FORTUM'S RESPONSE JANUARY 27TH, 2016

CONSULTATION QUESTIONNAIRE (WEB-BASED)

Preparation of a new renewable energy directive for the period after 2020

1. General approach

Questions:

1. *To what extent has the RED been successful in helping to achieve the EU energy and climate change objectives?*

Very successful	*Successful*	*Not very successful*	*Not successful*	*No opinion*
		X		

[Box: Comments. To what extent did implementation measures for the RED as well as external factors (technological development, financial crisis, security of supply concerns and related market interventions) affect the effectiveness and efficiency of achieving the objectives? Please identify and ideally also quantify the direct and indirect costs and benefits such as macroeconomic effects, competitiveness effects, innovation, cost and cost reductions, environmental and health effects of the RED. Max 500 words]

Increasing the amount of RES has been instrumental in allowing the environmental objective to be successfully met, as the greenhouse gas emissions have been reduced in line with the 2020 target. Actually, the EU seems to overachieve the CO2 target (24% vs. 20%). However, this result has been affected by several factors. Economic downturn, technology development, renewable energy support and improved energy efficiency have been the main contributors to the achievement of the target, in addition to specific climate change policies, i.e. the ETS and national measures.

According to the European Commission's 2015 progress report, with a projected share of 15.3% of renewable energy in 2014 in the gross overall energy consumption, the EU and the vast majority of Member States are making good progress. With less than 6 years still to go to the end of 2020, 25 Member States are so far well on track to achieving their binding national RES targets, and five Member States have already achieved or are about to achieve their RES targets well ahead of time.

It is, however, mainly the power sector that has contributed to the result. The share of renewables in power generation was 26% in 2014. Progress in other important sectors, like heating & cooling and transport, is lagging behind. In heating and cooling, the RES share was 17%; 22 Member States were on track and only 6 did not meet their planned RES deployment level. In transport, progress in the past five years has been slow despite good progress in some Member States. With a projected share of 5.7% renewable energy in transport in 2014, achieving the 10% target in 2020 is challenging but remains feasible.

Cost-effectiveness of the policy measures, however, has not been optimal. Due to overlapping targets and measures, the impairment to market functioning (through oversupply and depressed wholesale prices) has been significant and the overall system cost of emissions reduction has been higher than expected, increasing the cost of customer/tax payer costs and raising the cost of affordability and investability. Therefore, regular consistency checks of EU and national policies alike should be an integral part of the future policy framework.

Energy and climate policies have also had mixed and contrasted impacts on security of supply. While the share of domestic sources in the energy mix has increased (thereby reducing energy dependency),

the intermittent nature of wind and solar has led to increased pressure on security of supply both in the short and long term.

The effect of the RED has also had a serious effect on the functioning of the electricity market, underlined by low demand. Market integration of RES has not been addressed at all in the RED.

2. *How should stability, transparency and predictability for investors be ensured with a view to achieving the at least 27% renewable energy target at EU level? Please indicate the importance of the following elements:*

	Very important	*Important*	*Not very important*	*Not important*	*No opinion*
Forward looking strategic planning of RES development is required by EU legislation		*X*			
Best practice is derived from the implementation of the existing Renewable Energy Directive			*X*		
Regional consultations on renewable energy policy and measures are required		*X*			
Member States consult on and adopt renewable energy strategies that serve as the agreed reference for national renewable energy policies and projects				*X*	
The Commission provides guidance on national renewable energy strategies				*X*	

[Box: Any other view or ideas? Please specify. What are the lessons from the RED (mandatory national targets, national plans, progress reports etc.)? Max 500 words]

The present policy, based on national RES targets and national RES support schemes, has caused inefficiencies and market distortions as well as uncertainty, because schemes vary considerably between the Member States and governments have changed the systems and support levels, even retroactively. When variable renewables were still nascent technologies and their market penetration was limited, financial support played an elementary role in the successful achievement of the targets of the RES Directive.

As we enter a new era marked by lower costs of RES and a new policy framework (an EU-level target for RES, instead of national ones), stability, transparency and predictability for investors would be best ensured by allowing a market-based and technology-neutral penetration of RES. In the context of technologies that have become competitive across most of Europe, a level playing field of technologies – be they centralised or decentralised – needs to be at the core of this system.

