



Netherlands Enterprise Agency

The Netherlands' list of fuels and standard CO₂ emission factors version of January 2025

Commissioned by the ministry of Economic Affairs

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Date January 2025
Status Final

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Colophon

Project name	Annual update of fuel list for the Netherlands
Project number	113569/BL2025
Version number	January 2025
Project leader	P.J. Zijlema
Enclosures	0
Author	P.J. Zijlema

The initial version of this fuel list was approved by the Steering Committee Emission Registration (SCER) in 2004, and the list was subsequently updated on the basis of decisions of the Steering Committee concerning the CO₂ emission factor for natural gas at meetings held on 25 April 2006 and 21 April 2009. The Steering Committee Emission Registration delegated the authority for approving this list to the ER/Working Group on Emission Monitoring (WEM) on 21 April 2009.

The present document (the version of January 2025) is approved by WEM, after detailed discussions with the Dutch Emission Authority (NEa) and several institutes that participate in the Emission Register (ER/PRTR) project, a.o:

- CBS, Statistics Netherlands,
- PBL, Netherlands Environmental Assessment Agency,
- RIVM, National Institute for Public Health and the Environment,
- RWS, Rijkswaterstaat, an agency of the Dutch Ministry of Infrastructure and the Environment responsible for the design, construction, management and maintenance of the main infrastructure facilities in the Netherlands,
- TNO, the Dutch organization for Applied Scientific Research (TNO).

1 Fuel list, version of January 2025

Name (Dutch)	Name (English)	Unit	Net Calorific Value (MJ/unit)				CO ₂ EF (kg/GJ)			
			2023	2024	2025	Ref ¹⁾	2023	2024	2025	Ref ¹⁾
A. Liquid Fossil, Primary Fuels										
Ruwe aardolie	Crude oil	kg	42.7	42.7	42.7	CS	73.3	73.3	73.3	IPCC
Orimulsion	Orimulsion	kg	27.5	27.5	27.5	IPCC	77.0	77.0	77.0	IPCC
Aardgascondensaat	Natural Gas Liquids	kg	44.0	44.0	44.0	CS	64.2	64.2	64.2	IPCC
Liquid Fossil, Secondary Fuels										
Motorbenzine ²⁾	Gasoline ²⁾	kg	43.3	43.3	43.3	CS	72.2	72.2	72.2	CS
Vliegtuigbenzine	Aviation gasoline	kg	44.0	44.0	44.0	CS	72.0	72.0	72.0	CS
Kerosine luchtvaart ²⁾	Jet Kerosene ²⁾	kg	43.5	43.5	43.5	CS	71.5	71.5	71.5	IPCC
Petroleum (incl. lampolie)	Other kerosene (incl. lampoil)	kg	43.1	43.1	43.1	CS	71.9	71.9	71.9	IPCC
Leisteenolie	Shale oil	kg	38.1	38.1	38.1	IPCC	73.3	73.3	73.3	IPCC
Gas-/dieselolie ²⁾	Gas/Diesel oil ²⁾	kg	43.2	43.2	43.2	CS	72.5	72.5	72.5	CS
Zware stookolie	Residual Fuel oil	kg	41.0	41.0	41.0	CS	77.4	77.4	77.4	IPCC
LPG (incl. butaan en propaan)	LPG (incl. butane and propane)	kg	45.2	45.2	45.2	CS	66.7	66.7	66.7	CS
Ethaan	Ethane	kg	45.2	45.2	45.2	CS	61.6	61.6	61.6	IPCC
Nafta's	Naphta	kg	44.0	44.0	44.0	CS	73.3	73.3	73.3	IPCC
Bitumen	Bitumen	kg	41.9	41.9	41.9	CS	80.7	80.7	80.7	IPCC
Smeeroliën	Lubricants	kg	41.4	41.4	41.4	CS	73.3	73.3	73.3	IPCC
Petroleumcokes	Petroleum Coke	kg	35.2	35.2	35.2	CS	97.5	97.5	97.5	IPCC
Raffinaderij grondstoffen	Refinery Feedstocks	kg	43.0	43.0	43.0	IPCC	73.3	73.3	73.3	IPCC
Raffinaderijgas	Refinery Gas	kg	45.2	45.2	45.2	CS	64.4	64.4	64.4	CS
Chemisch restgas	Chemical Waste Gas	kg	45.2	45.2	45.2	CS	61.8	61.8	61.8	CS
Overige oliën	Other oil	kg	40.2	40.2	40.2	IPCC	73.3	73.3	73.3	IPCC
Paraffine	Paraffin Waxes	kg	42.7	42.7	42.7	CS	73.3	73.3	73.3	IPCC
Terpentine	White Spirit and SBP	kg	43.6	43.6	43.6	CS	73.3	73.3	73.3	IPCC
Overige aardolie producten	Other Petroleum Products	kg	42.7	42.7	42.7	CS	73.3	73.3	73.3	IPCC
Fossiele additieven	Fossil fuel additives	kg	44.0	44.0	44.0	CS	73.3	73.3	73.3	IPCC
B. Solid Fossil, Primary Fuels										
Antraciet	Anthracite	kg	29.3	29.3	29.3	CS	98.3	98.3	98.3	IPCC
Cokeskolen	Coking Coal	kg	28.6	28.6	28.6	CS	94.0	94.0	94.0	CS
Cokeskolen	Coking Coal (used in coke oven)	kg	28.6	28.6	28.6	CS	95.4	95.4	95.4	CS
Cokeskolen	Coking Coal (used in blast furnaces)	kg	28.6	28.6	28.6	CS	89.8	89.8	89.8	CS
Overige bitumineuze steenkool ³⁾	Other Bituminous Coal ³⁾	kg	24.7	24.7	24.7	CS	92.7	92.7	92.7	CS
Sub-bitumineuze steenkool	Sub-Bituminous Coal	kg	18.9	18.9	18.9	IPCC	96.1	96.1	96.1	IPCC
Bruinkool	Lignite	kg	20.0	20.0	20.0	CS	101.0	101.0	101.0	IPCC
Bitumineuze Leisteen	Oil Shale	kg	8.9	8.9	8.9	IPCC	107.0	107.0	107.0	IPCC

