Climate Neutral Group

Part of Anthesis

MARINE CONTRACTORS

Impact report for Heerema Marine Contractors

2021

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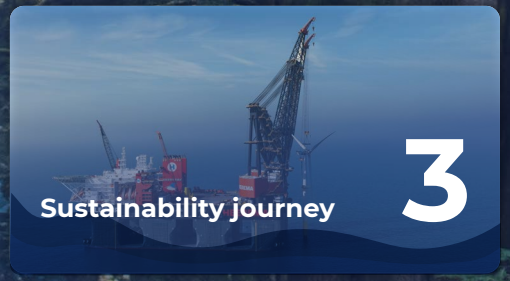


Photo cover - Traditional village near Arusha, Kenya

Heerema Marine Contractors
Sustainability journey to Zero CO_2 - Compensation

MARINE CONTRACTORS

'It is our mission is to be the leading marine contractor creating sustainable value(s). Our decision to go for carbon neutrality is the evidence that we turn our words into actions, and we are proud of this commitment. We have already significantly reduced our carbon footprint with Sleipnir and Shore Power, and with going carbon neutral we take the full responsibility for our carbon emissions.

We decided to become Climate Neutral Certified, which means we commit to realize a yearly reductiontarget towards Net Zero.'

Meike Kolthof, General Manager Sustainability Heerema Marine Contractors

About the Impact Report 2021

This report represents the impact of the CO_2 compensation of the carbon footprint in 2021 from Heerema Marine Contractors which remains after reduction. The projects Heerema Marine Contractors has selected for compensate their CO_2 emissions provide more than just CO_2 reduction. They also contribute to an improvement in the overall quality of life and standard of living of the local population in developing countries.

The world can only become climate neutral if western countries ensure that developing countries can also reduce emissions. The mechanism of compensation is inextricably linked to this and is therefore, without boundaries.

More than 22,000 times around the earth

In 2021 Heerema Marine Contractors offset **243,855 tonnes of CO_2**. This is equivalent to the CO_2 emissions of more than **32,500 households** in the Netherlands per year. This number could also be understood as the equivalent of **135,100 return flights** from Amsterdam to New York, or **122,208 trips** around the equator by car.

1. *Source: Milieucentraal.nl; a household in the Netherlands emits an average of 7.5 tonnes of CO_2. To get a feeling: that is more than half of all households in the municipality of Delft. If you include the CO_2 emissions of food, stuff and clothing, 12.5 tonnes of CO_2 per household must be added. Then our impact corresponds to about 12,000 households.*
2. *Source: our flight calculator that takes into account all greenhouse gases and an RFI of 1.9. This is the correction factor for flying high altitudes and calculates with international emissions factors from UK BEIS.*
3. *Source: our calculator, which calculates with CO2-emissiefactoren.nl; For this example is the calculation don for a car, which runs on petrol (1 at 10).*

Climate Projects
Heerema Marine Contractors

Heerema Marine contractores compensate their carbon footprint of **243,855 tonnes of CO_2** via multiple climate projects. All these climate projects contribute to the **Sustainable Development Goals of the United Nations**.

