

# Thai Biomass Power Generation Business



## Agenda

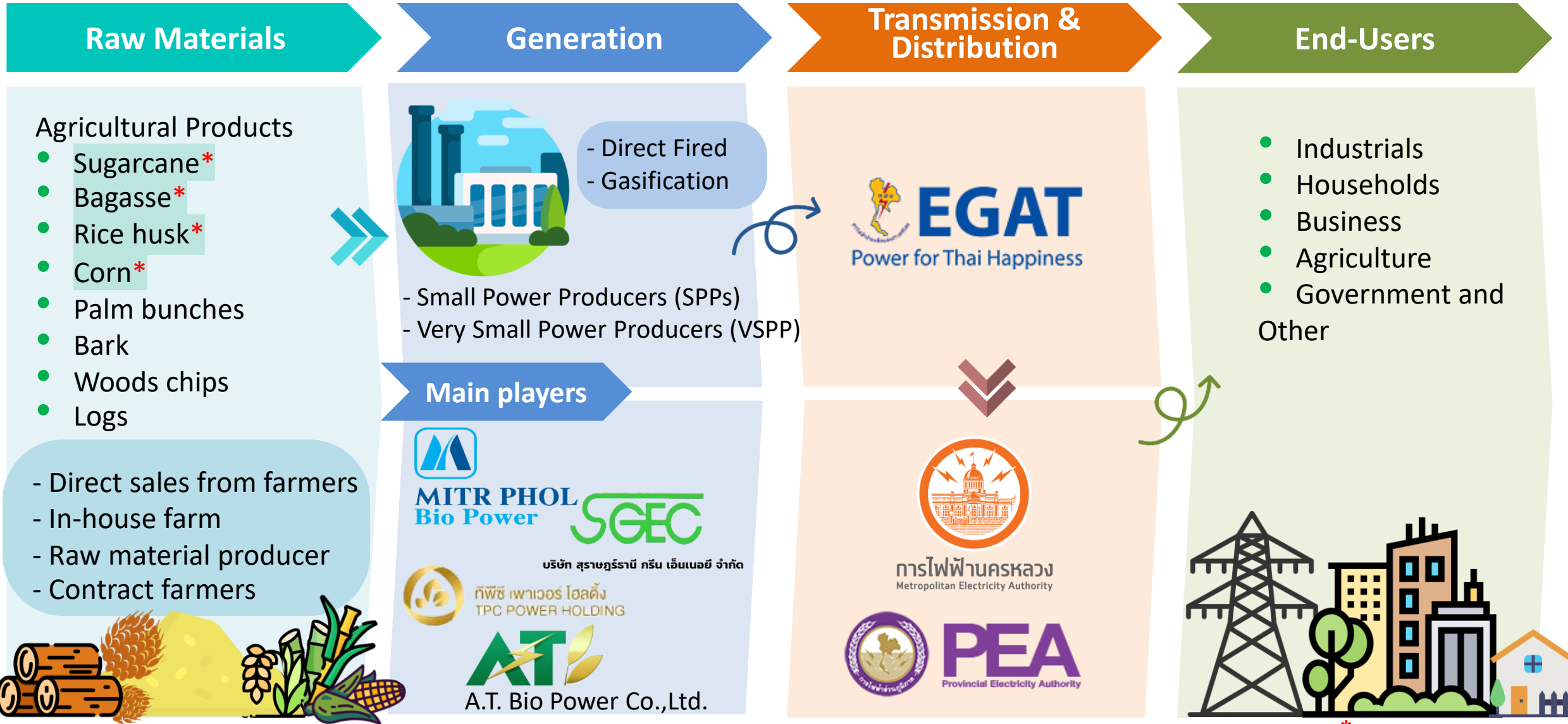
- Global Biomass Power Business Overview
- Thai Biomass Power Outlook and Policy
- Thai Biomass Power : SMEs Business Opportunities

