Ladies and gentlemen,

please find below my comments and views regarding the Green Paper 2030. Let me start with a few rather generic comments:

- As a citizen and consumer I am one of the "Quasi-mandated" funding sources of the cost of CO2 abatement, as all investments, tax-reductions and others are funded by tax-payers. This is a fundamental principle which is very useful and not put into question. CO2 abatement as a contribution towards managing the Greenhouse effect is vital and requires funding, as most mitigation options are more expensive than incumbent technologies.
- Having followed EU legislation on energy and climate rather closely in the past years, I am concerned about the in my mind inadequate position that the cost-efficiency aspect is taking in preparing and deciding energy policy regulations. My plea towards the 2030 framework for climate and energy policy would be two-fold:
- Re-consider and hopefully strengthen the role of CO2 mitigation cost efficiency as a major driver for future steps and target setting
- Stick to the technology neutrality concept and goal orientated legislation thus avoiding technology mandates.

Please find below my input regarding parts 4.1. and 4.2. of the consultation questionnaire.

Kind Regards

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4.1. Which lessons from the 2020 framework and the present state of the EU energy system are most important when designing policies for 2030?

1. Recent energy/CO2 related regulations and communications have been worked out in the context of the EU´s 80 - 95 % GHG reduction target compared to 1990 levels. Starting from this long-term goal much of the subsequent work and analysis appears to have been

performed in a back-casting manner, calculating back from the 2050 target to the present and to future interim periods. Back-casting carries the risk of focusing too much on the final goal rather than ensuring realistic and cost-efficient implementation of measures and technologies. It would have been preferential to model aspirational but yet viable implementation pathways of both measures and technologies in a forecasting mode in order to understand the level of long-term (2050) CO2 targets as well as resulting needs for promotion of research and innovation. Pending the success of innovations, later reviews could have incorporated their effects on revised targets and accompanying measures.

2. At times, EU regulations turned out to be incoherent and partly controversial. An example would be the duo of Fuels Quality Directive (FQD) and the Renewables Directive (RED). While the RED basically is a technology mandate of biofuels (as the also possible options of renewable power and others are most likely going to play a very minor role up to 2020) asking for a percentage usage in fuels, the FQD pursues a relative CO2 reduction target for fuels. Technology neutrality should be at the forefront of the regulators´ attention.

3. Some details of missing implementation aspects of the FQD and RED Directives have been left to the Comitology process, which in the case of the FQD did not lead to resolution yet although the Commission draft has been published as early as January 2007. This unusually long time period of further fact finding and analysis suggests that the published drafts in the first place might have been lacking the appropriate level of maturity. Potentially insufficient formal stakeholder consultations took place regarding new aspects added to the older versions of the Directives, for example the 6 % GHG emission reduction for road and off-road transport fuels as laid down in Article 7a of the FQD.

4. The set of existing regulations may lead to the establishment of different CO2 prices for different sectors or markets. It very much depends on the outcome of the ongoing Comitology process which is trying to establish a GHG calculation methodology for fossil fuels. With strong opposition from the oil industry and others, several stakeholders nevertheless are pushing for a system that attributes several CO2 numbers to different crude oils which would lead to a separate CO2 price compared to that one of the ETS. Should this view prevail, an unprecedented level of inconsistency will be applied to one of the energy subsectors (i.e. the oil and refining sector): When crude oil is produced in Europe and when it is being processed in EU refineries one CO2 price applies (ETS), when it is sold to customers another, much higher one would result (FQD). Inconsistency par excellence.

   On the other hand, the linking of the ETS with the transportation sector (through the FQD) could create a common CO2 price potentially leading to more demand for ETS certificates. Furthermore it could allow a more cost-efficient CO2 reduction in the transportation sector.