SUSTAINABLE DEVELOPMENT GOALS

MARINE CONTRACTORS

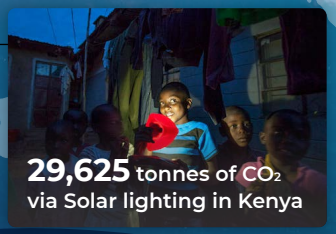
the Netherlands


50,000 tonnes of CO_2 via Landfill gas in Mexico

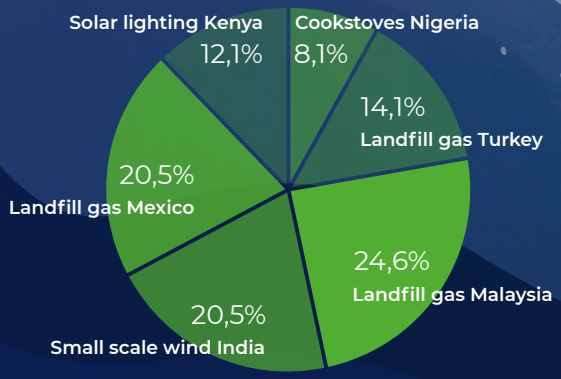

34,480 tonnes of CO_2 via Landfill gas in Turkey


50,000 tonnes of CO_2 via Small scale wind in India


19,750 tonnes of CO_2 via Cookstoves in Nigeria


29,625 tonnes of CO_2 via Solar lighting in Kenya


60,000 tonnes of CO_2 via Landfill gas in Malaysia



Offsetting

Clean cooking project **in Nigeria**

SUSTAINABLE DEVELOPMENT GOALS

This cookstove project is designed to support climate change mitigation and adaptation in Nigeria. The aim is to create alternative livelihoods by implementing and distributing cookstoves to households and institutions.

About the climate project

Over 70% of Nigeria's population, mainly consisting of poor people, cooks with solid fuel in inefficient traditional cookstoves and open fires resulting in serious indoor air pollution. Due to this, Nigeria records the highest number of indoor air pollution related deaths: averaging 64,000 annually, especially women and children in poor families.
The Nigeria cookstove project will reduce greenhouse gas emissions by distributing efficient charcoal stoves. They reduce fuel consumption up to 50%, thanks to a ceramic liner that increases combustion efficiency and retains heat. While these stoves will significantly reduce emissions, they simultaneously provide co-benefits to users and families in the form of lower fuel costs, reduced exposure to health-damaging airborne pollutants, faster cooking (resulting in time-savings), and increased cleanliness and convenience. Finally, they curb deforestation by a decreasing demand for charcoal and empower women for increasing efficiency in cooking and searching for firewood.

AFRICA

Gold Standard
Climate Security & Sustainable Development

331,432 cookstoves are placed in total of which **5,617** via Heerema Marine Contractors.

1 saves an average **3.5** tonnes of CO_2 per year.

1.17 mio tonnes of CO_2 is achieved via this project per year and **19,750** via Heerema Marine Contractors.

376 hours saved per year per household due to transition to an efficient cookstove.

€ 3.1 mio euro expenditures saved per year and **0.53 mio** euro by the contribution of Heerema Marine Contractors.

over 1.7 mio people have been reached in total with efficient cookstoves, cost reduction and improved air quality, and **28,085** thanks to the contribution of Heerema Marine Contractors.

Collaboration

Climate Neutral Group works with various organisations to invest in production, distribution and sale of energy efficient cookstoves and water treatment systems. With the use of carbon credits, CNG's project partners can put these systems where they are most necessary. This initiative carries a Gold Standard certification which guarantees that the effects, monitoring, and auditing of emission-reducing projects are done properly. In addition, Climate Neutral Group is a member of The International Carbon Reduction and Offset Alliance (ICROA).

Advantages

Climate and environment

- Fights against deforestation by a decreasing demand for charcoal and firewood.
- Combats climate change by reducing the emission of CO_2 in the atmosphere.

Social and economic

- The cookstoves improve the living conditions of women and children by reducing the time they spend collecting firewood and cooking. As a result, they have more time for other things, including finding employment, studying, and being an active part of their family and community.
- Using less wood and charcoal positively affects people's disposable incomes. These savings can be invested in education and other crucial household expenses.

Health

- Improves health significantly through indoor air quality.

Offsetting

Solar lighting **in Kenya**

SUSTAINABLE DEVELOPMENT GOALS

The solar lightening Kenya project aims to replace fuel based indoor lightening by a clean, safe and cheap alternative. The system enables hundreds of thousands of people to save money, better connect with the world through microfinance and reduce CO_2 and black carbon emissions dramatically.

