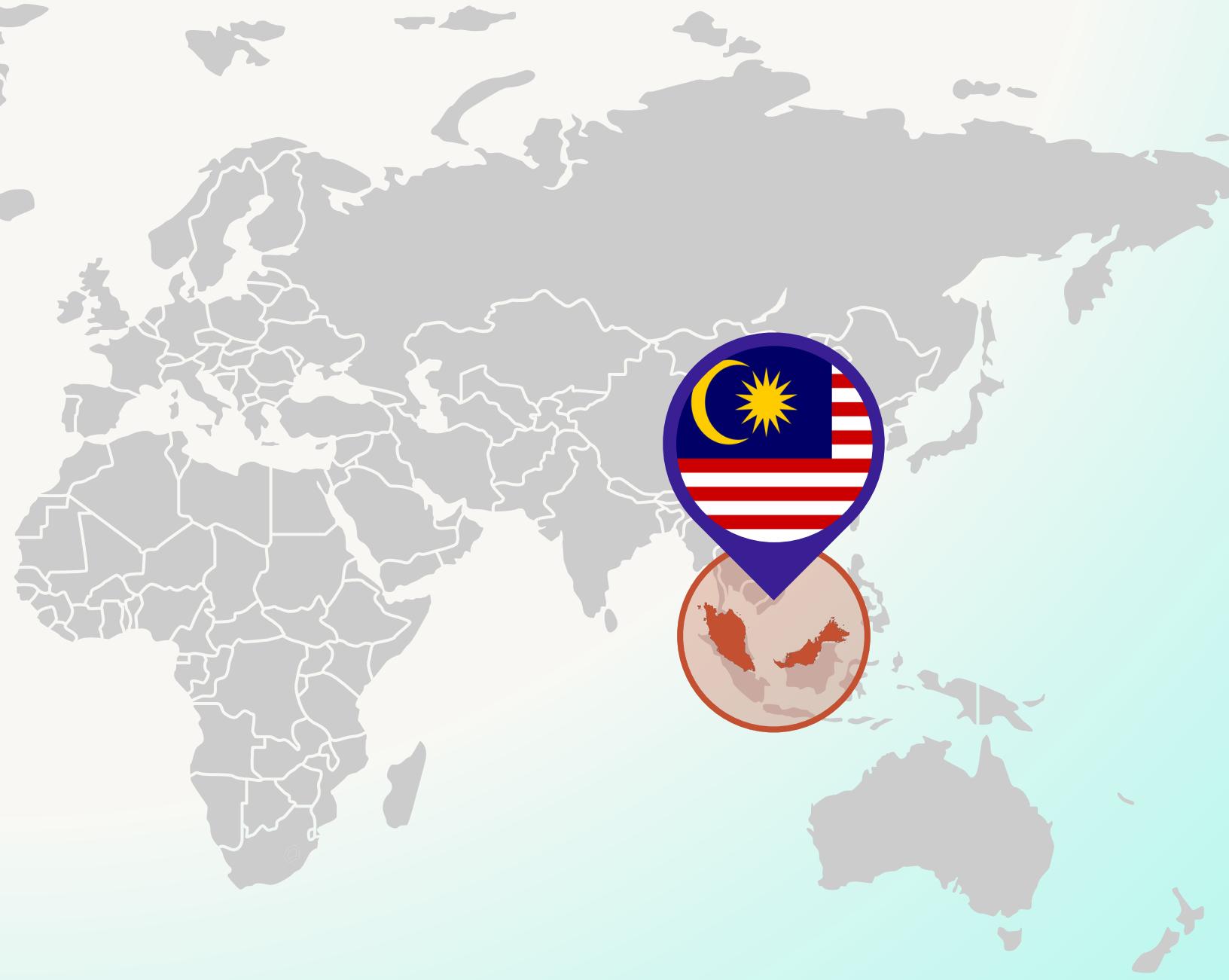


Group 4

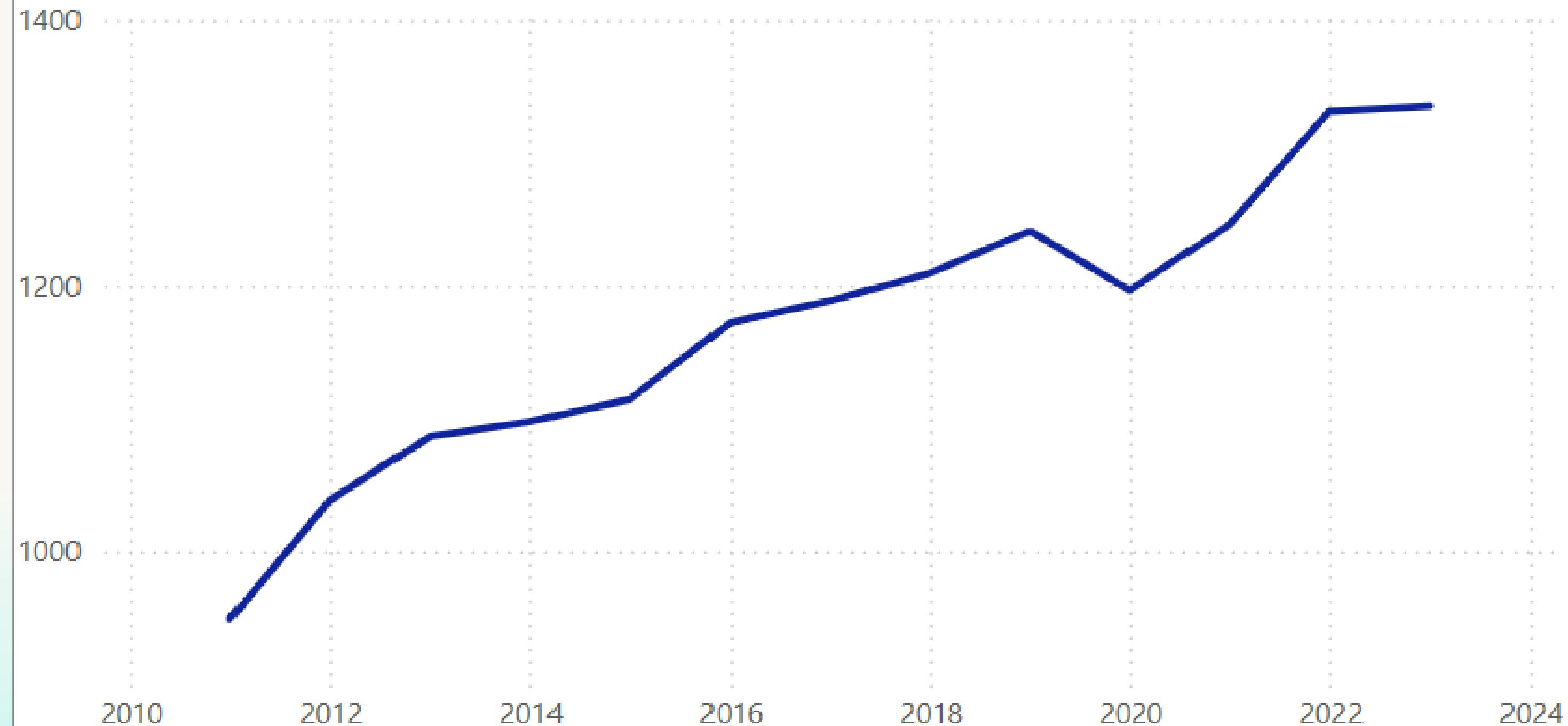


# Balancing Growth and Sustainability

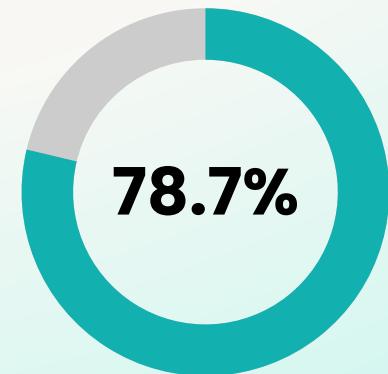
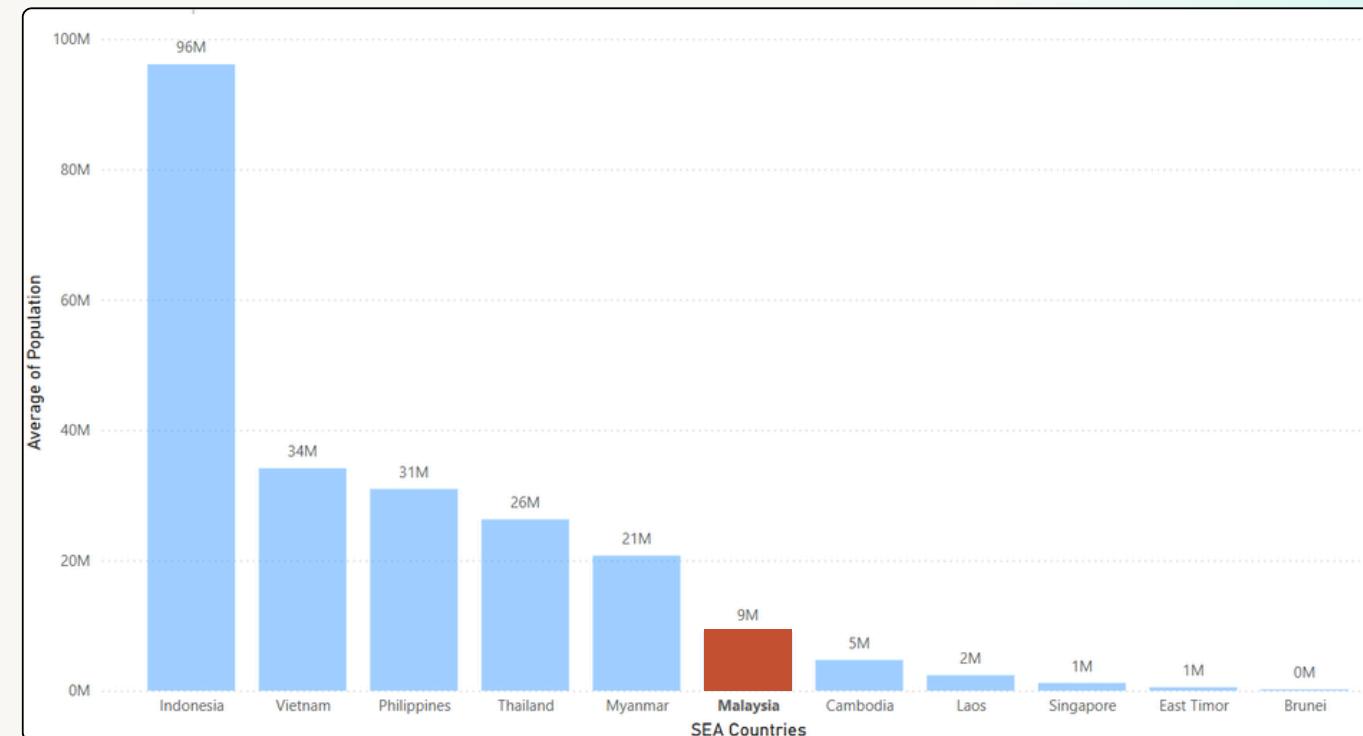
Evaluating Malaysia's **CO<sub>2</sub> Emission Targets** under **GTMP**

## Primary energy consumption

Primary energy consumption is measured in terawatt-hours.



