



ACE

ABSOLUTE CLEAN ENERGY
PUBLIC COMPANY LIMITED

TRIS
RATING



FTSE
Russell

CAC
DECLARED

SET AA
ESG Ratings 2023



Absolute Clean Energy Public Company Limited

Brief Company Information

April 2024

Ticker : ACE

Disclaimer



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“A world leading clean and sustainable power producer, that is responsible for environment, society, and shareholders under good governance”



ABSOLUTE CLEAN ENERGY
PUBLIC COMPANY LIMITED

Recognition & Index



Effective: 31 Oct 2023

A list of companies achieving the CG scores of “Excellence” level of recognition are publicized along with the publication of the CGR report and the public seminar jointly held by The Stock Exchange of Thailand, and Thai IOD.



Effective: 15 Sep 2023

FTSE Russell is a subsidiary of London Stock Exchange Group (LSEG) that produces, maintains, licenses, and markets stock market indices. The brand and division FTSE Russell was introduced in 2015, while integrating the indexing services of FTSE index series and Russell index series.

- ACE is included in the FTSE SET Micro Cap index and the FTSE SET Shariah index.



Effective: 6 Nov 2023

The Stock Exchange of Thailand created the SET ESG Ratings list, which comprises of the listed companies that conduct sustainable business operations. The listed companies on the THSI continuously create long-term returns by valuing their responsibility to society (Social) and the environment (Environmental), and by managing their business with transparency, in line with corporate governance principles (Governance).

- ACE is included in the SET ESG Rating at a level of “AA” index in 2023



Effective: 2 Aug 2023

TRIS Ratings Affirmed the Company Rating at “BBB+” with “Stable” Outlook



Effective: 8 Aug 2023

Achieves a perfect 100 score in the Annual General Meeting Assessment by Thai Investors Association (TIA)



Effective: 28 April 2023

The Company has signed the Declaration of Intent to support the coalition with CAC (Collective Action Against Corruption) in reducing corruption.

ACE

ABSOLUTE CLEAN ENERGY
PUBLIC COMPANY LIMITED

ACE The clean energy leader



***Convert Plants
and Agri-residue
to Energy***

ACE

ABSOLUTE CLEAN ENERGY
PUBLIC COMPANY LIMITED

ACE The clean energy leader



**Convert *Waste*
to Energy**



Convert *Plants and Agri-residue* to Energy

ACE The clean energy leader



**Convert *Waste*
to Energy**



**Convert *Sunlight*
to Energy**

ACE The clean energy leader

ACE

ABSOLUTE CLEAN ENERGY
PUBLIC COMPANY LIMITED

40 Years Strong foundation in Integrated Agricultural Industry

“A world leading clean and sustainable power producer that is responsible for environment, society and shareholders under good governance”

“เป็นผู้นำด้านการผลิตพลังงานสะอาดและยั่งยืนต้นแบบของโลก ที่มีความรับผิดชอบต่อสิ่งแวดล้อม สังคม และผู้ถือหุ้น ภายใต้หลักธรรมาภิบาล”

Thailand’s Current Largest “Professional-Run” Biomass Power Producer

Thailand’s Leading Renewable Power Producer

The Green & Clean Energy Leader

ACE
ABSOLUTE CLEAN ENERGY
PUBLIC COMPANY LIMITED

**Innovative
Private
Power
Producer
for
Absolute
Clean
Energy**



**Strong foundation in
Integrated Agricultural
Industry**



**Abundant biomass feedstock
supported by communities surrounding
the power plants**



**Ongoing Improvement with
Innovative Technology**



**Innovative Technology and
Experienced R&D Team**



Biomass
COD:13+1^{/1}
Pipeline:11

Capacity MW
267.9^{/1}

Co-gen
COD:1
Pipeline:0

Capacity MW
114.35

MSW
COD:2
Pipeline:2

Capacity MW
30.9

Solar
COD:6
Pipeline:34

Capacity MW
>130.14^{/2}

Biogas
COD:0
Pipeline:18

Capacity MW
59.0

Total 89^{/1} Power Plants
23 in Operations
66^{/1} Underdevelopment

Total Capacity MW : >602.29
COD: 257.57 MW
Pipeline: 344.72 MW

¹² **Remark:** /1 Including APP's capacity MW of 9.9 which The Company will purchase from the APP's major shareholders as the EGM No. 1/2019 has the resolution to approve the Company to proceed.
/2 The unit is MW (DC), except for the PPA according to the contracts with PEA and EGAT which has the unit in MW (AC).

ACE's Biomass power plant (25 power plants, 267.9 MW)^{1,2,3}



ACP1 Ban Bueng



ALCP1 Si Chiang Mai



AAPP2 Chokchai



ACP2 Phonthong



ALCP2 Sirindhorn



AAP1 Nam Phong

Remark: /1 Including APP's capacity MW of 9.9 which The Company will purchase from the APP's major shareholders as the EGM No. 1/2019 has the resolution to approve the Company to proceed.

/2 Capacity MW

/3 Including UA Wittaya plc biomass power plants of 26.9 MW

- **COD 13 power plants = 125.9 MW**
- **Under development 12 power plants = 142.0 MW**

ACE's Biomass power plant (25 power plants, 267.9 MW)^{1,2,3}



ACP3 Bo Ploy



AAPP1 Tanee



ABA1 Thoen



AAE Muang Korat



ABE Don Mon



ACES Muang Burirum



ACP4 Klong Klung

Remark: /1 Including APP's capacity MW of 9.9 which The Company will purchase from the APP's major shareholders as the EGM No. 1/2019 has the resolution to approve the Company to proceed.

/2 Capacity MW

/3 Including UA Wittaya plc biomass power plants of 26.9 MW

- **COD 13 power plants = 125.9 MW**
- **Under development 12 power plants = 142.0 MW**

ACE's MSW power plant (4 power plants, 30.9 MW)^{/1}



MSW Khon Kaen



MSW Krabi

- COD 2 power plants = 12 MW
- Under development 2 power plants = 18.9 MW

ACE's Co-generation power plant (1 power plant, 114.35 MW)¹



AAA Chachoengsao

ACE's Solar power plant (40 power plants, >130.14 MW)^{/1}



FLOATING SOLAR 1 Project
Chok Chai, Nakhon Ratchasima



SOLAR ROOFTOP 1 Project
Sriracha, Chonburi



SOLAR ROOFTOP 1 Project
(Extension), Sriracha, Chonburi



SOLAR ROOFTOP 2 Projects
Chok Chai, Nakhon Ratchasima



SOLAR ROOFTOP 3 Project
Mueng, Samut Sakhon

Remark: /1 The unit is MW (DC), except for the PPA according to the contracts with PEA and EGAT which has the unit in MW (AC).

ACE's Biogas power plant (18 power plants, 59.00 MW)^{/1}



VSPB Biogas

Capacity MW:	59.00
PPA MW:	50.00
Status:	PPA Signed with PEA (21 February 2023)
Location:	Chiangrai, Kampanghet, Buriram, Ratchaburi
COD:	Within 2026

Overview of ACE's Portfolio



ACE Business Portfolio in Thailand : December 2023

Power Type

Existing + Pipeline Projects

Capacity MW (Total Capacity MW)

PPA MW to Government & IU (Total PPA MW)

Power Plant

Others



Biomass

Co- gen

MSW

Solar

Biogas

Waste Landfill

Number of Projects

COD: 23

Pipeline: 66^{/1}

Total: 89^{/1}

13+11+1^{/1}

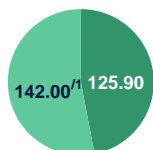
1+0

2+2

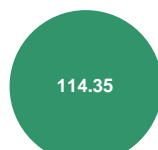
6+34

0+18

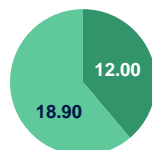
1+0



Total: 267.90^{/1}



Total: 114.35



Total: 30.90



Total: >130.14^{/2}



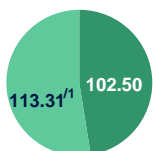
Total: 59.00

Capacity MW

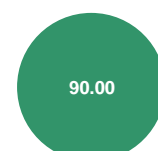
COD: 257.57

Pipeline: >344.72

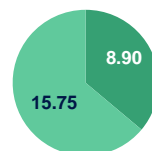
Total: >602.29



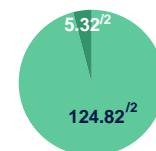
Total: 215.81^{/1}



Total: 90.00



Total: 24.65



Total: 130.14^{/2}



Total: 50.00

PPA MW

COD: 206.72

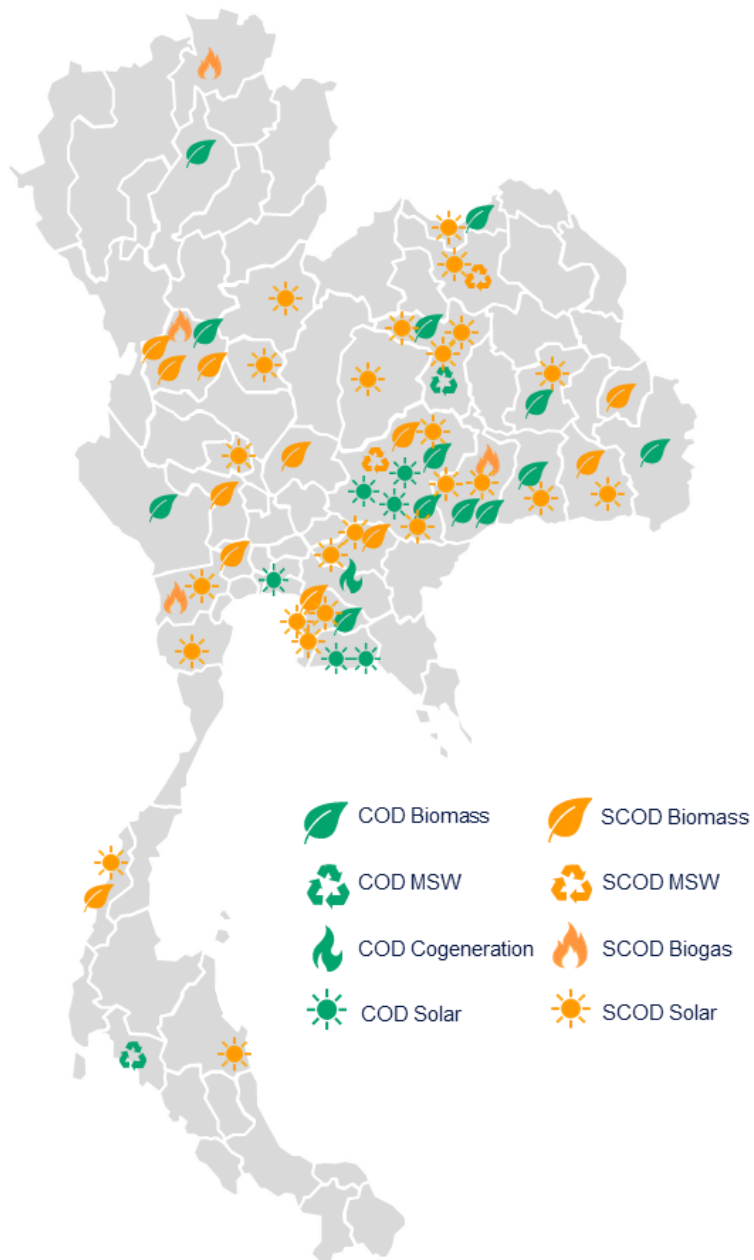
Pipeline: 303.88

Total: 510.60

Existing

Under Development + Pending for Development

Well-Balanced Portfolio with Diversified Locations



		Type	Installed / Equity MW	PPA MW	Location	COD / SCOD Date	Status
Existing Projects (23 Projects)	1	VSPP - Biomass	9.9	8	Chonburi	24/4/2012	COD
	2	VSPP - Biomass	9.9	8	Khonkaen	2/5/2012	
	3	VSPP - Biomass	9.9	8	Surin	30/10/2012	
	4	VSPP - Biomass	9.9	8	Nakhon Ratchasima	16/1/2013	
	5	VSPP - Biomass	9.9	8	Roi-et	4/6/2013	
	6	VSPP - Biomass	9.9	8	Nongkhai	26/12/2013	
	7	VSPP - Biomass	9.9	8	Lampang	9/7/2014	
	8	VSPP - Biomass	9.9	8	Ubonratchathani	14/8/2015	
	9	VSPP - MSW	6	4.5	Khonkaen	29/11/2016	
	10	SPP - Cogen	114.35	90	Chachoengsao	10/2/2017	
	11	VSPP - Biomass	9.9	8	Kanchanaburi	16/8/2017	
	12	VSPP - Solar Rooftop	1	1	Chonburi	20/11/2018	
	13	VSPP - Solar Rooftop	0.73	0.73	Nakhon Ratchasima	22/2/2019	
	14	1 Solar Rooftop	1	1	Chonburi	27/9/2019	
	15	1 Solar Rooftop	0.83	0.83	Samut Sakhon	22/5/2020	
	16	VSPP - Biomass	7.5	6.5	Buriram (ACES)	24/1/2006	
	17	VSPP - Biomass	9.5	8	Buriram (ABE)	6/2/2008	
	18	VSPP - Biomass	9.9	8	Nakhon Ratchasima (AAE)	10/11/2011	
	19	VSPP - MSW	6	4.4	Krabi	28/12/2020	
	20	Waste Landfill	N/A	N/A	Udonthani	5/1/2021	
	21	1 Solar Rooftop	0.24	0.24	Nakhon Ratchasima	25/2/2021	
	22	Floating Solar	1.515	1.515	Nakhon Ratchasima	31/3/2021	
	23	VSPP - Biomass	9.9	8	Kampangphet	26/11/2021	
Under Development and pending for development (66 projects)	24	1 SPP - Hybrid	20	13.31	Kampangphet	Within Q2'2024	PPA signed
	25	1 SPP - Hybrid	23	20	Ranong	TBD	EIA Approved
	26	VSPP - Biomass	9.9	8	Kampangphet	Within 2026	PPA signed
	27	VSPP - Biomass	9.9	8	Supanburi	Within 2026	
	28	VSPP - Biomass	9.9	8	Nakornpathom	Within 2026	
	29	VSPP - Biomass	9.9	8	Nakhon Ratchasima	Within 2026	
	30	VSPP - Biomass	9.9	8	Chonburi	Within 2026	
	31	VSPP - Biomass	9.9	8	Amnatcharoen	Within 2026	
	32	VSPP - Biomass	9.9	8	Lopburi	Within 2026	
	33	VSPP - Biomass	9.9	8	Pracheenburi	Within 2026	
	34	VSPP - Biomass	9.9	8	Srisaket	Within 2026	Under consideration of Administrative Court
	35	VSPP - Biomass ¹	9.9	8	Chonburi	Within 2026	PPA signed
	36	VSPP - MSW	9	7.75	Udonthani	Within 2024	PPA signed
	37	VSPP - MSW	9.9	8	Nakhon Ratchasima	Within 2024	PPA signed
	38-55	VSPP - Biogas	59	50	Chiangrai, Kampangphet, Buriram, Ratchaburi	Within 2026	PPA signed
	56	Private PPA - Solar Rooftop	9.59	9.59	Petchaburi	Within Q4'2024	PPA signed
57-61	Solar Farm	>35.40	35.4	Nakhon Si Thammarat, Phitsanulok, Phichit, Khonkaen, Nongkhai, Ranong, Ratchaburi, Srisaket, Chainat, Kampangphet, Petchabun	Within 2024	PPA signed	
62-71	Solar Farm	>57.33	57.33		Within 2025	PPA signed	
72-74	Solar Farm	>20.00	20		Within 2027	PPA to be signed	
75-88	Private PPA - Solar Rooftop	1.92	1.92	Chonburi, Nakhon Ratchasima, Khonkaen, Surin, Roi-et, Udonthani, Chaiphaphum, Pracheenburi, Buriram	Q2-Q4'2024	PPA signed	
89	Private PPA - Solar Rooftop	0.58	0.58	Chonburi	Within Q3'2024	PPA signed	
Total	89		>602.3	510.6			

