

## Grid Emission Factor (GEF) in Malaysia

Grid Emission Factor (GEF) is the generation weighted-average greenhouse gas (GHG) emission per unit of net electricity generation of all generating power plants serving the electricity grid.

	Grid Emission factor (Gg CO <sub>2</sub> e/GWh)		
	2017	2018	2019
Peninsular	0.776	0.807	0.780
Sabah	0.513	0.520	0.527
Sarawak	0.213	0.193	0.222

### Sources:

1. Grid Emission Factor for Peninsular and Sabah is calculated by the Energy Commission
2. Data for Sarawak's Grid Emission Factor for Sarawak is calculated by Sarawak Energy Berhad (SEB)

### Notes:

1. The Grid Emission Factor for Peninsular and Sabah is calculated by dividing the Greenhouse Gas (GHG) Emission with Net Electricity Generation.
2. Net Electricity Generation = Gross Electricity Generation – Electricity Own Use
3. Data for Peninsular and Sabah's Fuel Consumption, Electricity Generation and Electricity Own Use are sourced from the National Energy Balance (NEB) 2017, 2018 and 2019.
4. For this calculation, fuel consumption and electricity generation from Main Activity Producer only is considered.
5. GHG Emission is calculated using Tier 1 Emission Factor.

## Year : 2017

### Peninsular Malaysia

Fuel Type	Fuel consumption (TJ)	GHG Emission (kg CO <sub>2</sub> e)	GHG Emission (Gg CO <sub>2</sub> e)	Net Electricity Generation (GWh)	GEF (Gg CO <sub>2</sub> e/GWh)
Coal	731,154	70,124,569,692	70,125	119,372	0.776
Natural Gas	394,844	22,172,390,344	22,172		
Diesel	1,381	102,661,779	103		
Fuel Oil	2,636	204,689,204	205		
Total RE					
<b>TOTAL</b>	<b>1,130,015</b>	<b>92,604,311,018</b>	<b>92,604</b>		

### Sabah

Fuel Type	Fuel consumption (TJ)	GHG Emission (kg CO <sub>2</sub> e)	GHG Emission (Gg CO <sub>2</sub> e)	Net Electricity Generation (GWh)	GEF (Gg CO <sub>2</sub> e/GWh)
Natural Gas	47,656	2,676,099,672	2,676	6,037	0.513
Diesel	4,058	301,763,410	302		
Fuel Oil	1,506	116,965,260	117		
Total RE					
<b>TOTAL</b>	<b>53,220</b>	<b>3,094,828,342</b>	<b>3,095</b>		

## Year : 2018

### Peninsular Malaysia

Fuel Type	Fuel consumption (TJ)	GHG Emission (kg CO2e)	GHG Emission (Gg CO2e)	Net Electricity Generation (GWh)	GEF (Gg CO2e/GWh)
Coal	801,445	76,926,832,153	76,927	122,017	0.807
Natural Gas	380,828	21,385,302,205	21,385		
Diesel	1,046	77,774,075	78		
Fuel Oil	711	55,233,595	55		
Total RE					
<b>TOTAL</b>	<b>1,184,030</b>	<b>98,445,142,028</b>	<b>98,445</b>		

### Sabah

Fuel Type	Fuel consumption (TJ)	GHG Emission (kg CO2e)	GHG Emission (Gg CO2e)	Net Electricity Generation (GWh)	GEF (Gg CO2e/GWh)
Natural Gas	52,091	2,925,148,456	2,925	6,275	0.520
Diesel	4,519	335,984,003	336		
Fuel Oil	0	4,874	0		
Total RE					
<b>TOTAL</b>	<b>56,610</b>	<b>3,261,137,333</b>	<b>3,261</b>		

## Year : 2019

### Peninsular Malaysia

Fuel Type	Fuel consumption (TJ)	GHG Emission (kg CO2e)	GHG Emission (Gg CO2e)	Net Electricity Generation (GWh)	GEF (Gg CO2e/GWh)
Coal	739,564	70,974,448,427	70,974	126,153	0.780
Natural Gas	470,031	26,394,472,091	26,394		
Diesel	13,682	1,017,284,898	1,017		
Fuel Oil	795	61,731,665	62		
Total RE					
<b>TOTAL</b>	<b>1,224,071</b>	<b>98,447,937,081</b>	<b>98,448</b>		

### Sabah

Fuel Type	Fuel consumption (TJ)	GHG Emission (kg CO2e)	GHG Emission (Gg CO2e)	Net Electricity Generation (GWh)	GEF (Gg CO2e/GWh)
Natural Gas	52,718	2,960,391,208	2,960	6,432	0.527
Diesel	5,732	426,201,930	426		
Fuel Oil	-	-	-		
Total RE					
<b>TOTAL</b>	<b>58,450</b>	<b>3,386,593,138</b>	<b>3,387</b>		