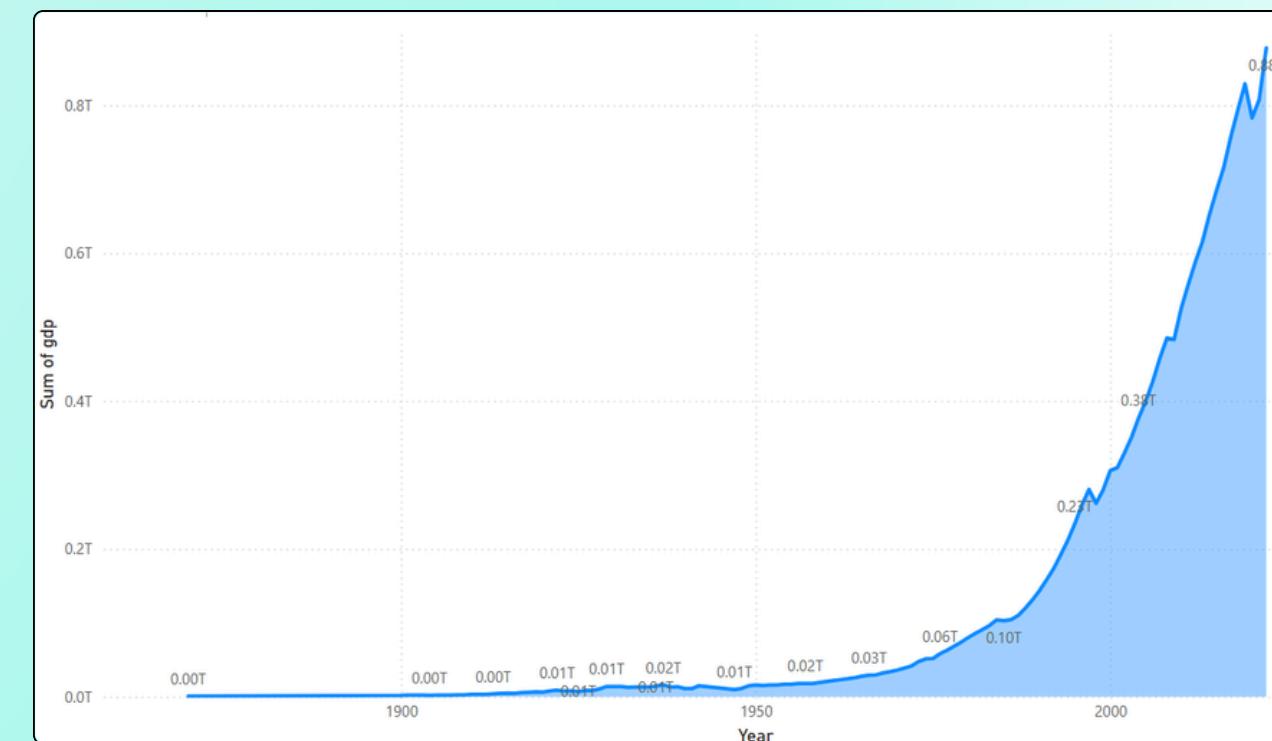
Average Population of Southeast Asia Countries where Malaysia ranked as **6th highest population**



In 2023, **78.72%** (% of Total Population) was reported as urbanized.

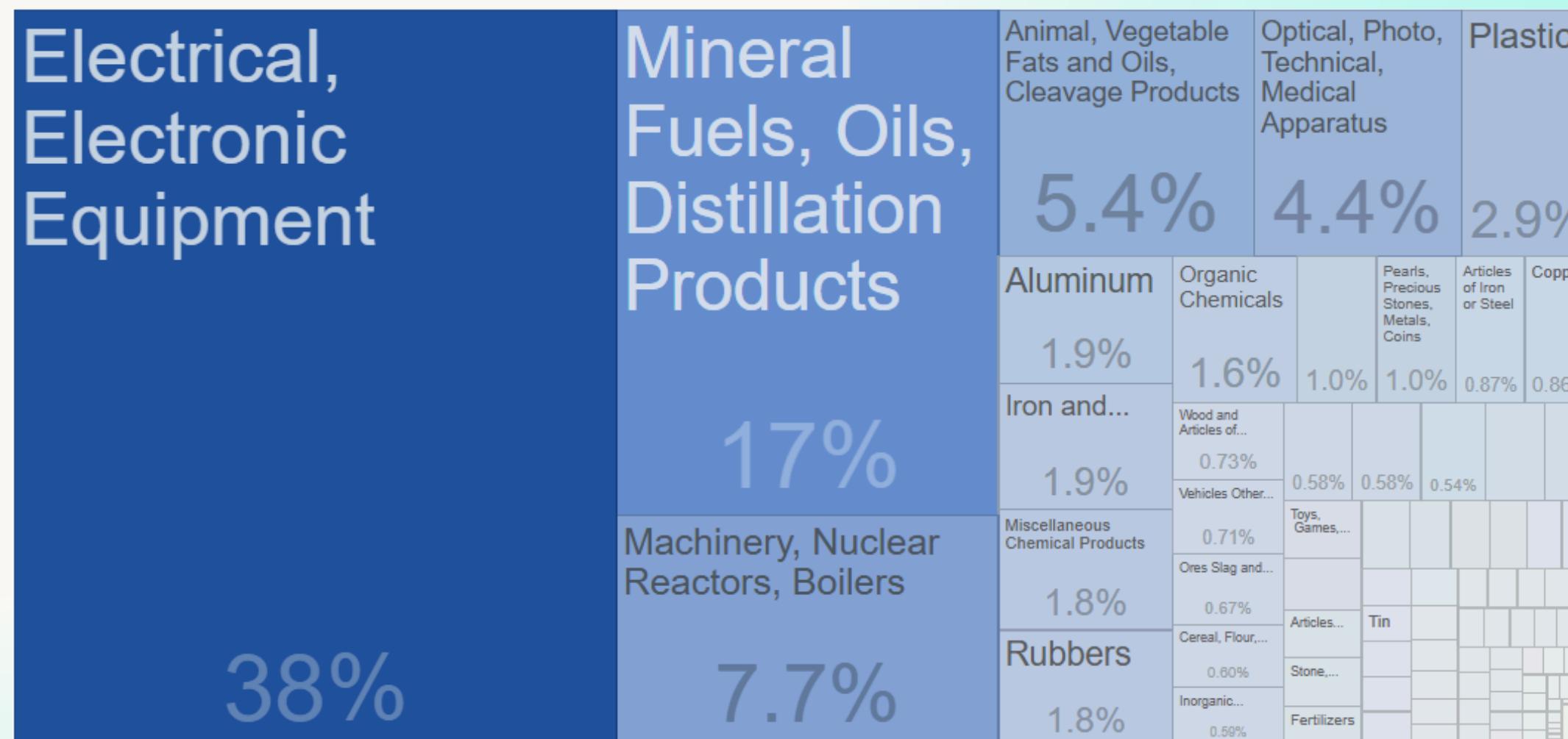
**GDP (Gross Domestic Product)** Trend of Malaysia based on the current data

The gross domestic product (GDP) measures of national income and output for a given country's economy. The gross domestic product (GDP) is equal to the total expenditures for all final goods and services produced within the country in a stipulated period of time.



## Malaysia Exports By Category

- This table shows the Malaysia Exports by Category in U.S dollars, based to the United Nations COMTRADE database on International trade for year 2023.



Malaysia Exports By Category	Value
1 Electrical, electronic equipment	\$119.04B
2 Mineral fuels, oils, distillation products	\$51.64B
3 Machinery, nuclear reactors, boilers	\$23.93B
4 Animal, vegetable fats and oils, cleavage products	\$16.88B
5 Optical, photo, technical, medical apparatus	\$13.66B
6 Plastics	\$9.03B
7 Aluminum	\$5.95B
8 Iron and steel	\$5.91B
9 Miscellaneous chemical products	\$5.64B
10 Rubbers	\$5.51B

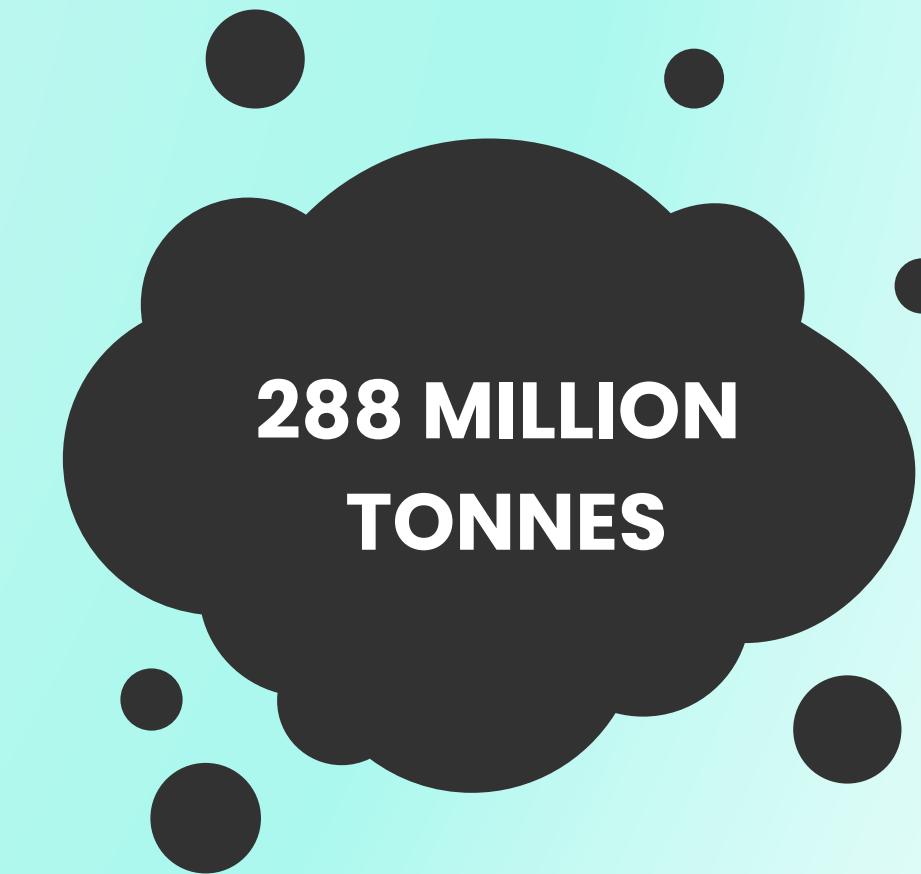
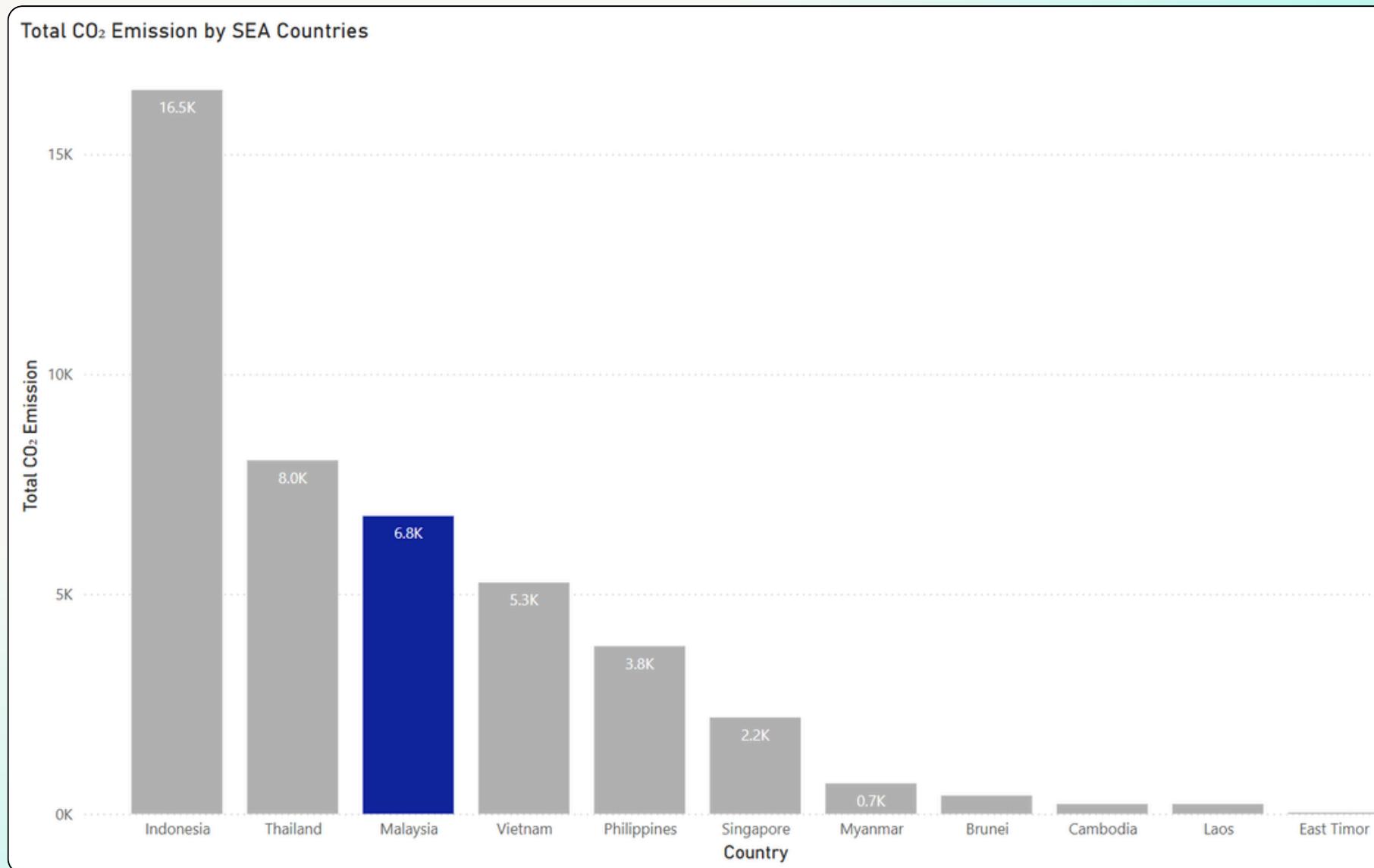
UNITED NATIONS  
**PARIS CLIMATE  
AGREEMENT**  
TOWARD ENTRY INTO FORCE  
— 21 SEPTEMBER 2016 —