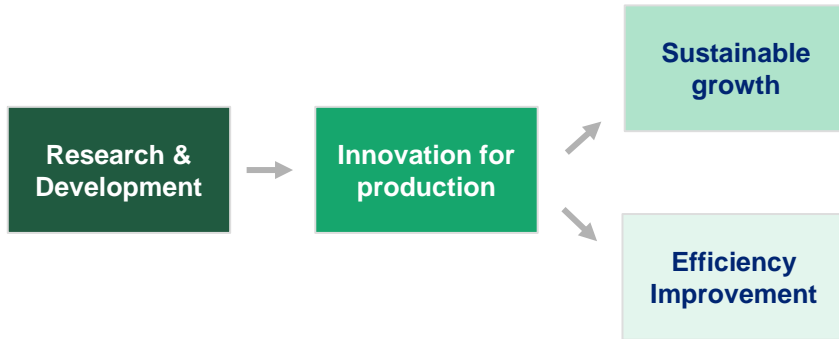
Source: Company information as of Dec 2023

Remark: /1 Including APP's capacity MW of 9.9, Currently, APP's shareholders sent LOI for APP share purchase proposal to ACE

ACE's Strategy, Core Value & Competency



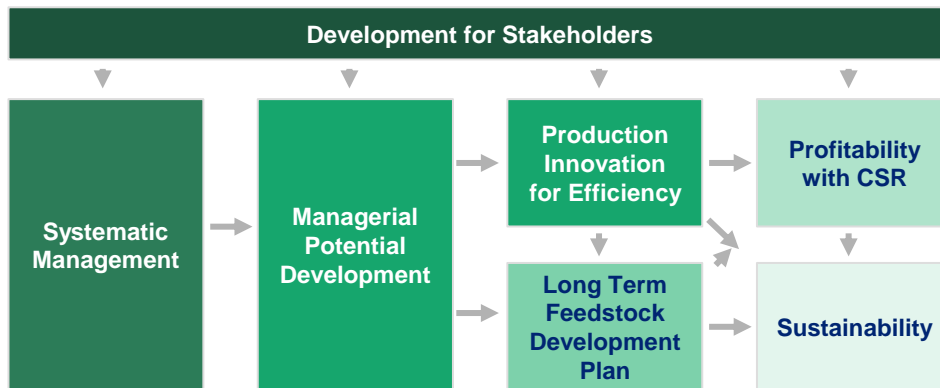
ACE's Core Competency



ACE's Core Value Operation



ACE's Strategy



ACE's Corporate Culture

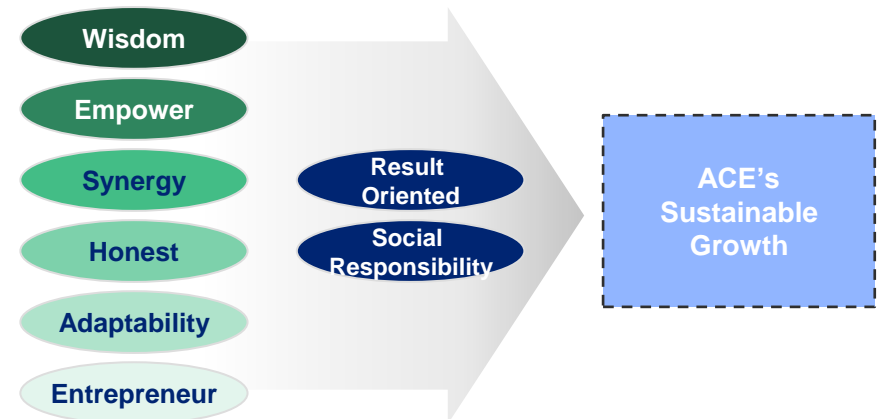


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The Clean Energy Leader

**ABSOLUTE
CLEAN
ENERGY**

THE INNOVATION
FOR FUTURE GROWTH



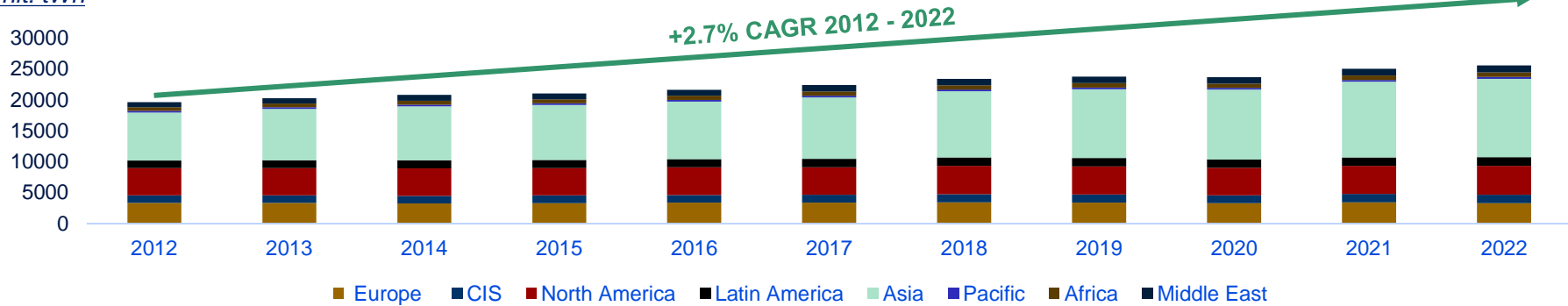
Electricity Consumption, Resilience Growth Throughout Country Crisis



Electricity consumption is gradually growing amid the country's instability

World Electricity Consumption

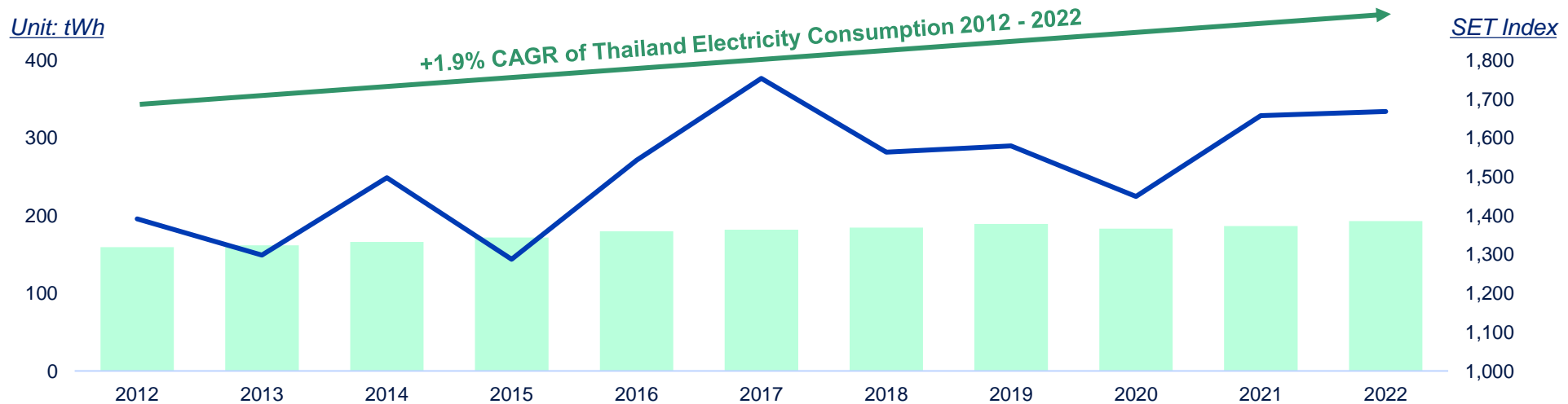
Unit: tWh



Source : World Energy & Climate Statistics

Thailand Electricity Consumption VS SET index

Unit: tWh



Source : Energy Policy and Planning Office
The Stock Exchange of Thailand

Strictly Private & Confidential

Global and Domestic Trend to Support Renewable Energy

Paris Agreement: Around 88% of the world have ratified or acceded to the Agreement. Thailand government has ratified the agreement.



World Zero Carbon: Government around the world is collaborating to aim for net zero carbon by 2050.

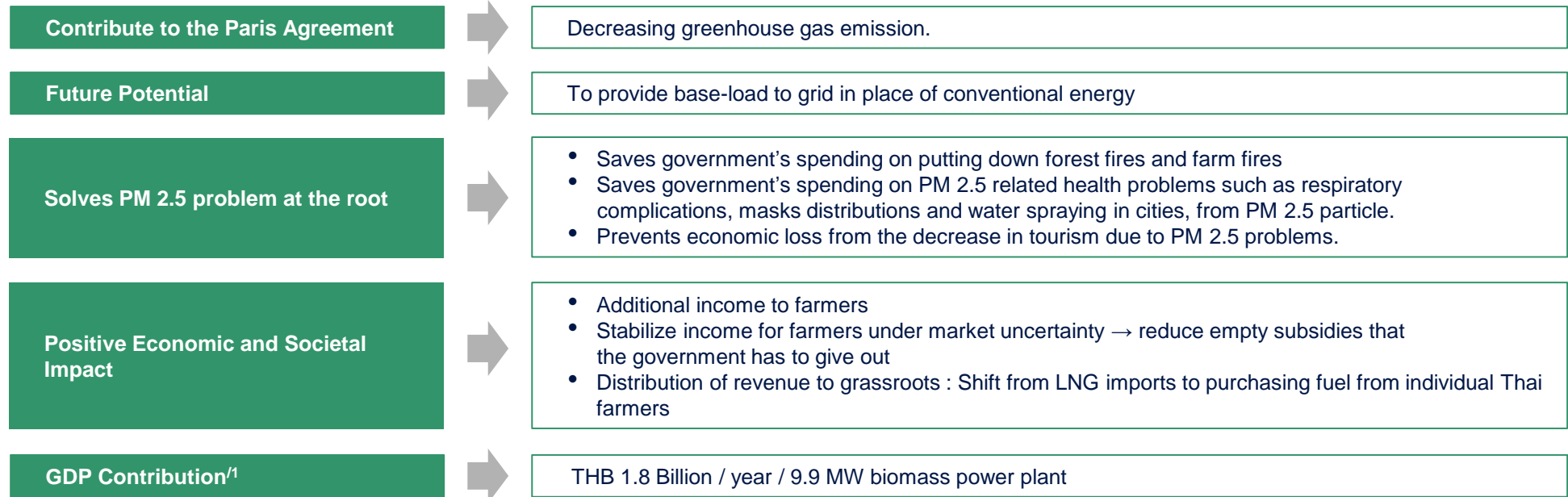
Sample Approach from Countries and States:

<p>Norway</p> <p>Target Date: 2030 Status: In law</p>	<p>France</p> <p>Target Date: 2050 Status: In law</p>	<p>California</p> <p>Target Date: 2045 Status: Executive Order</p>	<p>United Kingdom</p> <p>Target Date: 2050 Status: In law</p>
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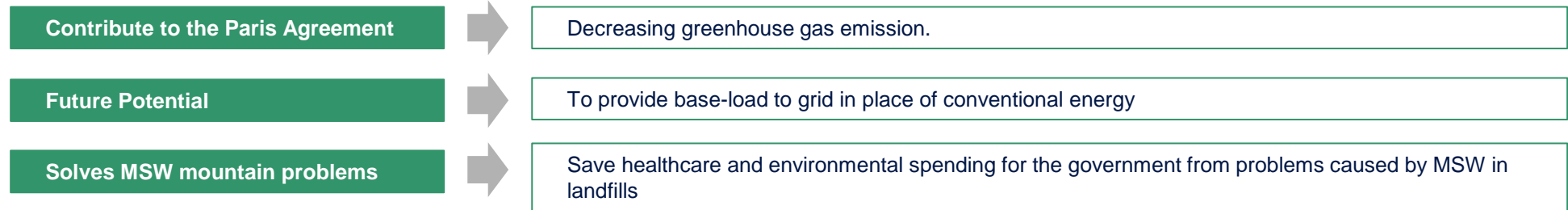
EV Revolution: EV trend is coming with 1) Fossil fuel vehicle bans 2) Renowned automakers are making promises on EV

<p>United Kingdom</p> <p>Announced end sales of gas and diesel cars by 2040</p>	<p>France</p> <p>Announced end sales of gas and diesel cars by 2040</p>	<p>Netherlands</p> <p>Parliament voted through motion to end all gas and diesel car by 2025</p>	<p>Plans to sell only 100% EV or hybrid/electric onward</p>
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Biomass Power Plant