The purpose of the new RES Directive should be to lay the foundation for market-driven investment in RES in which a strengthened carbon price and revised ETS will provide incentives in a technology-neutral manner throughout the EU. Market-driven RES could reduce the current problems related to electricity oversupply and low wholesale prices as well as various market distortions experienced so far.

There should also be a clear division between the RES actions affecting the ETS and non-ETS sectors. The ETS is the main EU-level tool to meet the CO2 reduction target, and it's a technology-neutral

policy tool that supports renewables (as well as energy efficiency) in the sectors covered. The use of renewable energy and improvement of energy efficiency are the main measures – and when talking about 2030, probably the only ones – to reduce CO2 emissions. Therefore, it is essential that the role of the ETS is recognised also when planning future RES policies. Primarily, additional RES (and energy efficiency) measures should focus on sectors remaining outside the ETS.

If it is the Member States that will end up establishing support schemes for RES also in the sectors covered by the ETS, the impact of these measures on the ETS must be carefully assessed. Furthermore, such measures must be as market-oriented and least distortive as possible. Therefore, all support schemes for RES should be regional; national support schemes not open for foreign participation should be acceptable only in specific cases. The future state-aid guidelines affecting the post-2020 period should clarify these procedures in more detail.

The existing RES directive was based on a significantly different premise than the new directive under preparation: to achieve its 2020 objectives, it has relied on national RES targets. As objectives and market conditions have changed, the RES target for 2030 has also been adapted: it will be binding as a whole at the European level and will be pursued by the collective efforts of all contributing sectors: electricity, heating and cooling, and transport.

For renewables that have not yet become mature, stability and predictability could be enhanced through a common renewables system of several countries. In fact, the future state-aid guidelines should require the subsidy schemes to be open for cross-border participation.

As a conclusion, a mere prolongation of the current RES regime from 2020 to 2030 does not address the new challenges faced by these variable technologies nor does it take account of the need to place wind and solar in a wider system approach that meets the principles of competitiveness, security of supply and affordability.

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.*

	Very important	*Important*	*Not very important*	*Not important*	*No opinion*
Long term priorities and visions for decarbonisation and renewable energy up to 2050	X				
In relation to national/regional natural resources, specific technology relevant trajectories for renewable energy up to 2030		X			
Overview of policies and measures in place and planned new ones	X				
Overview of renewable energy trajectories and policies to 2050 to ensure that 2030 policies lie on the path to 2050 objectives		X			
Qualitative analysis		X			
Trajectories for electricity demand including both installed capacity (GW) and produced energy (TWh)		X			
Measures to be taken for increasing the flexibility of the energy system with regard to renewable energy	X				

production					
Plans for achieving electricity market coupling and integration, regional measures for balancing and reserves and how system adequacy is calculated in the context of renewable energy	X				

[Box: Please explain. Max 500 words]

In their national plans, Member States should clearly distinguish between the measures in the ETS sector and in non-ETS sectors. In the ETS sector, carbon price should be the only driver for RES investments, while in non-ETS sectors other measures would be necessary.

Member States should have a holistic approach in their national plans, i.e. not only looking into the options of meeting the RES targets, but also taking duly into account issues related to the functioning of the market (RES integration), competitiveness, risks of oversupply etc. Having these elements in place would ameliorate foresights and future prospects for investors. For example, if Member States choose to offer subsidies for RES in sectors covered by the ETS, their impact on the ETS should be assessed in order not to water down its steering effect.

The question on governance relates mainly to Member States' challenges to transpose the EU-level RES target into their legislation. The discussion on filling the gap (i.e. what if the national actions do not sum up to 27% at the EU level) should not be started too early. If the initial actions by Member States do not provide enough RES, there is the risk that the discussion will lead to the conclusion that additional support will be available. This, in turn, will lead to strategic behaviour when investors start waiting for that additional support and investments will be put on hold.

