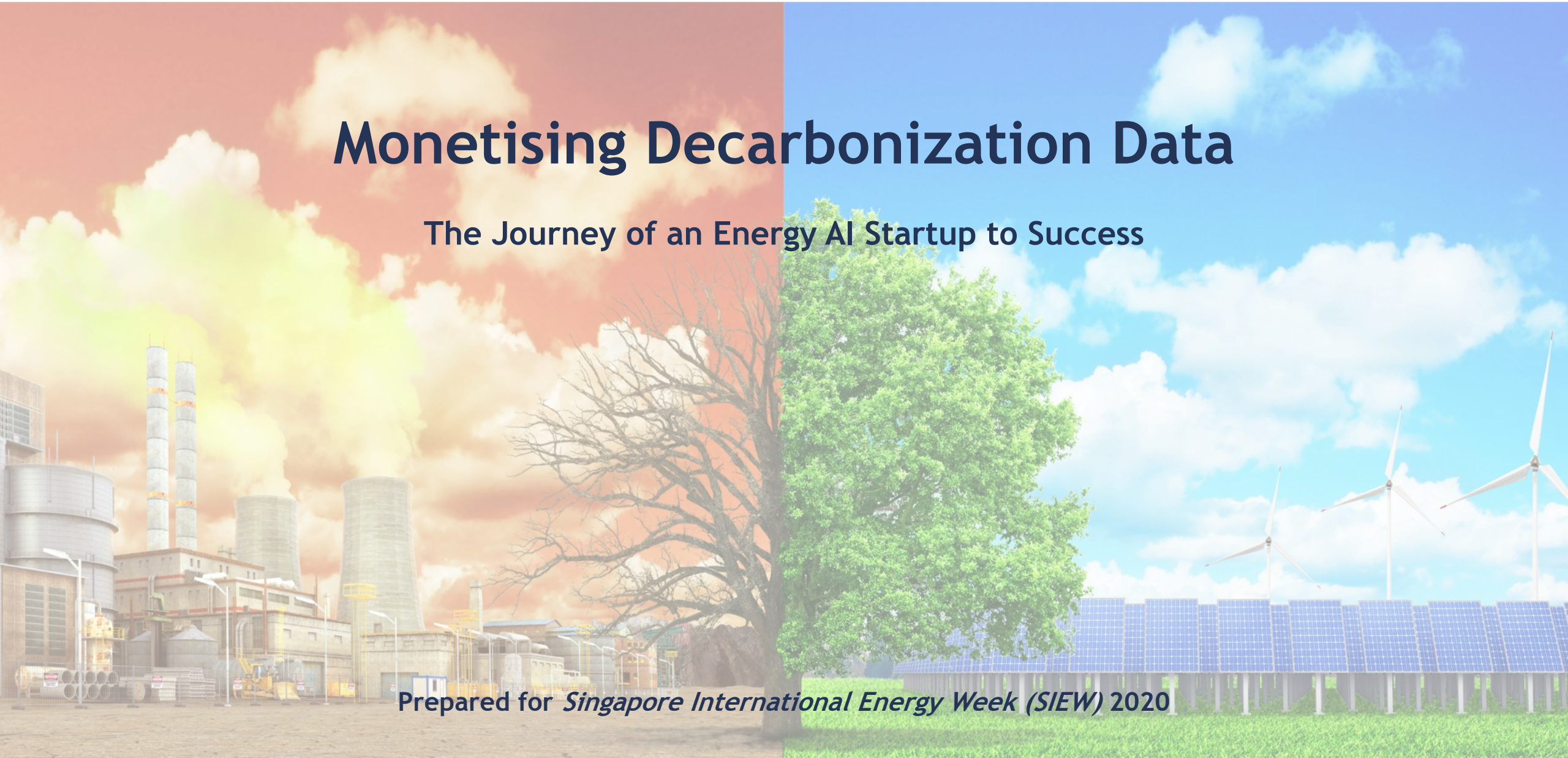


Monetising Decarbonization Data

The Journey of an Energy AI Startup to Success

Prepared for *Singapore International Energy Week (SIEW)* 2020

EVERCOMM

Helping organizations(s) and government(s) to *identify, achieve and scale* available technologies and transit towards *net-zero operations*.