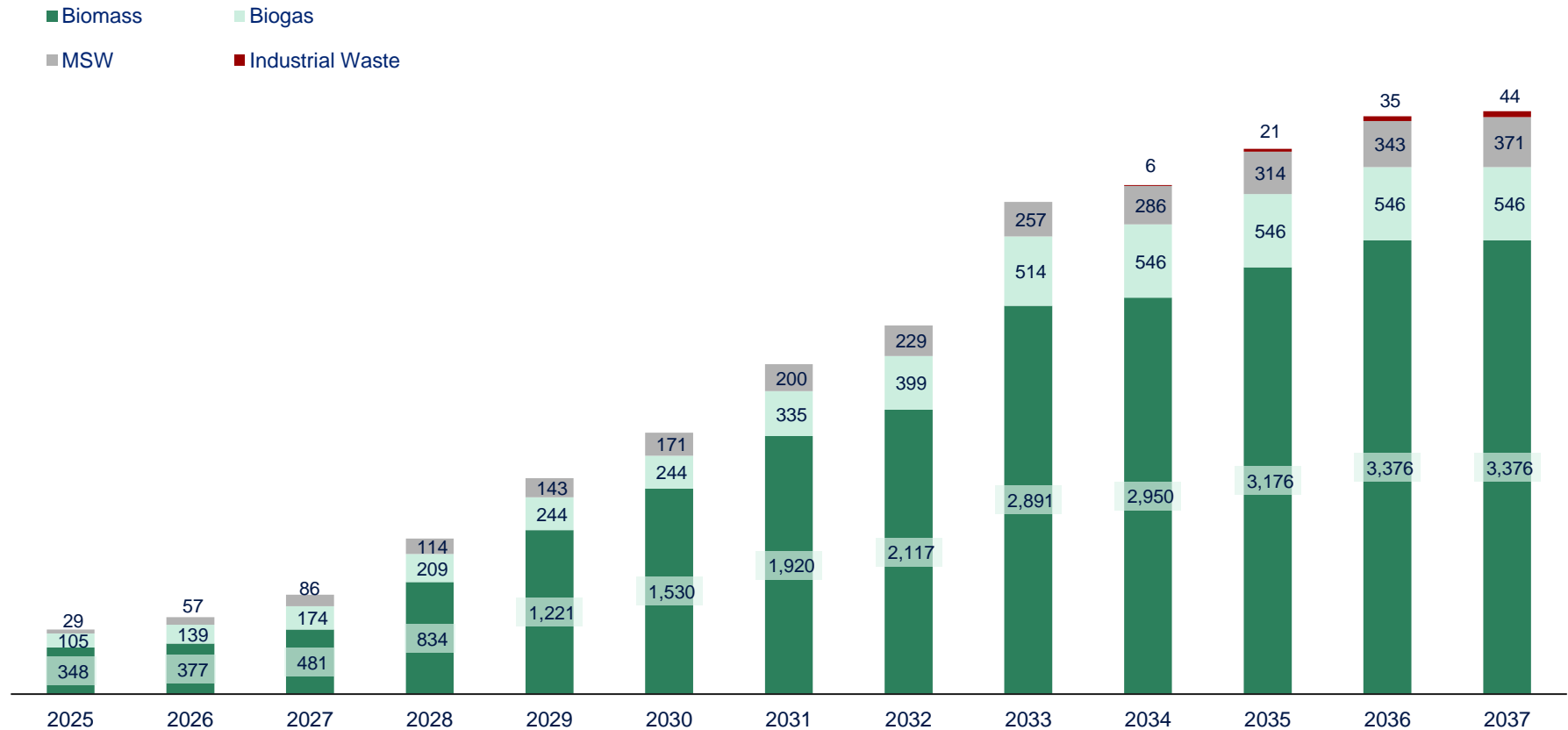
Municipal Solid Waste (MSW) Power Plant



Source: Thailand Energy Academy

Continuous growth with existing PPA along with future potential growth supported by favorable government renewable energy policy

2025 – 2037 Contract Capacity MW according to PDP 2018



Source: Power Development Plan 2018

Remark: /1 Including APP's capacity MW of 9.9. Currently, APP's shareholders sent LOI for APP share purchase proposal to ACE

/2 Estimated timeline : Currently, Arbitration result states that PEA has to return PPA to ACE and with the assumption that normally power project's construction period is approx. 2 years

ACE's 3 Core Value Represent Competitive Advantage to Secure New PPAs **ACE**

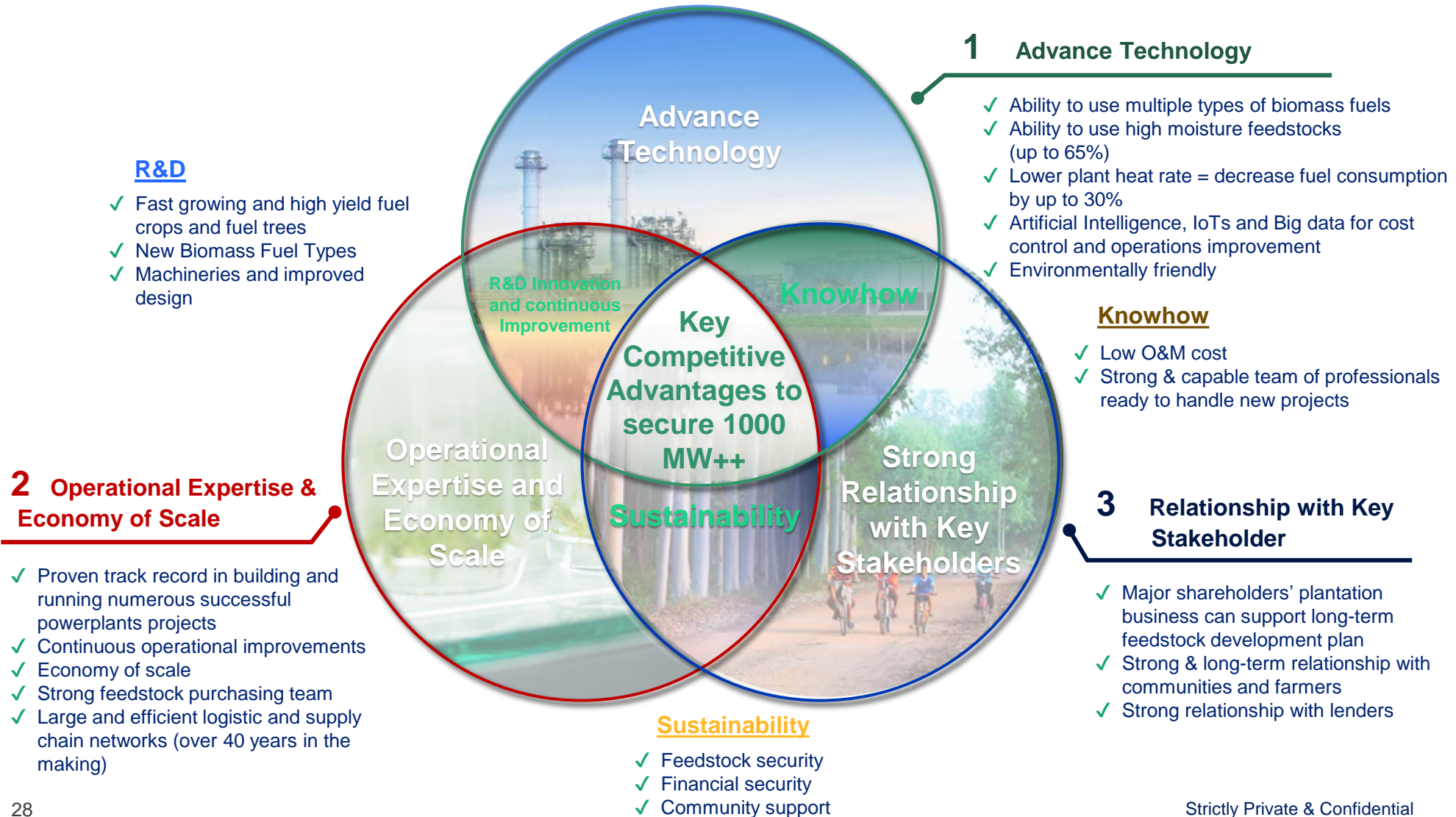


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ABSOLUTE CLEAN ENERGY
PUBLIC COMPANY LIMITED

Company Core Competitive Advantages

“ALCP” VSPP Krabi Project



Company Core Competitive Advantages



1 Thailand's Leading Integrated Power Producer with highest growth potential^{/1}



2 Proven Operational Capabilities

3 Secured Cash Flow Supported by PPA with EGAT/PEA

MSW Power Plant : visited by internal government agencies and other countries



Gen. Anupong Paojinda (Minister of Interior) visited MSW power plant at 3 May 2018



Mr. Siri Jirapongphan (minister of Energy) visited MSW power plant at 12 Dec 2018



Kraisai Kanasuta (Former member of ERC) visited MSW KK powerplant



Mr. Kurujit Nakornthap Chairman of Energy Affairs Committee and Member of the National Reform Steering Assembly (NRSA) visited MSW KK powerplant



H.E. Mrs. Kshenuka Dhireni Senewiratne (Sri Lanka's Supreme Ambassador) visited MSW KK powerplant at 11 Dec 2018



Md. Tajul Islam (Minister of Local Government and Rural Development) visited MSW KK powerplant at 16 Feb 2019

Khon Kaen MSW Power Plant visited by numerous Regional Municipal and government agencies



Environmental Inspection Division Team visited MSW KK powerplant



Indonesia Vice President Deligation visited MSW KK powerplant



Director-General of the Department of Local Administration visited MSW KK powerplant



Director-General of the Pollution Control Department visited MSW KK powerplant



Deputy Director-General of the Department of Local Administration visited MSW KK powerplant



Amnat Charoen Governor visited MSW KK powerplant

Khon Kaen MSW Power Plant visited by numerous Regional Municipal and government agencies



Phuket Municipal visited MSW KK powerplant



Udonthani Municipal visited MSW KK powerplant



Executive Committee of local administrative organization from Surat Thani visited MSW KK powerplant



Management team from Choemporn Municipal



Nonsira, Khon Kaen Municipal visited MSW KK powerplant



Management team from Roi Et Municipal

Khon Kaen MSW Power Plant visited by numerous Regional Municipal and government agencies



Management team from Maha Sarakham Municipal



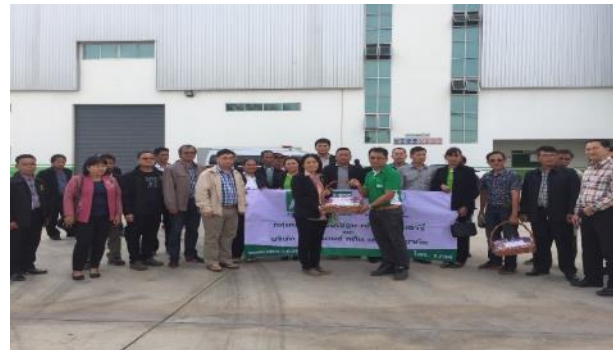
Board of Directors, Ministry of Energy and Ministry of Local Administration from Bangladesh visited MSW KK powerplant



Local government leaders from Songkhla province visited MSW KK powerplant in order to solve the local waste issues



Management team from Krabi Municipal



Municipal team team from Udonthani



Municipal team team from Banpai, Khon Khaen

Company Core Competitive Advantages – Proven Operational Capabilities
Krabi MSW Power Plant official opening ceremony



Company Core Competitive Advantages – Proven Operational Capabilities
Krabi MSW Power Plant official opening ceremony



Company Core Competitive Advantages – Secure Cash Flow Supported by PPAs with EGAT/PEA
Secured Cash Flow Supported by PPA with EGAT/PEA



Reliable revenue source with high efficiency and controlled cost can guarantee cash flow to the company



Revenue Contribution

**Availability Factor¹
Capacity Factor¹**

Feedstock Sufficiency

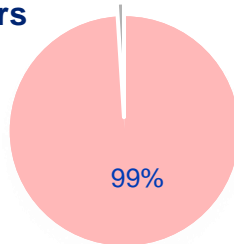
Feedstock Cost Control

Upside Potential

Result

Biomass

Industrial Users



AF : 93%
CF : 99%

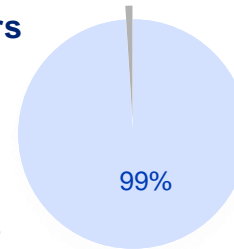
- ~10,000 MW available
- Feedstock development plan

Controllable

- ✓ Potential Sales to IUs
- ✓ ~15-20 operation years after PPA²

MSW

Industrial Users



AF : 87%
CF : 97%

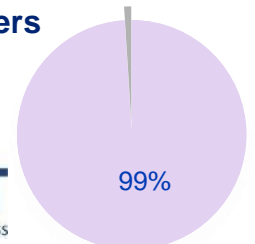
- MSW service agreement with government

No feedstock Cost

- ✓ Tipping fee
- ✓ Potential Sales to IUs

Co-Generation

Industrial Users



AF : 96%
CF : 76%

- Long term purchase agreement with PTT

Cost pass-through

- ✓ Potential Sales to IUs
- ✓ ~25 operation years after PPA³

Secured cashflow with upside potential

Remark: 1/ AF and CF of 2023

2/ Third party technical report stated that general biomass powerplant has an average useful life of 25-30 years or greater in case of proper recurring maintenance

3/ Third party technical report stated that general natural gas powerplant has an average useful life of 30-60 years