Name (Dutch)	Name (English)	Unit	Net Calorific Value (MJ/unit)				CO ₂ EF (kg/GJ)			
			2023	2024	2025	Ref ¹⁾	2023	2024	2025	Ref ¹⁾
Turf	Peat	kg	9.76	9.76	9.76	IPCC	106.0	106.0	106.0	IPCC
Solid Fossil, Secondary Fuels										
Steenkool- en bruinkoolbriketten	BKB & Patent Fuel	kg	20.7	20.7	20.7	IPCC	97.5	97.5	97.5	IPCC
Cokesoven/ gascokes	Coke Oven/Gas Coke	kg	28.5	28.5	28.5	CS	106.8	106.8	106.8	CS
Cokesovengas	Coke Oven gas	MJ	1.0	1.0	1.0	CS	42.8	42.8	42.8	CS
Hoogovengas	Blast Furnace Gas	MJ	1.0	1.0	1.0	CS	247.4	247.4	247.4	CS
Oxystaalovengas	Oxy Gas	MJ	1.0	1.0	1.0	CS	191.9	191.9	191.9	CS
Fosforovengas	Fosfor Gas	Nm3	11.0	11.0	11.0	CS	143.9	143.9	143.9	CS
Steenkool bitumen	Coal tar	kg	41.9	41.9	41.9	CS	80.7	80.7	80.7	IPCC
C. Gaseous Fossil Fuels										
Aardgas ⁴⁾	Natural Gas (dry) ⁴⁾	Nm3 ae	31.65	31.65	31.65	CS	56.3 ⁴⁾	56.2 ⁴⁾	56.2 ⁴⁾	CS
Compressed natural gas (CNG) ⁴⁾	Compressed natural gas (CNG) ⁴⁾	Nm3 ae	31.65	31.65	31.65	CS	56.3 ⁴⁾	56.2 ⁴⁾	56.2 ⁴⁾	CS
Liquified natural gas (LNG) ⁴⁾	Liquified natural gas (LNG) ⁴⁾	Nm3 ae	31.65	31.65	31.65	CS	56.3 ⁴⁾	56.2 ⁴⁾	56.2 ⁴⁾	CS
Koolmonoxide	Carbon Monoxide	Nm3	12.6	12.6	12.6	CS	155.2	155.2	155.2	CS
Methaan	Methane	Nm3	35.9	35.9	35.9	CS	54.9	54.9	54.9	CS
Waterstof	Hydrogen	Nm3	10.8	10.8	10.8	CS	0.0	0.0	0.0	CS
Biomass ⁴⁾										
Biomassa vast	Solid Biomass	kg	15.1	15.1	15.1	CS	109.6	109.6	109.6	IPCC
Houtskool	Charcoal	kg	30.0	30.0	30.0	CS	112.0	112.0	112.0	IPCC
Biobenzine ³⁾	Biogasoline ³⁾	kg	27.0	27.0 ³⁾	27.0 ³⁾	CS	70.8	70.8 ³⁾	70.8 ³⁾	CS
Biodiesel ³⁾	Biodiesels ³⁾	kg	39.2	39.2 ³⁾	39.2 ³⁾	CS	73.8	73.8 ³⁾	73.8 ³⁾	CS
Overige vloeibare biobrandstoffen	Other liquid biofuels	kg	36.0	36.0	36.0	CS	79.6	79.6	79.6	IPCC
Biomassa gasvormig	Gas Biomass	Nm3	21.8	21.8	21.8	CS	90.8	90.8	90.8	CS
RWZI biogas	Wastewater biogas	Nm3	23.3	23.3	23.3	CS	84.2	84.2	84.2	CS
Stortgas	Landfill gas	Nm3	19.5	19.5	19.5	CS	100.7	100.7	100.7	CS
Industrieel fermentatiegas	Industrial organic waste gas	Nm3	23.3	23.3	23.3	CS	84.2	84.2	84.2	CS
D Other fuels										
Afval ^{3) 6)}	Waste ^{3) 6)}	kg	9.6	9.6 ³⁾	9.6 ³⁾	CS	107.9	107.9 ₃₎	107.9 ₃₎	CS