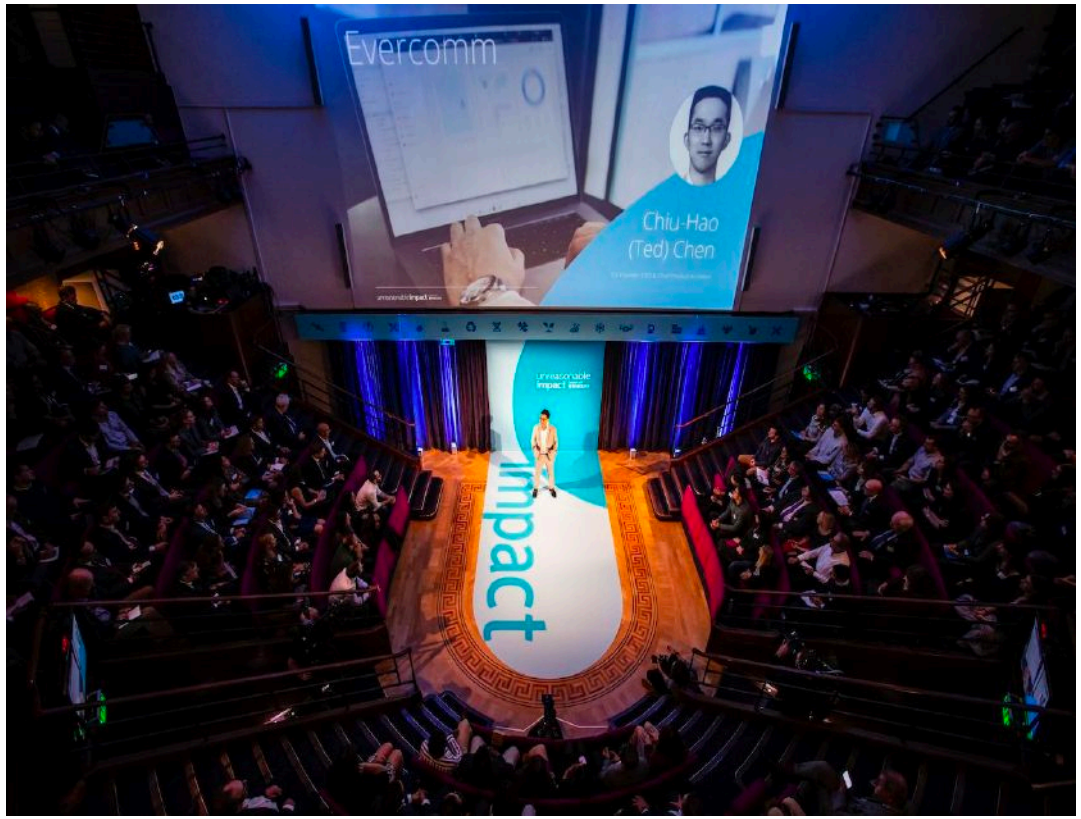
- Leveraging Big Data IoT & AI for Asset Performance Management
- Founded in 2013, incubated and invested by Nanyang Technological University (NTU Singapore)
- Accredited by Singapore Government, recognized as one of the digital pioneers by Singapore Committee on the Future Economy (CFE) and sited by various ministers in Singapore
- Recognized as Top 10 Renewable Energy Solution Provider in APAC by Energy CIO Insights, Top 25 Cleantech company in APAC by Cleantech Group, and Singapore Energy Award Recipient

