

# NET-GHG EMISSIONS AND NET CARBON INTENSITY METHODOLOGY

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Equinor launched an ambitious new climate roadmap in February 2020. At that time, we communicated an ambition to reduce our net carbon intensity by at least 50% by 2050. We have since taken our ambitions one step further, launching a net zero ambition - building on our roadmap and in line with society's increased net-zero commitments.

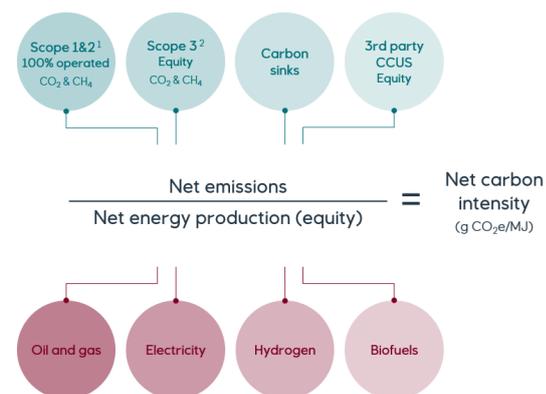
## The relationship between “net-zero emissions” and “net carbon intensity”

In simple terms, “net zero” means achieving an overall balance between the amount of greenhouse gases (GHG) added to, and removed from, the atmosphere (i.e. net-GHG emissions).

“Net carbon intensity”, on the other hand, can typically be understood to represent the net GHGs from energy products and services provided by a company, divided by the energy produced by the company. It is an intensity metric (a ratio) which takes net GHG emissions and energy into account.

Both our net carbon intensity and net-zero emissions ambitions include emissions associated with initial energy production and final consumption, or in other words scope 1, 2 and 3 emissions. Scope 3 emissions are the indirect emissions from the use of the energy we produce (on an equity basis), corresponding to the GHG Protocol’s Scope 3, category 11.<sup>1</sup> The numerator in the net carbon intensity indicator also represents the net-GHG emissions.

Whereas net-emissions only address emissions, net carbon intensity addresses both emissions and energy (including renewable energy).



<sup>1</sup> Direct emissions from operations that are owned/controlled by the organisation and indirect emissions from energy imported from third parties, heating, cooling and steam consumed within the organisation.  
<sup>2</sup> Emissions calculated based on use of sold products (GHG Protocol, Category 11).

### Net carbon intensity

- A transition metric that addresses both energy and emissions

#### What is included?

##### Emissions:

- Scope 1, 2 and 3 greenhouse gas (GHG) emissions, net of 'negative' emissions from third-party CCUS and natural sinks (also when utilised by those consuming the fossil fuels we produce)
- Scope 1 and 2 emissions (100% operator basis)
- Scope 3 emissions (equity production) estimated based on regional refinery yields and accounting for decarbonisation where undertaken by those consuming the fossil fuels we produce

##### Energy:

- Energy products originating from Equinor (equity production) - oil, natural gas, hydrogen, biofuels and electricity from renewable energy
- Energy is represented as Megajoules (MJ)
- Renewable electricity is converted to energy using a partial substitution method

#### What is not included?

- Energy and scope 3 emissions from non-energy products (e.g. plastics, lubricants and asphalt) are excluded as the products are not combusted

<sup>1</sup> <https://ghgprotocol.org/standards/scope-3-standard>

## Net GHG emissions

Our net-zero ambition addresses net-GHG emissions:

Net-GHG emissions include: Scope 1, scope 2 and scope 3 (category 11, use of sold products) GHG emissions, associated with the energy produced by the company, are included the net-emissions. The GHG emissions included are CO<sub>2</sub> and methane. A global warming potential of 25 is used to convert methane to CO<sub>2</sub> equivalents.<sup>2</sup> The net-emissions also includes negative emissions, such as third-party CCS and natural sinks. In the net carbon intensity indicator, the net emissions represented in the numerator are in grams of CO<sub>2</sub> equivalents.

Scope 1 and scope 2 emissions are included based on a 100% operated basis, to correspond with the company's GHG emission reduction ambitions.

Scope 3 emissions are based on the estimated emissions from the use of sold products. The sold product volumes, which form the basis for the emission estimates, are represented by Equinor's equity oil and gas production. Using a refinery output approach, these equity oil and gas volumes are broken down into several product categories, assuming geography-dependent refinery product yields.<sup>3</sup> The emissions from each product are calculated using lower heating value (LHV) based standard emission factors from the IPCC, expressed as kg/TJ<sup>4</sup>. Equinor assumes an LHV of 5.7 GJ/boe for the Scope 3 emissions calculations<sup>5</sup>.

Scope 3 considerations resulting from customer actions: Where customers, including refiners, decarbonize Equinor's sold products prior to use, we will reflect this in our scope 3 emissions calculation. I.e. equity production volumes decarbonized by our customers are excluded from the absolute scope 3 (category 11) emissions calculation - and similarly excluded from the net-emissions and the net carbon intensity indicator.