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Financial Highlights

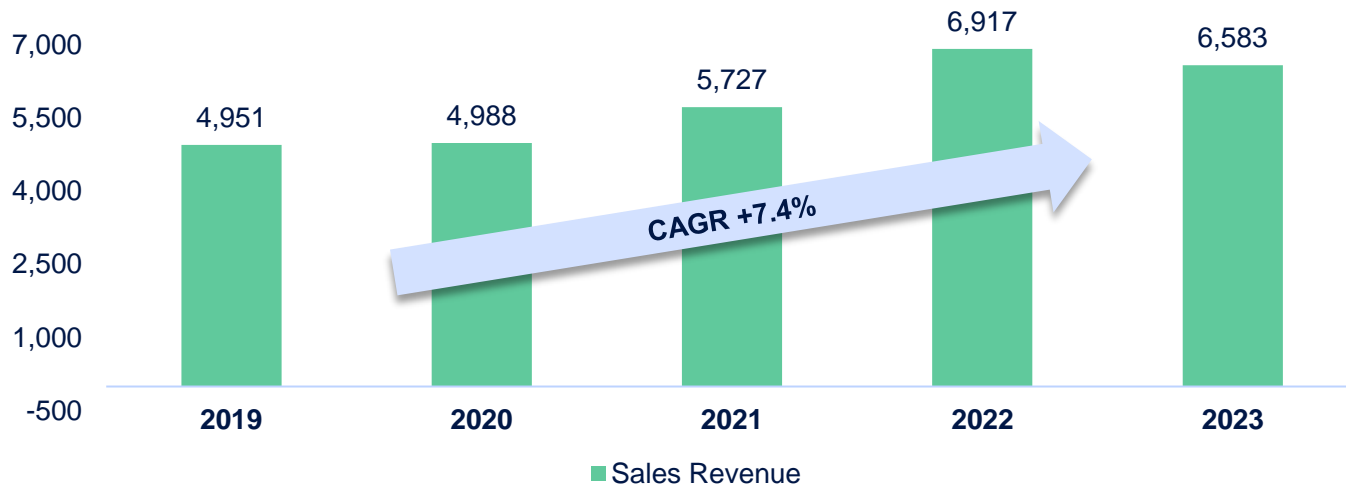


“AAA1” SPP Koh Kanoon Project

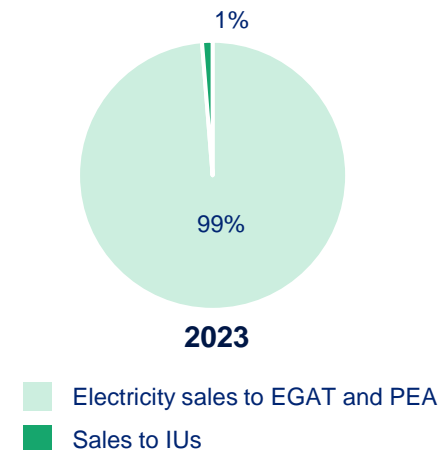
Robust Revenue Growth with Diversified Revenue Mix



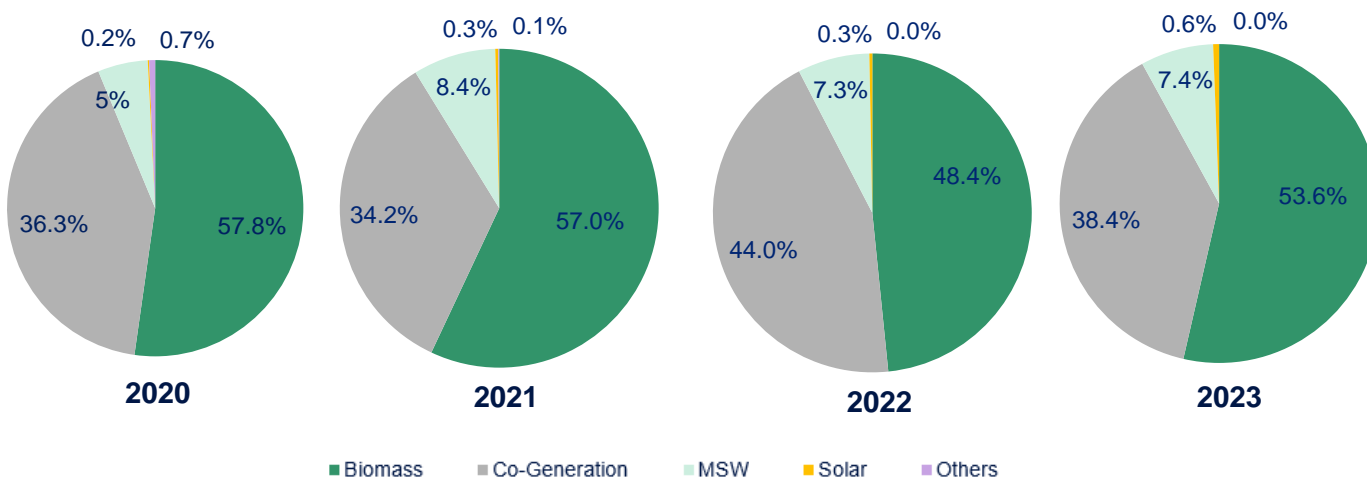
Revenue¹



Revenue Breakdown by Customer



Revenue Breakdown by Type of Power Plant



Key Observation

- **Biomass and co-generation** accounts for the majority of ACE's revenue in 2023 at 53.6% and 38.4% respectively.
- ACE's primary source of revenue is secured by **EGAT and PEA**.

Remark: /1 Exclude revenue from construction cost under concession agreement and other revenue

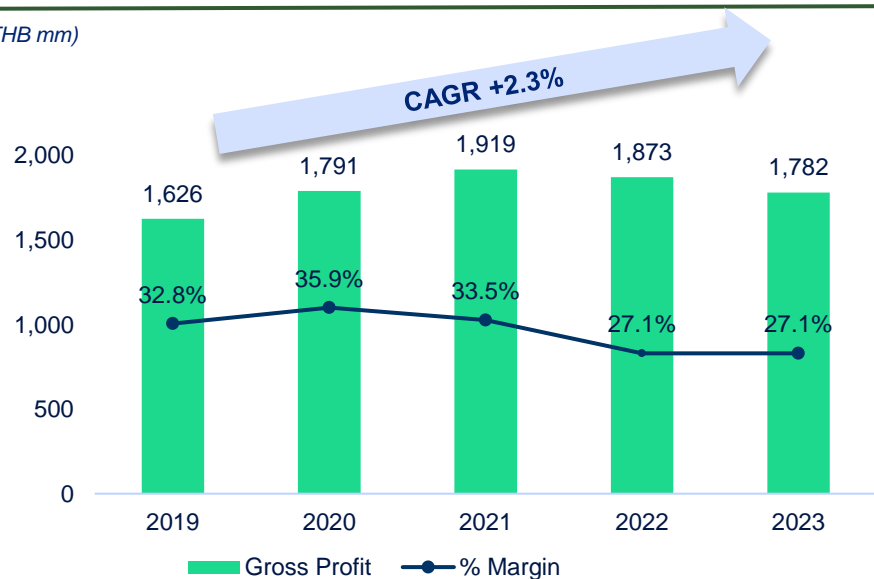
Robust Financial Performance



Financial track record shows strong and consistent gross profit and EBITDA with the high margin levels.

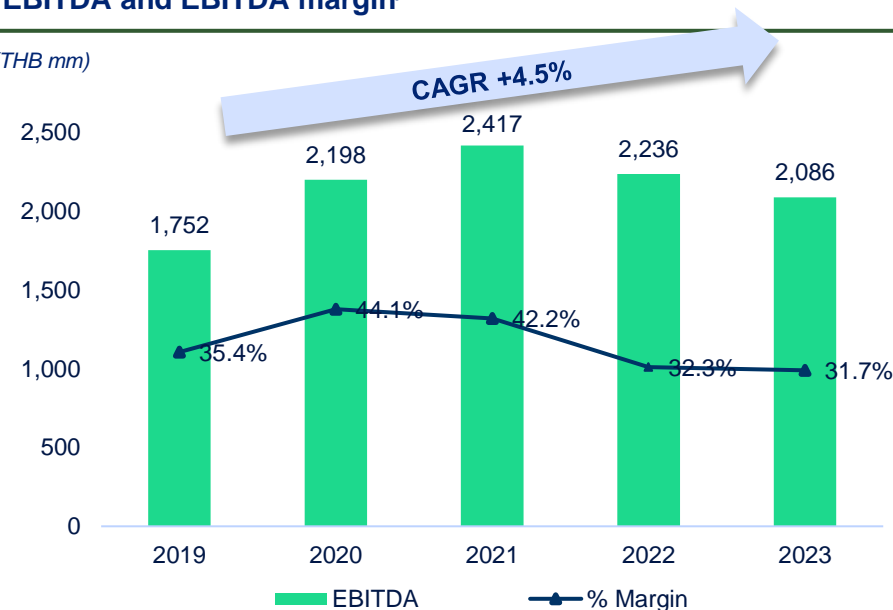
Gross Profit and Gross Profit margin^{/1}

(THB mm)



EBITDA and EBITDA margin^{/1}

(THB mm)



Key Observation

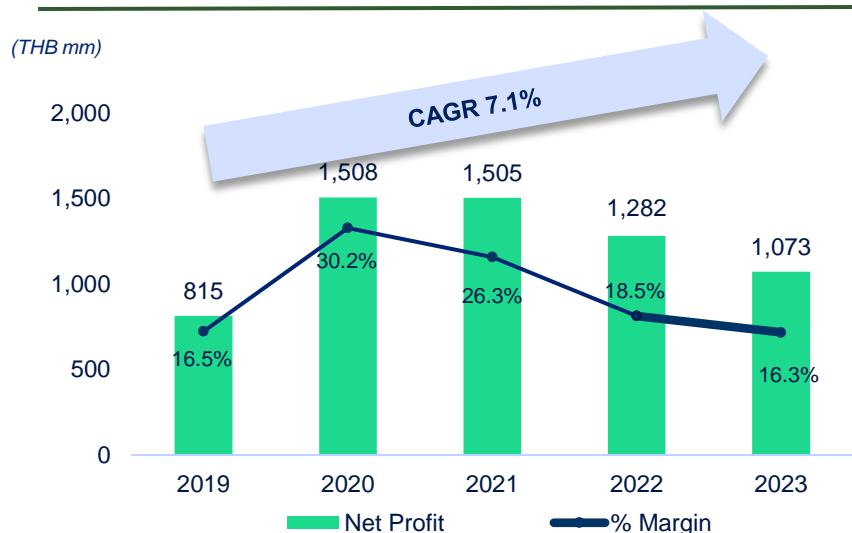
- ACE’s gross profit increased at CAGR of 2.3% (2019-2023), while EBITDA significantly increased at CAGR of 4.5% (2019-2023)
- Both gross profit margin and EBITDA margin maintained at the high levels, mainly from
 - Increasing efficiency in generating electricity (longer operating hours)
 - Managing both feedstock cost and operating cost

Robust Financial Performance

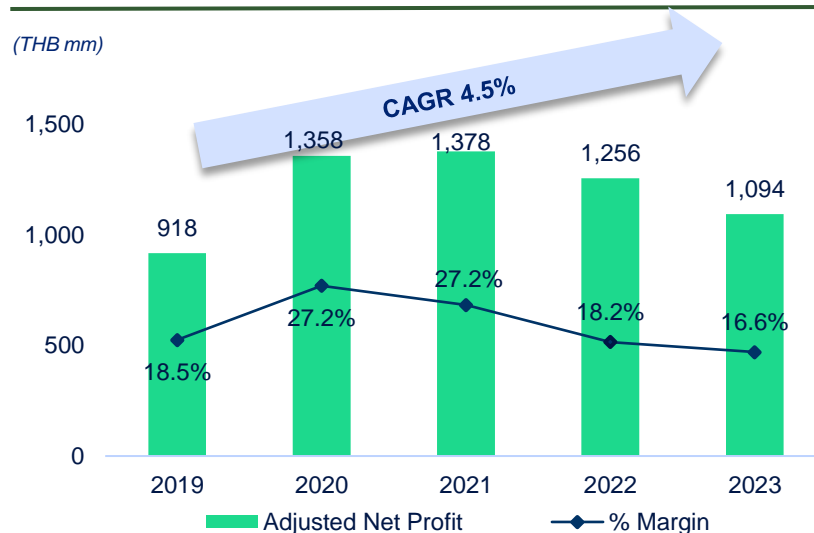


Financial track record shows strong and consistent revenue, EBITDA and net profit growth with continuous margin expansion.

Net Profit and Profit margin^{/1}



Adjusted Net Profit^{/2} and Net Profit Margin^{/1}



Key Observation

- Since Net profit of ACE generally include unrealized gain/loss from exchange rate from financial lease of (co-generation powerplant) which may be mislead if THB/USD exchange rate fluctuate overtime
- Adjusted net profit excluding such unrealized item would reflect actual profitability of the Company, The adjusted net profit trend shows the significant increase in term of absolute amount and margin over time

Remark: ^{/1} Margin divided by sale and service revenue (not including construction revenue)

^{/2} Adjusted net profit calculated from Net income – FX gain/(loss) – insurance claim – forward contract gain (applied in Q1'20) and other non recurring items

ACE Capital Structure and Leverage Ratio

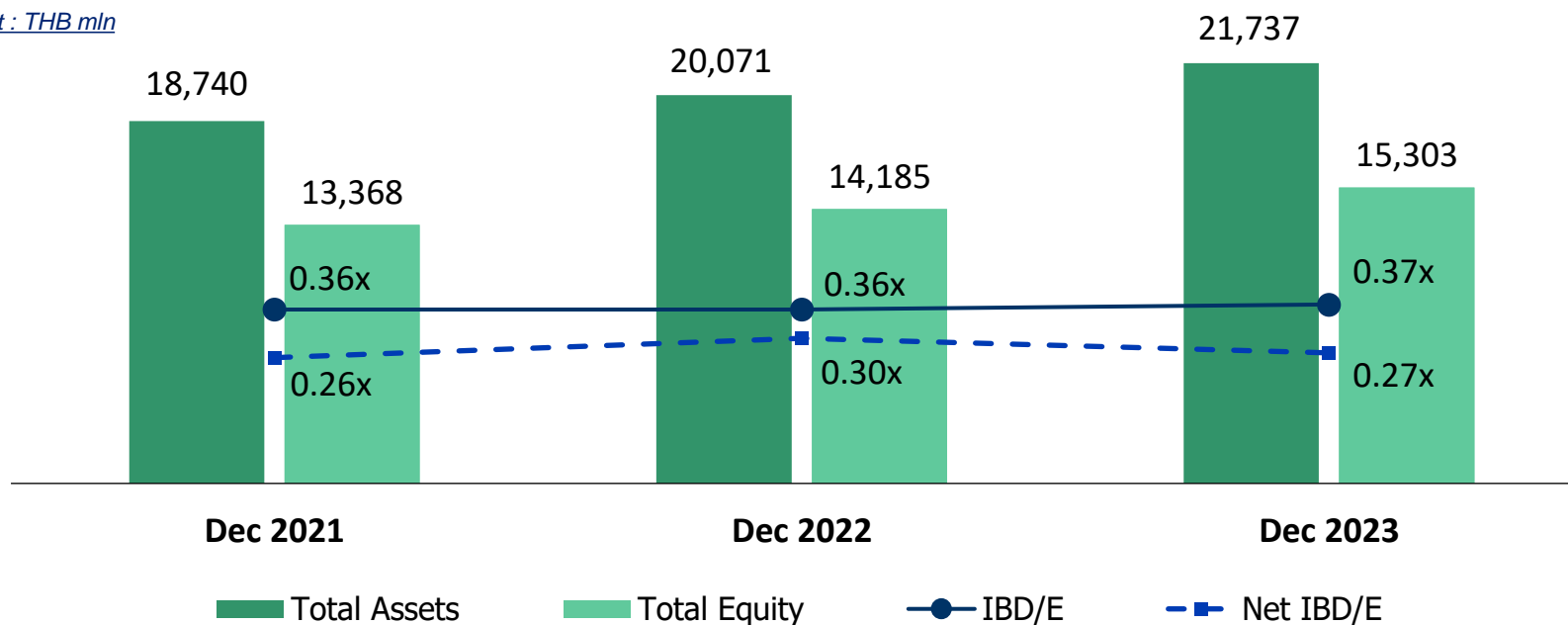


Unit: THB mln

As of

	Dec 2021	Dec 2022	Dec 2023
Total Assets	18,740	20,071	21,737
Total interest-bearing debt	4,780	5,075	5,690
Cash equivalent and restricted cash	1,326	827	1,626
Net Interest-bearing debt	3,454	4,248	4,064
Equity	13,368	14,185	15,303