SG:D
EMPOWERING POSSIBILITIES

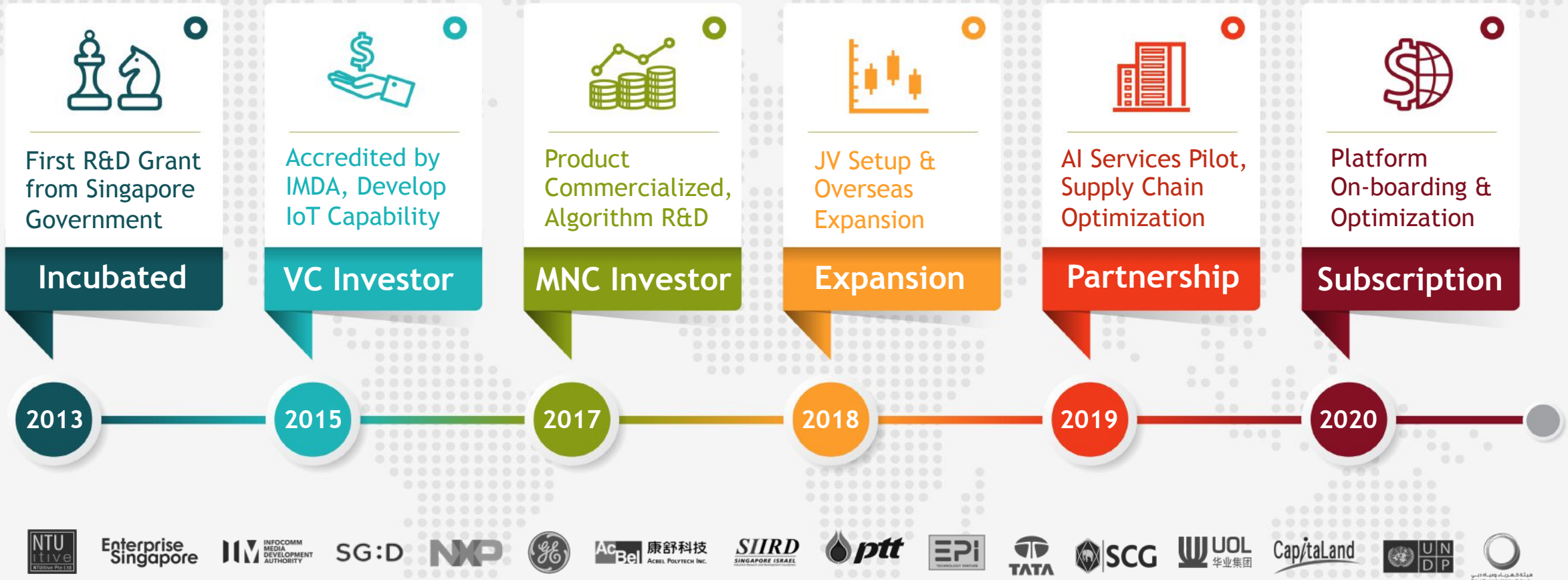
Accelerator Program Selected:

2017 2018 2020

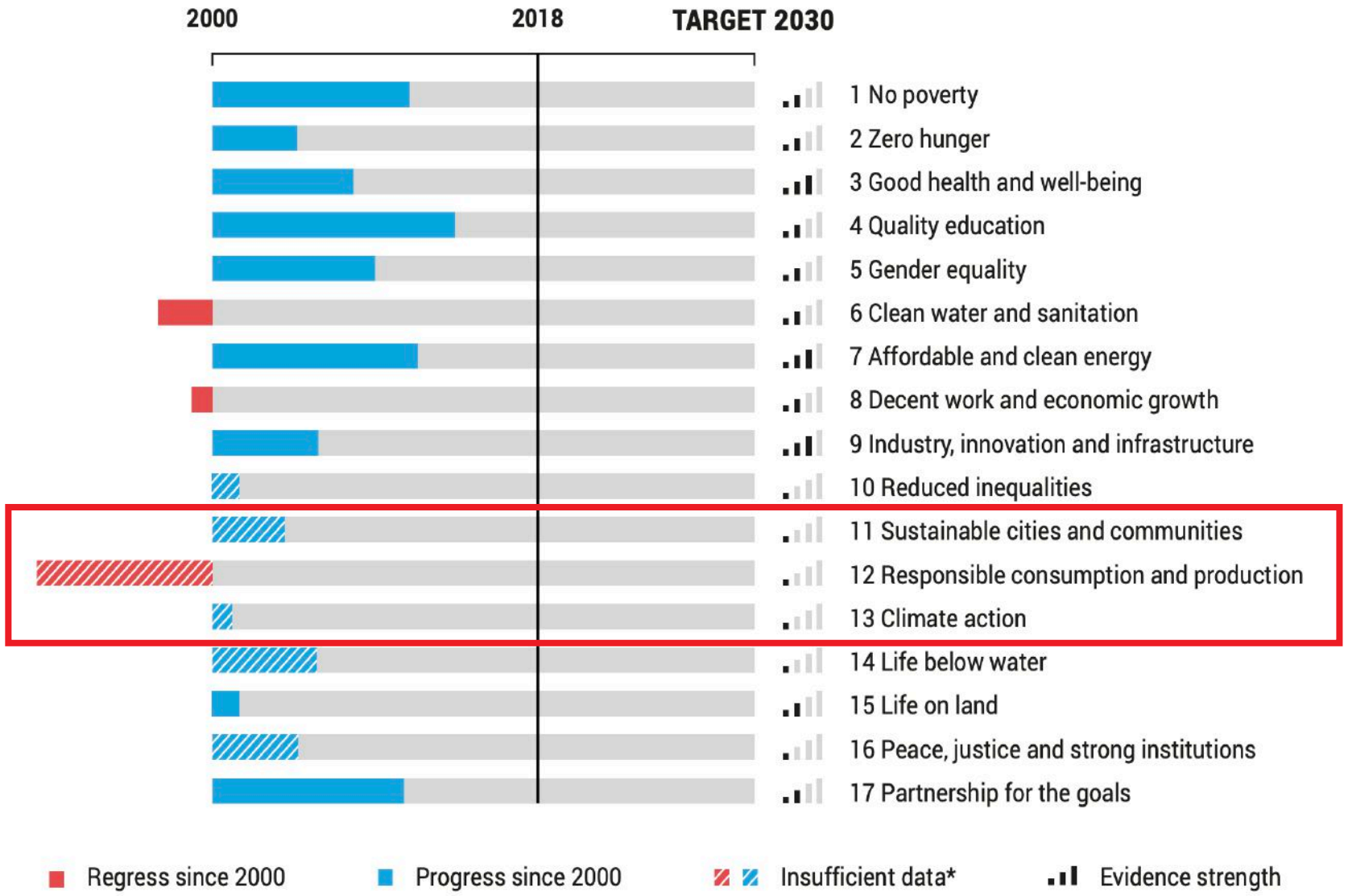
unreasonableimpact Created with BARCLAYS