As part of the **UNFCCC and Paris Agreement**, Malaysia has pledged to cut its GHG emissions intensity by **45%** by 2030 compared to 2005 levels.

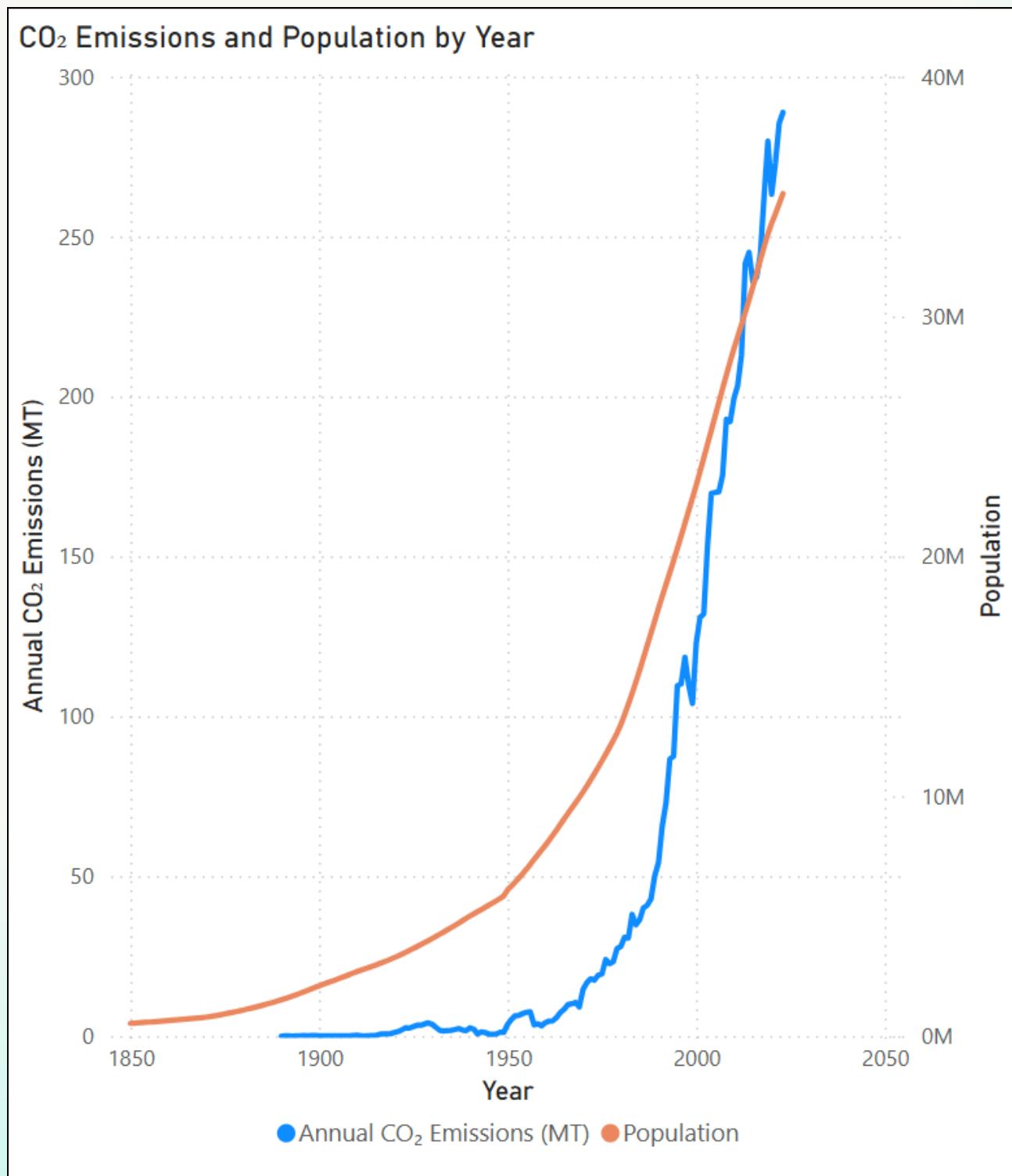
**21st**

**Malaysia** ranked as **21st** in the top CO<sub>2</sub> emitting countries from 2023.



**Malaysia** produced **288 Million Tonnes** of CO<sub>2</sub> emission in 2023.

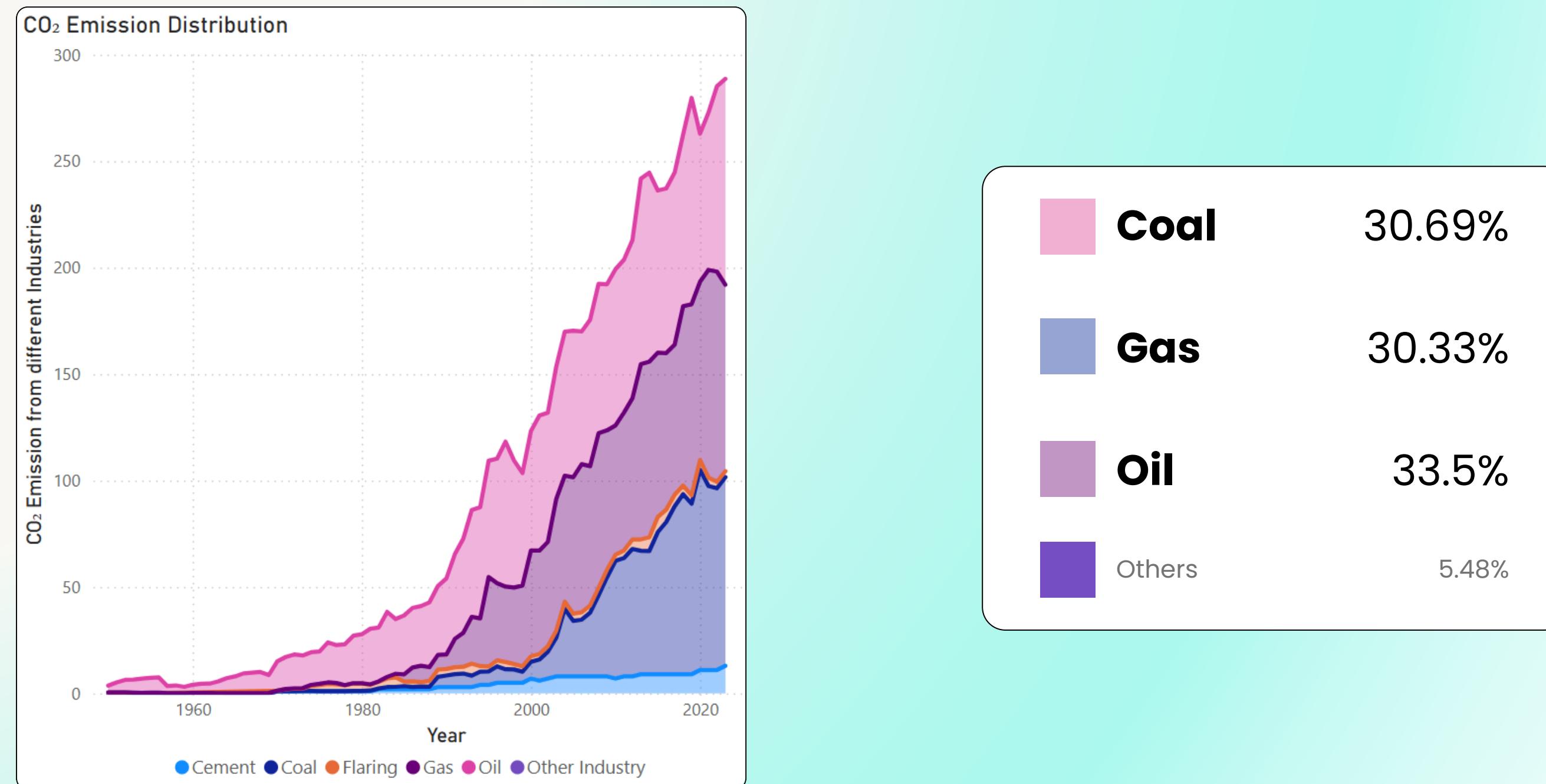
## CO<sub>2</sub> Emissions and Population by Year