Unit: THB mln





Return on Asset

Return on Equity

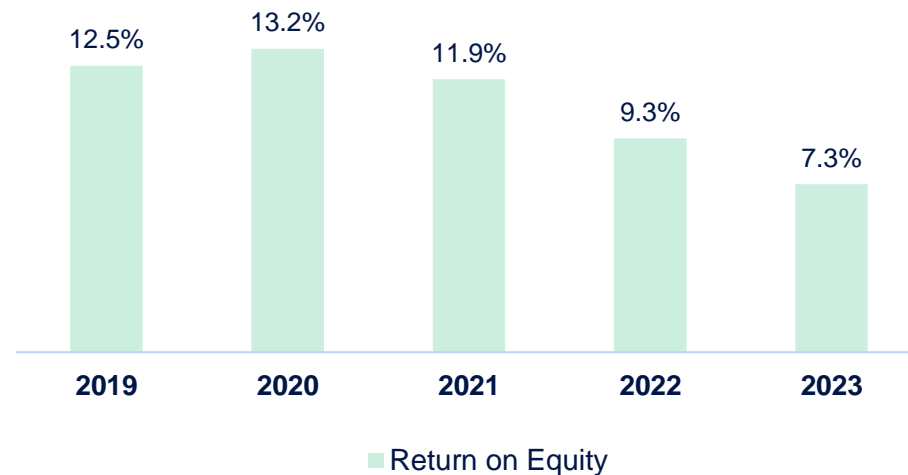
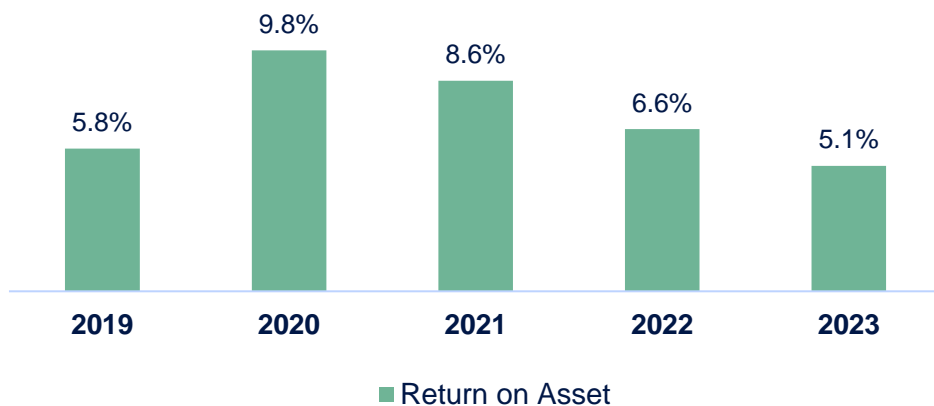


Table of Contents



I	Company Overview
II	Industry Overview and Growth Potential
III	Company Core Competitive Advantages
IV	Financial Highlights
V	Key Takeaways

ACE's Key Strengths and Opportunities



1

Thailand's Leading Integrated Power Producer with Highest Growth Potential

- Largest and fast-growing Biomass Power Producer supported by PPA with PEA in Thailand
- No. 1 Renewable Power Producer in Thailand in terms of Equity MW Growth

2

World Megatrend

- "Electrification" Era
- Global & Thailand Commitment to Zero Carbon which implies the rise of renewable energy
- Biomass is one of the most reliable renewable energy that can replace the base load provided by conventional energy.
- ESG Business

3

Continuous Growth from Projects in the Pipeline and Future

- Power Plant's PPA with exceptional tariff rate
- Better technology which leads to higher efficiency and less feedstock / kWh
- Economy of Scale resulting in lower CAPEX, OPEX, and SG&A
- 28% share in the latest biomass power plant bidding

4

Efficient Operational Capabilities with Continuous Improvement

- Lower Feedstock and O&M cost which leads to higher margin
- Stronger creditworthiness which leads to lower financing cost
- Peer-to-Peer Electricity Trading which leads to additional electricity sales

5

Low Downside Risk

- Secured Demand & Cashflow (Long term Power Purchase Agreement with the Government)
- Proven Operational Excellence & Feedstock Management
- Our business model commits to the greater good and has a positive Total Societal Impact (TSI)

The logo for Absolute Clean Energy Public Company Limited, featuring the letters 'ACE' in a bold, green, sans-serif font.

ABSOLUTE CLEAN ENERGY
PUBLIC COMPANY LIMITED



ACE's Sustainability Journey





KRABI POWER PLANT

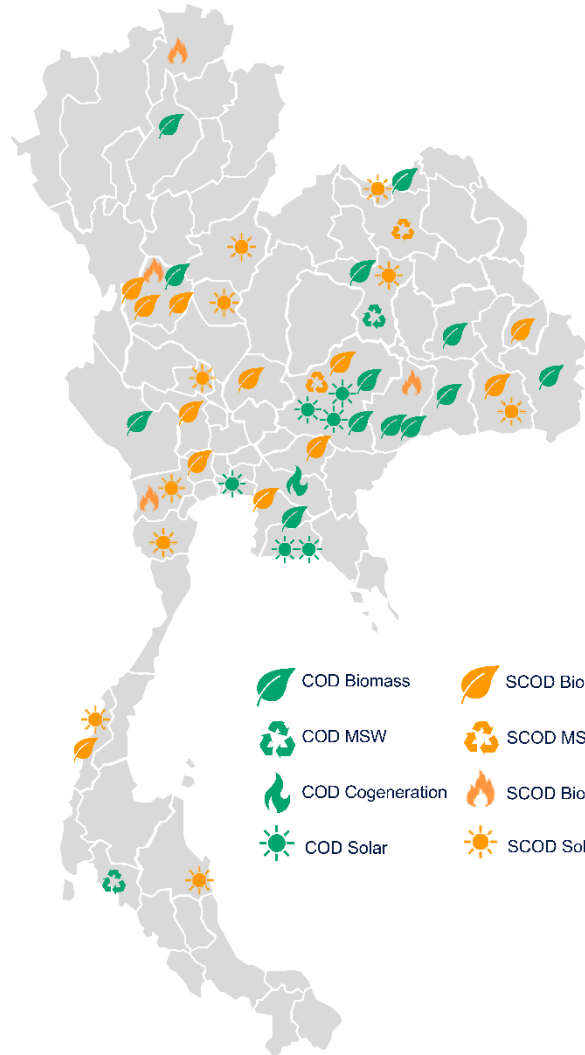
Sustainability is our journey, not just a destination

ACE is a leading renewable power producer



Total capacity > 602.29 mw

COD 23 projects and pipeline 66 projects



Biomass 27 projects
(COD 13 projects, pipeline 12 projects)



Solar 40 projects
(COD 6 projects, pipeline 34 projects)



MSW 4 projects
(COD 2 projects, pipeline 2 projects)



Biogas 18 projects
(Pipeline 18 projects)



Co-gen 1 project
(COD projects)

We originated from sustainability

ACE founder's vision

business opportunities inspired by responsibility and sustainability



Global warming from fossil fuels



Problem of agriculture residue waste



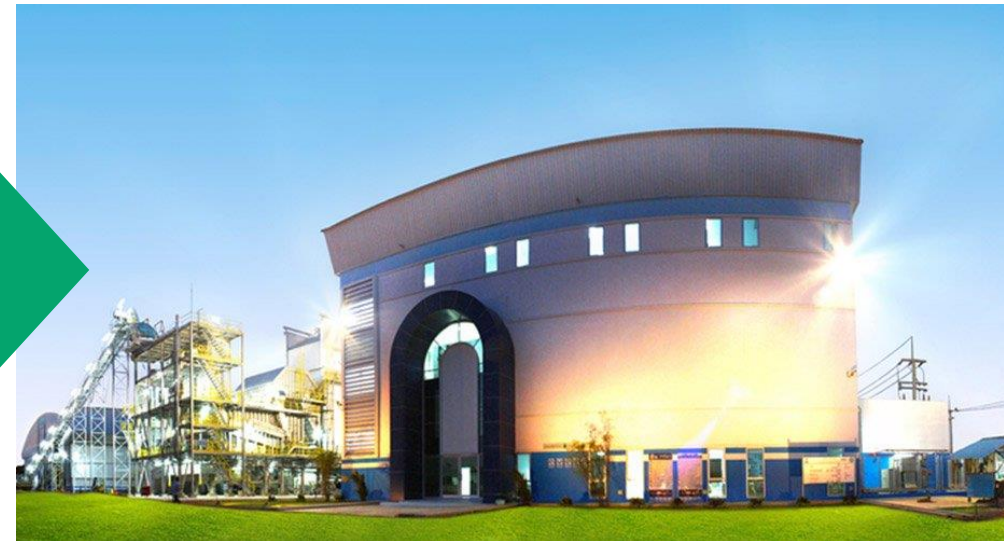
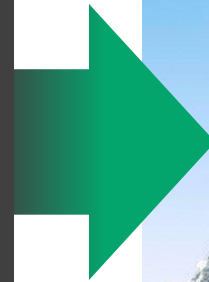
Low farmers income



Country's reliance on non-sustainable imported fossil fuels



Power generation's negative image



COD since 2012 : 1st ACE's biomass power plant
Ban Bueng power plant (9.9 mw)

What we believe?

Sustainability and Serving the Greater Good



How we do it?

Responsibility, Accountability, and Consistency

Our 3 core pillars to drive sustainability commitments

Environment and Climate



- **Eco-friendly business that helps solve climate change**
- **Utilize sustainable and renewable resources**

People and Social



- **Positive social impact**
 - Job creation, income generation, and family institution promotion
 - Spreading wealth
- **Create energy security at local, national, and global levels**
 1. Empower local and national energy self-reliance
 2. Enhance grid stability
 3. Reduce risk tied to dependence on large power plants (e.g. IPP)
 4. Maximize efficiency (Reduce loss in transmission)

Economic and Profit



- **Strong corporate governance and code of conduct**
- **Firm and sustainable growth**
- **Deliver benefits to stakeholders**
 - Farmers, suppliers, communities, lenders, shareholders, and the world

KHON KAEN POWER PLANT

How we act sustainably and nurture sustainability
“ Environment and Climate ”

Climate Risks and Impacts

Risks



- **Increase extreme weather**
 - Flood
 - Drought
 - Storm
- **Increased global temperature**
- **PM 2.5**

Impacts

1

Feedstock shortage and price fluctuation (-)

Mitigation plan will be explained later in Economic section

2

Climate regulation (+)

- Carbon tax
- Carbon footprint and carbon credit
- Enforcement of stringent PM 2.5 legal measures

Impact

No impact to biomass MSW and solar power plant because they are **carbon neutral**

Opportunities

Higher demand renewable energy and REC

Higher demand for carbon credits, and other carbon footprint reduction methods

Net-zero Strategy and Targets

Short-term

- 1 Expand renewable power plants to help reduce GHG emission**
- 2 Utilize resources efficiently in power plant operations**
 - Complete combustion
 - Efficient thermal energy utilization
 - Zero discharge
 - Water recycling

Long-term

- 3 Implement GHG removal projects**
 - Afforestation
 - Carbon capture & storage
- 4 Reach Net-zero by 2040, 10 years earlier than target**

**Net-Zero
by 2050**

Our Successful Projects (Short-term)

1 Renewable energy portfolio expansion

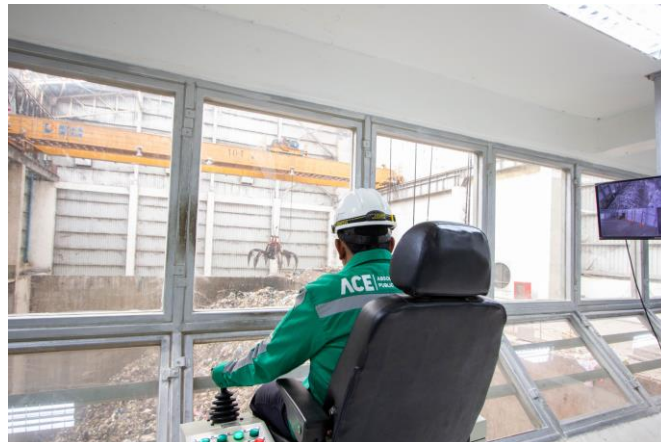
- Biomass → 12 projects (Total capacity 142.0 MW)
- Biogas → 18 projects (Total capacity 59 MW)
- Solar → 34 projects (Total capacity >124.82 MW)
- MSW → 2 projects (Total capacity 18.9 MW)

2 R&D to help improve combustion efficiency



Our Successful Projects (Short-term)