Our Innovation Journey



Global Challenges



Energy Complexity

EVERCOMM

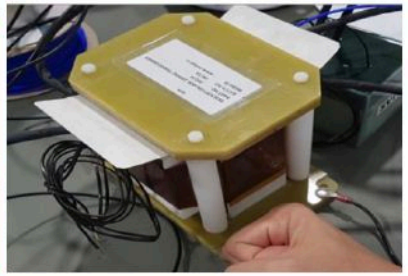
Urban Mobility

EV Charging Infrastructure
Flash Power Transfer
Power Trains For Traction
Range Extender Solutions
Vehicle To Grid Interaction
AI & Perception Systems
Comms & Control Systems
V2X Systems

Carbon Reduction

Carbon Capture/Storage
District Design
Urban Dynamics
District Cooling Network
Low Carbon
Data Centers
Transport System Design

Digital Grids



High Frequency Transformer
Multigrid Controller /Systems
Microgrid Power Devices
Modelling & AI
DAC Systems
DER's, Smart Metering
Fault Prediction Tools
Interoperability Systems

Energy Efficiency

Zero Energy Buildings
Virtual Power Plant
AC/MV / System Optimizer
EMS/BMS
Low Carbon Campus
Energy Harvesting
Low Power Devices

Renewables Integration

Multi Energy RE Systems
Solar, Wind, & Tidal
Advance Energy Storage
Hybrid Energy storage
DC Grid Systems
Power Devices

Circular Economy

Waste to Energy
Resource Recovery-Metals
E Waste
Low Energy Grade Waste
Building Materials
Municipal Solid Waste
Polymer Recycling

Reference: NTU ECOLABS

Open Innovation Methodology

Solar Product Design
(Lead: *ERI@N)

- Solar Optimizer Prototype
- Bi-directional Inverter Design

*Energy Research Institute @NTU (**short for ERI@N**) in collaboration with Prof Lai from VirginiaTech

Hardware & Edge Development
(Lead: EverComm & *EEE)

- Data Collection Design & Integration

(Lead: AcBel)

- Design for Manufacturing (DFM)

*NTU School of Electrical Electronic Engineering (**short for EEE**).