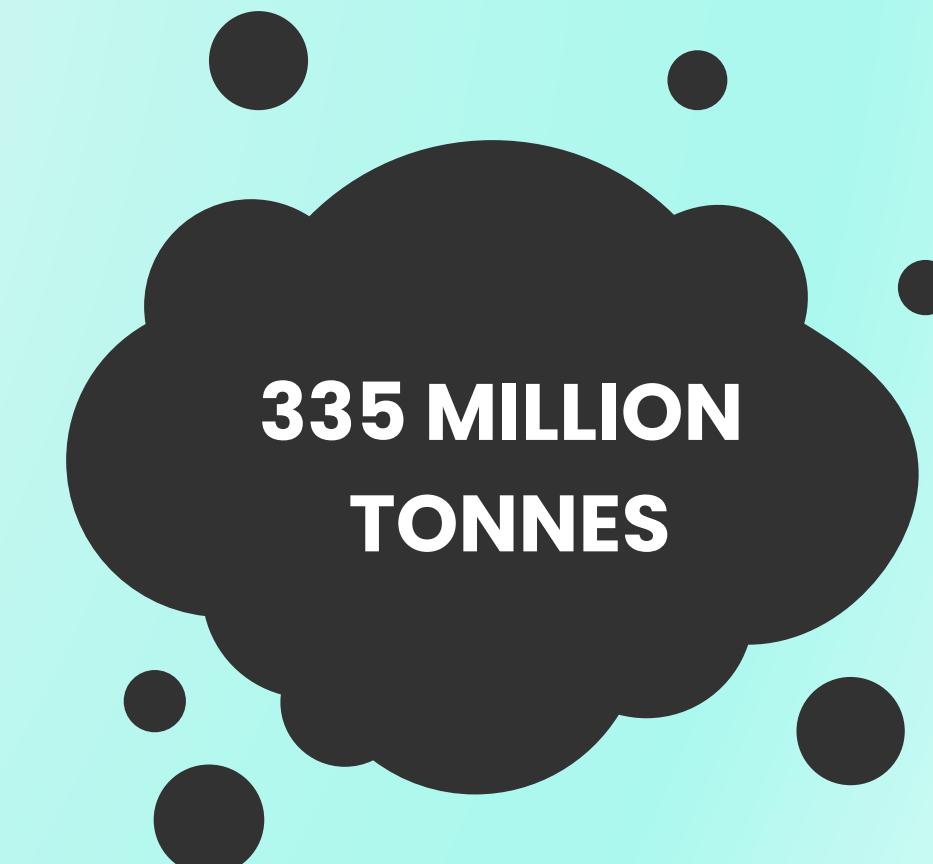
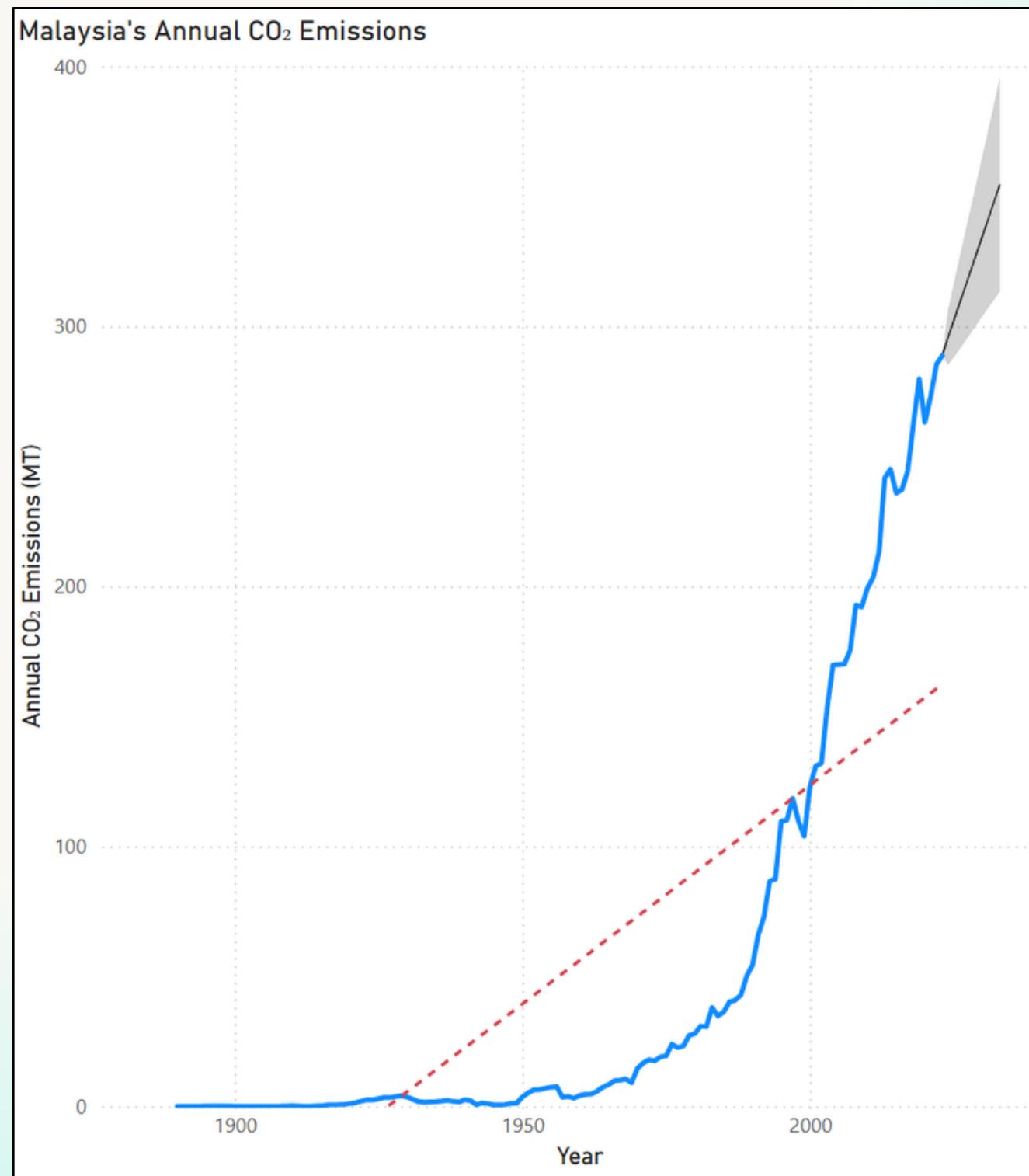


Both variables have increased significantly.

CO<sub>2</sub> emissions have grown faster than population.

