Emission Factor from Electricity Generation/Consumption for Greenhouse Gas Mitigation Projects and Activities

Announced on 28th May B.E. 2568 (2025)[1]

By Carbon Credit Certification Office

Thailand Greenhouse Gas Management Organization (Public Organization)

Thailand Greenhouse Gas Management Organization (Public Organization) or TGO, as the main agency supporting the participation in greenhouse gas mitigation of all sectors the country, has developed mechanisms to regulate project-level implementation of mitigation activities under the name "Thailand Voluntary Emission Reduction Program: T-VER" and "Low Emission Support Scheme: LESS".

Emission factor is an important parameter for the calculation of the amounts of greenhouse gas emissions from projects and activities that involve the generation and consumption of energy. TGO has thus determined the emission factors as follows shall be used to be in line with the objectives of T-VER and LESS.

1. Premium T-VER

The emission factor for electricity generation/consumption shall be considered in accordance with the guidelines for baseline determination to be below business-as-usual (BAU) level. In this regard, the determination of the baseline shall be based on the information of power plants that use natural gas as the main fuel for generating electricity and supply it to the transmission system as shown in Table 1.

Table 1 The emission factor for electricity generation/consumption for Premium T-VER

Relevant Parameter	Emission Factor (Unit: tCO_2/MWh)		
	B.E. 2563 (2020)	B.E. 2564 (2021)	B.E. 2565 (2022)
Emission factor for electricity generation/consumption ($EF_{Elec,y}$)	**0.4394**	**0.4401**	**0.4371**

[1] The announced Emission Factor shall take effect on the day following the date of acknowledgement by the BOD of TGO. T-VER project participants may continue to use the previously announced Emission Factor dated 27 September 2023 for up to 180 days (23 November 2025).

2. Standard T-VER and LESS

The emission factor for electricity generation/consumption shall be determined with reference to emission coefficients of the transmission system for NAMA in the energy sector, as announced by the Ministry of Energy's Climate Change Coordination Working Group, and for Standard T-VER for electricity generation from fossil fuels. Details are shown in Table 2.

Table 2 The emission factor for electricity generation/consumption for Standard T-VER and LESS

Relevant Parameter	Emission Factor (Unit: tCO_2/MWh)				
	B.E. 2561 (2018)	B.E. 2561 (2018)	B.E. 2563 (2020)	B.E. 2564 (2021)	B.E. 2565 (2022)
<u>Supply side</u>					
1) Emission factor for electricity generation from renewable energy ($EF_{EG\_RE,PJ,y}$)	0.5290	0.5221	0.5143	0.5251	**0.5101**
2) Emission factor for electricity generation from fossil fuel ($EF_{EG\_FF,PJ,y}$)	-	-	0.4394	0.4401	**0.4371**
<u>Demand side</u>					
3) Emission factor for electricity consumption ($EF_{EC,PJ,y}$)	0.4872	0.4770	0.4758	0.4857	**0.4682**

Remarks 1) The greenhouse gas emission factor for electricity generation from renewable energy shall be used to calculate baseline emissions for renewable energy project activities that replace electricity generation from fossil fuels, such as solar power generation supplied to the grid

2) The greenhouse gas emission factor for electricity generation from fossil fuels is determined based on electricity generation data from power plants in the grid system that primarily use natural gas as fuel.

3) The greenhouse gas emission factor for electricity generation from fossil fuels shall be used to calculate baseline emissions for project activities involving improvements in electricity generation efficiency, such as the construction of new high-efficiency fossil fuel power plants.

4) The greenhouse gas emission factor for electricity consumption shall be used to calculate:

4.1 Baseline emissions for renewable energy project activities that replace electricity purchased from the grid, such as solar power generation for self-consumption and solar power generation for private power trading under a Private Power Purchase Agreement(Private Power Purchasing Agreement or Private PPA).

4.2 Emission reductions for project activities involving improvements in energy efficiency, such as the installation of high-efficiency chillers.

4.3 Project emissions for project activities that involve electricity consumption.