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?*

- ☐ *Harmonised EU-wide level support schemes*
- x *Regional--level support schemes (group of Member States with joint support scheme)*
- ☐ *National support schemes fully or partially open to renewable energy producers in other Member States*
- ☐ *Gradual alignment of national support schemes through common EU rules*
- ☐ *National level support schemes that are only open to national renewable energy producers*

ETS is an EU-level scheme supporting RES and energy efficiency development in the sectors covered (see our response in question 2). Measures to enhance its steering effect should be implemented.

There should be a coordinated approach for renewables support schemes also in non-ETS sectors.

Therefore, all support schemes for RES should be regional; national support schemes not open for foreign participation should be acceptable only in specific cases. The future state-aid guidelines affecting the post-2020 period should clarify these procedures in more detail.

Current renewables support schemes should be opened for cross-border participation at least at the regional level, and no new subsidy schemes should be implemented when the current

subsidy schemes expire. A clear rule should be that all remaining subsidies for mature technologies must be phased out at the end of the current subsidy schemes or at the latest after 2020 when the CO2 price should be the only driver to steer decarbonisation and growth or RES. Regional schemes, such as tendering mechanisms or certificates, would allow renewable energy plants to be built where they are most needed and where it is most cost-efficient. Currently, it is the subsidies more than the economics or demand that drive renewable investments. The economic benefits of market-based RES support and cooperation mechanisms in particular have been demonstrated in various analyses and should be realised as soon as possible. The Swedish-Norwegian electricity certificate system could provide a good model for an EU-wide system. In the longer term, the EU should strive for harmonised, EU-wide level support schemes.

If Member States choose to offer subsidies also for RES covered by the ETS for the post-2020 period, such subsidies should be as market-based as possible, technology-neutral and open for cross-border participation. In fact, cross-border participation should be made a requirement. In order to facilitate this, the Commission should offer Member States applicable models for cross-border support mechanisms.

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?*

ETS is an EU-level scheme supporting RES (as well as energy efficiency) development in the sectors covered. Measures to enhance its steering effect should be implemented.

Generally, with the exception of immature technologies, phasing out subsidies should be the priority. In the ETS sectors, no RES support is needed for mature technologies. There should be a coordinated approach for renewables support schemes in non-ETS sectors. These schemes should be as market-based and harmonised as possible.

Despite the rather encouraging steps taken in improving interconnections, we can still identify the lack of sufficient interconnections as a problem for the functioning of the EU internal electricity market. This can also be considered as an obstacle for the harmonisation of support schemes. An example of this is the situation of Norway, whose strengthened interconnections with EU Member States would significantly improve the development of renewables in the EU.

The future state-aid guidelines should require all subsidy schemes to be open for cross-border participation. Furthermore, the Commission should offer Member States applicable models for cross-border support mechanisms.

[Box: Max 500 words]

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.*

Due to the absence of legally-binding national RES targets in the 2030 framework, cooperation mechanisms become obsolete. Consequently, there is no need for a provision setting out the framework for cooperation mechanisms.

The future state-aid guidelines should require all subsidy schemes to be open for cross-border participation. Furthermore, the Commission should offer Member States applicable models for cross-border support mechanisms.

[Box: Max 500 words]

7. *The use of cooperation mechanisms has been limited to date. Which of the below factors do you consider important in explaining the limited recourse by Member States to cooperation mechanisms so far?*

	Very important	*Important*	*Not very important*	*Not important*	*No opinion*
Unclear legal provisions			*X*		
Administrative complexities		*X*			
Lack of cost-effectiveness / uncertain benefit for individual Member States		X			
Government driven process, not market driven	X				
Member States reluctant to see their taxpayers/ consumers' money used for investments outside their country		X			

[Box: Other? Please explain.]
This question is quite irrelevant because cooperation mechanisms become obsolete in the new 2030 framework (see answer to Q6).

8. *How could renewable electricity producers be fully or partially eligible for support in another Member State? Which elements would you include in a possible concrete framework for cross-border participation in support schemes? Any other consideration? Please explain.*

In the ETS sectors, RES support for mature technologies should be phased out. ETS is an EU-level scheme supporting RES (as well as energy efficiency) development in the sectors covered. If Member States choose to offer subsidies also for RES covered by the ETS for the post-2020 period, such subsidies should be as market-based as possible, technology-neutral and open for cross-border participation. In fact, cross-border participation should be made a requirement. In order to facilitate this, the Commission should offer Member States applicable models for cross-border support mechanisms.