Joint Development
(Lead: EverComm & AcBel)

- Product Integration & Certifications

Product Commercialization
(Lead: AcBel)

- End-to-End Solar Optimization Systems

NTU Solar Testbed
(Lead: ERI@N)

- Validation & Product Testing

Ho Ching,
CEO of Temasek Holding

NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE | Energy Research Institute @ NTU

ECOLABS
CENTRE OF INNOVATION FOR ENERGY

AcBel 康舒科技 ACBEL POLYTECH INC.

AcBel is a Member of NKG NEW KINPO GROUP

Singapore Testbeds

Renewable Energy Integration Demonstrator (REIDS) Singapore

5 microgrids for core electrical/ICT infrastructure operation / testing

RE Integration, Carbon Reduction, Green Building & Energy Efficiency, IoT.

Supply Chain City Singapore

Sustainable Design, IoT , Big data and AI, E-mobility

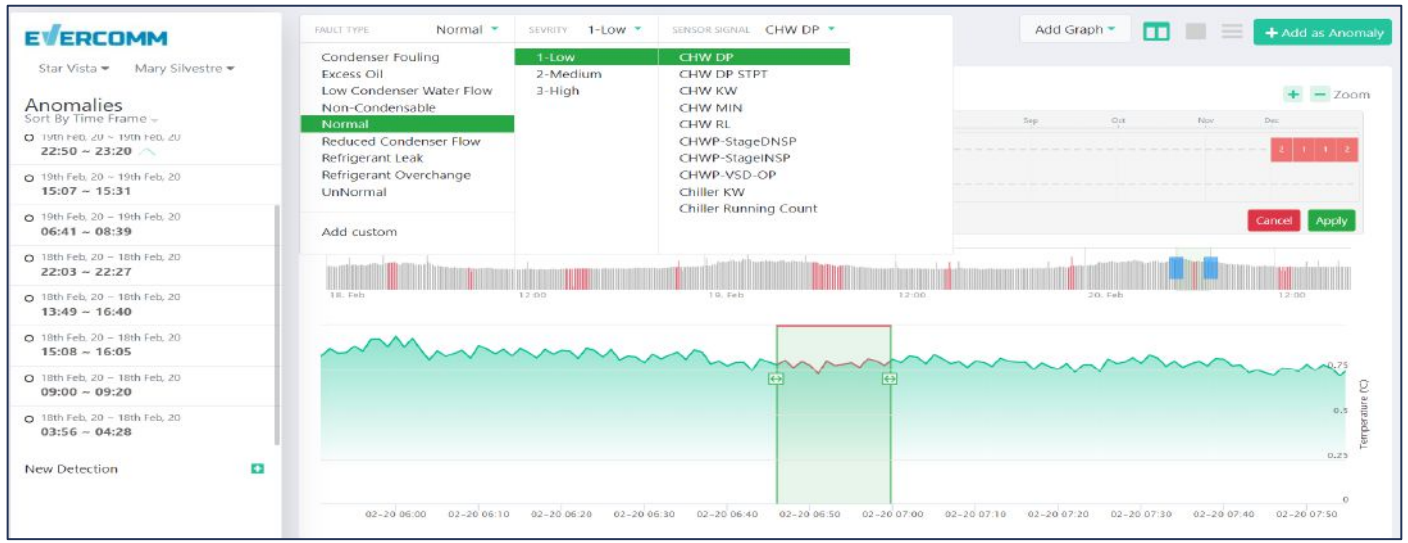
Experimental Power Grid Center (EPGC) Singapore

40 Million $

RE Integration, Green Building & Energy Efficiency, Sustainable Design, Digital Twin, IoT, big data & AI.

Reference: NTU ECOLABS

New Business Model: Subscription

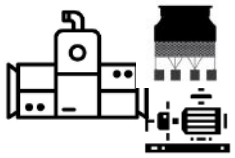


Value Proposition

Data Subscription Services

70% Cheaper

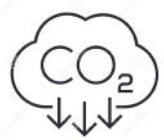
Per Site



Digital Services for Reporting & Optimization

120X Faster

Per Site



Carbon Assessment & Recommendation

80% Cheaper

280X Faster

Per Site

Data Monetization & Impact Maximization

Turing

$ To

Impact

End-use	Technical Potential (%)	
	BAT	Emerging/NG Technologies
Steam boilers and steam systems	9.7%	0.4%
Hot water systems	7.0%	-
Furnaces / kilns / ovens / dryers	12.5%	5.2%
Cooling and refrigeration	17.9%	1.0%
Pumps	11.7%	0.1%
Fans/blowers	8.5%	0.1%
Other machine drives	5.1%	0.1%
Compressed air systems	17.3%	-
Process specific	9.4%	14.1%
ACMV	32.0%	0.1%
Lighting	29.4%	-
Other	-	-
System	1.2%	2.5%
Overall reduction in sectoral energy use	13.1%	5.7%