- 1) IPCC: default value from the 2006 IPCC Guidelines; CS: country specific
- 2) This concerns only the fossil part of the fuel
- 3) The calorific value and/or emission factor for these fuels are updated annually. Since the values for 2024 and 2025 are not yet known, they are set equal to the value for 2023. The figures in the above list may be modified in subsequent versions of the fuel list
- 4) The emission factors for natural gas, CNG and LNG are updated annually. The values given in this table represent the most up-to-date values for all years concerned.
- 5) For reporting of emissions from biomass the following rules have to be followed:
 - a. Under the Convention (UNFCCC) the emissions from biomass have to be reported as memo-item, using the mentioned emission factors. However, they do not count in the national total of greenhouse gas emissions.
 - b. Under EU ETS, combustion of biomass can result in zero emission if certain conditions are met. More information: <https://www.emissieautoriteit.nl/onderwerpen/monitoring-emissies/biomassa>
- 6) The percentage biogenic in the heating value is 53%. The percentage biogenic in the emission factor is 64%.

2 Notes on the fuel list

Netherlands Enterprise Agency (RVO) has been publishing the list of fuels and standard CO₂ emission factors for the Netherlands annually since 2004.

This list was completely revised in 2015 as a result of the obligation to follow the *2006 IPCC Guidelines* in all international reports compiled in or after 2015 (the first reporting year of the second Kyoto budget period). The list contains not only calorific values and emission factors taken from the *2006 IPCC Guidelines* but also a number of country-specific values. In 2021 the list has been updated again, taking into account the 2019 Refinement to the 2006 IPCC Guidelines (see Dröge et al, 2021). The validity of values is governed by the following rules:

- *2006 IPCC* default emission factors are valid from 1990
- The country-specific calorific values and emission factors may be divided into the following four categories:
 - Most country-specific calorific values and emission factors are valid from 1990
 - A limited number of country-specific factors have an old value for the period 1990-2012 and are updated from 2013 and again updated from reporting year 2021.
 - Based on new insights from Statistics Netherlands, the heating values and emission factors for some transport fuels have been updated.
 - The country-specific calorific value and/or emission factor for some fuels (natural gas, biogasoline, biodiesel, other bituminous coal and waste) are updated annually. In the present document (version January 2025) these values have been updated.

Readers are referred to the TNO reports (Dröge, 2014; Dröge et al, 2021) and the relevant factsheets for further details.

Various relevant institutes, were consulted during the compilation of this list. One of the involved organisations was Statistics Netherlands (CBS), to ensure consistency with the Dutch Energy Balance Sheet.

With effect from 2015, the lists of calorific values and of emission factors will both contain columns for three successive years. In the present version of the fuel list (that for January 2025), the years in question are 2023, 2024 and 2025. The values in these columns are used for the following purposes:

1. **2023**: these values are used in 2025 for calculations concerning the calendar year 2023, which are required for international reports concerning greenhouse gas emissions pursuant to the UN Framework Convention on Climate Change (UNFCCC), the Paris Agreement and the Governance Regulation of the Energy Union (EU 2018/1999). The National Inventory Report for 2025 (NIR 2025) gives full details of greenhouse gas emissions in the Netherlands up to and including 2023. The fuel list forms an integral part of the NIR 2025.
2. **2024**: these values are used in 2025 for reports on energy consumption and CO₂ emission for the calendar year 2024 in the Electronic Environmental Annual Report (e-MJV).
3. **2025**: in 2026, these values will be used in the emission reports for calendar year 2025 by companies that participate in the European CO₂ Emissions Trading System (EU ETS) and have indicated in their monitoring plan that they use the "The Netherlands' list of energy carriers and standard CO₂ emission factors" ..

3 References

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This is a publication of:

Netherlands Enterprise Agency
Prinses Beatrixlaan 2
PO Box 93144 | 2509 AC The Hague
T +31 (0) 88 042 42 42
[Contact us](#)
www.rvo.nl

This publication was commissioned by the ministry of Economic Affairs

© Netherlands Enterprise Agency | February 2025

Publication number: RVO-020-2025/RP-DUZA

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