There should be a coordinated approach for renewables support schemes in non-ETS sectors. These schemes should be as market-based and harmonised as possible.

In the case of investment support, access to support should be enabled for projects in another Member State.

[Box: Max 500 words]

9. *Please assess what kind of complementary EU measures[1] 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:*

	Very important	*Important*	*Not very important*	*Not important*	*No opinion*
EU-level incentives such as EU-level or regional auctioning of renewable energy capacities				*X*	
EU-level requirements on market players to include a certain share of renewables in production, supply or consumption				*X*	
EU-level financial support (e.g. a guarantee fund in support of renewable projects)					*X*
EU-level support to research, innovation and industrialisation of novel renewable energy technologies	*X*				
Enhanced EU level regulatory measures				*X*	

[Box: Any other ideas or comments, please explain. Max 500 words]

In the elaboration of the 2030 RES policies, attention should be paid to the changes in the key policy/technology drivers that will, in turn, significantly influence the scope and content of the new RES Directive (including the discussion on the potential needs for complementary measures):
- the collective and binding approach to the fulfilment of the target through national best-endeavoured efforts

[1] Without prejudice of the actual funding mechanism, where required, of the complementary EU measures

- the absence of any specific target for renewable electricity for 2030 means that the RES target should be fulfilled as an aggregate of all contributing sectors (electricity, heating and cooling, and transport)
- the sharp decline in technology costs and prospects for further decline, implying that on-shore wind and even solar will be competitive in large parts or the entirety of the European markets by 2020
- the need to achieve policy and grid synergies through effective regional cooperation
- all low-carbon technologies, not just RES, should be subject to R&D support

Hence, in the short term the first priority should be to enforce the EU ETS and CO2 price steering and let the ETS drive investments in the ETS sector – both in renewable and other low-carbon generation. No additional support besides CO2 price steering should be applicable in the ETS sector.

Today, the EU is well on track with its 2020 RES target (considering the number of countries already overachieving their targets) so this situation, combined with the prospect of increased involvement of the heating and cooling and transport sectors, does not suggest any failure in meeting the target, to the contrary.

The sense of urgency should rather go to the impairment of electricity markets and the need to restore them so that they are capable of driving the ambitious development of market-driven RES investment. The low levels of wholesale prices should be interpreted as a symptom of oversupplied markets with the root cause lying in policy intervention rather than the market's structural inability to push the energy transition forward.

An early discussion on the so-called filling the gap question would be detrimental and lead to strategic behaviour: if additional measures and support are considered for cases in which a Member State's contributions do not add up to 27%, many actors would start waiting for that additionality.

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?*

[Box: Please explain. Max 500 words]

The RED has for sure been effective in increasing the RES capacity and renewable energy industrial development, but at what cost? The overall cost is extremely high.

To develop EU leadership and ensure that European players are best placed to take on market shares on international markets, it is crucial that RES technologies are subject to the same rules as other technologies and are given incentives to reduce their costs and improve their competitiveness.

The leadership in RES should be understood in a very broad sense: the EU ambition should not be limited to variable technologies, but should embrace the development of new fields of competence and expertise in the area of the decarbonisation of the heating and cooling and the transportation sectors. Moreover, environmental and construction permits, grid connection and other requirements etc. may vary between countries, and sometimes these processes are time and resource consuming. Applying best practices and lessons learnt in other countries could reduce project lead times and project development costs.

2. Empowering consumers

Questions:

11. *How would you rate the importance of the following barriers for consumers to produce and self-consume their own renewable energy?*

	Very important barrier	*Important barrier*	*Not very important barrier*	*Not important barrier*	*No opinion*
Self-consumption or storage of renewable electricity produced onsite is forbidden			X		
Surplus electricity that is not self-consumed onsite cannot be sold to the grid			X		
Surplus electricity that is not self-consumed onsite is not valued fairly			X		
Appliances or enabler for thermal and electrical storage onsite are too expensive				X	
Complex and/or lengthy administrative procedures, particularly penalising small self-consumption systems				X	
Lack of smart grids and smart metering systems at the consumer's premises		X			
The design of local network tariffs			X		
The design of electricity tariffs		X			

We would like to note that the same question may be relevant also regarding heating and cooling where heat customers in some markets are already in a position to sell their excess heat to heat networks based on commercial agreements.