**Business Research  
October 2023**

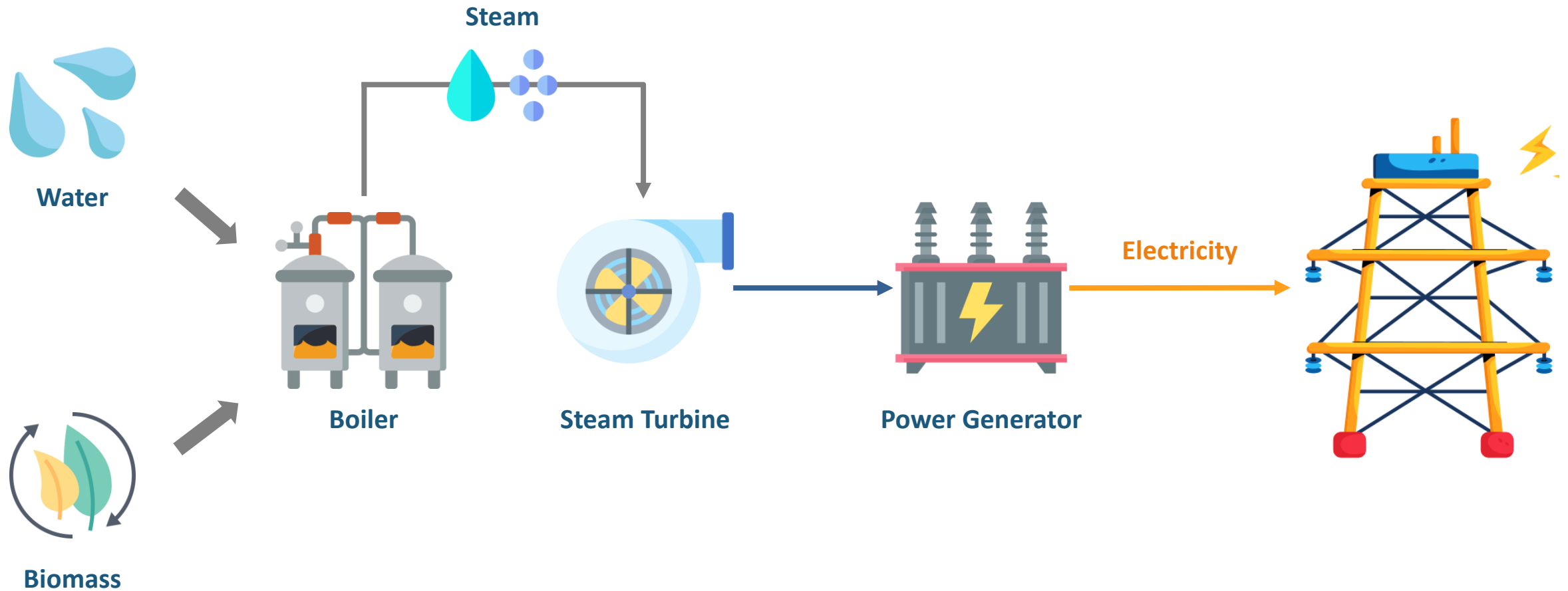
# Biomass Power Generation Business



# Biomass Supply Chain



# Biomass Power Generation Business : **Generation Process**

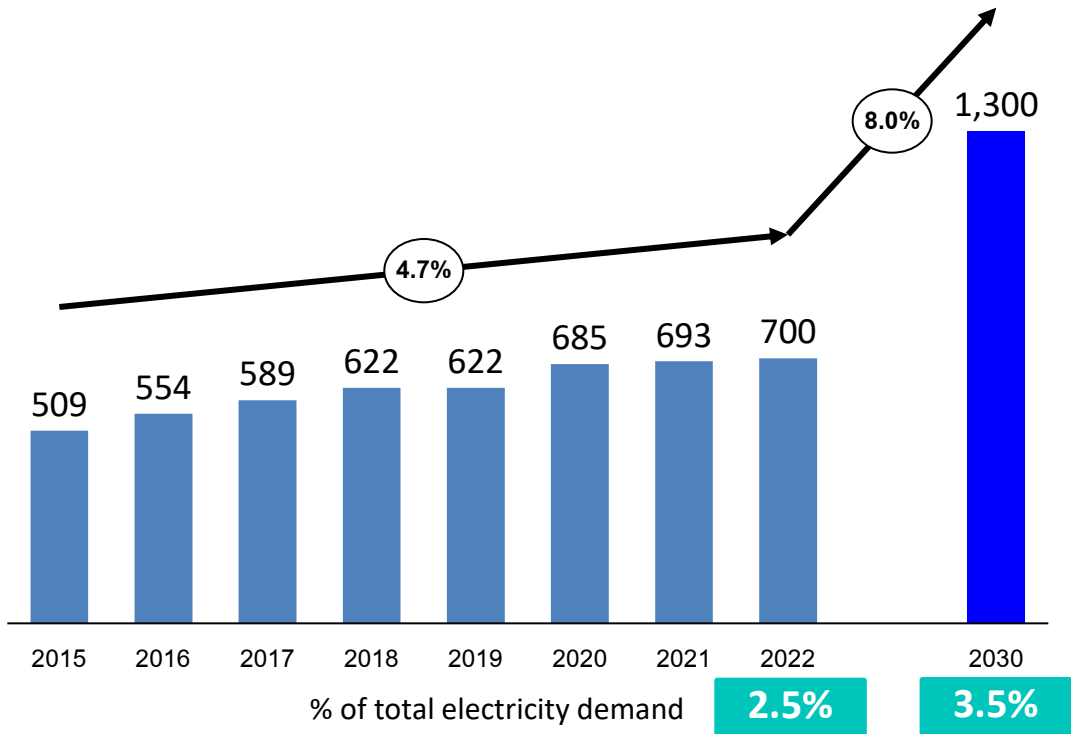


Global demand for biomass power generation is expected to increase from 700 TWh in 2022 to 1,300 TWh in 2030 (8% CAGR), accounting for 3.5% of total global electricity demand.