3 Zero discharge and water recycling



Leachate



MBR



UF

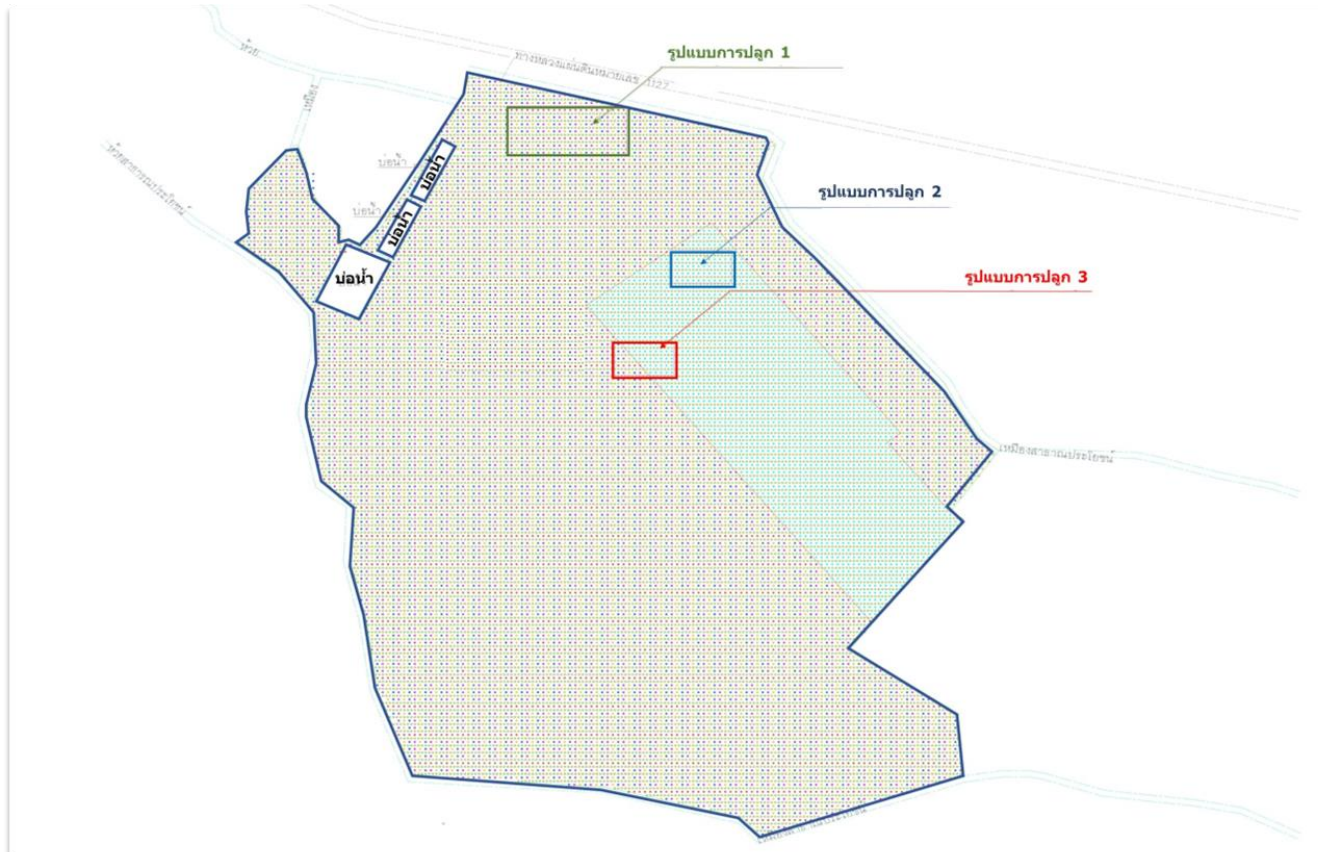


RO

Our Successful Projects (Long-term)

4 GHG Removal (Afforestation)

- Ban Tam, Phayao (201.6 Rais)



Our Successful Projects (Long-term)



Our Successful Projects (Long-term)



Our Successful Projects (Long-term)



BAN BUENG POWER PLANT

How we act sustainably and nurture sustainability

“Economic and Profit”

Challenge: Feedstocks availability and price fluctuation



Biomass



Biogas

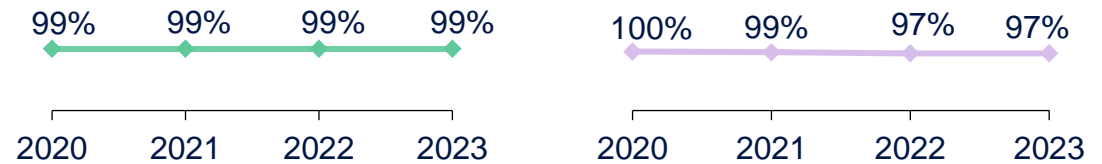
Business Targets and Results (Short-term)

Short-term targets

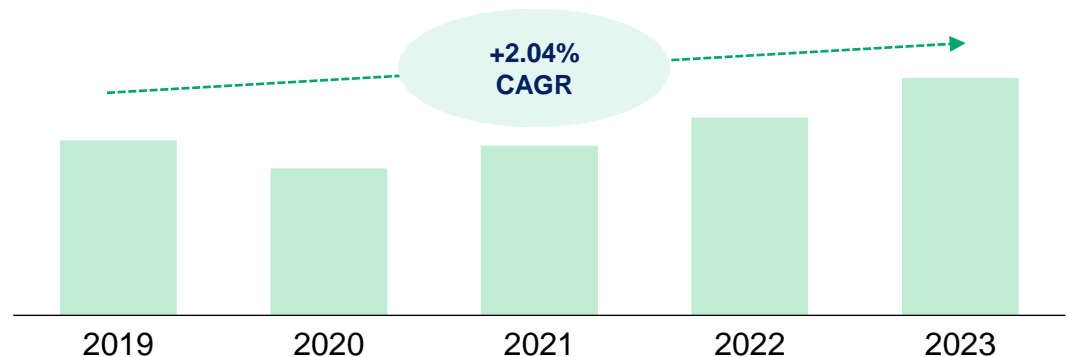
- Feedstocks (biomass, MSW) are sufficient for full capacity operation
- Manage feedstocks cost increase to be less than 3.0% per year through operation efficiency

Results

1. Export capacity factor (■ biomass ■ MSW)



2. Feedstocks prices (THB/kWh)



3. Sourcing new types of biomass fuels

Business Targets and Results (Long-term)

Long-term target: R&D to ensure long-term feedstocks security

R&D Fuel Crops and Fuel Trees



Business Targets and Results (Long-term)

Fuel Crops



Business Targets and Results (Long-term)

Fuel Trees





THOEN POWER PLANT

How we act sustainably and nurture sustainability

“People and Social”

Conducting business alongside improving the livelihoods and well being of farmers and local communities



Short-term



Increase farmer income through the purchase of agricultural residue

Long-term



Generate stable income for farmers through fuel crops and fuel trees long-term purchase agreement

Our Successful Projects

1 “ลดเผา รายได้เพิ่ม”



2 “ส่งเสริมการปลูกไม้ยูคาลิปตัส สร้างงาน สร้างรายได้ แก่ชุมชน”



Cumulative outcomes throughout our sustainability journey

Environment and Climate



People and Social



Economic and Profit



Environment and Climate Outcomes



- **Help reduce CO₂ emission (2012 - 2023)**
 - More than **3.3 millions tons CO₂**
- **Prevent agricultural burning (PM2.5) (2012 - 2023)**
 - More than **14.3 millions rais**
- **Prevent leachate from landfill (2016 - 2023)**
 - More than **172 million liters**

People and Social Outcomes



- **Farmers income generated (2012 - 2023)**
 - Income to farmers from feedstock purchase
>10,000 million THB

Employment generated (as of 2023)

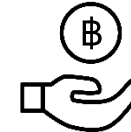
- More than **800 employments** across 30 provinces
(> 80% of local people employed)

Economic and Profit Outcomes

Revenue & net profits (2012 - 2023)



Revenue **45,209** million THB



Net profits **7,389** million THB

Recognition & index



Received the results of the corporate governance survey of listed companies for the year 2023 at “Excellent” level (5 stars) from Thai Institute of Directors Association (Thai IOD)



Awarded with ‘AA’ rating from SET ESG Ratings 2023 by the Stock Exchange of Thailand.



Listed in FTSE SET Micro Cap index and shariah index



TRIS Ratings Affirmed the Company Rating at “BBB+” with “Stable” Outlook



Achieves a perfect 100 score in the Annual General Meeting Assessment by Thai Investors Association



The Company has signed the Declaration of Intent to support the coalition with CAC (Collective Action Against Corruption) in reducing corruption.

Our CSR (Education)



Our CSR (Community support during the COVID Crisis)



Our CSR (Community Services & Donations)



Our CSR (Community Services & Donations)



Our CSR (Community Services & Donations)



Our CSR (Community Services & Donations)



Power Plant Visits (1/9)



General Anupong Paojinda
(Minister of Interior)

Power Plant Visits (2/9)



Dr. Siri Jirapongphan
(Minister of Energy)

Energy Regulatory Commission (ERC)



Mr. Kraisri Kannasoot



Mr. Kurujit Nakornthap

International Recognition



H.E.Mrs.Kshenuka Dhireni Senewiratne
(The Ambassador of Sri Lanka)



Mohammad Tajul Islam
(Minister of Local Government
and Rural Development)

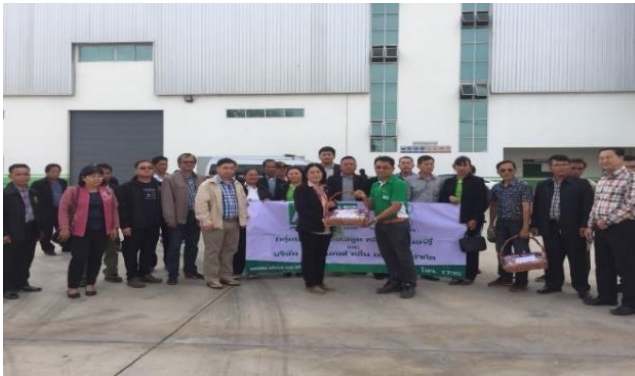


**Vice Presidential Delegation
of Indonesia**

Government Agencies and Departments



Local Administrative Organizations



Power Plant Visits (7/9)



Power Plant Visits (8/9)



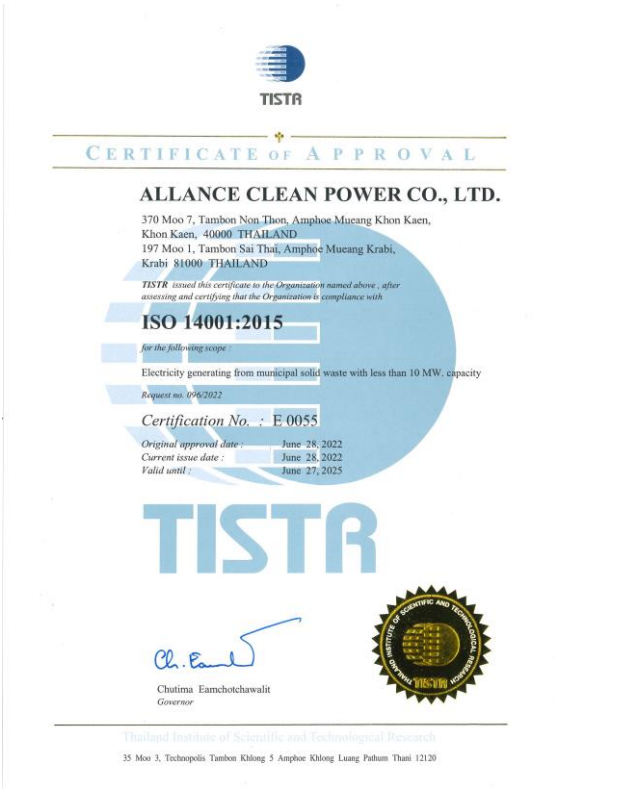
Power Plant Visits (9/9)



Awards & Recognitions (1/13)



Certified date: June 28, 2022



Certified date: June 28, 2022



Certified date: June 28, 2022

Awards & Recognitions (2/13)



CERTIFICATE OF APPROVAL

ALLIANCE CLEAN POWER CO., LTD.
 Branch 0001 : 131 Moo 1, Tambon Phra Phutthabat, Amphoe Si Chiang Mai, Nong Khai-43130 THAILAND
 Branch 0002 : 190 Moo 4, Tambon Fang Kham, Amphoe Sirindhorn, Ubon Ratchathani- 34350 THAILAND



TISTR issued this certificate to the Organization named above, after assessing and certifying that the Organization is compliance with

ISO 9001:2015

for the following scope :
 Electricity generating from Biomass Fuel with less than 10 MW capacity
 Request no. 097/2022

Certification No. : Q9 0282

Original approval date : August 15, 2022
 Current issue date : August 15, 2022
 Valid until : August 14, 2025

Chutima Eamchotchawalit
Governor



Thailand Institute of Scientific and Technological Research
35 Moo 3, Technopolis Tambon Khlong 5 Amphoe Khlong Luang Pathum Thani 12120

Certified date: August 15, 2022



CERTIFICATE OF APPROVAL

ALLIANCE CLEAN POWER CO., LTD.
 Branch 0001 : 131 Moo 1, Tambon Phra Phutthabat, Amphoe Si Chiang Mai, Nong Khai-43130 THAILAND
 Branch 0002 : 190 Moo 4, Tambon Fang Kham, Amphoe Sirindhorn, Ubon Ratchathani- 34350 THAILAND

TISTR issued this certificate to the Organization named above, after assessing and certifying that the Organization is compliance with

ISO 14001:2015

for the following scope :
 Electricity generating from Biomass Fuel with less than 10 MW capacity
 Request no. 097/2022

Certification No. : E 0057

Original approval date : August 15, 2022
 Current issue date : August 15, 2022
 Valid until : August 14, 2025




Chutima Eamchotchawalit
Governor



Thailand Institute of Scientific and Technological Research
35 Moo 3, Technopolis Tambon Khlong 5 Amphoe Khlong Luang Pathum Thani 12120

Certified date: August 15, 2022



CERTIFICATE OF APPROVAL

ALLIANCE CLEAN POWER CO., LTD.
 Branch 0001 : 131 Moo 1, Tambon Phra Phutthabat, Amphoe Si Chiang Mai, Nong Khai-43130 THAILAND
 Branch 0002 : 190 Moo 4, Tambon Fang Kham, Amphoe Sirindhorn, Ubon Ratchathani- 34350 THAILAND

TISTR issued this certificate to the Organization named above, after assessing and certifying that the Organization is compliance with

ISO 45001:2018

for the following scope :
 Electricity generating from Biomass Fuel with less than 10 MW capacity
 Request no. 097/2022

