

ENVIRONMENTAL RESPONSIBILITY

Although in general, Telkom's business processes in the field of telecommunications, are not directly related to the environment compared to other industrial sectors such as mining, plantation, and aviation, Telkom still tries to reduce the minimum impact on the environment. This is following the company's business ethics as outlined in Resolution of Board of Director number PD.201.01/r.00/PS150/COP-B0400000/2014 dated May 6, 2014, regarding Business Ethics in the TelkomGroup Environment.

RECYCLABLE AND ENVIRONMENT-FRIENDLY MATERIAL AND ENERGY USE

Telkom has made various efforts to reduce the negative impact on the environment. Since 2010, Telkom has been using AC technology with inverters and LED lights. To conserve the energy use of office buildings, Telkom uses reflective glass with a thickness of 6 mm, in some office buildings, thereby reducing the incoming heat, using a zoning lighting scheme, which distinguishes the lighting area as needed so that it can save energy and apply lighting operating schedules and automated devices to save electricity consumption without disturbing the comfort and safety of building users.

By the end of 2019, TelkomGroup had calculated electricity consumption for fixed and cellular networks, as well as building operations. Total energy consumption in 2019 for this scope is 2,159,673,322 kWh, increase 81,551,452 kWh or 3.9% from the previous year. This increase was contributed by electricity consumption for cellular networks, in line with the increase in the number of BTS. While electricity consumption for STOs has decreased due to the shutdown of several STOs and the transformation of Telkom Cloud or T-Cloud. The following electricity consumption for the last three years:

Electricity Consumption	2019	2018	2017
	Kwh		
Fixed Network (STO)	310,351,518	327,744,883	338,902,852
Operational (Building)	73,244,675	71,226,285	69,556,971
Cellular Network (BTS)	1,776,077,129	1,679,150,702	1,549,658,684
Total	2,159,673,322	2,078,121,870	1,958,118,507

Furthermore, Telkom provides vehicles Employee Shuttle Bus (EMSHUB) which contributes decreasing in the level of congestion in the city of Jakarta. The presence of EMSHUB is supported by Satellite Office facilities in Bogor, Tangerang, and Bekasi that allow employees to continue working while in high traffic. EMSHUB also has a meeting room and collaboration room equipped with video conference and high-speed internet so that it could work mobile comfortably and productively.



Fuel consumption is mainly used for operational vehicles, BTS and STO. In 2019, there will be a reduction in fuel consumption for operational vehicles by around 70% due to a 50% reduction in the number of operational vehicles carried out in stages. The following is the consumption of fuel for the past three years.

Fuel Consumption	2019	2018	2017
	Litre		
Fixed Network (STO)	1,583,986	N/A	N/A
Operational Vehicle	1,463,650	4,799,513	2,545,689
Cellular Network (BTS)	+/- 10,000,000	+/- 12,000,000	+/- 15,000,000
Total	+/- 13,047,636	+/- 16,799,513	+/- 17,545,689

In certain areas where electricity supply which is a base transceiver station (BTS) power source is difficult to obtain, Telkom utilizes solar panels to produce electricity. As many as 32 BTS locations have solar panels with the ability to produce energy every year equivalent to 420,480 kWh.

Telkom's water consumption uses the source of the Regional Drinking Water Company (PDAM). Water usage includes the use of domestic needs. Several efficiency efforts have been carried out, namely implementing water-saving policies and using automatic faucets in some Telkom buildings. The following water consumption in 2017-2019:

Water Consumption	2019	2018	2017
	Litre		
Office Operational	1,881,747	1,779,662	2,034,740
Total	1,881,747	1,779,662	2,034,740

ECO-FRIENDLY WORKING CULTURE

We also strive to educate internal employees to become accustomed to living an environmentally friendly lifestyle. Since 2009, Telkom has started the "Bike to Work" program as one of the campaigns to reduce carbon emissions. Also, Telkom has applied the concept of paperless office to use paper to a minimum, including the use of online official memorandum applications, virtual meetings, shared files, online surveys, and IT-based HR services. During 2019 there were 291,639 online official memorandum published. If each official memorandum requires 1 sheet of paper and addressed to 2 recipients, Telkom has made savings of 583,278 sheets of paper (equivalent to 1,166 reams of paper)



We also educate customers by submitting paperless bills via email and can be viewed through the MyIndiHome and MyTelkomsel applications. From 7.0 million IndiHome customers and 6.4 million postpaid cellular subscribers, Telkom can save 160.8 million sheets of paper (equivalent to 321,600 reams of paper) with the assumption of 1 sheet of billing paper per month in 1 year.

REDUCING CARBON EMISSIONS

So far, TelkomGroup has only done a limited calculation of the use of electricity and fuel. TelkomGroup recorded an increase in electricity consumption by 81,551,452 Kwh (equivalent to an increase in carbon emissions by 28,214 Tons of CO₂ eg) in 2019 and 120,003,363 Kwh (equivalent to an increase in carbon emissions by 41,516 Tons of CO₂ eg) in 2018. As for consumption BBM, a decrease of about 3,751,877 liters (equivalent to a reduction in carbon emissions by 8,523 tons of CO₂ eg) in 2019 and 746,176 liters (equivalent to a reduction in carbon emissions by 1,695 tons of CO₂ eg) in 2018. Although Telkom has not been able to reduce carbon emissions due to an increase in company operations, the increase in carbon emissions produced began to decrease from 39,821 tons of CO₂ eg to 19,690 tons of CO₂ eg.

Carbon Emission	Unit	2019	2018
		Litre	
Increase in Electricity Consumption	Ton CO ₂ eg	28,214	41,516
Reduction in Fuel Consumption	Ton CO ₂ eg	(8,523)	(1,695)
Total Carbon Emission Increased		19,691	39,821

WASTE TREATMENT SYSTEM

Waste management within Telkom and its subsidiaries is adjusted to the existing operational activities. For the management of organic and non-organic waste, not including e-waste, TelkomGroup cooperates with the local Government Cleanliness Agency.

ENVIRONMENTAL COMPLAINT HANDLING MECHANISMS

TelkomGroup is committed to caring for the environment, including the impact of operations on the surrounding environment. If there are complaints related to the environment, the public can submit via email and Telkom's official social media Throughout 2019, Telkom and its subsidiaries have no environmental complaints from the public.

ENVIRONMENTAL AWARD

In 2019, Telkom and its subsidiaries received the Subroto Award for Energy Efficiency in 2019, namely East Jakarta Witel as 2nd Place retrofitted category and GTG Bogor as 2nd Place energy management category.