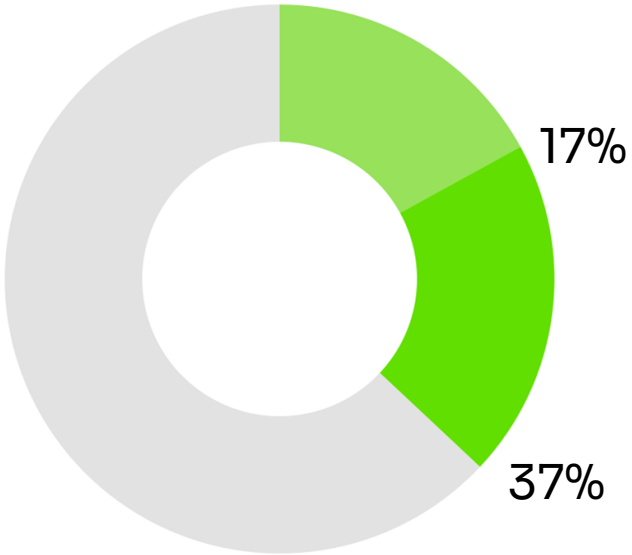
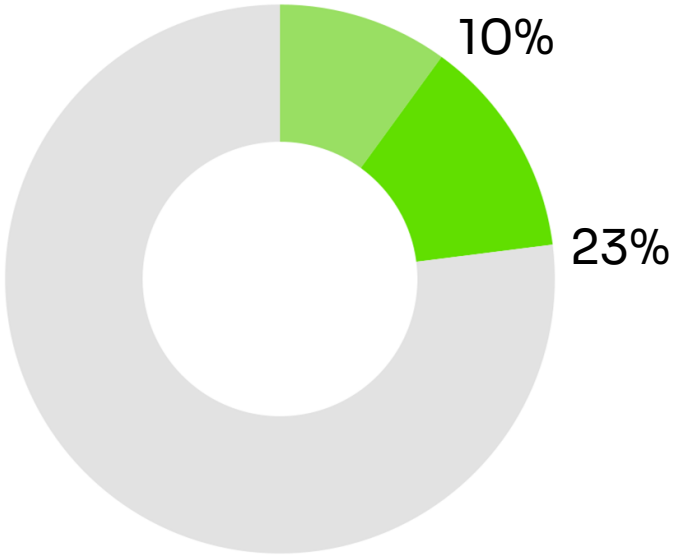
Energy Consumption of Compressed Air Systems in Precision Engineering Facilities in Singapore*

Fixed-Speed Compressors



Fixed-speed compressors account for 17-37% of energy consumption in a precision engineering facility.

Variable-Speed Compressors



Variable-speed compressors account for 10-23% of energy consumption in a precision engineering facility.

Upgrading to variable-speed compressors reduces energy consumed by CAS by between 15% to 45%, depending on air usage patterns. Majority of projects enjoy energy savings of ~35%.