Due to poor quality grid connection approximately 69% of the people in Kenya use kerosine or other fuel-based lighting. And although kerosine is easy, the use of kerosine can cause severe health effects, can cost up 10-25% of a households monthly expenditures and can lead to a large number of emissions of CO_2 and black carbon in Kenya.
The Solar Lightening Kenya project aims to distribute solar lighting systems to households that are not connected to the electricity grid. The use of the solar lighting systems will enable households to switch from dangerous kerosene to low cost, safe, off-grid renewable solar power. The utilisation of the systems will reduce the amount of fossil fuel-based domestic energy needs, which will contribute to a reduction of greenhouse gas emissions. The solar lighting system comes with three LED solar lights and a solar panel with a smart-charge-control lithium-ion battery system. In addition, households are also provided with a solar rechargeable radio and a mobile phone charging cable, which aid in microfinance and connectivity through mobile payments technology and increase in connectivity. As such, transitioning from kerosene lamps to modern lighting alternatives not only offers a climate change mitigation measure, but

AFRICA

Gold Standard
Climate Security & Sustainable Development

183,692 Solar Lighting systems are in use.

1 saves an average **0.13** tonnes of CO_2 per year.

29,625 tonnes of CO_2 is achieved through the contribution of Heerema Marine Contractors.

387,151 kg of black carbon, emit by old kerosine lamps, is avoided per year. Black carbon causes serious health issues.

1.7 mio euro is the estimated total savings from all solar power systems through the contributionof Heerema Marine Contractors. Savings on kerosin is **6.3 Euro** per household.

182,700 people who live in townships spread across the region, have been reached with the Solar Power system for lighting, mobile devices and radio through the contribution of Heerema Marine Contractors.

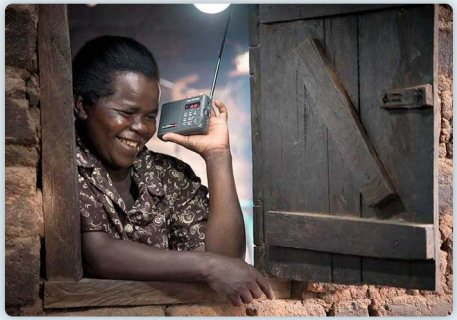
589 people have a full time job within the climate project.

2,390 indirect jobs: commissioned sales agents.

also provides significant and well-documented health and socio-economic benefits for the people in Kenya.

Collaboration

Climate Neutral Group works with the project by investing in the manufacturing, distribution, and further growth of this unique solar lighting project through the purchase of carbon credits. This allows the project to improve people's access to a renewable energy source and limit the effects of kerosine burning. This initiative carries a Gold Standard certification, which guarantees that the effects, monitoring, and auditing of emission-reducing projects are done properly. In addition, Climate Neutral Group is a member of The International Carbon Reduction and Offset Alliance (ICROA).



Advantages

Climate and environment

- Reduces CO_2 and black carbon.
- Improves indoor air quality.
- Reduces stench of kerosine.

Social and economic

- Increases health benefits by reducing indoor air pollution and by lowering the risks of burns and fires in buildings.
- Provides access to affordable, reliable, sustainable and modern energy.
- Provides savings on the expenditure on kerosene may be utilised by households for buying food, and education.
- The solar lights provide better light than the kerosene lights they replace and are safer in use.
- The addition of a radio and mobile phone charging options provides access to appropriate new technology.
- This give access to mobile payment technology, effectively provides a microfinance solution for all household users.

Offsetting

Wind energy **in India**

SUSTAINABLE DEVELOPMENT GOALS

This project invests in the operation and maintenance of wind turbines in various remote areas of India. The population of the surrounding villages can now generate energy themselves, without CO_2 emissions.