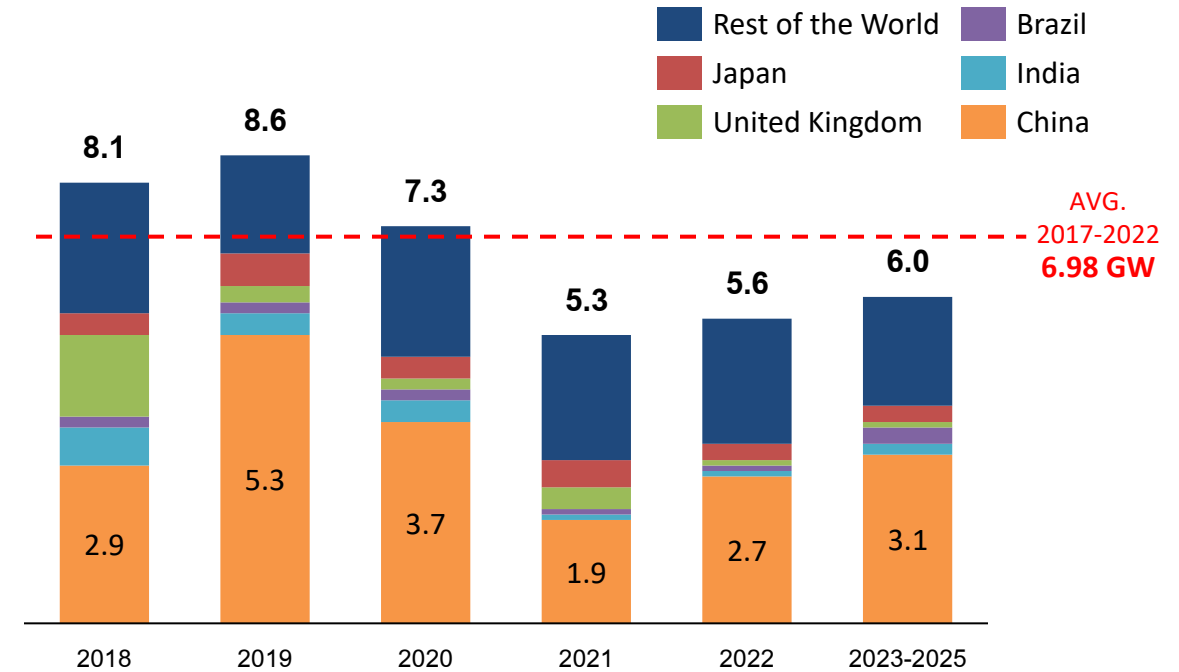
Global biomass power generation 2015 - 2030

(Unit: Terawatt-hours)



Biomass power capacity additions by country

(Unit: Gigawatts)



