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**RE: DG Energy Preparation for a new Renewable Energy Directive for the period after 2020**

Dear Sir/Madam,

Shell welcomes the opportunity to respond to this consultation from DG Energy. We have set out our views regarding the key questions in this document for your consideration.

**Background**

Shell is one of the most innovative international oil and gas companies (IOC) and one of the most significant IOCs in terms of market capitalisation, operating cash flow and oil and gas production. Today, Shell is still primarily an oil and gas company, but we have a long tradition of innovation. We know that long-term success depends on our ability to anticipate the types of energy and fuels people will need in the future and remain commercially competitive and environmentally relevant.

Our natural gas businesses give governments the option to reduce emissions from electricity, by replacing coal, and we have a 50% interest in a wind business in the North Sea and around 1,000 megawatts of capacity globally. We have also invested heavily in low-carbon biofuels, through our Raízen joint venture with Cosan in Brazil, and we continue to explore second-generation biofuels options. More recently we have piloted a number of projects to bring liquefied natural gas (LNG) to shipping and trucking customers and, in 2015, opened the initial refuelling station that is part of a joint venture to develop the first nationwide hydrogen-fuelled electric vehicle network in Germany.

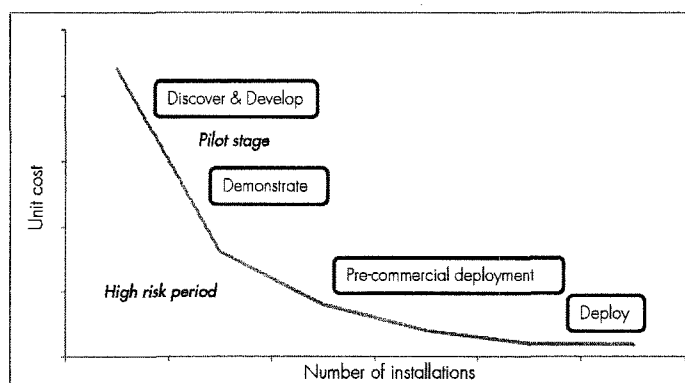
We are continuing efforts to improve the energy efficiency of our operations as well as ending routine flaring by 2030. Europe is a key region for Shell where we continue to explore for, produce and refine oil and gas into the building blocks of many everyday consumer products. As energy is a major cost component in all phases of Shell businesses, energy efficiency is a core function within Shell to maintain competitiveness.

**Summary of Shell's Position**

The EU's renewable energy approach post-2020 must be consistent with Europe's binding Greenhouse Gas (GHG) emissions reduction target for 2030, whereby renewable energies play an essential role in decarbonising the economy. The GHG target for 2030 should be delivered by co-ordinated policy instruments throughout the economy, which represents the most cost-effective way to deliver a competitive low emissions economy for Europe. The policy framework for 2030 should minimise overlapping policy instruments, which have the potential to impose greater costs on society for the same level of reductions in GHG emissions.

A strengthened EU Emissions Trading System (ETS) will deliver an effective and timely investment signal to drive a combination of fuel switching, energy efficiency and deployment of low carbon technologies, such as renewable electricity and carbon capture and storage. In parallel, measures to support the competitive position of industries at significant risk of carbon leakage should be maintained until there are similar schemes globally.

For road transport, Shell supports a coordinated approach which ensures that the current measures are delivering their intended action. For example, vehicle efficiency standards, labelling of cars, taxation of road fuels, incentives to favour low carbon fuels and fuel efficient cars and measures to improve infrastructure all exist in Europe. We call for a more co-ordinated approach for road transport after 2020; incorporating clear, transparent and linking policies in the areas of fuel, vehicles, infrastructure and customer choice.



**Figure 1: Experience curve showing the different stages along the innovation chain**

Furthermore, there is a requirement for transitional technology support policies for the pre-commercial phases of development (see Figure 1) for emerging new carbon technologies. These measures should be designed so that they complement and support the main policy instrument delivering emissions reductions in each sector. This will in turn ensure the deployment of the most cost-effective low-emissions technologies in each sector, minimising costs to the consumer.