# CO<sub>2</sub> Emission Distribution based on 2023





**Malaysia** is forecasted to  
produce **335 Million Tonnes**  
of CO<sub>2</sub> emission by 2030.

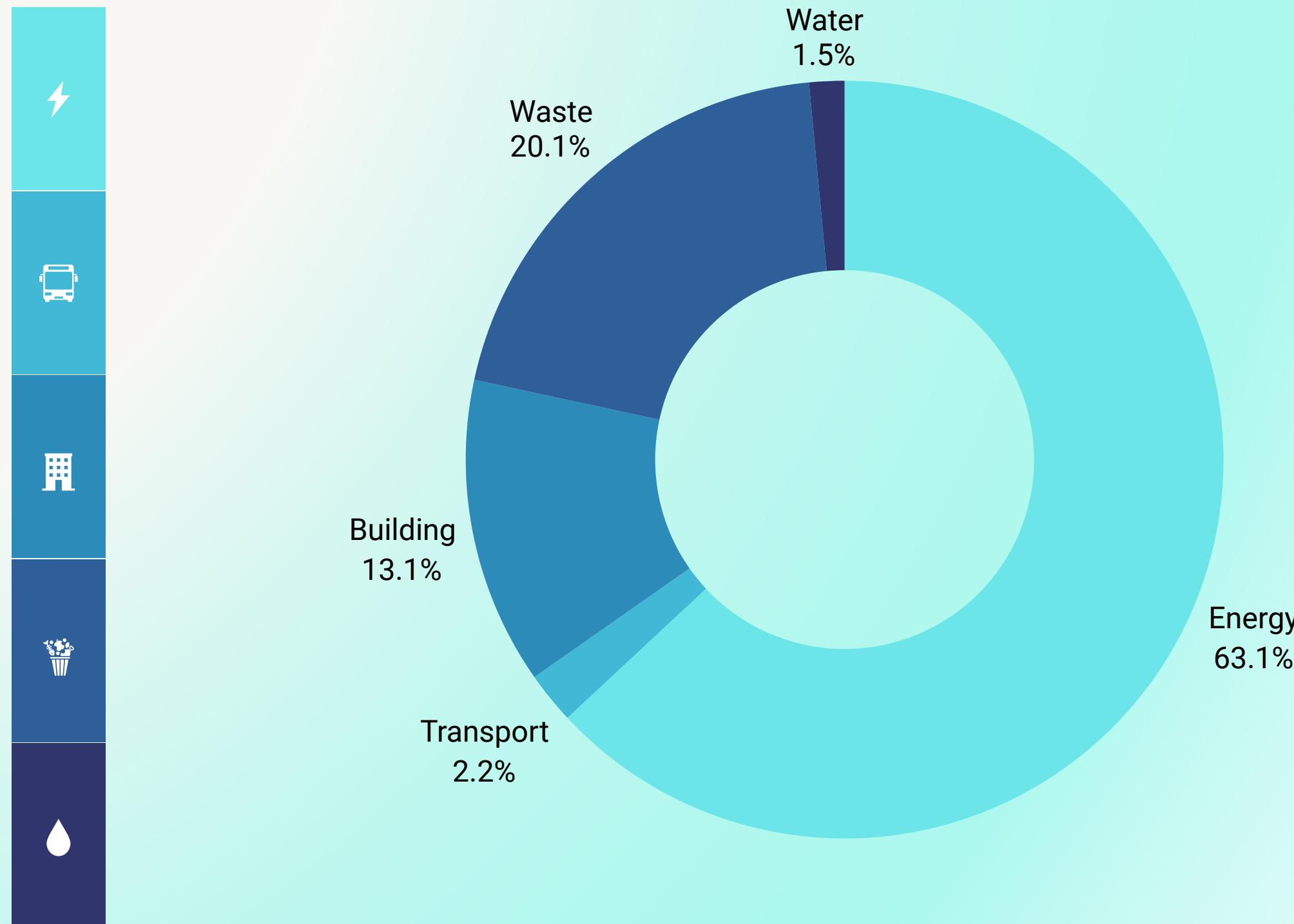
# GREEN TECHNOLOGY MASTER PLAN MALAYSIA 2017-2030



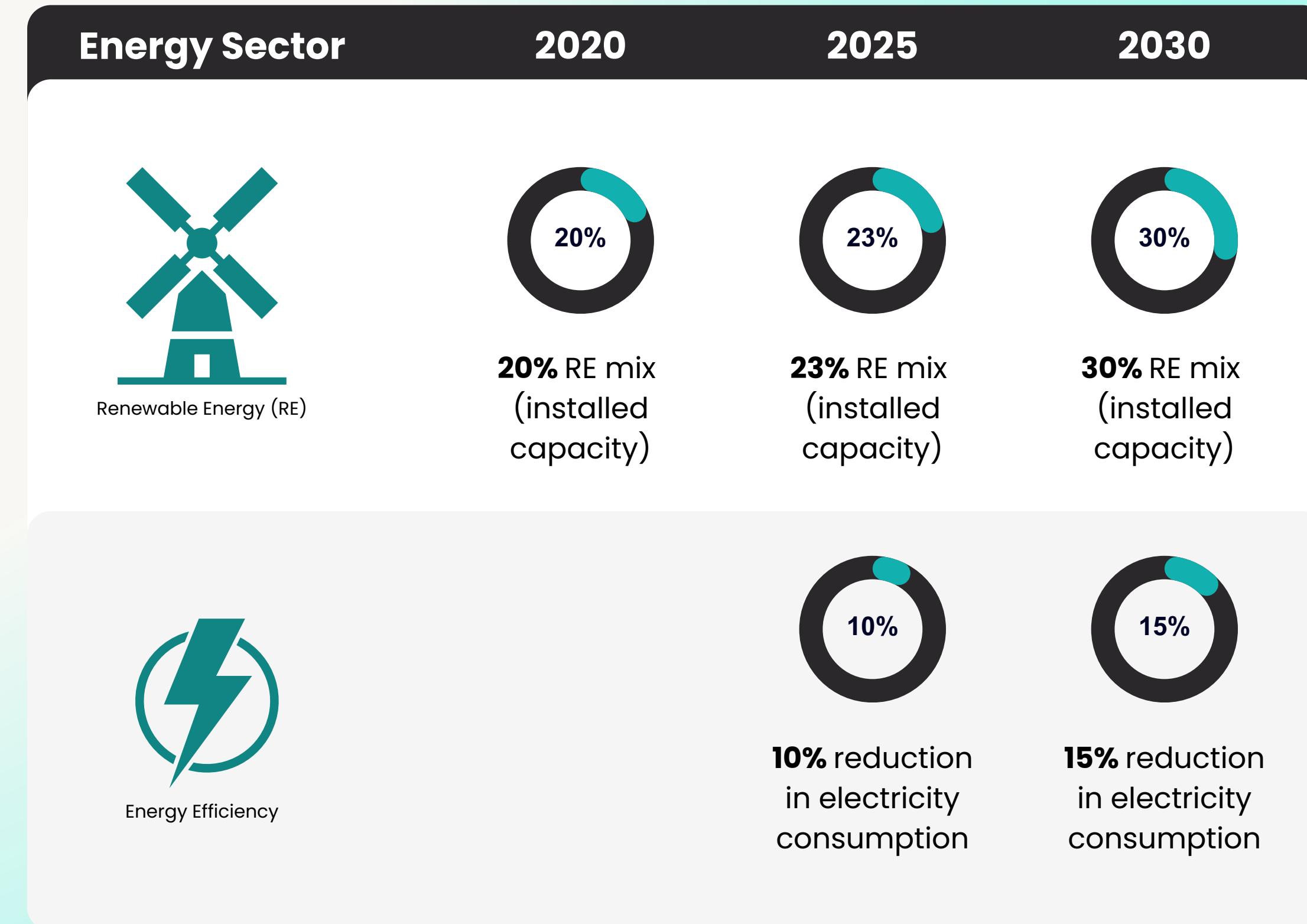
Malaysia's green economic plan for the future

- energy, manufacturing, water, waste, transportation, building
- economy and ecology plan rolled into one