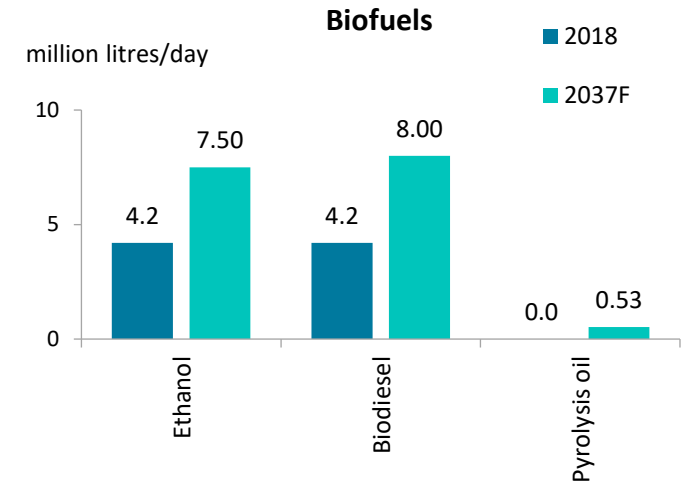
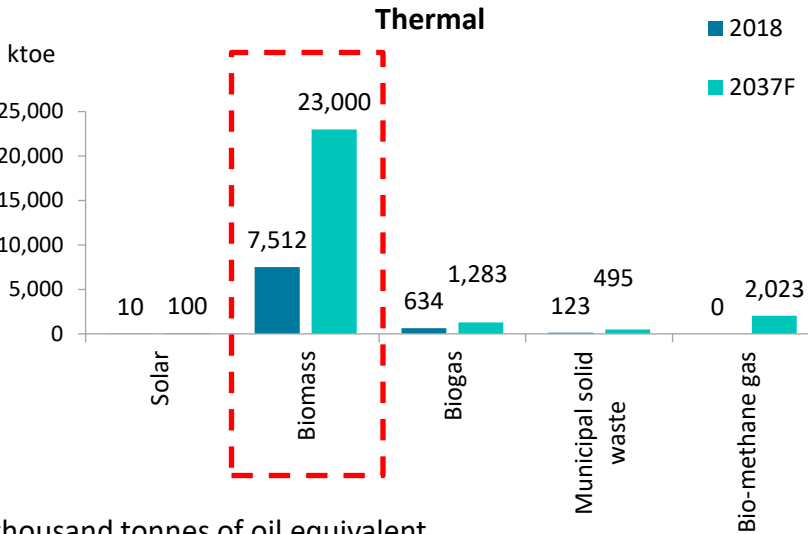
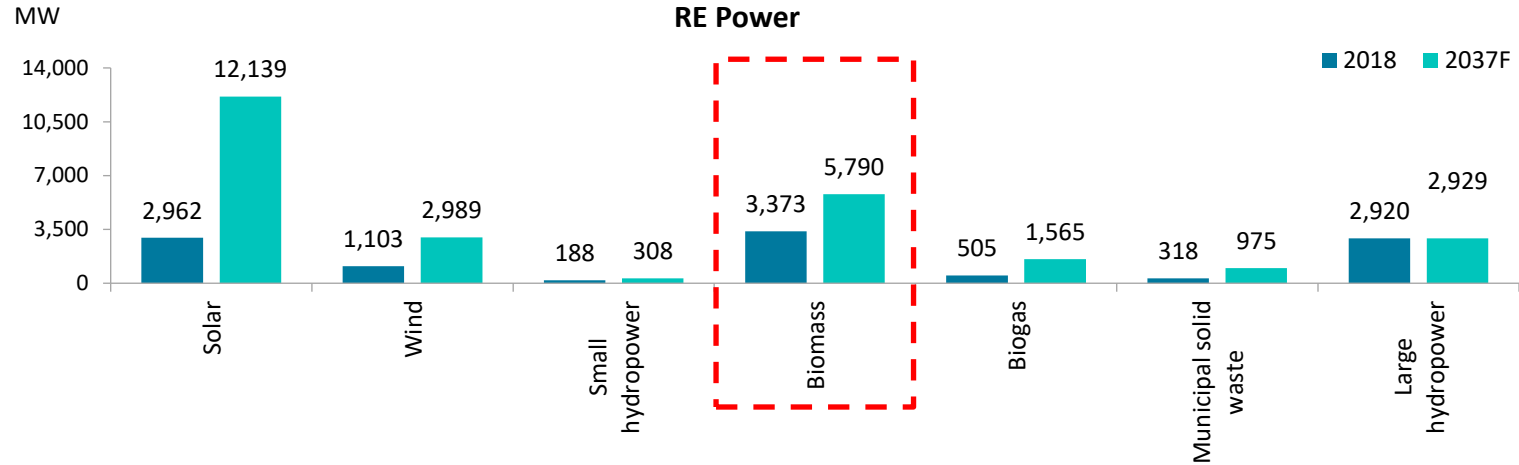
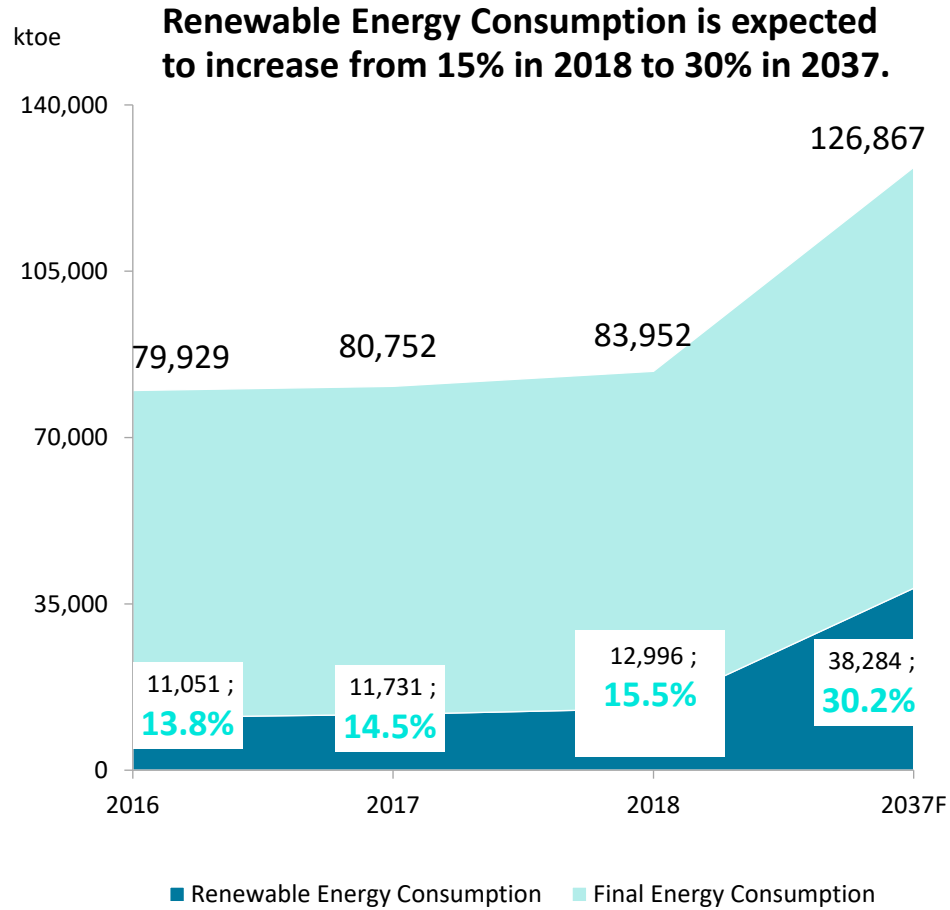
- Biomass power generation capacity is expected to increase by 6 GW annually during 2023-2025, below the 5-year average (2017-2022) of 6.98 GW. China continues to be the top player. In terms of biomass power generation capacity, more than 50% of new power generation capacity is added globally every year.