5. In several communications of EU regulators there is a tendency to soften the concept of technology neutrality coupled with goal orientated legislation in favour of technology mandates, for example infrastructure real or "quasi" mandates for electric vehicles, CNG, hydrogen and others. As mentioned above, also the RED has the characteristics of a technology mandate as well. Technology mandates carry an inherent risk, if not a guarantee, of over-investments in too cost-intensive technologies leading to rather lower CO2 reductions achievements compared to a situation, where in the case of goal-orientated

legislation the market will pick the most cost-efficient options. Each Euro can only be spent once !

4.2. Targets: Which targets for 2030 would be most effective in driving the objectives of climate and energy policy? At what level should they apply (EU, Member States, or sectoral), and to what extent should they be legally binding?

- **Future climate and energy policy targets (2030 and beyond) should be primarily based on sectoral relative targets related to CO2 intensity based on a common CO2 price across sectors, complemented by mandatory energy efficiency targets**

The ETS, albeit carrying the merits of flexibility and technology neutrality , has so far suffered from rather low CO2 certificate prices that take away the incentive for ETS operators to significantly invest in CO2 abatement technologies. There may be numerous reasons for this, but besides that there is an inbuilt ETS downside: the fact that it is based on a cap of CO2 emissions rather than a CO2 intensity target. As the past experience has shown, the emission trading regulation with a "capped" target is not in a position to appropriately react towards economic (and other) downturns thus potentially undermining a regulation that has the potential to set new standards in CO2 management far beyond its current scope and reach .

A good example of relative CO2 intensity related regulation is the Fuels Quality Directive. Although the still ongoing lengthy discussions on operational details of its CO2 reduction (sometimes dominated by rather dogmatic positions of stakeholders), the FQD basically carries the advantage of full flexibility of options to meet the target. However it should be noted that the outcome of the Comitology process regarding the GHG calculation methodology for fossil fuels could remove most of the CO2 intensity approach benefits in the FQD.
Solely relying on relative targets related to energy/CO2 intensity would lose the benefits of energy efficiency regulations, such as the regulations on CO2 emissions from passenger cars and light duty vehicles or the Energy Efficiency Directive and others. Therefore, it seems recommendable to stick to those regulations and even consider its extension where feasible.

Compliance mechanisms for CO2 intensity targets need to be as flexible as possible and compliance should also allow for certificate trading and buy-out options. In the past several stakeholders including the European Commission have voiced reservations regarding international trading options. However by now international management and control processes for certificate trading and other flexible compliance options have been created (for example the sustainability management for biofuels in the RED Directive) and are common day-to-day operational features in many places.

In that context it is worthwhile repeating that a common CO2 price across sectors and markets within the EU is a pre-requisite for a cost efficient compliance with future CO2 targets. Following a cost curve of CO2 abatement cost, the lowest cost compliance options

can be picked both in case of sectoral EU-wide targets or subsequent national targets within a given sector.
Coming back to the ETS, in the light of the above it might be worthwhile in the medium to long term to investigate a modified ETS system, where the goals for the ETS community are based on relative (i.e. CO2 intensity) targets, for example CO2 emissions per MJ of process energy used.
In summary, the basis for a cost efficient CO2 reduction is firstly a set of EU sectoral CO2 intensity targets using common CO2 prices across sectors , and secondly energy efficiency targets where applicable. The sectoral targets should reflect the availability of CO2 abatement options in the different sectors. An anticipated further advantage of this approach is that sectors or industries can act on a level playing field within the EU avoiding a fragmentation of national regulations or target settings.

4.2. Targets: Have there been inconsistences in the current 2020 targets and if so how can the coherence of potential 2030 targets be better ensured?

- A good example of inconsistencies within existing regulation can be found in the Fuels Quality Directive (FQD) and the Renewables Directive (RED). The volumetric renewable fuel target of the RED and the CO2 intensity target in Article 7a are not necessarily coherent especially when going into implementation details (Double counting of certain fuels towards the target, definition of transport fuels etc.).

