

為因應國際氣候變遷減緩趨勢，達成企業減碳目標，提升綠色經濟競爭力，台灣中油依循國家政策訂定溫室氣體減量目標，透過溫室氣體盤查持續追蹤排放量，並配合國家溫室氣體長期減量目標，於 2004 年導入 ISO 14064-1 溫室氣體盤查制度，每年進行溫室氣體排放量盤查，其中煉化廠排放量經環保署認證之第三方單位查證，據以訂定溫室氣體減量目標，推動溫室氣體管理計畫，以降低溫室氣體排放量。配合行政院環境保護署公布之溫室氣體減量及管理法（簡稱溫管法）之國家減碳目標—2050 年溫室氣體排放量降為 2005 年溫室氣體排放量的 50% 以下，台灣中油以 2005 年為基準年，該年度溫室氣體排放量為 1,158 萬公噸（二氧化碳當量）；台灣中油每年進行範疇一及範疇二之溫室氣體排放量盤查，以環保署公告之溫室氣體排放係數管理表為基準進行計算，若有自場（廠）係數則優先使用，GWP 值之採用則依環保署規定辦理。台灣中油溫室氣體盤查作業採營運控制權法進行，將結果以二氧化碳當量表示。2020 年溫室氣體總排放量與 2019 年比較，減少 104 萬公噸二氧化碳當量（CO₂e）；自 2016 年起，溫室氣體排放密集度連續 3 年呈現下降趨勢，2020 年溫室氣體排放密集度因 COVID-19 致整體營收衰退 29%，與 2019 年相比增加 22.5%³。

年度	範疇一	範疇二	總排放量 (萬公噸)	範疇一 排放管制之比例
2018	723.3	114.0	837.3	97.4%
2019	693.5	121.4	814.9	97.2%
2020 ³	586.4	124.2	710.7	97.1%

註 1：台灣中油無使用生質燃料

註 2：台灣中油上下游供應鏈事業體龐大，供應鏈排查有一定困難度，但目前正持續進行供應鏈盤查，因此範疇三的量化與查證暫不列入排放量計算範疇。

註 3：2020 年溫室氣體排放量於 2021 年 7 月完成煉化廠第三方查證後確認總排放量；溫室氣體排放密集度 = 年度溫室氣體排放量 / 年度營收（公斤 / 元）。

註 4：2020 年台灣中油執行 58 項節能減碳措施，2020 年溫室氣體排放強度（= 年度溫室氣體排放量 / EDC 煉量）為 0.039，較 2019 年 0.044 為佳

In response to the international trend of the mitigation of climate change, carbon reduction goal and enhance the competitiveness of the green economy, CPC has followed the national policy to set GHG reduction targets and continuously tracked emissions through GHG inventory. In line with the national long-term GHG reduction targets, CPC introduced the ISO 14064-1 GHG inventory system in 2004 to conduct annual GHG emissions inventory, which the refinery emissions are verified by third-party certified by the EPA. Based on which GHG reduction targets, GHG management plans are promoted to reduce GHG emissions. In line with the national carbon reduction target of the Greenhouse Gas Reduction and Management Act (GHGRA) announced by the EPA, 50% reduction of GHG emission compared with 2005 needs to be done by 2050. CPC sets 11.58 million tons (CO₂e) emission of 2005 as the base year emissions and conducts an annual GHG inventory in Scope I and Scope II based on the management table of GHG coefficients announced by the Environmental Protection Administration. Self-site (plant) coefficient will be used first, and the GWP value will be adopted according to the regulations of the Environmental Protection Administration. CPC's GHG inventory operations are conducted by the operation control method, and the results are expressed in terms of CO₂e. In 2020, GHG emissions were reduced by 1.04 million tons of CO₂e compared to 2019. Since 2016, the GHG emission intensity has shown a decreasing trend for three consecutive years. GHG emissions intensity in 2020 was increased by 22.5% compared to that in 2019 due to the 29% decrease of revenue resulted from COVID-19³.

Year	Scope I	Scope II	Total Emissions (ten thousand tons)	Scope I Percentage of emission control
2018	723.3	114.0	837.3	97.4%
2019	693.5	121.4	814.9	97.2%
2020 ³	586.4	124.2	710.7	97.1%

Note 1: CPC does not use biofuel.

Note 2: The upstream and downstream supply chains of CPC are extensive, and it is difficult to a certain extent to carry out the inspection on the supply chains. However, as CPC is currently conducting an ongoing supply chain inventory. The quantification and verification of Scope III are temporarily not included in the emissions calculation.

Note 3: The 2020 greenhouse gas emissions were confirmed after the refinery completes third party verification in July 2021; greenhouse gas emission intensity = annual greenhouse gas emissions / annual revenue (kg/NT\$).

Note 4: In 2020, CPC implemented 58 energy-saving and carbon-reduction measures. Greenhouse gas emission intensity (= annual greenhouse gas emissions / EDC refining volume) is calculated as 0.039, which is better than the value 0.044 in 2019.