*Singapore Industrial Energy Efficiency Technology Roadmap, Singapore National Research Foundation. *BAT stands for Best Available Technology*

Decarbonization Platform

Partners:

United Nations Development Programme

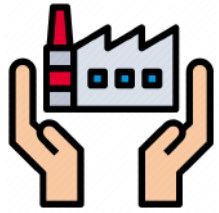
NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE

Aggregating
Decarbonization Opportunity

Commercial Buildings

Industrial Factories

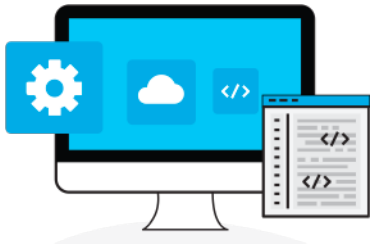
Power Plants & Utilities



Equipment Data

Equipment Data

Equipment Data



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Decarbonization Platform

Equipment AI

Matching
Decarbonization Solutions

New Technology

Equipment Vendors

Maintenance

Real Estate Operators

Know-how

Domain Consultants

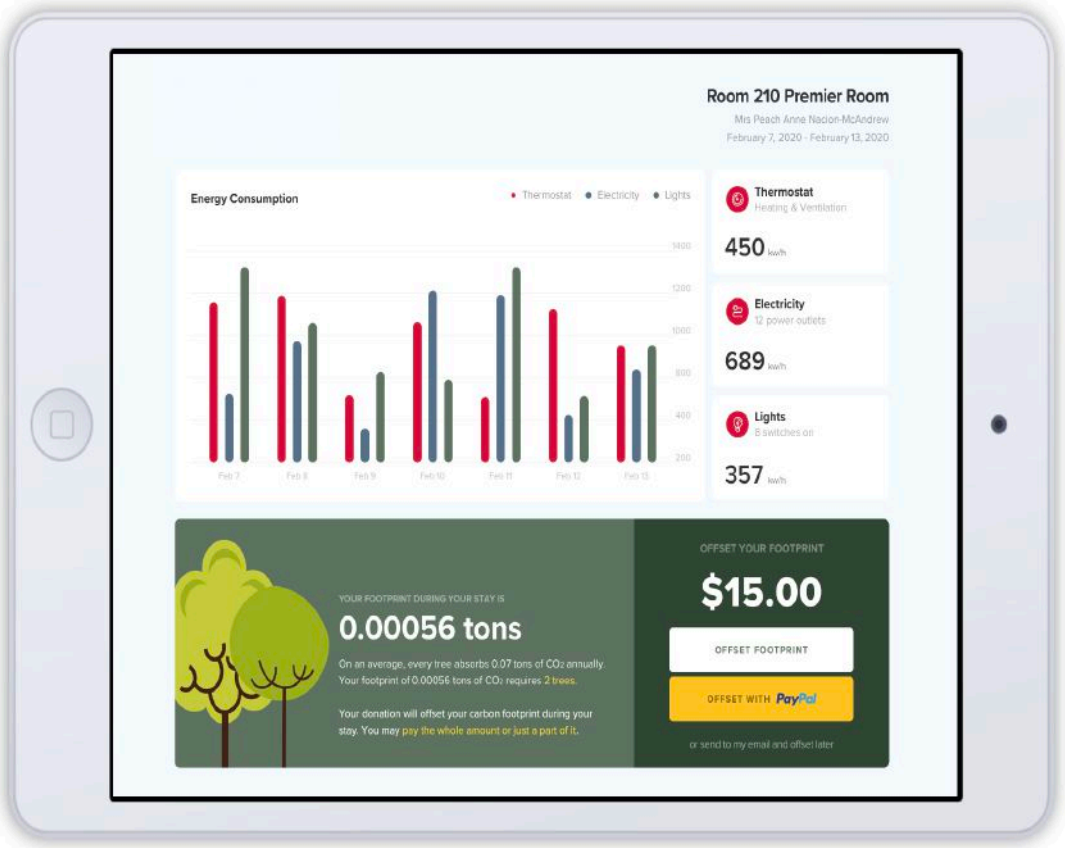
Enabling & Maximizing **Impact**

Capital Provider

EVERCOMM

Data Life Cycle & Monetization

Raw Data	Processed	Tokenized
Reducing Carbon Footprint & Wastage	*Productivity & Predictive Maintenance*	*Carbon Credits & Avoidance Certificate Trading*
Equipment	**Manpower /Vendor**	**Customer/ Government**



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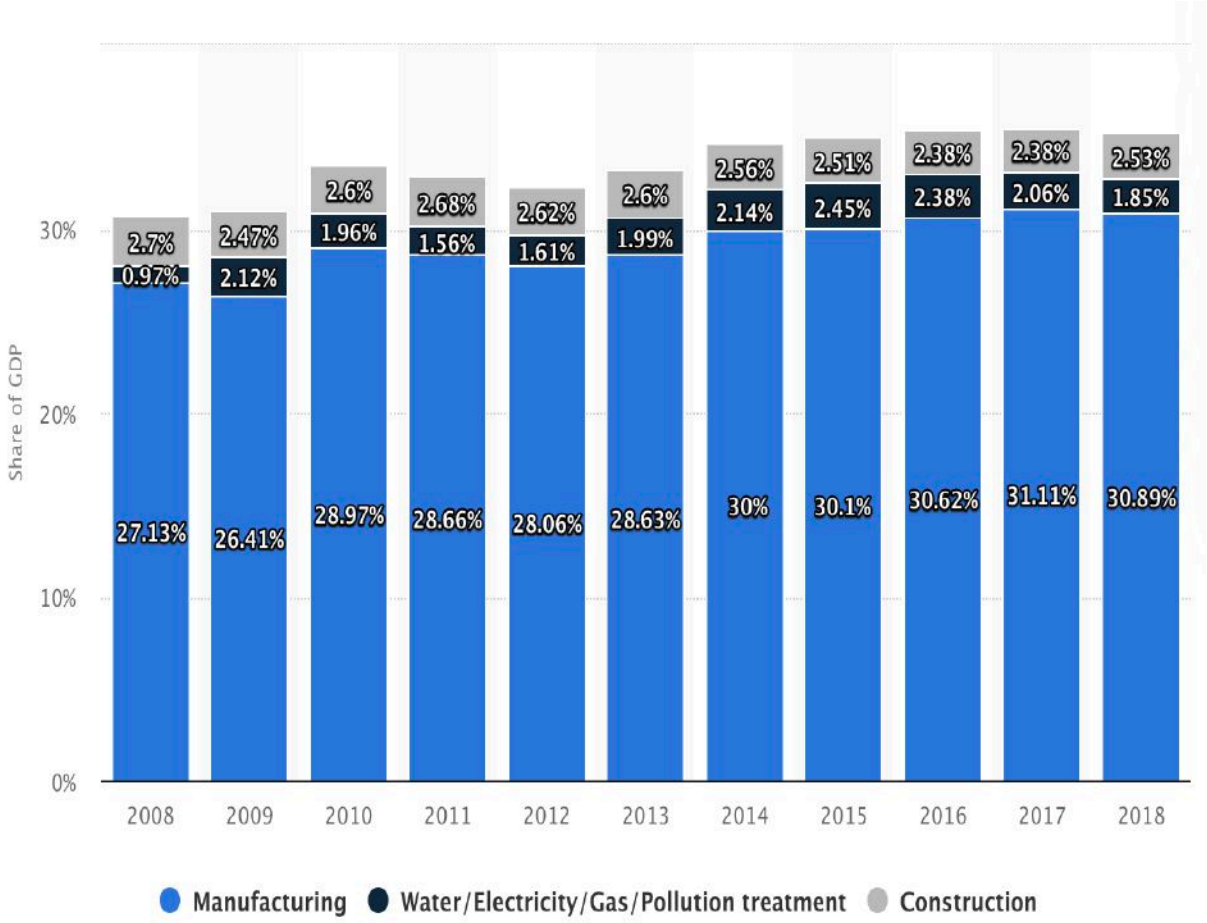
Singapore Ecosystem Support