# Policies to Support Biomass Power Development in Thailand (1/3)

## 1 Alternative Energy Development Plan 2018-2037

Target: To increase the proportion of renewable energy and alternative energy in forms of RE power, thermal, and biofuels by 30% in 2037

The plan is focused on developing domestically renewable energy production to benefit social and environmental dimensions of the society.



Notes: RE Power = Renewable Energy Power, MW = Mega Watt, ktoe = thousand tonnes of oil equivalent

Source: LH Business Research analysis based on data from Thailand's Ministry of Energy

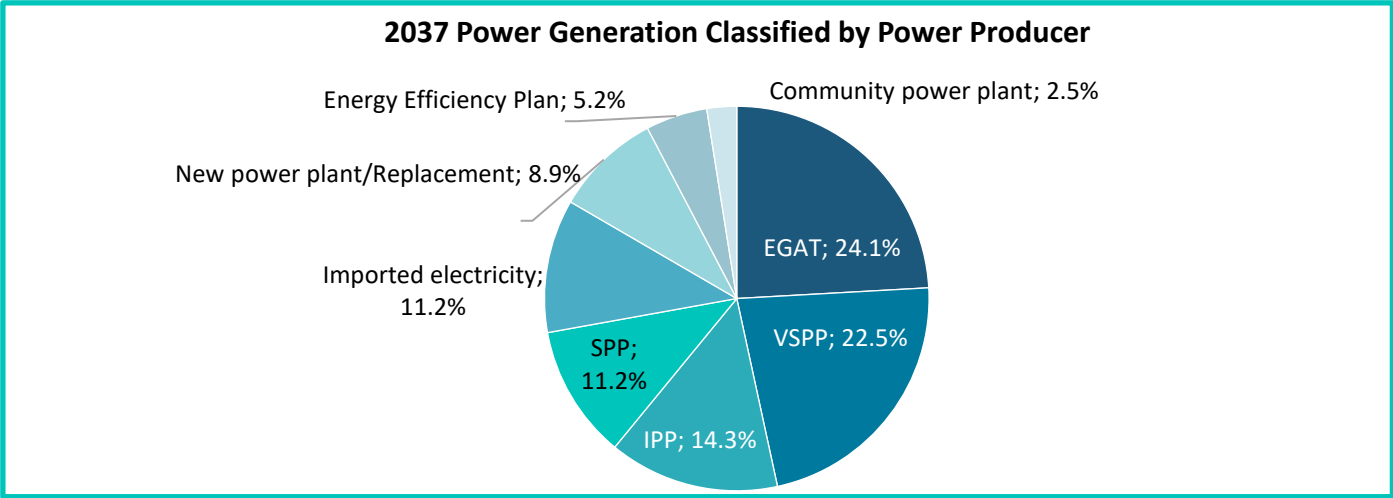
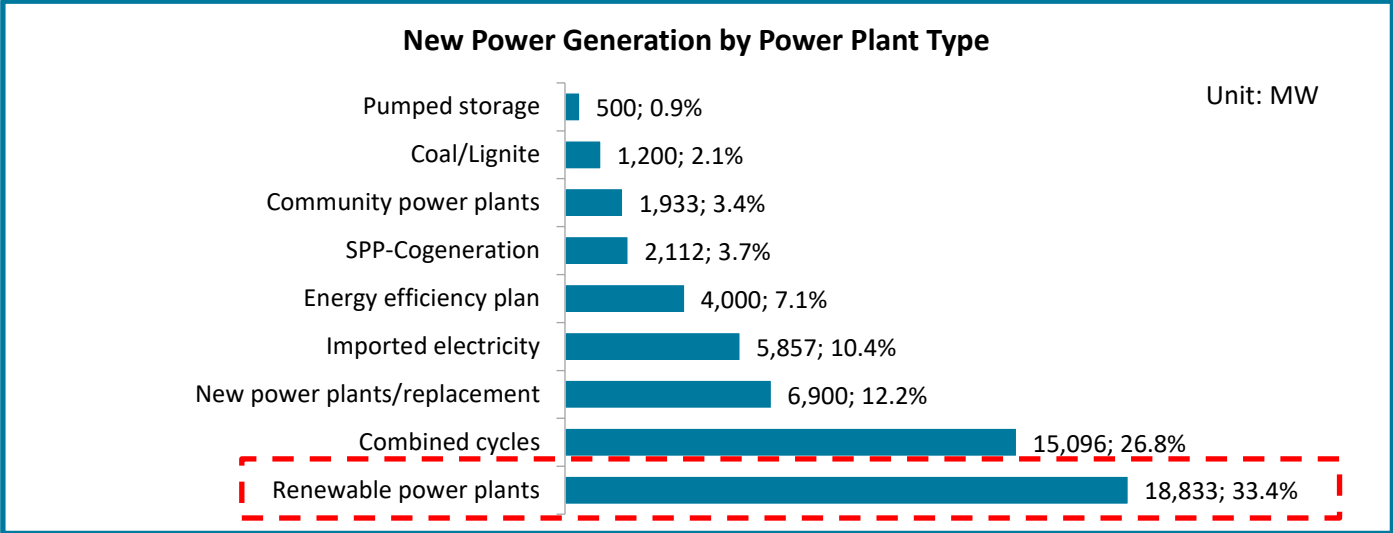
# Policies to Support Biomass Power Development in Thailand (2/3)