Certification No. : S 0026

Original approval date : August 15, 2022
 Current issue date : August 15, 2022
 Valid until : August 14, 2025



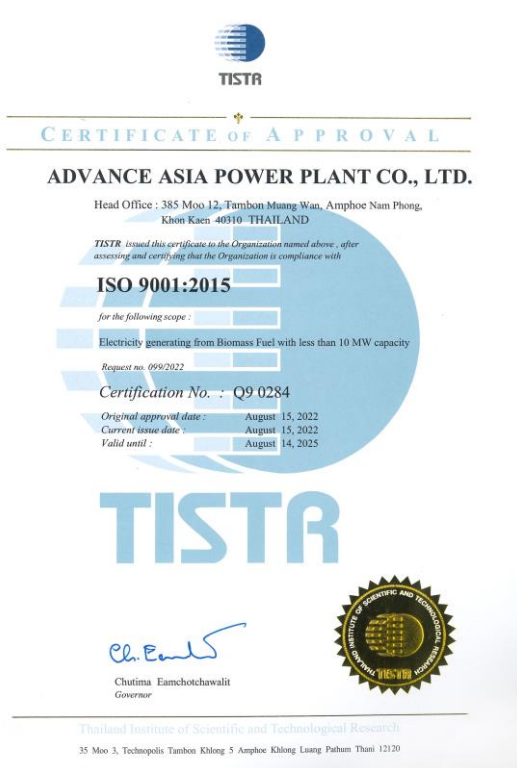

Chutima Eamchotchawalit
Governor



Thailand Institute of Scientific and Technological Research
35 Moo 3, Technopolis Tambon Khlong 5 Amphoe Khlong Luang Pathum Thani 12120

Certified date: August 15, 2022

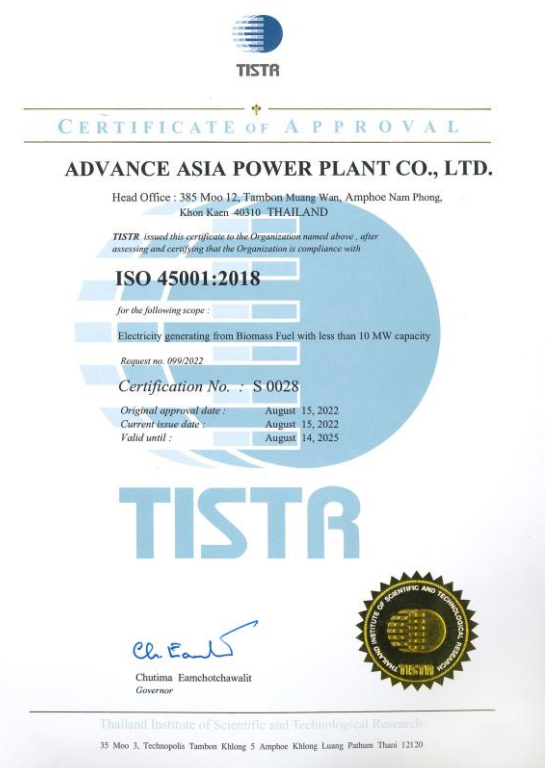
Awards & Recognitions (3/13)



Certified date: August 15, 2022

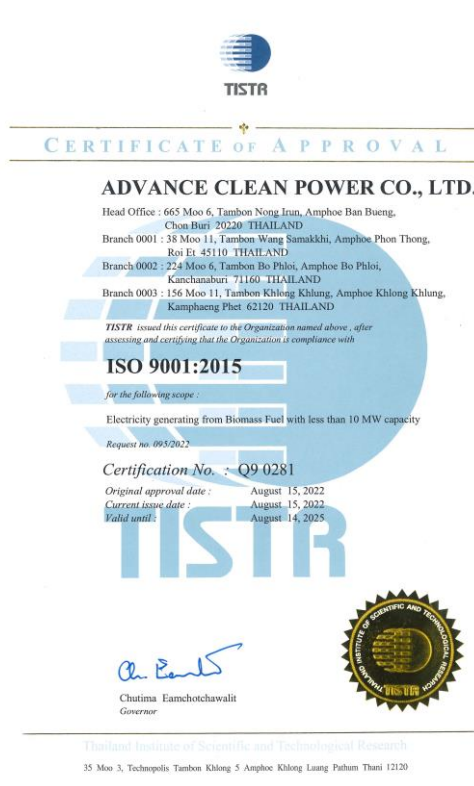


Certified date: August 15, 2022

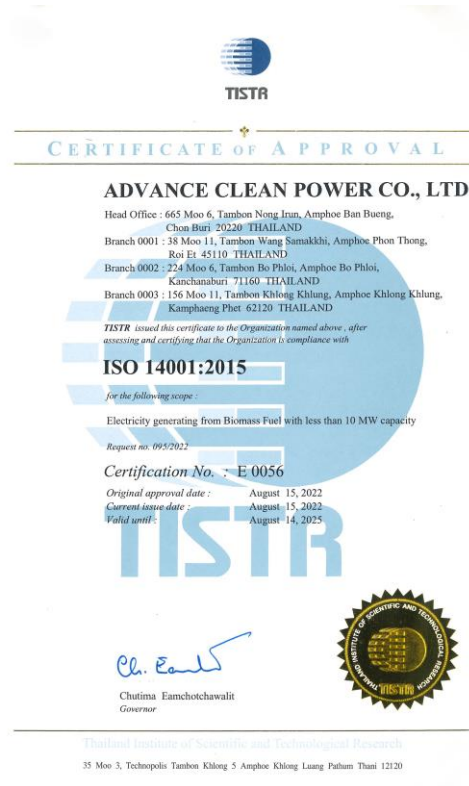


Certified date: August 15, 2022

Awards & Recognitions (4/13)



Certified date: August 15, 2022



Certified date: August 15, 2022



Certified date: August 15, 2022

Awards & Recognitions (5/13)



Certified date: August 15, 2022

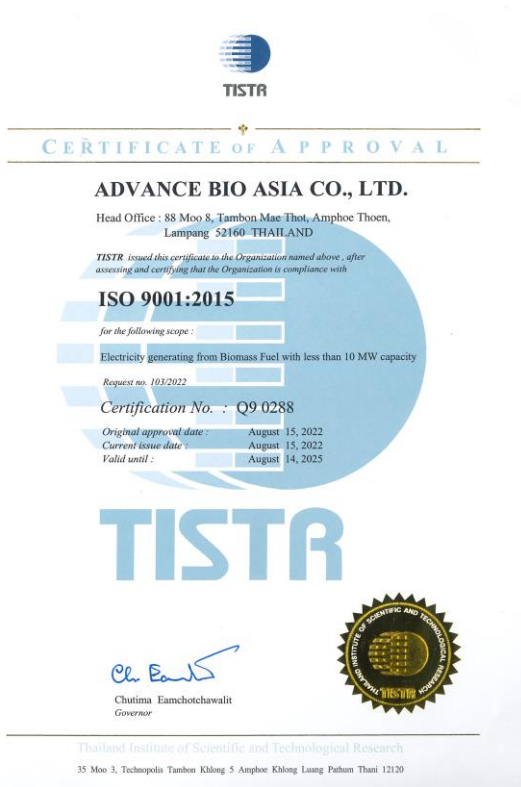


Certified date: August 15, 2022

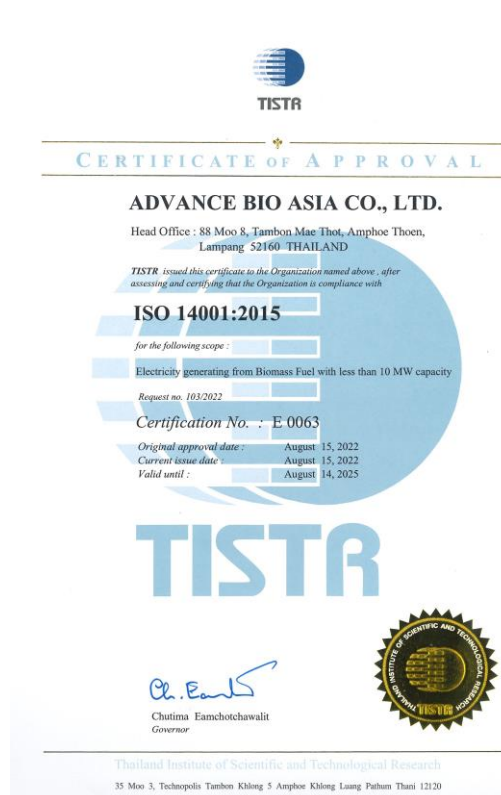


Certified date: August 15, 2022

Awards & Recognitions (6/13)



Certified date: August 15, 2022

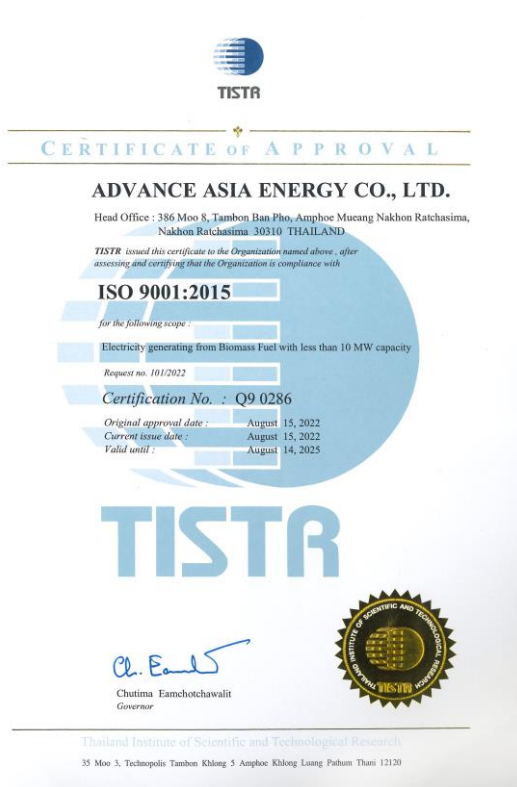


Certified date: August 15, 2022

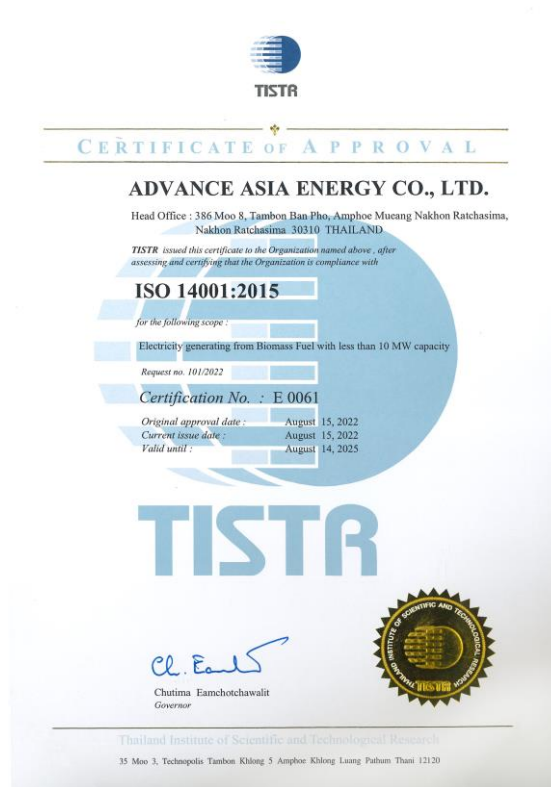


Certified date: August 15, 2022

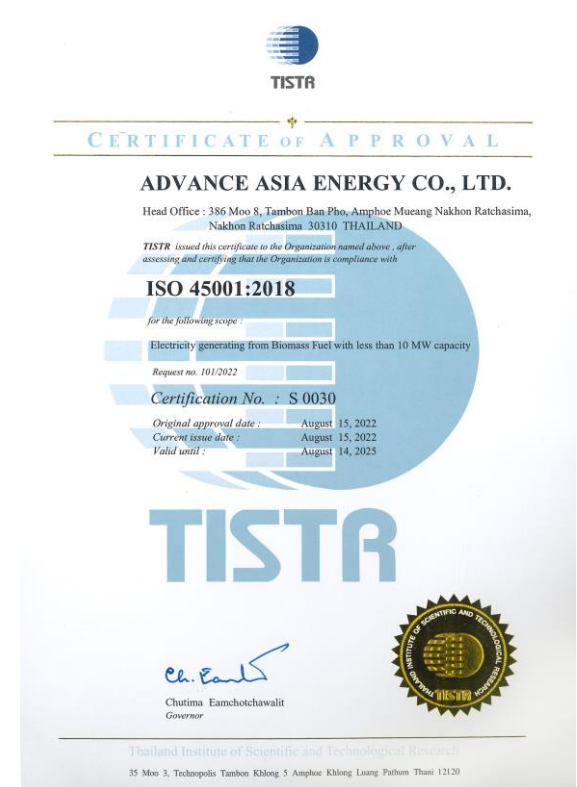
Awards & Recognitions (7/13)