*Figures are derived from power logger data collected from >15 facilities

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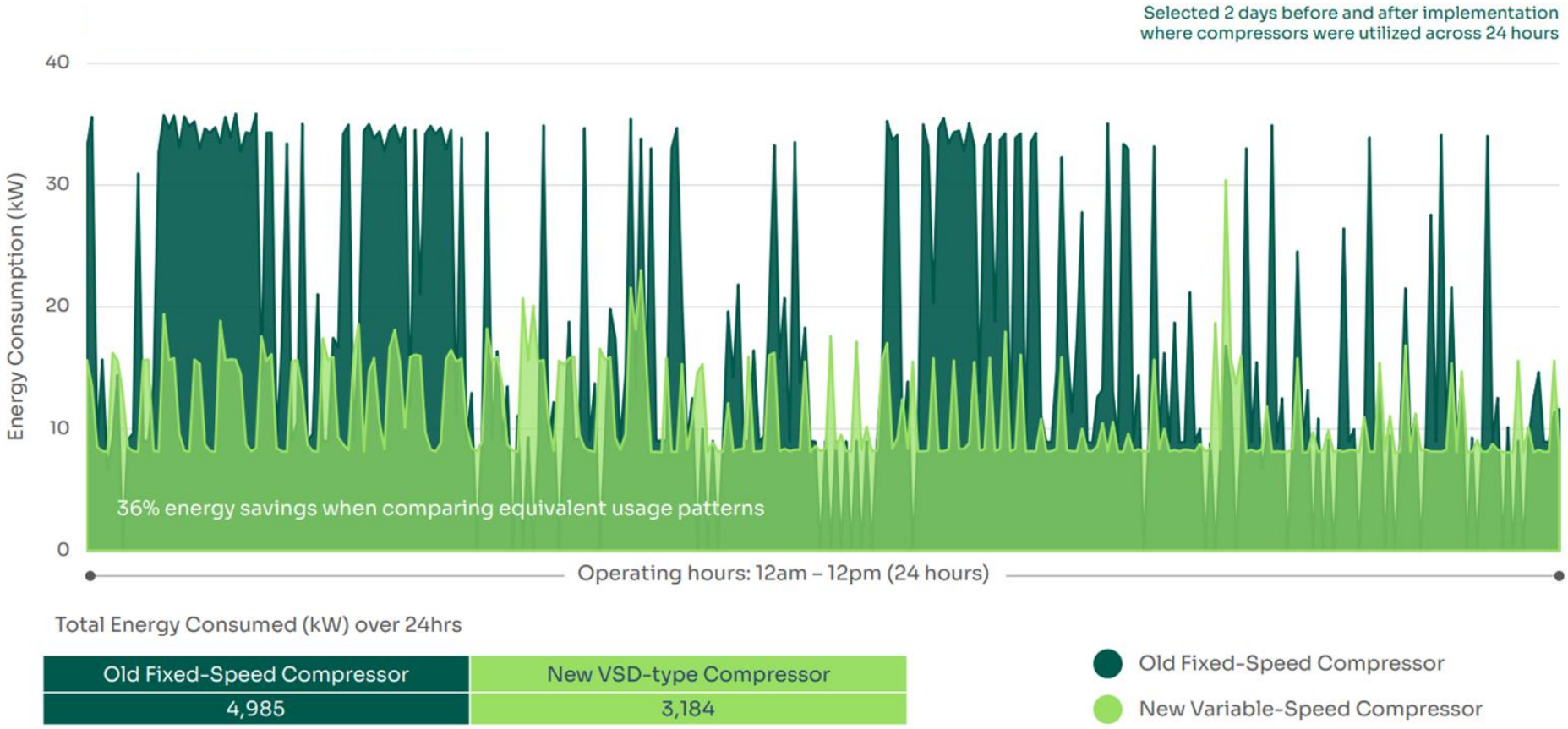
Energy Usage Pattern Comparison
Conventional Fixed-Speed vs Variable Speed Compressor*

Demonstrated and measurable energy savings of ~35% translating to lower electricity bills



Total Energy Consumed (kW) over 24hrs

Old Fixed-Speed Compressor	New VSD-type Compressor
4,985	3,184

Old Fixed-Speed Compressor

New Variable-Speed Compressor

*Data extracted from power logging of compressor before and after upgrade to VSD-type compressor

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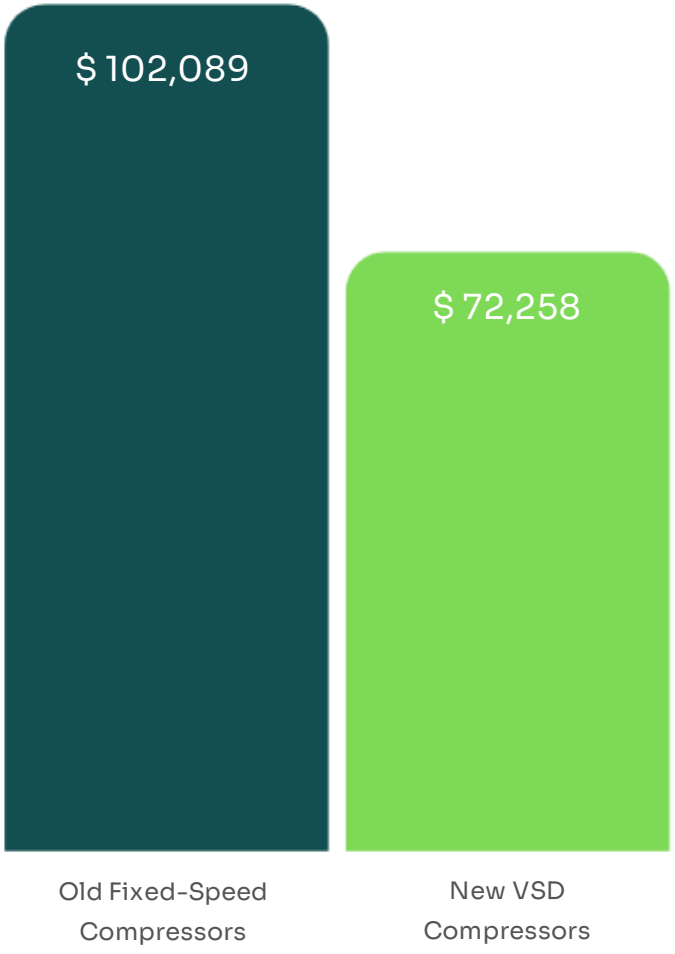
Return on Investment from Energy Savings Achieved