## 2 Power Development Plan 2018-2037

Target: To provide new power capacity of 56,431 MW in 2037, of which 18,833 MW is from renewables.

The plan aims to improve energy efficiency, enhance energy security and reduces the share of coal in the electricity generation in Thailand .

Power Generation (2018-2037)	Capacity (MW)
Existing Capacity as of December 2017	40,090
Retired Capacity during 2018-2037	-25,310
<b>New Capacity during 2018-2037</b>	<b>56,431</b>
<b>Power Generation in 2037</b>	<b>77,211</b>



# Policies to Support Biomass Power Development in Thailand (3/3)

## 3 BOI Promotion for Biomass Power Business in Thailand

### Electricity from Biomass or Stream

Under the BOI's incentives, Biomass Power business listed under **Group A2 & BCG Economy** would be granted the incentive packages below:

**A2**

Infrastructure activities for the country's development, activities using technology to create value-added, with no or very existing investments in Thailand

#### Basic Incentives

- 8-year corporate income tax exemption
- Exemption of import duties on machinery
- Exemption of import duties on raw materials used in R&D
- Exemption of import duties on raw materials used in production for exports
- Non-tax incentives i.e. permit to own land, permit for skilled workers/experts/foreign nationals to enter the Kingdom, and permit to take out or remit money abroad in foreign currency.

#### Additional Incentives for Projects located in EEC

- In case of human resource development: 50% deduction from normal rate of corporate income tax for 3 years from the expiry date of corporate income tax exemption period

### SMEs support for improving / installation of renewable energy

To improve the efficiency of energy conservation, alternative energy utilization or environmental impact mitigation as well as to promote improvement in efficiency by upgrading and replacing machinery, entrepreneurs would be granted BOI's productivity enhancement measures of summarized below:

#### Incentives

- **SMEs with investment  $\geq$  500,000 THB on renewable energy**
- Exemption of import duties on machinery
- 3-year corporate income tax exemption on the revenue of an existing project, with corporate income tax exemption cap not exceeding 50% of the investment capital (excluding cost of land and working capital)
- Corporate income tax exemption period shall start from the date of revenue derivation after promotion certificate issuance.











# Factors influencing Thailand's Biomass Power Business

## Tailwind

### 1. Support measures provided by the government, such as

-  Tax exemptions
-  Grants to entrepreneurs
-  Determining the proportion of biofuels to be blended with base oil
-  Measures to support different forms of bioenergy, such as subsidizing the purchase of electricity from biomass power plants.