Certified date: August 15, 2022

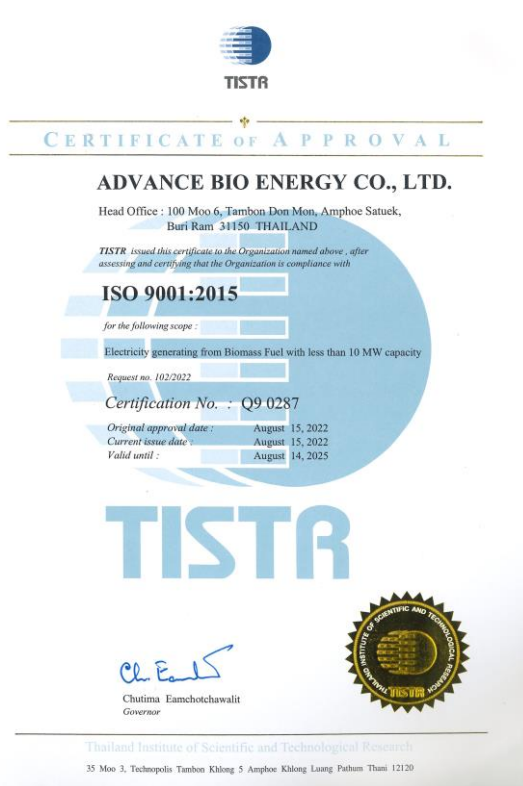


Certified date: August 15, 2022

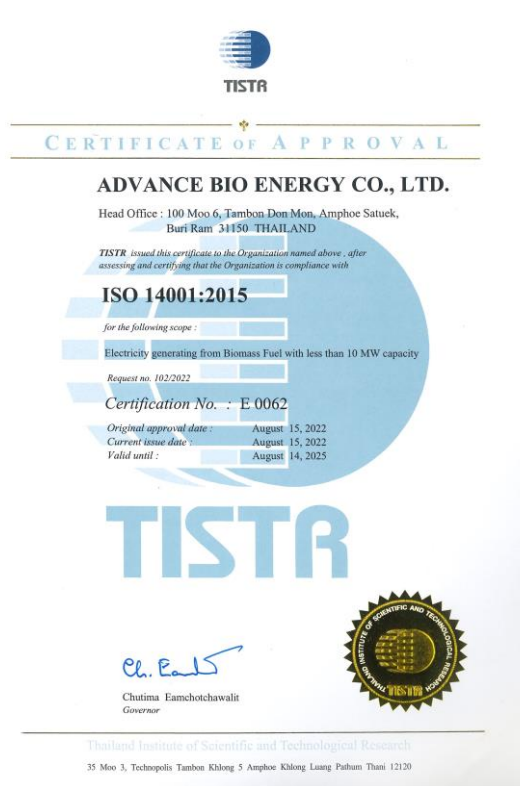


Certified date: August 15, 2022

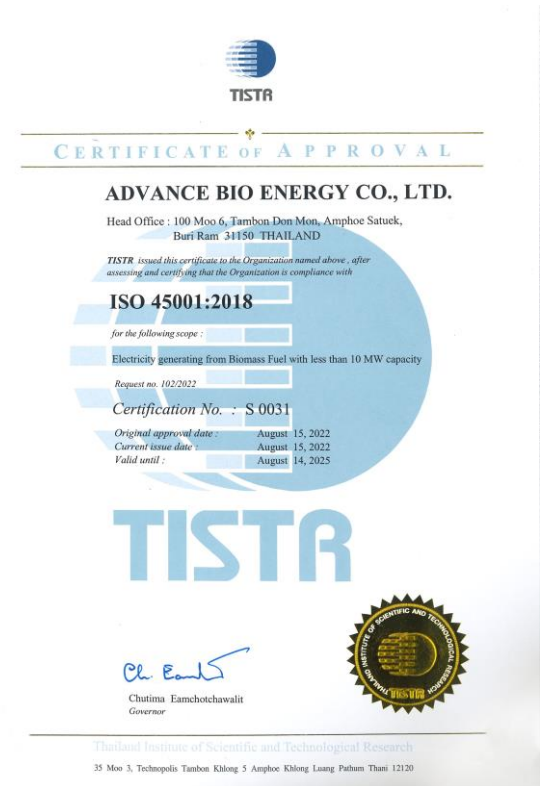
Awards & Recognitions (8/13)



Certified date: August 15, 2022

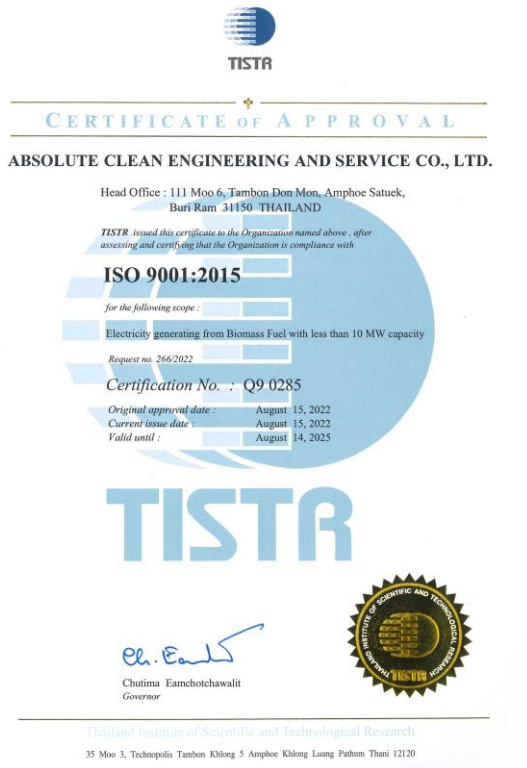


Certified date: August 15, 2022

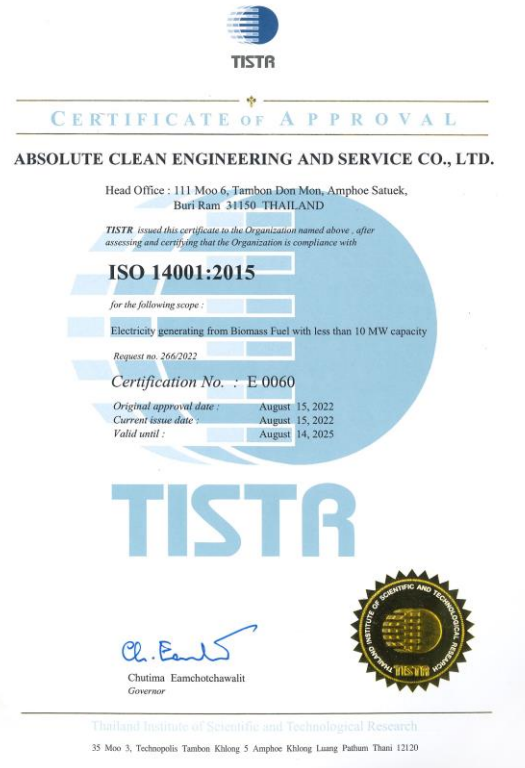


Certified date: August 15, 2022

Awards & Recognitions (9/13)



Certified date: August 15, 2022



Certified date: August 15, 2022



Certified date: August 15, 2022

Awards & Recognitions (10/13)

CERTIFICATE OF REGISTRATION

This is to certify that the management system of:
Advance Agro Asia Co., Ltd.
 Main Site: 224 Moo 7, Ko Khanun Sub District, Phanom Sarakhum District, Chachoengsao Province 24120 Thailand
has been registered by Intertek as conforming to the requirements of:
ISO 9001:2015
The management system is applicable to:
 Electricity Generation and Steam Distribution by Cogeneration.

Certificate Number: 24111707001
Initial Certification Date: 13 April 2018
Date of Certification Decision: 08 April 2021
Issuing Date: 12 April 2021
Valid Until: 12 April 2024

Calin Moldovean
 President, Business Assurance
 Intertek Certification Limited, 10A Victory Park, Victory Road, Derby DE24 8Z5, United Kingdom
 Intertek Certification Limited is a UKAS accredited body under schedule of accreditation no. 014.

In the issuance of this certificate, Intertek assumes no liability to any party other than to the Client, and then only in accordance with the agreed upon Certification Agreement. This certificate's validity is subject to the organization maintaining their system in accordance with Intertek's requirements for systems certification. Validity may be confirmed via email at certificate.validation@intertek.com or by scanning the code to the right with a smartphone. The certificate remains the property of Intertek, to whom it must be returned upon request.

Certified date: April 13, 2018

CERTIFICATE OF REGISTRATION

This is to certify that the management system of:
Advance Agro Asia Co., Ltd.
 Main Site: 224 Moo 7, Ko Khanun Sub District, Phanom Sarakhum District, Chachoengsao Province 24120 Thailand
has been registered by Intertek as conforming to the requirements of:
ISO 14001:2015
The management system is applicable to:
 Electricity Generation and Steam Distribution by Cogeneration.

Certificate Number: 24121707003
Initial Certification Date: 13 April 2018
Date of Certification Decision: 08 April 2021
Issuing Date: 12 April 2021
Valid Until: 12 April 2024

Calin Moldovean
 President, Business Assurance
 Intertek Certification Limited, 10A Victory Park, Victory Road, Derby DE24 8Z5, United Kingdom
 Intertek Certification Limited is a UKAS accredited body under schedule of accreditation no. 014.

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Certified date: April 13, 2018

CERTIFICATE OF REGISTRATION

This is to certify that the management system of:
Advance Agro Asia Co., Ltd.
 Main Site: 224 Moo 7, Ko Khanun Sub District, Phanom Sarakhum District, Chachoengsao Province 24120 Thailand
has been registered by Intertek as conforming to the requirements of:
ISO 45001:2018
 Certified to OHSAS 18001:2007 from 04/04/2018 to 11/03/2021.
The management system is applicable to:
 Electricity Generation and Steam Distribution by Cogeneration.

Certificate Number: 0074103
Initial Certification Date: 04 April 2018
Date of Certification Decision: 08 April 2021
Issuing Date: 12 April 2021
Valid Until: 11 March 2024

Calin Moldovean
 President, Business Assurance
 Intertek Certification Limited, 10A Victory Park, Victory Road, Derby DE24 8Z5, United Kingdom
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Certified date: April 4, 2018

Awards & Recognitions (11/13)



Certified Date: September 1, 2017



Certified Date: August 21, 2019



Certified Date: August 17, 2017



Certified Date: December 19, 2012



Certified Date: November 7, 2019



Certified Date: May 10, 2023

Awards & Recognitions (12/13)

การรับรองเลขที่ : ๓-๒๔๓๙๘/๒๕๖๑



ใบรับรองฉบับนี้ให้ไว้กับ

บริษัท แอ็ดวานซ์ คลีน เพาเวอร์ จำกัด

ที่ตั้งสถานประกอบการ : เลขที่ ๖๖๕ หมู่ที่ ๖ ตำบลหนองฮีวน
อำเภอน้ำมิ่ง จังหวัดชลบุรี ๒๐๒๑๐

เพื่อรับรองว่าเป็น

อุตสาหกรรมสีเขียวระดับที่ ๓
ระบบสีเขียว (Green System)

การบริหารจัดการสิ่งแวดล้อมอย่างเป็นระบบ มีการติดตามประเมินผล
และทบทวนเพื่อการพัฒนาอย่างต่อเนื่อง

ลงชื่อ

(นายสุ โลหารขุน)
ปลัดกระทรวงอุตสาหกรรม

ออกให้ ณ วันที่ : ๒๗ ตุลาคม ๒๕๖๑
มีผลถึง วันที่ : ๒๖ ตุลาคม ๒๕๖๓
เลขทะเบียนโรงงาน : ๓-๔๔-๗๙/๕๓๗

Certified Date: October 27, 2017

การรับรองเลขที่ : ๓-๕๔๑๖/๒๕๕๙



ใบรับรองฉบับนี้ให้ไว้กับ

บริษัท แอ็ดวานซ์ เอเชีย เพาเวอร์ แพลนท์ จำกัด

ที่ตั้งสถานประกอบการ : เลขที่ ๓๔๔ หมู่ที่ ๑๒ ตำบลม่วงหวาน
อำเภอน้ำทอง จังหวัดขอนแก่น ๔๐๑๑๐

เพื่อรับรองว่าเป็น

อุตสาหกรรมสีเขียวระดับที่ ๓
ระบบสีเขียว (Green System)

การบริหารจัดการสิ่งแวดล้อมอย่างเป็นระบบ มีการติดตามประเมินผล
และทบทวนเพื่อการพัฒนาอย่างต่อเนื่อง

ลงชื่อ

(นายสมชาย หาญหิรัญ)
ปลัดกระทรวงอุตสาหกรรม

ออกให้ ณ วันที่ : ๑๒ กันยายน ๒๕๕๙
มีผลถึง วันที่ : ๑๑ กันยายน ๒๕๖๑
เลขทะเบียนโรงงาน : ๓-๔๔-๖๔๕๓๗

Certified Date: September 12, 2016

การรับรองเลขที่ : GI(E) 3-238/2566



ใบรับรองฉบับนี้ให้ไว้กับ

บริษัท อัลโลแมนซ์ คลีน เพาเวอร์ จำกัด

ที่ตั้งสถานประกอบการ : เลขที่ 370 หมู่ที่ 7 ซอยบ้านคานอน ตำบลโนนท่อน
อำเภอมือจอนขอนแก่น จังหวัดขอนแก่น 40000

เพื่อรับรองว่าเป็น

อุตสาหกรรมสีเขียวระดับที่ 3
ระบบสีเขียว (Green System)

การบริหารจัดการสิ่งแวดล้อมอย่างเป็นระบบ มีการติดตามประเมินผล
และทบทวนเพื่อการพัฒนาอย่างต่อเนื่อง

ลงชื่อ

(นายสุพงษ์ ทรัพย์)
อธิบดีกรมโรงงานอุตสาหกรรม

ออกให้ ณ วันที่ : 28 พฤศจิกายน 2565
มีผลถึง วันที่ : 27 พฤศจิกายน 2568
เลขประจำตัวผู้เสียภาษี : 0105551090569
เลขทะเบียนโรงงาน : 40400004025577

Certified Date: November 28, 2022

การรับรองเลขที่ : ๒-๕๔๑๖/๒๕๖๑



ใบรับรองฉบับนี้ให้ไว้กับ

บริษัท แอ็ดวานซ์ อีโกร เอเซีย จำกัด

ที่ตั้งสถานประกอบการ : เลขที่ ๒๒๔ หมู่ที่ ๗ ตำบลเกาะขาม
อำเภอนวมสารคาม จังหวัดฉะเชิงเทรา ๒๔๒๑๐

เพื่อรับรองว่าเป็น

อุตสาหกรรมสีเขียวระดับที่ ๒
ปฏิบัติการสีเขียว (Green Activity)

การดำเนินงานเพื่อลดผลกระทบสิ่งแวดล้อมได้สำเร็จตามมาตรฐานที่ตีไว้

ลงชื่อ

(นายสมชาย หาญหิรัญ)
ปลัดกระทรวงอุตสาหกรรม

ออกให้ ณ วันที่ : ๒๖ พฤษภาคม ๒๕๖๑
มีผลถึง วันที่ : ๒๕ พฤษภาคม ๒๕๖๒
เลขทะเบียนโรงงาน : ๓-๔๔(๒)-๔/๕๔๑๗

Certified Date: May 26, 2017

Awards & Recognitions (13/13)



Received Date : September 1, 2017



Received Date : 2018



Received Date: August 20, 2017



Received Date: August 20, 2017



Received Date: August 17, 2018



Received Date: August 17, 2018



Received Date: August 17, 2018



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