India's economic outlook is currently the best in Asia and the Indian population is growing at a rapid pace, with urbanisation taking place at an accelerated pace. This greatly increases energy consumption. This climate project invests in wind farms in remote areas of India to supply electricity to the local electricity grid. In this way, electricity from fossil sources is partly being replaced by sustainable wind energy. In addition to reducing CO_2, the project also ensures more energy security for Indian households, improving infrastructure and providing more employment. Climate Neutral Group (CNG) cooperates with the climate project to support this initiative by investing through CO_2 credits. The project, certified by VCS, makes wind energy accessible to the poorest part of the Indian population. For years, CNG has chosen several wind projects in India to provide the local population in remote areas with clean energy and provide the region with a positive boost. CNG only opts for small-scale wind projects carried out in countries where financing for CO_2 reduction products is still difficult to obtain.

ASIA

Advantages

Climate and environment

- CO_2 reduction and less emissions of particulate matter and nitrogen oxides.
- Accelerates the independence of local populations from fossil energy.

Social and economic

- The energy supply is safe and stable.
- Employment: construction, operation, and maintenance
- Development of the local population.
- Improve local infrastructure by improving access roads.
- Better standard of living and more perspective.

Verified Carbon Standard

Investments are being made in various small-scale wind farms, per park about **10 windmills** on average.

76,978 MWh of electricity is generated by Heerema Marine Contractors.

50,000 tonnes of CO_2 reduction is achieved through Heerema Marine Contractors.

1 windmill has a capacity of **1.5 MWh** and generates an average **2,264 MWh** per year.

per windmill, approximately **420 households** can be supplied with stable energy.

The project contributes to the improvement of the infrastructure in the area.

Offsetting

Landfill Gas **in Malaysia**

SUSTAINABLE DEVELOPMENT GOALS

The Landfill Gas Malaysia project is a clean energy project that captures landfill gases as e.g. methane from degraded waste in the state of Selangor.

Urbanisation in Malaysia led to environmental problems, including a lot of waste that is produced every day. Everyday Kuala Lumpur City and the Selayang district produces on average 2,700 tonnes of waste, which is brought to a single landfill. There the waste is anaerobic degraded and converted into gases, which are emitted into the atmosphere. Due to a lack of regulations and waste management landfill gases are freely emitted into the atmosphere. The large concentration of landfill gases, mostly methane. This a very strong greenhouse gas which contribute to climate change, lead to bad air quality and can cause explosions.

The project offers a technical solution by installing an underground piping system that captures and transports the gasses into a tank. The gases are used for energy production which supply hundreds of thousands of people in the area. The landfill is one of the largest in Malaysia (700 ha). The generated renewable energy from the captured landfill gas reduces the dependence of petroleum products. As such, the project can be used as a role model of modern sanitary landfills in Malaysia that reduces CO_2 emissions by capturing gasses as well as by replacing petroleum products.

ASIA

Malaysia

Certified Emission Reductions (CER)

60,000 tonnes of CO_2 reduction is achieved by Heerema Marine Contractors.

14,191 MWh of electricity is generated, of which **3,096 MWh** is made possible by Heerema Marine Contractors.*

990,601 tonnes of waste is processed, of which Heerema Marine Contractors has contributed **216,085 tonnes**.

495,945 people were supplied with electricity. Heerema Marine Contractors contribution: **108,183 people** have access to clean and stable electricity.**

Local households profit from a better air quality and and stench in the area.

Limits the risk of an explosion due to the concentration of accumulated landfill gas.

** Last year based upon a similar project, because of lack of data. Now based upon real data of LFG Malasya.*
*** Based upon the average electricty use per household in Malaysia.*

CO_2 emissions are reduced in two ways:

- by preventing methane gas from entering the atmosphere by using it to generate electricity. Methane is a greenhouse gas that is 28 times stronger than CO_2.
- by offering renewable energy as an alternative for fossil fuels.

Collaboration

The project is developed under the Clean Development Mechanism of the UNFCCC and issued as Certified Emission Reductions (CERs). CERs guarantee that the effects, monitoring, and auditing of emission-reducing projects are done properly. In addition, Climate Neutral Group is a founding member of ICROA, which monitors our working methods annually and guarantees reliable offsetting.