### 2. Environmental concerns are driving investment in bioenergy worldwide.

-  The level of greenhouse gas emissions
-  Waste disposal

### 3. Energy security is a key driver for bioenergy. Agricultural products are used to produce biofuels and electricity.

### 4. Encourage and develop innovation in both the energy and agricultural sectors. Research and development of bioenergy innovations to reduce dependence on fossil fuels.

### 5. In many areas of Thailand, there is still a lot of agricultural waste that has not been disposed properly and can be used as biomass fuel.

## Headwind

- 1. Risk of biomass feedstock shortages and price volatility** (potential impact of El Niño on key feedstock shortages, e.g., sugar cane, rice, and corn).
- 2. Fluctuation in the price of oil**, as the biomass business would require high transportation costs to collect agricultural waste from many areas.
- 3. Risks arising from changes in government support**, changes in various government policies, such as the reduction of the surcharge on the purchase price of electricity.

### New Players

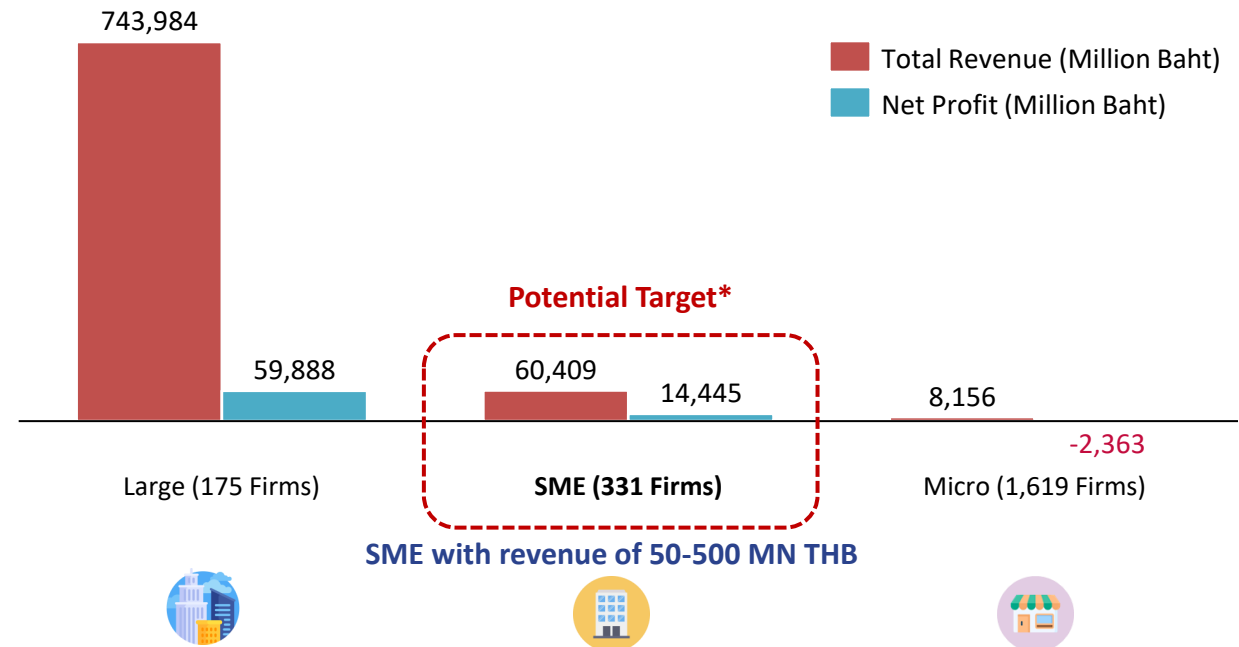
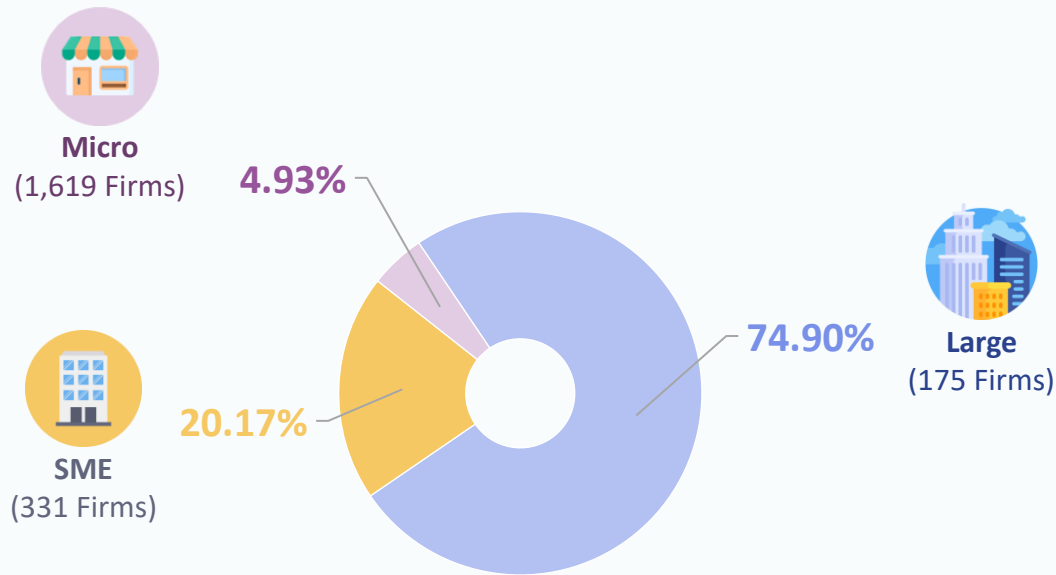
- 1. Risks from communities near the power plant site** may not agree to the construction of a factory and there has been a groundswell of opposition that has prevented the project from moving forward.
- 2. Risks to safety, occupational health**, the environment, and society in the process of generating electricity from biomass energy if there is a lack of production efficiency or inadequate management measures.