## Section 1: General Approach

*1) To what extent has the RED been successful in helping to achieve the EU Energy and Climate Change Objectives.*

For road transport, the Renewables Energy Directive (RED) stimulated the start of the first generation (1G) biofuel industry in Europe. However, the delay in agreeing the Indirect Land Use Change (ILUC) rules stopped further investment in 1G biofuels and development of advanced biofuels. In addition, the RED established robust sustainability criteria for the use of biofuels in transport and it is now essential to extend these sustainability criteria for the use of biomass in the power sector.

For power, the RED stimulated the development of renewable electricity. However, the implementation of binding national renewable energy targets forced immature and expensive technologies into the power market. This in turn undermined the EU Emissions Trading System, contributing to depress the carbon price and delaying the implementation of cost-effective carbon abatement. Inconsistencies between the headline targets for 2020 (GHG, renewable, energy efficiency) mean that the real cost of carbon in the economy is hidden and high. Shell believes that there are substantial benefits from re-focusing the existing targets to ensure technologies are supported at the right phase of their development, i.e. innovation and commercial-scale demonstration.

*2) How should stability, transparency and predictability be ensured with a view to achieving the at least 27% renewable energy target at EU Level?*

The current RED establishes an overall framework for the production and promotion of energy from renewable sources in the EU. The Directive specifies national renewable energy targets for each country because Member States retain ultimate responsibility for their own energy mix and security of supply. However, the existence of additional binding renewable energy targets has increased the costs of meeting the EU decarbonisation goals for both industry and European consumers as these targets and underlying measures have overlapped with existing policies.

The renewable energy target for 2030 can best be delivered through the 2030 GHG emissions reduction target supported by a robust carbon market, as stated in the EU Commission's Impact Assessment for 2030. This will ensure the objectives of the Energy Union – decarbonisation, cost effectiveness and security of supply, are met.

*3) Please rate the importance of the following elements being included in Member States' national energy and climate plans with respect to renewable energy in ensuring that the plans contribute to reaching the objectives of at least 27% in 2030.*

Member State national energy and climate plans will be an important part of the Energy Union to meet the EU renewable energy target. All the elements listed in the questionnaire are important to inform the market participants as well as the costs of achieving the overall decarbonisation objectives.

*4) What should be the geographical scope of support schemes, if and when needed, in order to drive the achievement of the 2030 target in a cost-effective way?*

Shell believes that it is important to ensure cost-effective delivery of low carbon technologies including renewables and welcomes the role of national support schemes fully or partially open to renewable energy producers in other Member States to support the pre-commercial phase of technology development. The design of national support schemes by Member States should occur in parallel to a degree of regional and/or EU level coordination to ensure a competitive internal energy market. Member States should develop the most economic and appropriate solutions that take account of country-specific issues, such as customer needs and consistency with other government policies on economic, employment, planning matters and compliance with state aid rules. Distortive effects on the wholesale market should be avoided and once technologies can compete then support schemes should be removed.

*5) If EU-level harmonised /regional support schemes or other types of financial support to renewable energy projects would be introduced: What hinders the introduction at the EU wide and/or regional scale? How could such mechanism be activated and implemented? What would be their scope (what type of projects/technologies/support mechanisms could be covered? Who would finance them? How could the costs of such measures be shared in a fair and equitable way?*

The creation of the Innovation Fund of 450 million allowances under the EU ETS is essential to support low carbon technologies and renewables during the pre-commercial phase and ensure these technologies can reduce costs and eventually be commercially deployed. Therefore, national schemes should be designed to support the goals and implementation of the Innovation Fund to ensure the demonstration of emerging low carbon technologies in the 2020s.

*6) The current Renewable Energy Directive gives Member States the possibility to enter into various cooperation mechanisms (statistical transfers, joint projects and/or joint support schemes). Please expand on the possible new legislative and non-legislative measures that could be introduced to foster the development of cooperation mechanisms in the period beyond 2020.*

We believe that EU wide principles should be formed to foster the development of cooperation mechanisms.