- Different pieces of regulation have defined directly or indirectly different CO2 prices. Within a given category (for example transportation fuels) the directly or indirectly chosen CO2 price fundamentally influences compliance cost. For a cost-efficient achievement of ambitious EU CO2 goals only a common CO2 price across sectors can deliver the highest possible impact. As budgetary constraints are steadily increasing, the cost-efficiency requirements of measures based on a common CO2 price remain vital.

4.2 Targets: Are targets for sub-sectors such as transport, agriculture, industry appropriate and, if so, which ones? For example, is a renewables target necessary for transport, given the targets for CO2 reductions for passenger cars and light commercial vehicles?

- The targets of the 2030 framework for climate and energy policies should be based on an EU sectoral approach using CO2 intensity goals for all main sectors including but not limited to transport, agriculture, industry. The combination of EU relative CO2 intensity targets and mandatory energy efficiency targets for technology providers (i.e. products needing the energy and producing CO2 when burning/reacting/using the fuels) is needed to achieve the utmost CO2 savings within the constraints of available budgets. The fundamental reason for this two-fold approach is that relevant regulations for producers of equipment/technologies (be it vehicles, planes,ships, refrigerators and so on) are not using the well-to-wheel scope but fragments of it. The remaining parts of the well-to-wheel (or lifecycle) chain therefore needs separate regulation. Thus producers of fuel requiring equipment require two-fold regulations: a) the energy/CO2 intensity of the production process and b) the efficiency of

the usage of the equipment/technologies. The fuels´ part of the well-to-wheel chain is a third pillar of regulation as for example regulated under the ETS and FQD, thus closing the W-T-W loop.

Both ETS and FQD are basically designed to be technology neutral and offer several compliance options to meet CO2 reduction targets, including the usage of renewable energy/fuels. As a CO2 intensity target exists for the road (and off-road) sectors, a second target for renewable fuel for transport is not needed, while energy efficiency targets for vehicle (plus ship, air plane etc.) manufacturers continue to ensure availability of fuel efficient technology as described above.

- The residential sector may contribute to CO2 savings as well. An EU-wide "sectoral" target is difficult to define reflecting the varying climate conditions throughout European countries. Therefore national energy efficiency targets (for example MJ per m2) would be more appropriate.

4.2. How can targets reflect better the economic viability and the changing degree of maturity of technologies in the 2030 framework?

It is in the best interest of all stakeholders to deliver CO2 targets in a cost efficient manner. Especially the budgetary constraints that EU countries are in and the expected time required to solve the funding issues (i.e. debt repayments and alike) suggest that for a rather long period money needs to be carefully spent by maximising the CO2 reduction at lowest possible cost. Cost-efficient achievement of future CO2 ambitions requires a common CO2 prices across sectors and plus the knowledge of the cost data of all CO2 mitigation options at hand in order to make choices on an informed basis.

In the light of the above it would be detrimental to set technology mandates for example for vehicle technologies (for example electric vehicles for road transport) or the required refueling infrastructure. It would even be worse to pursue multiple parallel technology mandates, for example for electric vehicle plus hydrogen vehicles plus CNG vehicles and all the relevant fuel supply infrastructures. Investments need to take place where cost-efficiency is optimum allowing lowest possible CO2 abatement cost and ensuring lowest possible prices for consumer and other energy users.

Technologies that are in the early stages of development or market introduction should continue to be supported by EU funding on research, development and demonstration activities. The role split between regulators (R&D&D) and involved industries (market roll-out) has proven to be successful in many industries ensuring optimum cost efficiency and are expected to continue to do so in future.

4.2 How should progress be assessed for other aspects of EU energy policy, such as security of supply, which may not be captured by the headline targets?

- In the bigger context of EU energy policy elements the security of energy supply should continue to play a vital role. In order to maximise flexibility of energy supply no technology bans should be pursued. Unconventional production pathways of oil and gas reserves should not be excluded as they may help meet EU policy targets. The CO2 angle would be taken care of through the EU relative CO2 intensity targets and potentially higher WTW CO2 emission would have to be compensated by other less CO2 intensive compliance options.