Green Manufacturing in Taiwan

Taiwan Manufacturing Revenue To GDP



Source: Department of Statistics, Taiwan

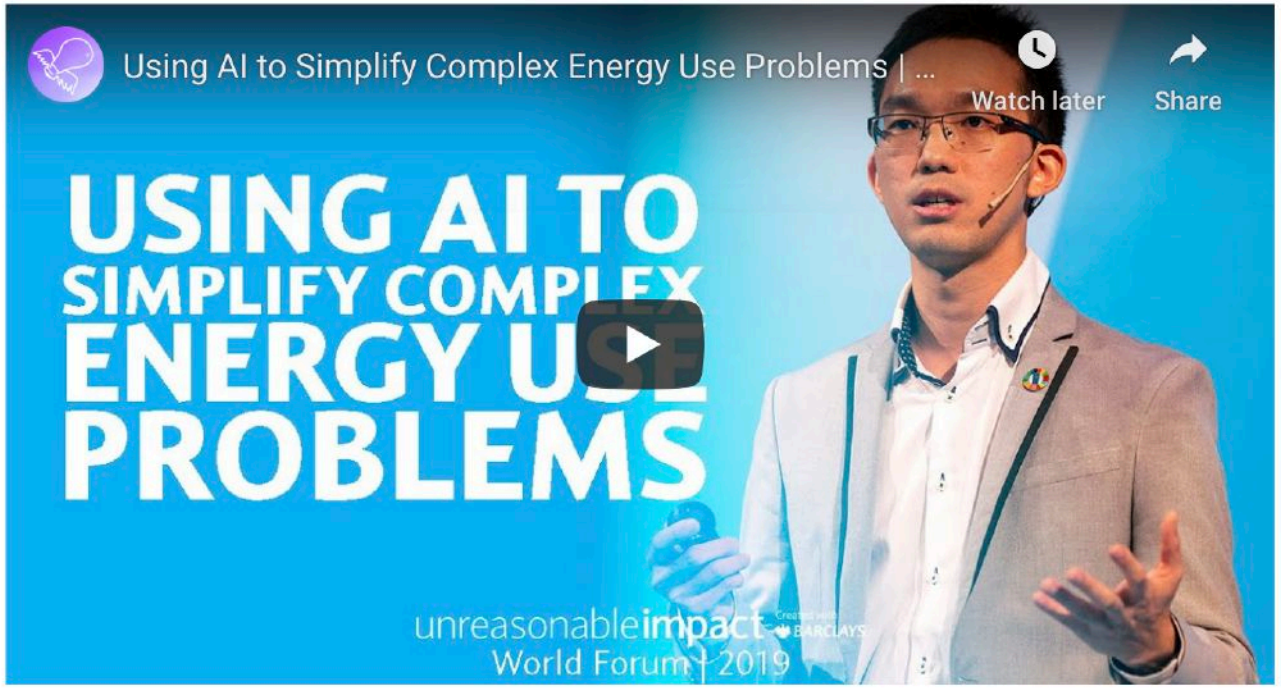
Partnership with **New Taipei City Government** to aggregate 20,000 factories' energy demand

EVERCOMM

新北市政府 New Taipei City Government

Mr. Hou You Yi, New Taipei City Mayor, Visit EverComm in Singapore

USING AI TO SIMPLIFY COMPLEX ENERGY USE PROBLEMS



Evercomm Singapore provides Asset Performance Management (APM) solutions for energy-intensive enterprises. The core focus of their product is to harness IoT and machine learning technologies to simplify energy complexity and daily operations. The AI-driven APM dramatically reduces integration cost and time, enables real-time analytics correlating sensor data and equipment profiles, and extracts critical operation insights along with indexing equipment performance at scale. The company's holistic energy management approach (combining both energy supply and demand) is co-developed with the Energy Research Institute at Nanyang Technological University under the Smart Multi-Energy System (SMES) initiative. Evercomm also works with United Nations, country leaders, and large conglomerates to build and train the pipeline of human resources that is needed in order to fill the necessary roles that sustainability and industry digitization require.

https://city2city.network/using-ai-simplify-complex-energy-use-problems

THANK YOU!

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