*9) Please assess what kind of complementary EU measures would be most important to ensure that the EU and its Member States collectively achieve the binding at least 27% EU renewable energy target by 2030:*

There is a vital role for the EU for the 2020s in order to achieve the EU-wide level renewable energy target, the EU should:

- Strengthen the EU ETS to enable it to deliver an effective and timely investment signal to drive a combination of fuel switching, energy efficiency and deployment of low carbon technologies, such as renewable electricity and carbon capture and storage. The combined effect of the proposed reform of the ETS and the recently adopted Market Stability Reserve will only restore the supply and demand balance in the market by the mid-2020s, given the extent of the current surplus of allowances. Additional action is therefore needed to accelerate the emergence of a meaningful carbon price in order to deliver low carbon investments and trigger faster decarbonisation in the power sector where the abatement potential is greater. In parallel, measures to support the competitive position of industries at significant risk of carbon leakage should be maintained until there are similar schemes globally.
- Ensure effective coordination of policy measures and remove barriers, e.g. through electricity market reform. Energy policy should be streamlined to avoid overlapping policy instruments which undermine investment certainty and add costs for no environmental benefit. This would enable Europe to deliver the binding GHG emissions reduction target in an affordable manner and ensure security of supply.
- Enable EU-level research and innovation activities, the Innovation Fund under the EU ETS providing transitional funding for the demonstration of pre-commercial low carbon technologies is essential.
- Provide state aid rules allowing Member States to support low carbon energy during the pre-commercial stage, and preserve the competitiveness of European energy intensive industries during the transition to a low carbon economy.

*10) The Energy Union Framework Strategy sets the ambition of making the European Union the global number one in renewables. What legislative and non-legislative measures could be introduced to make/strengthen the EU as the number one in renewables? Has the RED been effective and efficient in improving renewable energy industrial development and EU competitiveness in this sector?*

Shell supports the concept of creating an Energy Union which would deliver a genuine single internal market for energy and provide coherent and consistent implementation of energy policy. The Energy Union should create a framework approach, delivering better alignment and cooperation between Member States through the creation of an appropriate Governance system for implementing the 2030 framework and realising a true internal market.

The aim should be to simplify and bring greater coherence to EU energy policy, avoiding overlapping or redundant measures. In order to achieve the GHG emissions reduction target, a strengthened EU ETS is essential. This should be delivered through a change to the Linear Reduction Factor and increased ambition for power sector decarbonisation to enable lower carbon technologies, including renewables, to compete on the basis of a robust carbon price (and without subsidies), and at the same time safeguards for industry at risk of carbon leakage. The Innovation and Bridging Fund provide essential funds to low carbon technologies. These measures can enable the EU to be global number one in renewable energy.

Technology mandates, such as the RED, may lead to an emphasis on the rapid deployment of technologies, which may not be scalable and price competitive and not deliver EU's binding decarbonisation target in a cost effective manner. This can have a negative impact on the EU competitive position or require state aid to insulate exposed industries from increased energy costs.

### **Section 3: Decarbonising the heating and cooling sector**

*16) Please rate the importance of the following barriers in hampering the deployment of renewable heating and cooling in the EU?*

The objective for the heating sector should be in line with GHG emission reduction target for 2030. All of the barriers listed in the consultation may be relevant depending on local circumstances. The key barrier

is cost. When more cost-competitive heating and cooling options are available then other barriers are more easily overcome.

Deployment of renewable heating and cooling solutions is required, but only forms part of the solution. Shell believes that a wide range of technologies will be required across each stage of heat delivery for example, energy source, transportation, storage, conversion, control, and demand reduction through improved insulation.

Cost effectiveness and affordability for customers must play an important role in defining which decarbonisation options are supported and in what sequence. Singular focus on building refurbishment and shares of renewable heating and cooling risks exclusion of other options that are available and cost effective in the short term, such as high efficiency gas-based and hybrid heating options. Such an approach ensures that the decarbonisation potential of current solutions and existing infrastructures is maximised while new technologies are matured, costs reduced, and rolled out towards achievement of long term decarbonisation targets.