# Biomass Power Generation Business : Market Overview

Based on selected TSIC groups (in 2022), Thailand's Biomass Power Generation Business was valued at 522,143.20 million baht, with large enterprises accounting for 74.90% of the market share. This is followed by SME with 20.17% and micro with 4.93%.

## Share of Power Generation Business by firm size (35101 : Electric power generation and transmission)

Market Value (L, SME, Micro) = 522,143.20 Mn THB  
Total Firms = 3,625 Firms



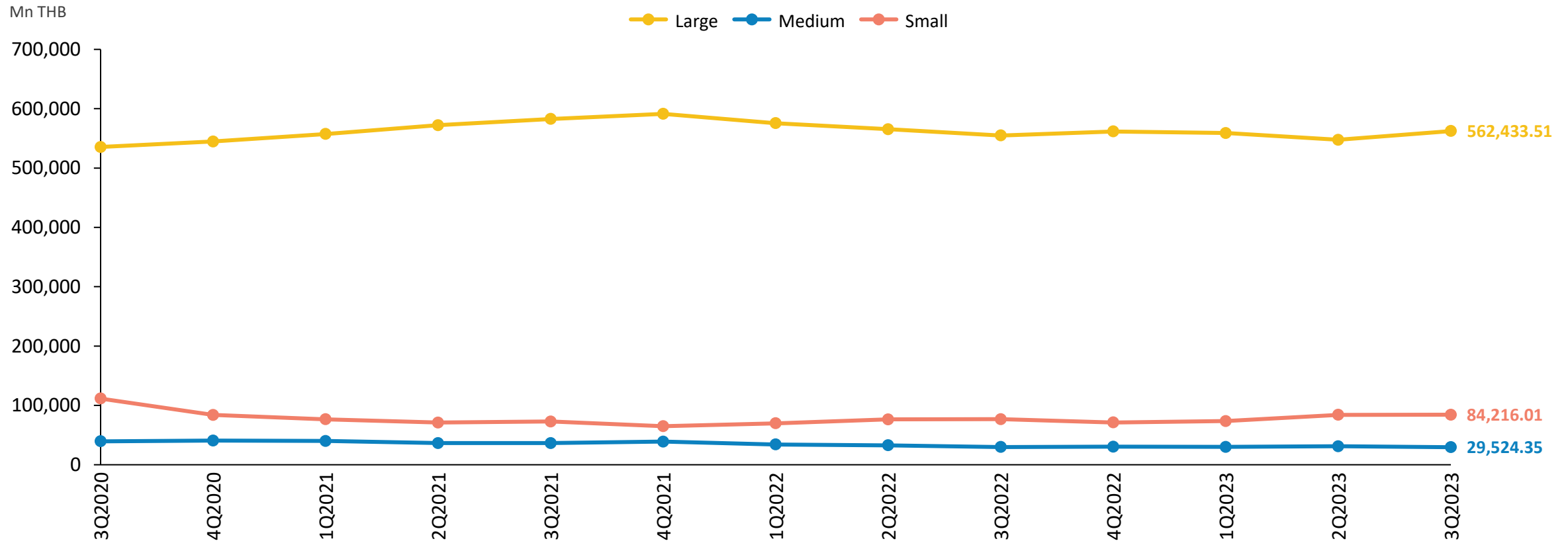
Note : No. Firm (L, SME, Micro) = 2,125 Firms No. Firm (Not Specify) = 1,500 Firms No. Total Firm = 3,625 Firms

# Biomass Power Generation Business : Loan Outstanding

**35101** : Electric power generation and transmission

Loan Size\* = 676,173.86 Mn THB

## Loan Outstanding



\* Data as of 3Q2023

# End of Presentation

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