Advantages

Climate and Environment

- Reduces the need for energy generated from fossil fuels, thus the emission of methane and other landfill emissions that contribute to environmental problems such as smog and acid rain.
- Methane is a strong greenhouse gas: 1 kilo of methane has the same effect as 28 kilos of CO_2.
- Provides households with clean energy.

Social and Economic

- Creates local employment and economic growth especially in the form of foreign investment for local technological support and contractors.
- Access to stable clean energy.
- Improves the waste management in the region.
- Improves air quality and stench in the area.
- Limits the risk of an explosion due to the concentration of accumulated landfill gas.

Offsetting

Landfill gas **in Turkey**

SUSTAINABLE DEVELOPMENT GOALS

In Turkey, urbanisation has led to uncontrolled waste dumping. The lack of proper waste processing is a major problem area. This climate project ensures that the greenhouse gases released during this process are converted into green electricity. It provides for the efficient use of all residual flows!

In the field of waste management, Turkey is striving to ensure that landfills comply with EU standards. The capacity for controlled dumping and recycling of waste is growing. This climate project ensures that the landfill is set up to burn non-recyclable waste through special installations and to generate energy from it. The energy is converted into electricity that is fed into the electricity grid. Converting the waste into energy saves on the use of fossil fuels, such as oil, gas and coal. The landfill is located in the Kocaeli province, on Izmit Bay on the Marmara Sea, about 100 km east of Istanbul. With a total area of approximately three million square meters, the landfill area is the largest in north-western Turkey. Household waste from the region is collected and burned at the landfill for gas, which is then converted into electricity. This gives the local population access to green energy. The project also ensures that the resulting hydrogen sulphide is destroyed. Hydrogen sulphide can be generated during the decay process of organic material. Removing this gas improves the air quality around the landfill and reduces the odour.

EUROPE - ASIA

Gold Standard
Climate Security & Sustainable Development

34,480 tonnes of CO_2 reduction is achieved via the contribution of Heerema Marine Contractors.

49,111 MWh of electricity is generated, of which **6,776 MWh** is made possible by Heerema Marine Contractors.

138,127 m³ of hydrogen sulphide is destroyed per year, of which Heerema Marine Contractors has contributed **19,057 m³**.

17,730 people were supplied with electricity. Contribution of Heerema Marine Contractors: **2,446 people** have access to clean and stable electricity.

17 people are on the payroll of the project. **36 people** participated in fire safety and health training courses.

The project contributes to the improvement of the infrastructure in the area.

CO_2 emissions are reduced in two ways:

- by preventing methane gas from entering the atmosphere by using it to generate electricity. Methane is a greenhouse gas that is 28 times stronger than CO_2.
- by replacing an equal amount of electricity that is generated by fossil fuel power plants

Collaboration

Climate Neutral Group contributes to this offset project by investing in it through the purchase of carbon credits. This reduces the volume of greenhouse gases emitted into the atmosphere. The initiative also provides access to renewable clean energy and carries a Gold Standard certification.

Advantages

Climate

- The project reduces the need for energy generated from fossil fuels, thus the emission of harmful substances that contribute to environmental problems such as smog and acid rain. This is key in fighting climate change and curbing greenhouse gas emissions.

Economics

- Annually, this initiative generates 35,000 MWh of electricity from landfill waste. It also creates many jobs for engineers, construction firms, sales experts and utilities.

Social

- The project isn't only focused on lowering the emission of methane and carbon dioxide in the atmosphere: it also improves the region's waste management practices and the air quality. As a result, local communities suffer less from smog and stench. The improved air quality boosts public wellbeing and makes residential areas near the landfill a better place to live.

Offsetting

Landfill Gas **in Mexico**

SUSTAINABLE DEVELOPMENT GOALS

The lack of proper waste processing is a major problem in Mexico and especially in this poor region. This climate project ensures that the greenhouse gases released by the landfill captured in a controlled manner are converted into green electricity.