*17) Please rate the most effective means of addressing these barriers and advancing the decarbonisation of EU heating and cooling supply*

Shell believes that an assessment of measures to enable decarbonisation of the EU heating and cooling supply should consider their effectiveness to reduce GHG emissions, consumer affordability, as well as broader energy system cost and implications. The role of the EU should be to strengthen the EU ETS, provide information, coordinate, support research and development, and provide effective state aid support to enable a low carbon economy (see answer to Q10).

Member States should retain flexibility to determine the range of solutions required. Focus should lie on supply and demand side measures which are cost effective, maintain consumer affordability and choice, and which are consistent with a long term, cost effective decarbonisation pathway and a true internal energy market.

The EU should not prescribe particular technology choices, mandates on minimum renewable levels, or requirements on when refurbishment investments should take place, as these may not present the most cost effective solution in local circumstances. Rather, the EU should provide clear long term objectives, allowing flexibility at Member State level as to the measures through which this is achieved.

#### **Section 4: Adapting the market design and removing barriers**

*18) In your view, which specific evolutions of the market rules would facilitate the integration of renewables into the market and allow for the creation of a level playing field across generation technologies?*

Renewable energy generators must be required to progressively enter into the market on a level playing field with all other generators. In addition, fully harmonised trading periods throughout Europe would provide more opportunities to balance supply and demand, and transparency in the allocation of cross border capacity is welcomed. EU high voltage grids operate following common EU rules, however, distribution networks with embedded renewable energy capacity can sometimes be less transparent and this could be a focus area.

Investment in renewables should be increasingly driven by market signals, such as the carbon price from the EU ETS. It is important that the design of any support scheme is minimised in duration so that generators are not-over rewarded to enable the EU ETS to deliver emission reductions in the most cost effective manner.

Gas-fired power stations, and their related infrastructure, will be one of the most important contributors to the integration of variable renewable energy by providing flexible generation to ensure security of supply. Shell recognises a significant reserve of such thermal generation capacity will need to be maintained to enable the expected growth in renewable electricity and to complement its intermittency. This is a cost effective way to operate an electricity systems which delivers the EU's decarbonisation targets.

*19) Currently, some exceptions from the standard balancing responsibilities of generators exist for energy from renewable sources. In view of increasingly mature renewable generation technologies and a growing role of short-term markets, is time ready to in principle make all generation technologies subject to full balancing responsibilities?*

Yes, all mature generation technologies should have full balancing responsibilities.

*21) Which obstacles, if any, would you see for the dispatching of energy from all generation sources including renewables on the basis of merit order principles? Should there be any exemptions in some specific cases?*

Shell believes that dispatching of energy from all generation sources should be on the basis of merit order principles.

*22) Please assess the importance of stronger EU rules in the following areas to remove administrative barriers to renewable energy deployment:*

We welcome EU rules to remove administrative barriers to renewable energy deployment and note that the Netherlands has implemented a one-stop-shop for renewable energy producers, which has led to a significant decrease in the lead time of projects.

*24) How would you rate the administrative burden and cost of compliance with the RED for national, regional and local authorities?*

The cost of compliance from RED has led to expensive and immature technologies being deployed and has increased energy costs for consumers throughout Europe.

The EU Emissions Trading System (ETS) should be the primary driver for emission reductions at lowest cost to the economy. This system can provide the necessary price signal for the development of low-emissions technology. This would send a long term price signal which in turn would lower the current risk associated with investments. A strengthened EU ETS, will allow the EU to achieve its renewable energy ambitions and emission reduction targets that it has, but importantly still relying on the energy markets as the driver for change.

*26) How can public acceptance towards renewable energy projects and related grid development be improved?*

Public acceptance is key to the development of the grid in support of increasing renewable electricity capacity. Consultation is essential to successful project development and to ensure the issues raised can be understood and mitigated.

## **Section 5: Increase renewable energy use in the transport sector**

*28) To what extent has the RED been successful in addressing the following EU transport policy objectives?*

Shell supports the objectives of the RED for transport which are to support delivery of renewable fuels by harmonising and specifying biofuel sustainability criteria.