even more attractive with EEG grant support



$ 102,089
Est. annual electricity cost of old Fixed-Speed Compressors based on power meter data

$ 72,258
Est. annual electricity cost of new Variable-Speed Compressors based on power meter data

Payback Period (without grant support)

$ 49,200
Project cost without grant support

$ 29,831
Yearly savings

= 1.6 Years

Payback Period (after 70% grant support)

$ 14,760
Project cost after 70% grant support

$ 29,831
Yearly savings

= 0.5 Years

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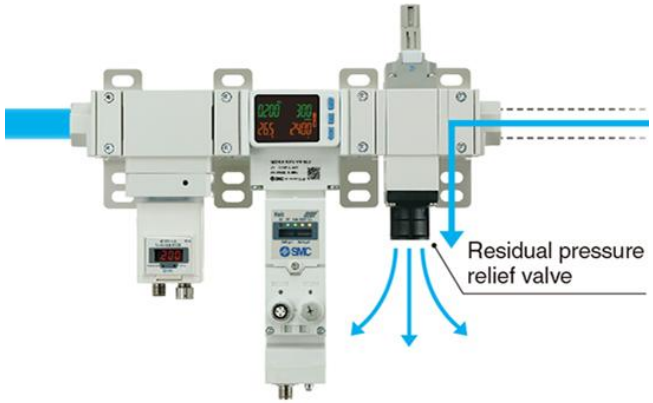
Full Suite of Solutions to Optimise Energy Consumption from Compressed Air Systems

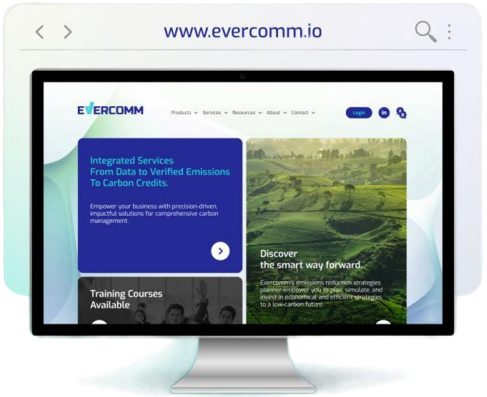
Variable Speed Drive Air Compressor

Upgrade from fixed-speed compressors to VSD (inverter) compressed air systems



Smart Air Management System

Automated air pressure reduction to idling machines to optimise air consumption



Equipment & Emissions Monitoring

Monitor compressor health to detect anomalies, track and report energy & emissions data

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Energy Efficiency Grant (EEG)

Helping SME Manufacturers to Secure Co-Funding for Energy Efficient Investments

Typical investment range:

S$20,000 to S$50,000

5 Steps to Lower Electricity Bills

1 — Month 1 — Project Proposal
- Site survey to define project scope
- Submit proposal and quotation

2 — Month 2-3 — Grant Application
- Estimate project electricity savings
- Submit NEA required documents

3 — Month 4 — Project Execution
- NEA grant approval
- Sales order confirmation
- Installation and commisioning

4 — Month 5 — Project Completion
- Project completion and full payment
- NEA post-site visit

5 — Month 6 — Grant Claim
- Submit claim documents to NEA
- Receive grant reimbursement

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Driven by our mission to enable manufacturers in Singapore to take practical first steps on sustainability journey

Our Impact

Annual Carbon Emissions Abated

879,609 kgCO2

Number of Projects Delivered

60 as of August 2025

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Begin your journey towards a
Zero Carbon Factory
Get in touch: hello@shinseiki.co
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