## Relative size of GDP share of the **five sectors** in question in 2013



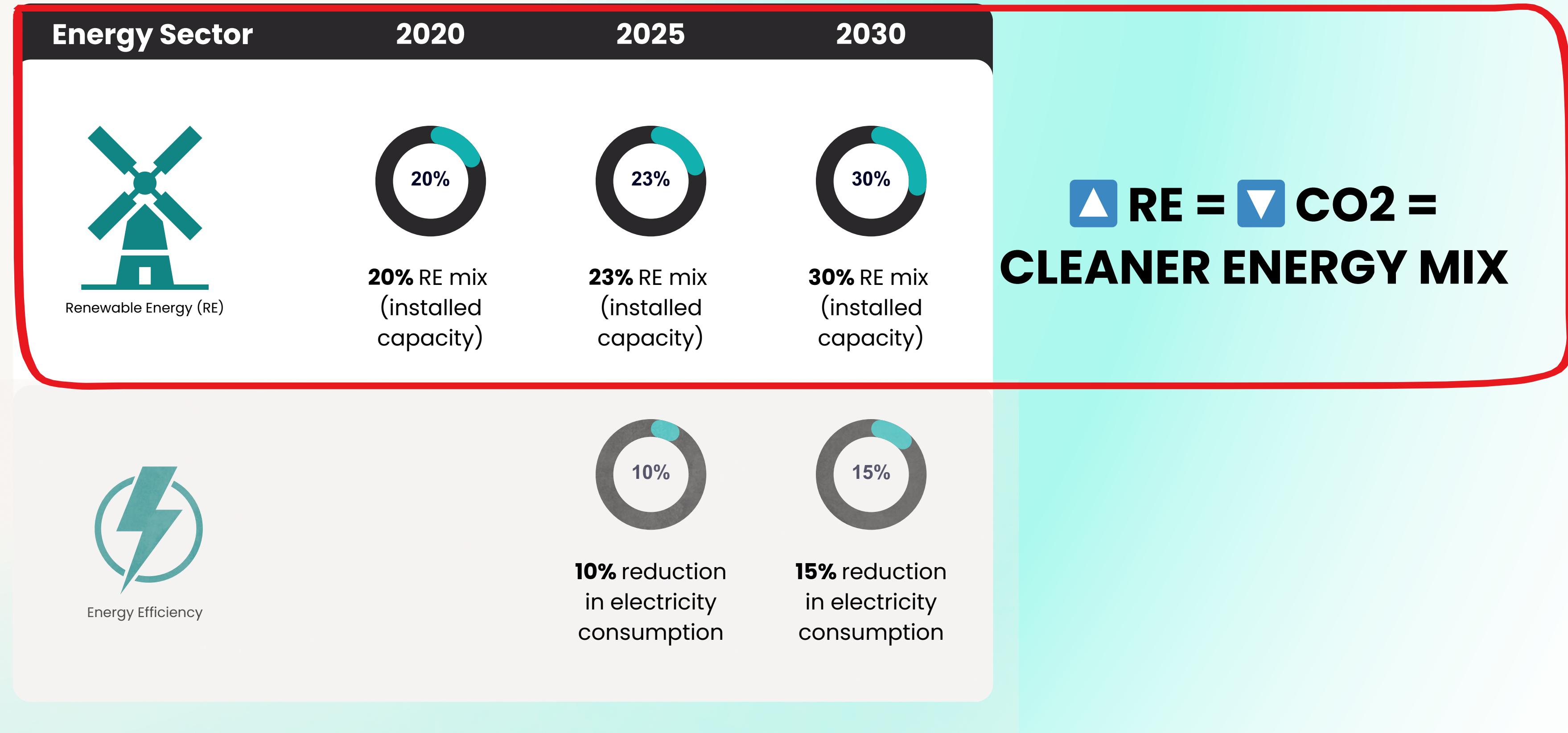
## Targets for the energy sector



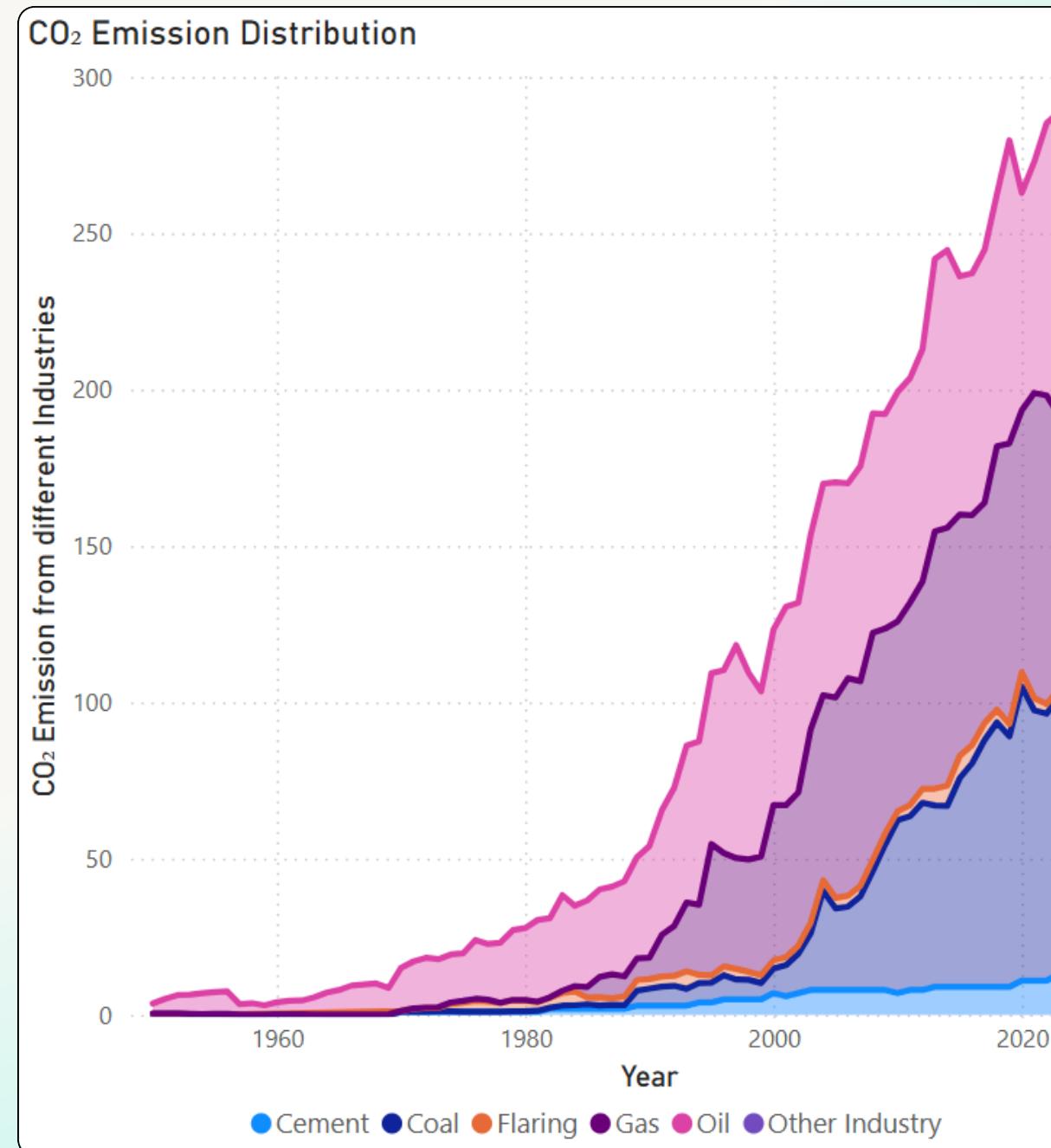
**It's already 2025**

# **Is Malaysia **on track** to meet its Green Technology Master Plan **energy targets**?**

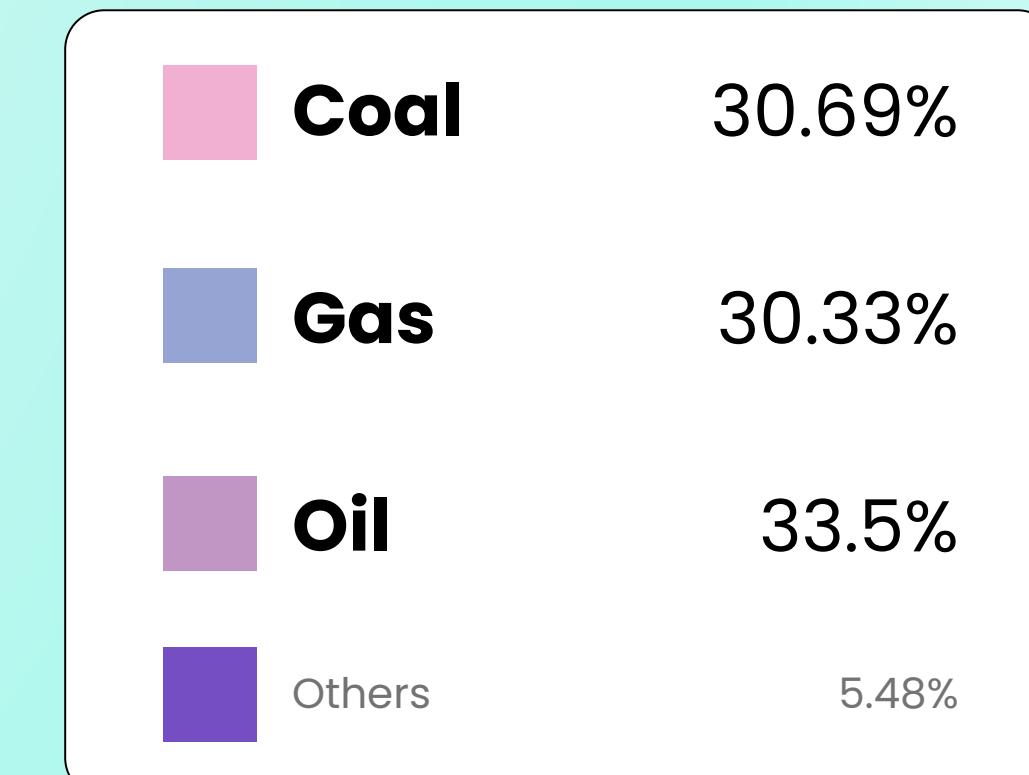
Evaluating Malaysia's CO<sub>2</sub> Emission Targets under GTMP



## CO2 Emission Distribution based on 2023



**CO2 EMISSIONS  
FROM**



**ARE STILL  
▲ INCREASING**

# **Carbon Intensity**

=

 **CO<sub>2</sub> per  
unit energy**

=

 **CO<sub>2</sub>**

=

**OR**

 **CO<sub>2</sub> per  
unit energy**

=

 **CO<sub>2</sub>**

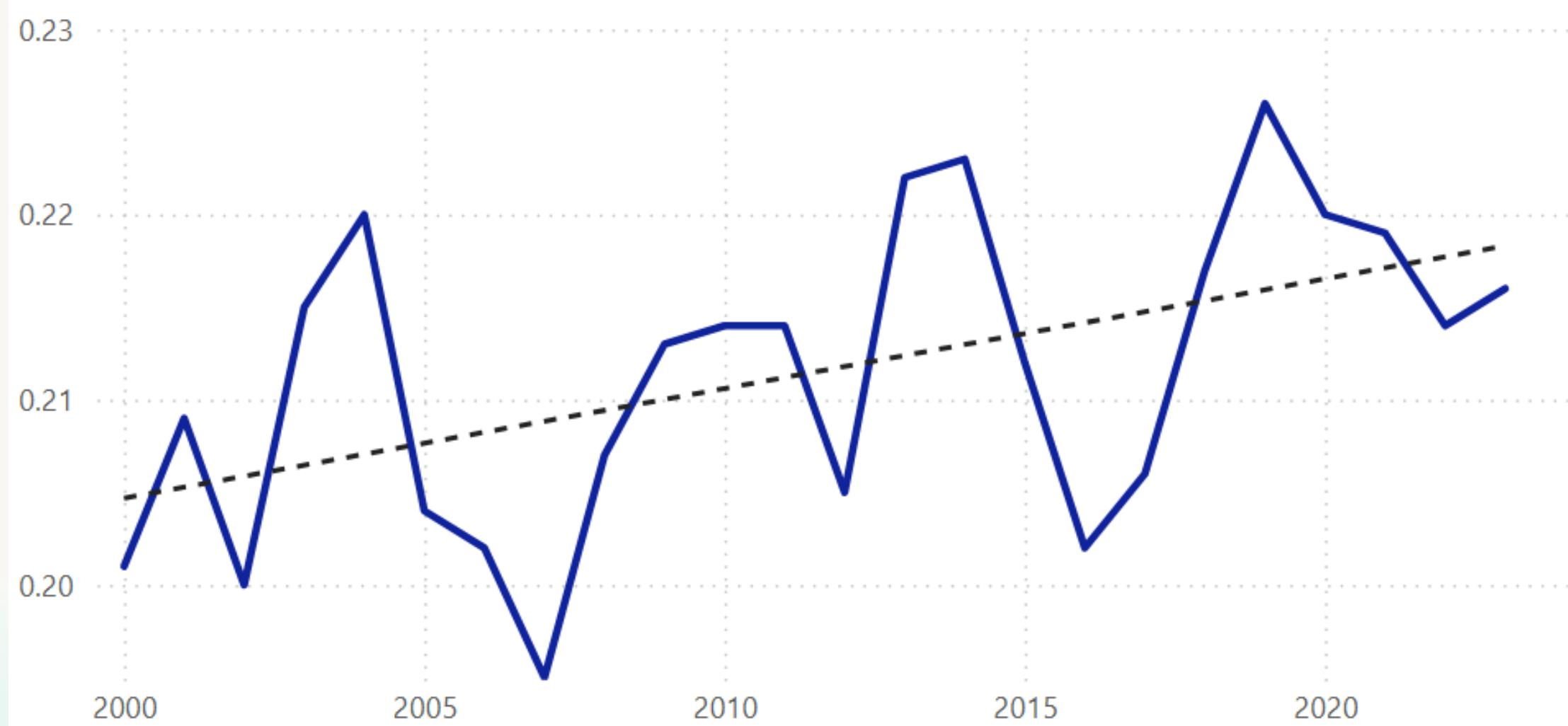
=

**cleaner energy mix!**

**dirty energy mix!**

## **Carbon intensity of energy consumption**

Annual total emissions of carbon dioxide (CO<sub>2</sub>), excluding land-use change, measured in kilograms per kilowatt-hour of primary energy consumption.