RED was successful in stimulating the start of the 1G biofuel industry in Europe. However, the uncertainty caused by the delay in agreeing the ILUC rules stopped further investment in 1G biofuels and development of advanced biofuels.

At this moment in time, the RED hasn't provided the necessary framework to stimulate development and growth of innovative technologies in transport and therefore hasn't reduced the production costs of renewable fuels by lowering the level of investment risk (see answer to Question 30).

*29) Please name the most important barriers hampering the development of sustainable renewable fuels and renewable electricity use in transport?*

The barriers to adoption are different for the various alternative sustainable renewable fuels and so several complementary policy approaches are needed to drive successful adoption of the different alternative fuel technologies. The key to de-risking investments in new renewable fuels is policy certainty

and a fiscal support (capital and price support) or an explicit price signal. Mandates alone will not drive investment.

Clear requirements and sufficient lead time to invest in the development and deployment in new technologies is needed. The delay and uncertainty about the regulation of ILUC, as well as the implementation of Fuels Quality Directive Article 7a (FQD7a) meant that investors were unclear which biofuel production pathways would be allowed within RED and also how RED and FQD7a targets were to be administered and so investments were stalled.

*30) Please rate the most effective means of promoting the consumption of sustainable renewable fuels in the EU transport sector and increasing the uptake of electric vehicles:*

Shell believes that there needs to be a stable, coherent and overarching 2030 road transport policy at the core of the EU's sustainable transport strategy; one which will keep energy costs at competitive levels compared with other regions as well as stimulates long-term investment in alternative fuels. This policy framework should be designed around the binding 2030 GHG emissions reduction target. Deployment of alternative drivetrains and fuels requires action by all parties: vehicle manufacturers, fuel producers, fuel retailers, and consumers. Policies need to take an integrated approach that aligns the incentives and actions by all parties.

With limited abatement choices available, particularly for heavy duty road transport, aviation and shipping, advanced biofuels will play a key role in decarbonising transport. The current European policy framework has not sufficiently stimulated the investment needed in this area and should be addressed. We believe that targeted financial support for deployment of innovative low-carbon technologies is essential. Once low carbon technologies are commercially viable then financial support should be phased out.

Shell supports the Innovation Fund both in terms of the timing and the size of the fund, and including low carbon or sustainable fuels such as advanced biofuel manufacturing as eligible projects.

For advanced biofuels (including cellulosic ethanol and drop-ins), which can be used in existing vehicles and refuelling infrastructure, policies should focus on incentives to develop manufacturing capabilities for biofuels from cellulosic feedstocks. The following policies are needed to spur investments in cellulosic biofuel manufacturing. Financial support to de-risk investment in new cellulosic biofuel manufacturing technology, such as (i) capital support for first plants; and/or, (ii) stable price signal (e.g. Member State (MS) excise tax exemption) guaranteed for first 10 years of manufacturing plant operation.

Furthermore, vehicle efficiency standards should account for GHG benefits from biofuels, ensuring a technology neutral approach including biofuels and electricity. It is essential to ensure that the definitions of electric vehicles include hydrogen fuel cell electric vehicles, to allow hydrogen fuel cell electric vehicles to be eligible for the same incentive programs as battery electric vehicles.

For alternative fuels such as electricity, hydrogen and gas, new vehicles and refuelling infrastructure are required and policies should focus on incentives to increase alternative-fuelled vehicles and refuelling infrastructure, as well as consumer incentives to purchase alternative-fuelled vehicles.

Shell supports the flexibility provided to Member States (MSs) in the Alternative Fuels Infrastructure Directive, and looks forward to working with MS as they develop their National Policy Frameworks (NPFs) as required by the Directive. These NPFs will be the MS strategy to roll out all alternative fuels listed in Article 2 of the Directive, which includes electricity, hydrogen, biofuels and gas.

We hope this contribution provides the European Commission with helpful input for the preparation of the Renewable Energy Directive for the period post 2020. If you require any further information, please do not hesitate to contact me on + [REDACTED] or by email: [REDACTED]

Yours sincerely,

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