

## **Frequently Asked Questions on Shell's "Net Carbon Footprint"<sup>1</sup>**

### ***What does the Net Carbon Footprint cover?***

This approach will cover the total emissions associated with the consumption of the energy products Shell sells, across their full lifecycle. Shell will express this as a Net Carbon Footprint in grams of CO<sub>2</sub> equivalent per megajoule consumed. This includes emissions directly from Shell operations, those caused by third parties who supply energy for that production and those from consumption of these products by end-users.

It includes the extraction, transportation and processing of raw materials, transport of products to, and use of products by, customers. Also included are emissions from elements of this life-cycle not owned by Shell, such as oil and gas processed by Shell not produced by Shell; or from oil products and electricity marketed by Shell that have not been processed or generated at a Shell facility. It does not include our emissions or the emission from our customers with regard to our Chemicals and Lubricants products.

Emissions compensated through various measures, such as by working with nature to create carbon sinks – such as forests and wetlands – or mitigated by using carbon capture and storage technology are also taken into account. The net carbon footprint of the company is divided by the amount of energy sold by Shell.

The result will be a figure, the net carbon footprint per unit of energy consumed, expressed as grams of CO<sub>2</sub> equivalent per megajoule. This includes methane and other greenhouse gases.

### ***How does the Net Carbon Footprint methodology work?***

The Net Carbon Footprint is not a simplistic mathematical derivation of total emissions divided by total energy. It is a complex aggregation of lifecycle CO<sub>2</sub> intensities of different energy products normalising them to the same point relative to their final end-use. This allows for like-to-like comparisons and aggregation of a range of energy products including renewables.

### ***Will you independently verify or validate your Net Carbon Footprint figures?***

This is a Shell-developed modelling system based on principles used in recognised lifecycle-analysis models deployed by regulators and policymakers. This is modelled using Shell methodology aggregating lifecycle emissions of energy products on a fossil-equivalence basis. The modelling system was developed in consultation with experts from leading technical institutes in this area.

Most of the factors in the calculation such as emissions and volumes sold are already verified and/or assured independently. Shell will be collaborating with leading technical experts to review and verify the methodology and will put in place an appropriate assurance programme.

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<sup>1</sup> Net Carbon Footprint measured on an aggregate "well to wheel" or "well to wire" basis, from production through to consumption, on grams of CO<sub>2</sub> equivalent per megajoule of energy products consumed; chemicals + lubricants products are excluded. Carbon Footprint of the energy system is modelled using Shell methodology aggregating lifecycle emissions of energy products on a fossil-equivalence basis. The methodology will be further reviewed and validated in collaboration with external experts. The "lifecycle" calculation tracks the energy molecules end-to-end but does not include emissions associated with construction or decommissioning of facilities.

### ***Which scenarios or energy system models do you compare yourself to?***

Shell will use credible scenarios to keep track of progress within the global energy system. The need for regular monitoring means this will require ongoing work. Our starting range for the societal trajectory has included modelling of our own assumptions and scenario analysis of what it takes to get to Net Zero Emissions by 2070, (which we have recently quantified), and the IEA World Energy Outlook Energy Technology Perspectives 2017.

### ***Are all of your activities included in this Net Carbon Footprint?***

The metric is set to cover energy that is consumed by end users of our products and it covers the majority of Shell's activities. The calculation includes greenhouse gas emissions – scopes 1,2 and 3 on an equity basis – from a number of sources. Firstly, upstream production volumes from projects including those we operate and those in which we have an equity stake. Secondly, the midstream processing of oil and gas – including crude oil and gas bought in from non-Shell sources. Thirdly, downstream sales of oil products – including those sourced from third parties but sold by Shell. Also included are equivalent supply chains for biofuels and renewable energy produced and/or marketed by Shell.

Non-energy products such as chemicals, lubricants and bitumen are not included. This is because they are not burned, and so they are not consumed as energy in the way that LNG, gasoline or diesel is.

Traded volumes of crude, oil products, electricity or other energies not meant for use or marketing to end-users by Shell are also not included. This is because transactional trading does not generate any emissions – we only count the volumes that are physically supplied to end-users.

The calculation also only tracks the journey of the molecule/electron and does not include emissions associated with construction or decommissioning of physical assets.

### ***Are you setting this as a target for your business?***

This is an ambition for Shell, not a target. This ambition will help drive/inform our investment choices and adapt our business over time. Unlike financial targets or outlooks, our ambition focuses on all the emissions from our energy products, including scope 3 emissions of our customers. We aim to be in step with society by 2050, and accordingly, the precision of an explicit target would need to predict society and government's future actions necessary to meet the goals of the Paris Agreement. To achieve this ambition, we intend to use the many tools we have at our disposal, with sound financial discipline and conviction.

Every five years, aligned to the Paris INDC process, we will undertake to review and report our progress to make sure we are in step with society because, as a business, Shell cannot do this alone and we can't run too far ahead of society

### ***How will you achieve this ambition, and what tangible actions will you take?***

Shell has a variety of potential tools to use to change our product mix and achieve this ambition over time and is already using many of them:

- Providing lower-carbon fuels to customers: like biofuels and hydrogen.

- Supplying gas for power
- Providing renewable power from solar and wind
- Pulling through demand by growing the number of charging points for battery electric vehicles.
- Developing gas markets for power and transport.
- Operational efficiencies
- Developing carbon capture and storage
- And working with nature, such as forests and wetlands, to help compensate for emissions still in the system.

A mix of these opportunities will be pursued, for example Shell plans to increase the capital investment in New Energies to \$1 to \$2 billion per year.

**How often will you be providing an update on your progress, and how will you assess this against societal progress?**

Shell will publish an update on its progress towards lowering its Net Carbon Footprint per unit of energy consumed annually.

Shell's ambition is benchmarked against 2C pathways and has been set to be in line with what is necessary to deliver Paris. In that sense, it is more ambitious than current NDCs, which are not yet sufficient to meet Paris ambition.

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***Does this mean you will reduce absolute emissions?***

Progress is unlikely to be smooth and the decline in our Net Carbon Footprint per unit of energy consumed is unlikely to follow a straight line. That is as true for the world as it is for Shell.

While we have set this ambition to reduce our net carbon footprint, we may have a period in which Shell's absolute emissions increase. Providing more natural gas for power generation would, for example, raise the amount of carbon dioxide linked to Shell's activity and increase its footprint. If this gas-fired power generation replaces coal, however, it would have the effect of actually lowering the world's carbon footprint because gas produces half the CO<sub>2</sub> of coal when used to generate power. Natural gas for power also has a role in enabling the addition of more renewables to the energy system by providing back up for times when the sun does not shine or there is no wind.