The project's purpose is to reduce greenhouse gas (GHG) emissions by capturing and utilizing the methane (CH_4) in the landfill gas released by the Monterras landfill in north of Mexico. This results in the avoidance of future GHG emissions from the decomposition of municipal solid waste residues. The captured methane is combusted to generate electricity that is fed to the national power grid and used as an alternative source of cheap, indigenous, stable and renewable energy that will reduce dependence on grid power. Thus, in addition to directly eliminating a significant portion of the methane, which is a potent GHG with 28-34 times the global warming potential of CO_2, the project also displace fossil fuel-based electricity generation that would have emitted additional CO_2. For the local community their quality of lives improves: less stench and risks of spontaneous combustion of the gas leading to fires and smoke.

NORTH AMERICA

Certified Emission Reductions (CER)

50,000 tonnes of CO_2 reduction is achieved by Heerema Marine Contractors.

29,937 MWh of electricity is generated, of which **12,338 MWh** is made possible by Heerema Marine Contractors.

230,043 tonnes of waste is processed, of which Heerema Marine Contractors has contributed **94,805 tonnes**.

14,920 people were supplied with electricity. Heerema Marine Contractors contribution: **6,149 people** have access to clean and stable electricity.

Local households profit from a better air quality and and stench in the area.

Limits the risk of an explosion due to the concentration of accumulated landfill gas.

Quality and procedures

Quality is of paramount importance at Climate Neutral Group. Both the quality of the services that we provide to you and the products and services that we purchase from third parties must meet certain criteria. We have established set procedures to guarantee quality.

ICROA membership

Climate Neutral Group (CNG) is the only Dutch provider of carbon offsetting that is a member of ICROA, the International Carbon Reduction and Offset Alliance. This international coalition is committed to a transparent and high quality CO_2 offsetting market. Every year, ICROA tests whether we meet the membership requirements, which includes ensuring that we adhere to certain standards when we make carbon footprint calculations and advise organisations on how to reduce them, as well as ensuring that our offsetting projects are properly certified and that our carbon credit handling is in order. Climate Neutral Group is audited annually by an external auditor appointed by ICROA.

ICROA International Carbon Reduction & Offset Alliance

Extra additionality criterium

As a result of recent research, Climate Neutral Group has added an extra criterion of its own, one regarding additionality. In recent years, large-scale wind energy, solar panel, hydropower and biomass projects have become easier to finance with, and even without, additional financing (such as subsidies); therefore, the additionality of these types of projects can not always be guaranteed. Because this insight is not yet covered in the GS and VCS standards or in the ICROA 'Code of Best Practice', CNG has decided to add this as an additional requirement when selecting its project portfolio. That is why CNG's projects in wind, solar energy, hydropower and biomass only include those that are small scale.

CO_2 offsetting

With Climate Neutral Group, you get the guarantee that the CO_2 credits you have purchased actually cause a decrease in CO_2 in the atmosphere. Each credit represents a verified reduction of one tonne of CO_2 in the atmosphere. Verification is done by independent, internationally recognised agencies. They check whether the projects meet precisely defined standards.

Gold Standard
Climate Security & Sustainable Development

The Gold Standard is the strictest standard for CO_2 reduction projects. Developed by a group of NGOs led by the World Wildlife Fund, it has aim of supporting projects that not only meet the CDM standard but also make a measurable contribution to sustainable development. In other words, the CO_2 credits are reliable and the local population benefits from them.

Verified Carbon Standard

The VCS standard is the most widely used standard in CO_2 reduction projects for voluntary offsetting. This standard is supported by the World Economic Forum (WEF) and the World Business Council for Sustainable Development (WBCSD).

Certified B Corporation

B Corp

B Corps use entrepreneurship as a means to improve the world.
B Corps meet strict criteria on social responsibility and excel in terms of environmental impact, transparency and corporate governance. In 2016, our work was recognised by B Corps with a place on the Best for the World list in the Best for the Environment category.

Climate Neutral Group

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Do you also want to get further along the road from A to Zero CO_2?

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