**▲CO<sub>2</sub> per  
unit energy**

=

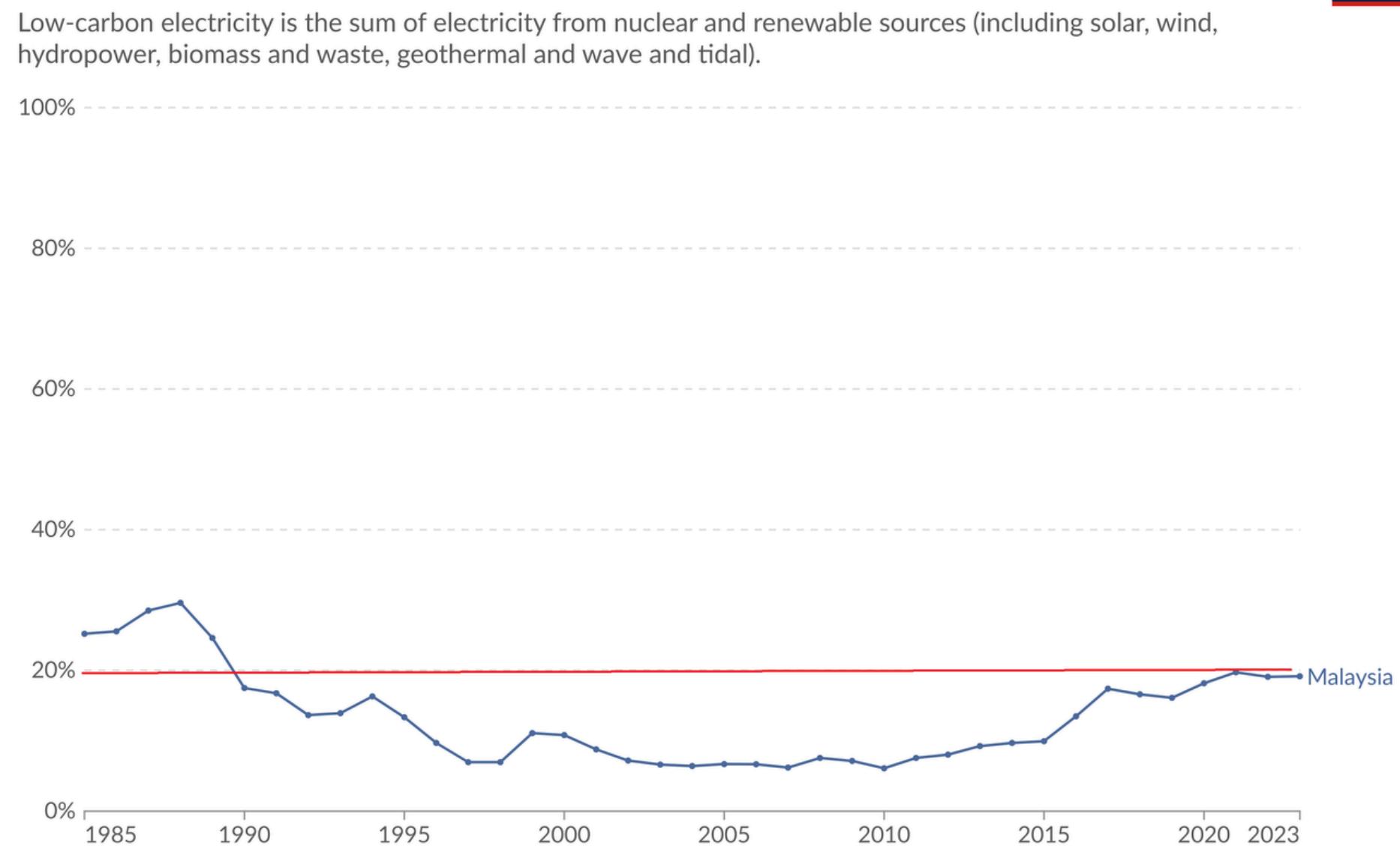
**▲CO<sub>2</sub>**

=

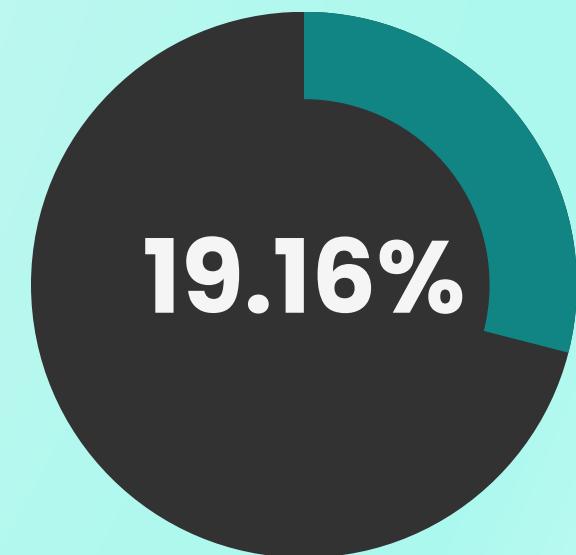
**dirty energy mix!**

## Share of electricity generated by low-carbon sources

Our World  
in Data

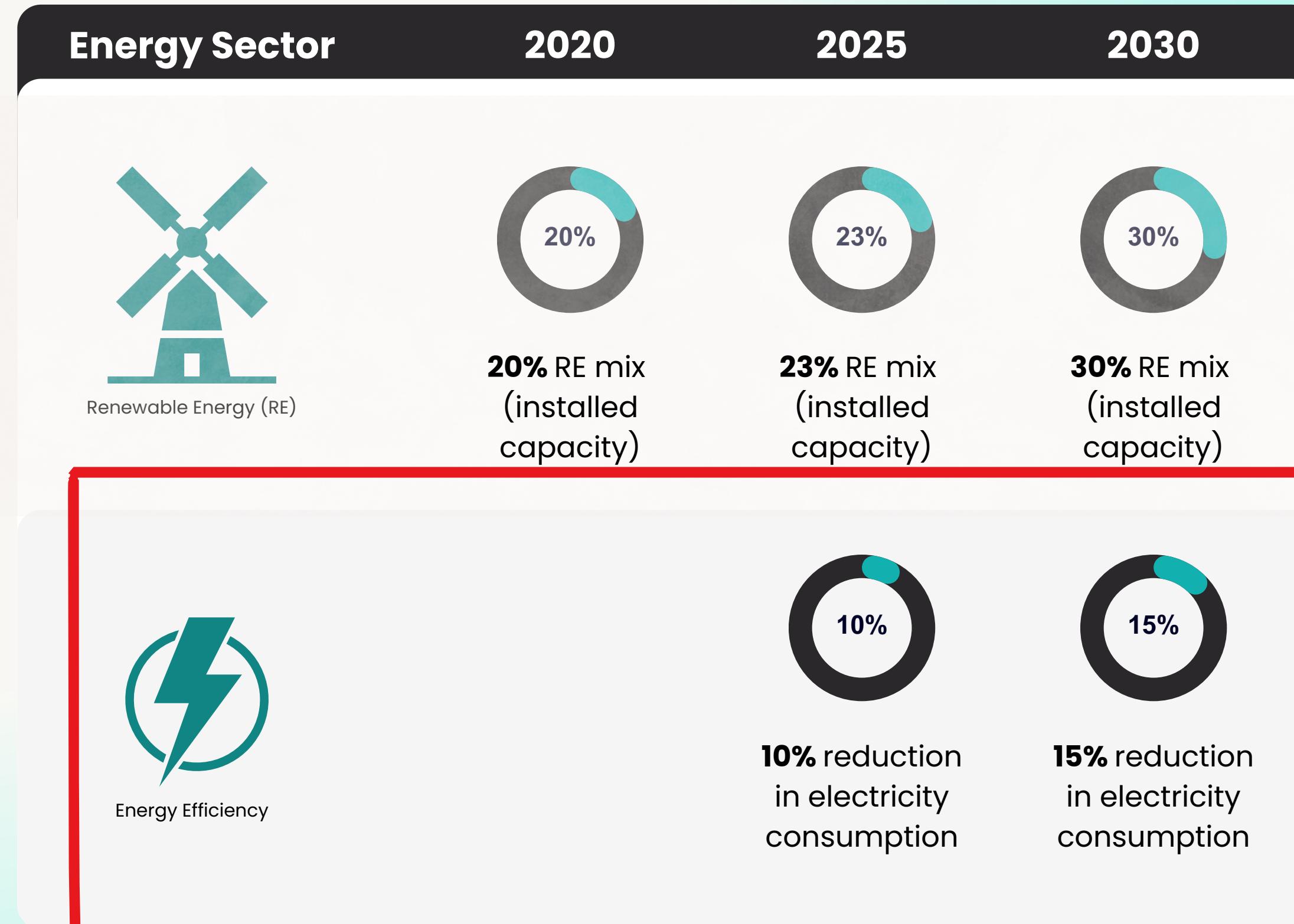


Data source: Ember (2024); Energy Institute - Statistical Review of World Energy (2024)  
OurWorldInData.org/low-carbon-electricity-by-country | CC BY



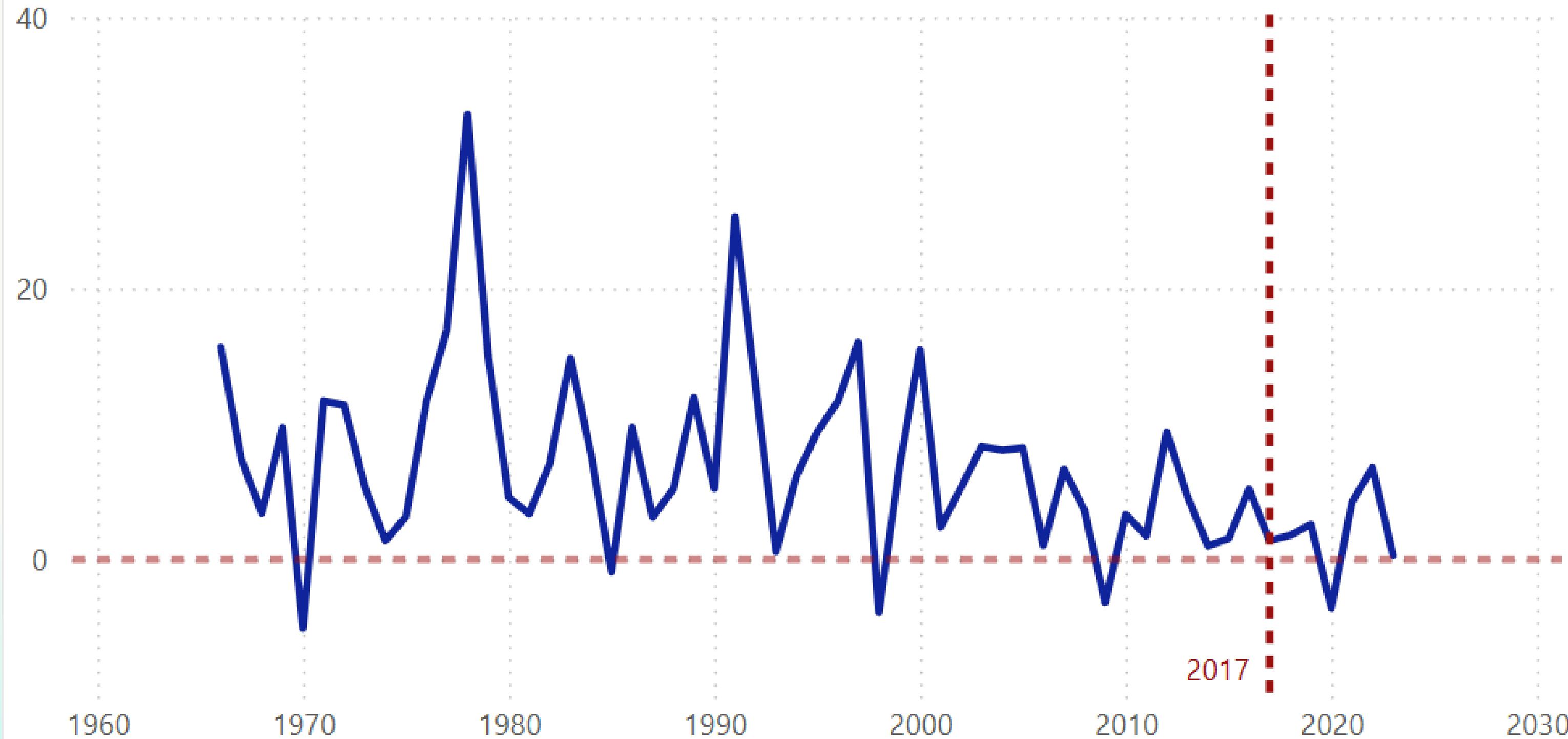
**20%**  
RE mix

**2020 Target**



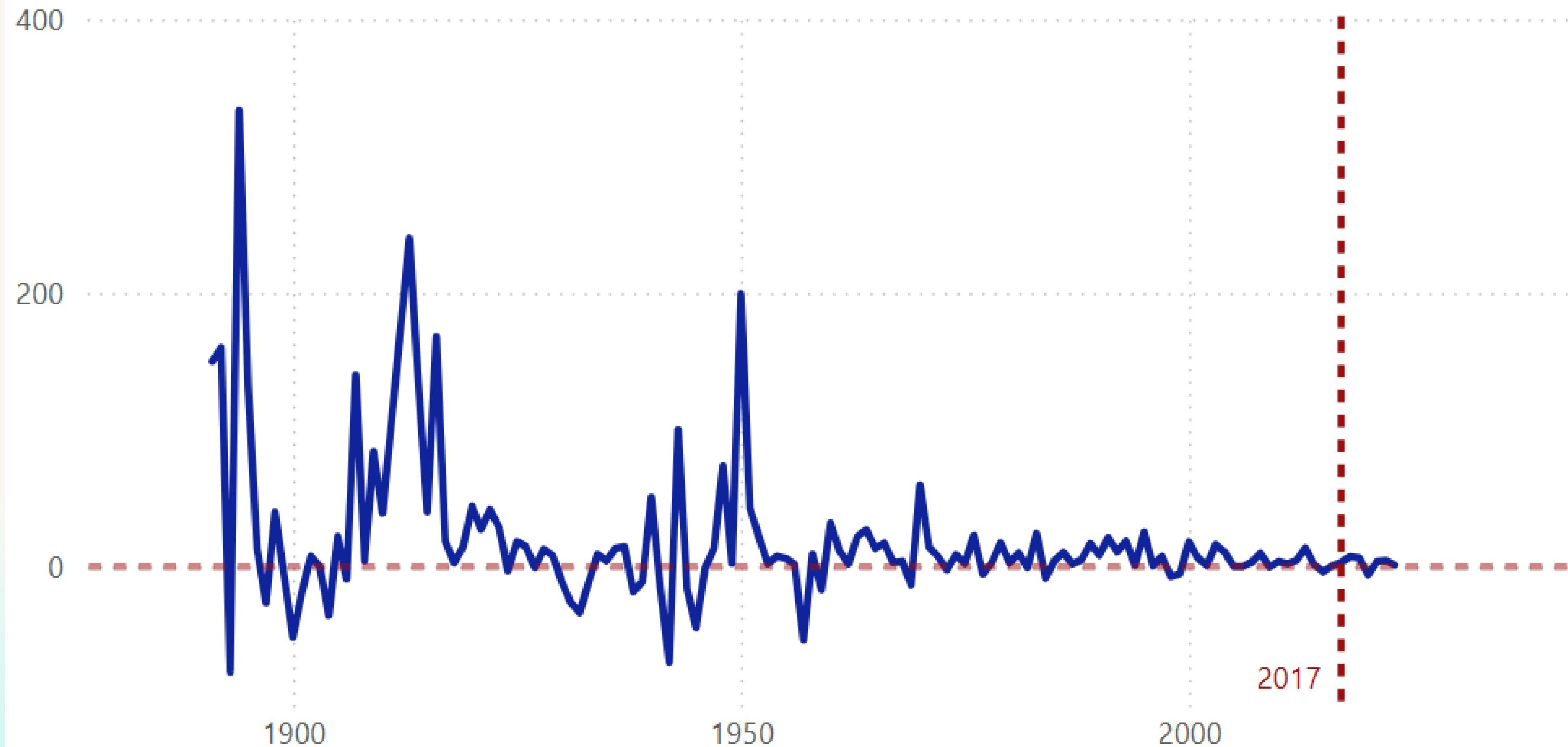
# Annual change in primary energy consumption

Change in primary energy consumption as a percentage of the consumption of the previous year