Non-energy products: Not all hydrocarbons that are produced are combusted. Equity production volumes converted into non-energy products (e.g. plastics, lubricants and asphalt) are therefore excluded from the net-emissions and the net carbon intensity indicator.

Negative emissions: The emissions represented in the net-emissions and the net carbon intensity indicator are net of negative emissions. Examples include negative emissions associated with carbon capture, utilisation and storage for third parties (where GHG emissions are permanently stored), as well as carbon offsets through natural sinks.

Negative emissions resulting from customer actions: Where customers, including refiners, offset the emissions associated with Equinor's sold products prior to use, we will reflect this in the net-emissions and net carbon intensity indicator. I.e. emissions associated with our equity production volumes, which are offset by our customers, are excluded from the net-emissions and the net carbon intensity indicator.

(Note that while relevant in a *net-emissions* accounting context, offsets, either by Equinor or by our customers, are not considered in our *absolute emissions* accounting.)

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<sup>2</sup> <https://www.ipcc.ch/site/assets/uploads/2018/02/ar4-wg1-chapter2-1.pdf>

<sup>3</sup> Available through statistics from the International Energy Agency (IEA).

<sup>4</sup> 2006 IPCC Guidelines for National Greenhouse Gas Inventories (<https://www.ipcc-nggip.iges.or.jp/public/2006gl/>)

<sup>5</sup> Norwegian Petroleum: <https://www.norskpetroleum.no/en/calculator/about-energy-calculator/> (1 Sm<sup>3</sup> crude oil = 36000 MJ, 1 Sm<sup>3</sup> = 6.29 boe).

Avoided emissions associated with the use of our energy products in place of other energy products (e.g. wind for gas, or gas for coal), are not included in the net-emissions and the net carbon intensity indicator.

### **Energy provided**

As mentioned above, for the net carbon intensity indicator, the numerator of the ratio is represented by net emissions. The denominator is represented by net energy. The denominator, therefore, includes the amount of energy associated with Equinor's equity energy production, including oil, natural gas, hydrogen, biofuels and electricity from renewable energy. Energy is represented as Megajoules (MJ).

Oil and gas volumes are converted from barrels of oil equivalents (boe) to MJs by assuming an LHV of 1boe = 5.7GJ.<sup>6</sup>

Electricity from renewables is converted into primary energy by using a partial substitution method. This method involves the application of a factor to the energy from renewable electricity production, in order to address the conversion losses associated with fossil fuels, by calculating the amount of primary energy (in the form of e.g. natural gas, coal or oil) required to produce the same amount of electricity in a fossil power plant<sup>7</sup>.

Biofuel production will be included in the net carbon intensity indicator by including the energy associated with Equinor's equity biofuel production in the denominator. Any emissions associated with the production of the biofuel (where Equinor is operator) will be accounted for as scope 1 and 2 emissions in the numerator of the net carbon intensity indicator (i.e. the net-emissions). Biofuels, where demonstrated to be carbon neutral, will not have any net emissions associated with their use. As such, the production of carbon neutral biofuels by Equinor will not result in the inclusion of scope 3 emissions in the numerator of the net carbon intensity indicator (i.e. the net-emissions).

Hydrogen: Emissions and energy associated with the equity volumes of hydrogen that Equinor produces will be included in the numerator (as scope 1 and 2) and the denominator of the net carbon intensity indicator, respectively. These scope 1 and 2 emissions will therefore be reflected in the net-emissions. Hydrogen production will therefore be addressed in the net carbon intensity indicator in a manner similar to other types of energy production where Equinor is involved. For hydrogen produced from Equinor's equity gas volumes, care will be taken to ensure that double counting of both energy and emissions is avoided in the net carbon intensity indicator.

Third party volumes: In addition to the energy from the oil, gas and renewables Equinor produces, Equinor buys and sells electricity, oil and gas which Equinor (as an operator or partner) has not produced. As these volumes are bought and sold at other points in Equinor's value chain than the energy that Equinor produces, neither the emissions nor the associated energy are included.

### **DISCLAIMER**

The achievement of Equinor's net zero and net carbon intensity ambitions depends, in part, on broader societal shifts in consumer demands and technological advancements, each of which are beyond Equinor's control. Should society's demands and technological innovation not shift in

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<sup>6</sup> Ibid

<sup>7</sup> Substitution factors for primary energy of electricity derived from IEA historical data for fossil fuel power generation.

parallel with Equinor's pursuit of significant greenhouse gas emission reductions, Equinor's ability to meet its net zero and net carbon intensity ambitions will be impaired.

Equinor is including an estimate of emissions from the use of sold products (GHG protocol scope 3, category 11) in the calculation of the net-emissions and the net carbon intensity as a means to more accurately evaluate the emission lifecycle of what we produce to respond to the energy transition and potential business opportunities arising from shifting consumer demands. Including these emissions in the calculations should in no way be construed as an acceptance by Equinor of responsibility for the emissions caused by such use.

There are several initiatives that aim at harmonising energy transition indicators, such as net zero and net carbon intensity, for broad energy companies. As such, the methodology can be subject to change as a result of harmonisation and standardisation, or due to significant changes in business model.