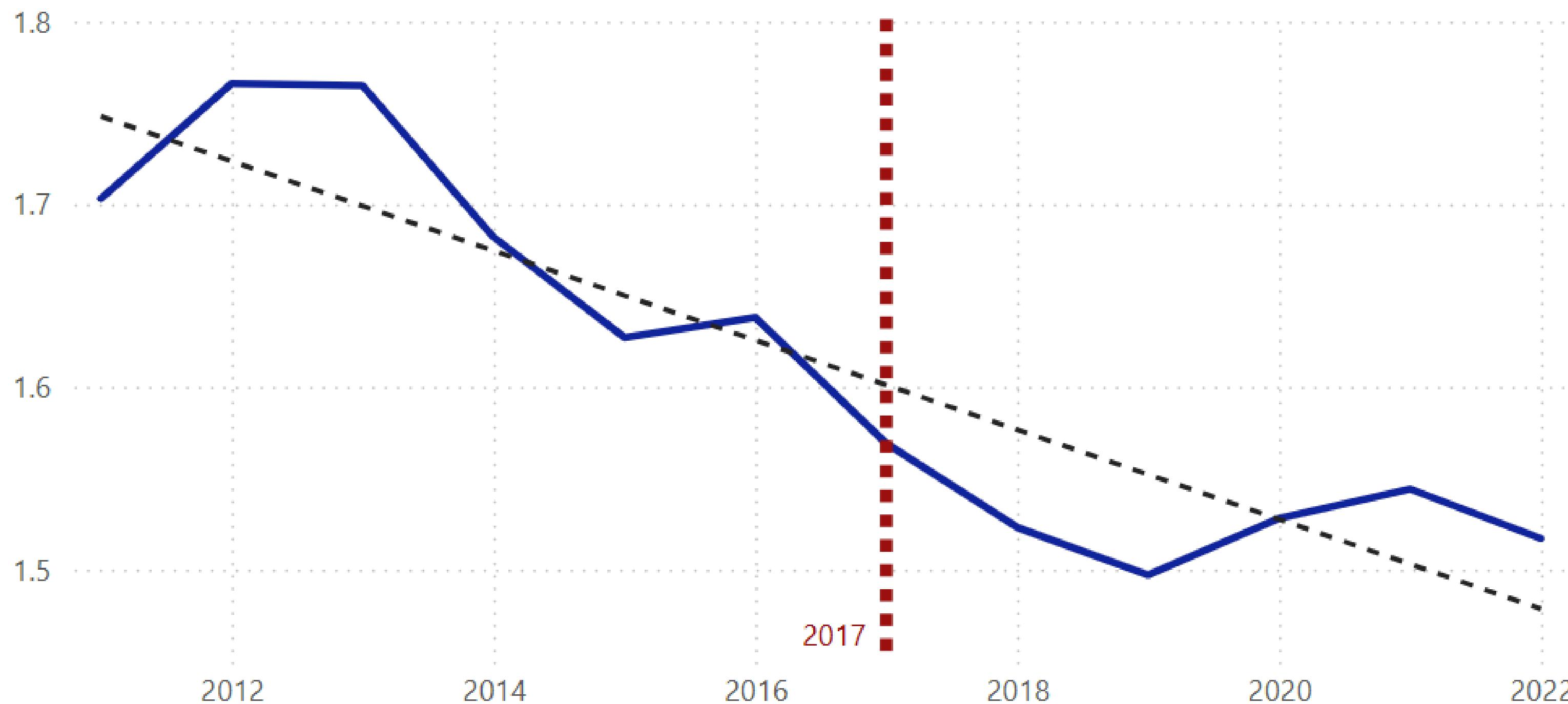
## Annual change in carbon emissions

Annual percentage growth in total emissions of carbon dioxide (CO<sub>2</sub>), excluding land-use change.



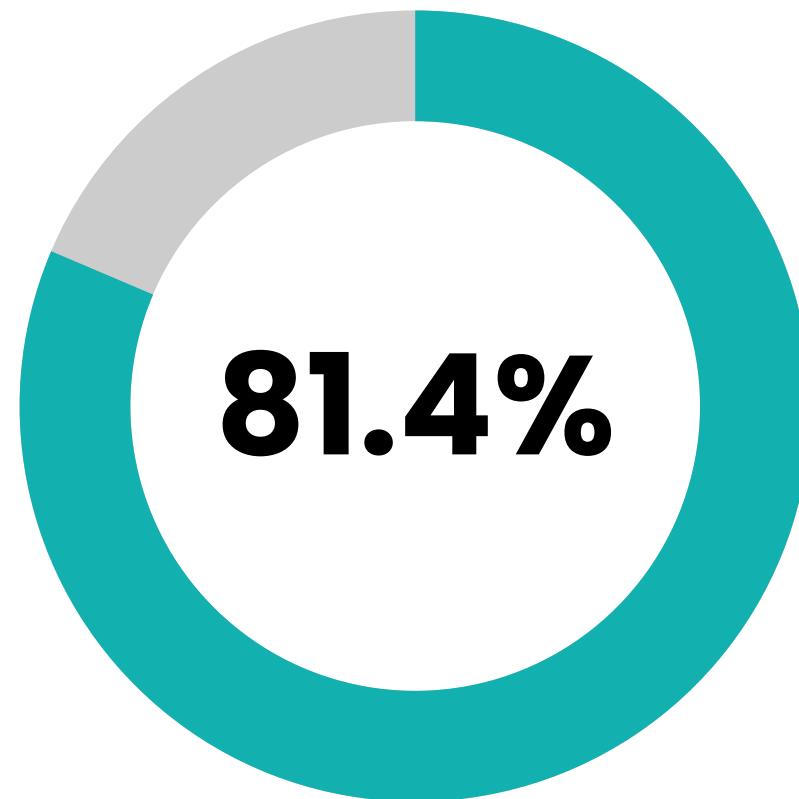
## Energy Intensity

Energy intensity is measured as primary energy consumption per unit of gross domestic product (GDP), in kilowatt-hours per dollar.



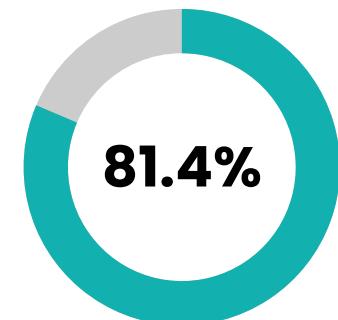
# Conclusion

# Conclusion



As per **2023**, coal, oil, and gas take up about **81.4%** of Malaysia's total Electricity Production.

# Conclusion

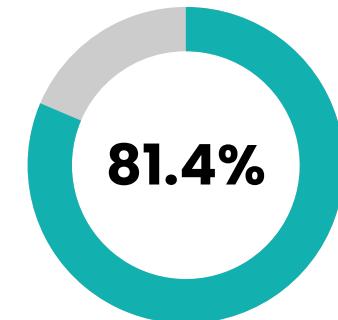


As per **2023**, coal, oil, and gas take up about **81.4%** of Malaysia's total Electricity Production.



As part of the **UNFCCC and Paris Agreement**, Malaysia has pledged to cut its GHG emissions intensity by **45%** by 2030 compared to 2005 levels.

# Conclusion



As per **2023**, coal, oil, and gas take up about **81.4%** of Malaysia's total Electricity Production.



As part of the **UNFCCC and Paris Agreement**, Malaysia has pledged to cut its GHG emissions intensity by **45%** by 2030 compared to 2005 levels.

**288 MILLION TONNES**

Malaysia produced **288 Million Tonnes** of CO<sub>2</sub> emission in 2023.

**335 MILLION TONNES**

Malaysia produced **335 Million Tonnes** of CO<sub>2</sub> emission in 2030.

# Recommendation

# **Two direct ways to reduce CO<sub>2</sub> emissions:**

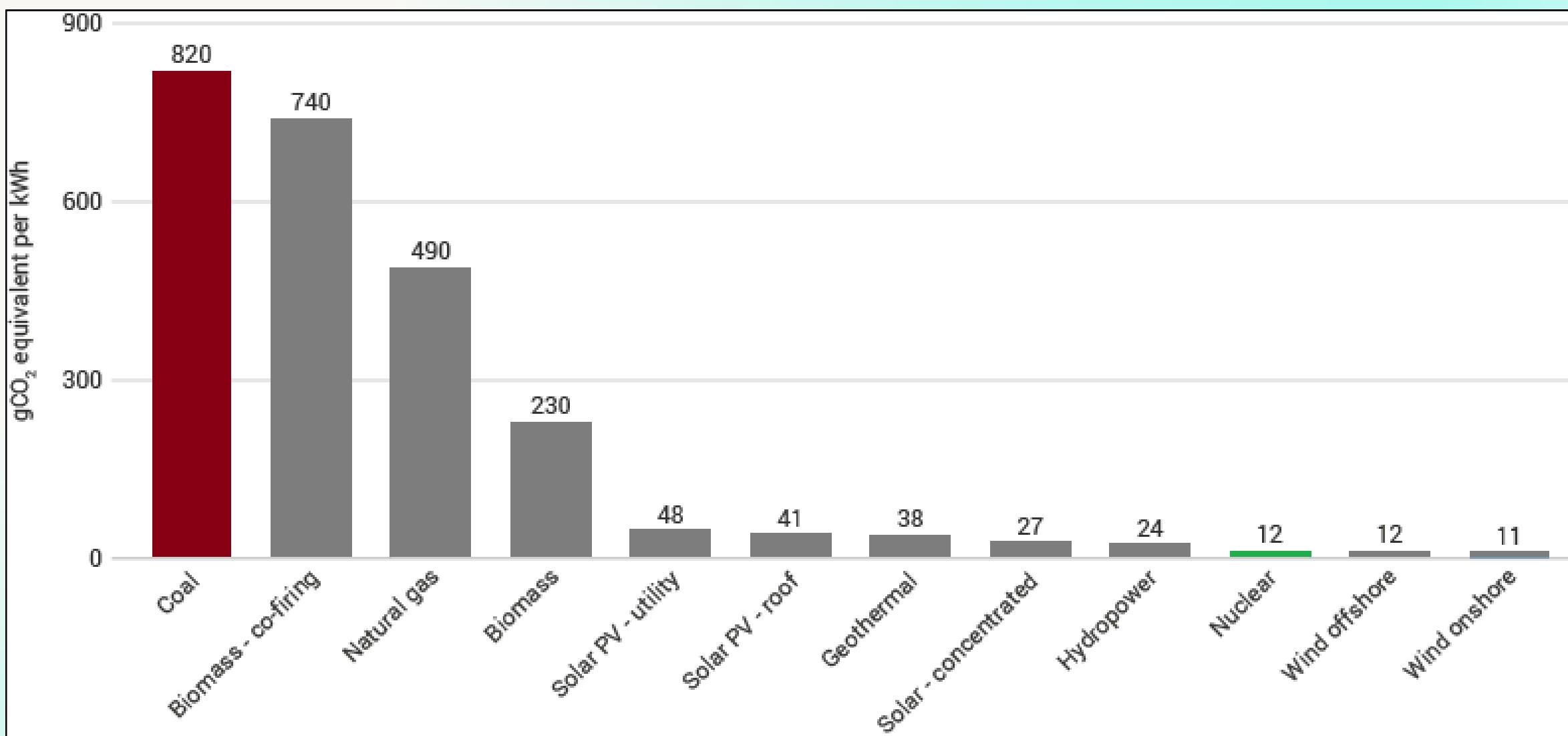


Energy  
consumption



Low-carbon  
energy sources

# Nuclear Energy for Electricity Production



Nuclear Energy **produces less CO2 emission** relative to Coal.

# **THANK YOU**