There is a need to develop smart solutions for customers in electricity as well as in heating and cooling –networks working in two directions apply to both, i.e. consumers of electricity and consumers of heat can also be prosumers. Building codes, for example, should support these developments by having an energy system approach, i.e. equalising the choices between the DH network and the building in heat production. The definition of nearby energy is especially important in this respect. In

this sense, ensuring consistency of the RES directive with the upcoming revisions of the EPBD and EED is essential.

Valuation of surplus electricity is often considered unfair, mainly due to a big difference between the retail and wholesale prices of electricity.

Today, distributed generation allows customers to self-produce and self-consume electricity thereby widening the range of power supply alternatives. To achieve a level playing field of technologies, it is crucial that customers are able to exercise their choice based on a sound and economic assessment of a large array of competitive solutions. Opting for distributed generation should not be based on artificial incentives, uneven tax burden, uneven playing field, or increased perceived risks of security of supply.

12. *In general, do you think that renewable energy potential at local level is:*

- ☐ *Highly under-exploited (heating and cooling including DH networks)*
- ☐ ***Under-exploited** (electricity)*
- ☐ *Efficiently / fully exploited*
- ☐ *Over-exploited (i.e. beyond cost-effectiveness)*
- ☐ *No opinion*

[Box: Other? Please explain. Has the RED been effective and efficient in helping exploiting the renewable energy potential at local level? Max 500 words]

Exploitation of local heat is highly under-exploited. The main barriers to producing own renewable heating relate to freedom of choice in building-specific heating solutions, high CAPEX requirements, and a lack of transparent and objective information for consumers that should be provided on a regular basis. These issues are largely related to the conditions in the heating and cooling markets, and should therefore be handled primarily within EED and EPBD.

The best scalability for the decarbonisation of the heating and cooling sectors may take place by utilising existing and new-build DH networks in which biomass (i.e. from forests and waste) can be exploited in larger scales to replace the use of fossil fuels.

When considering solar electricity and solar thermal, the potential is still highly under-exploited.

13. *How would you rate the importance of the following barriers that may be specifically hampering the further deployment of renewable energy projects at the local level (municipalities and energy cooperatives):*

	Very important barrier	*Important barrier*	*Not very important barrier*	*Not important barrier*	*No opinion*
Lack of support from Member State authorities		*X*			
Lack of administrative capacity and/or expertise/ knowledge/information at the local level	*X*				
Lack of energy strategy and planning at local		*X*			

level					
Lack of eligible land for projects and private property conflicts			X		
Difficulties in clustering projects to reach a critical mass at local level			X		
Lack of targeted financial resources (including support schemes)	X				
Negative public perception			X		

Our response is from a district heating point of view.

Other important/very important barriers to the deployment of renewable, efficient district heating and cooling can also be the lack of sufficient regulatory incentives when DH prices and returns are scrutinised as part of social policy. Such mechanisms can become and remain a high barrier for new capital expenditure for both public and private investors. It is notable that such EU-level of regulatory cooperation (i.e. best-practice promotion) is almost non-existent in H&C, while the electricity and gas sectors can rely on such long-established cooperation. Another barrier to renewable energy may be related to the freedom of choice of heating and cooling by end customers, but the relevance can only be assessed at a national level.

[Box: Other? Please explain. Max 500 words]

In cases where the question of affordability for vulnerable customers is mixed within energy policy, it may become a barrier to renewable energy deployment because it produces contradicting effects between social and fully cost-reflective tariff-settings for vulnerable customers. The social policy measures should take care of energy poverty.

We consider that the renewable energy potential at the local level is highly under-exploited in the heating and cooling sectors and with regard to solar power and thermal. But there are overlaps between EPBD, EED and RED in promoting the decarbonisation of the heating and cooling sector. Some (but not small-scale) CHP potential is being assessed under EED requirements (EED 14§).

14. *Please rate the appropriateness of stronger EU rules in the following areas to remove barriers that may be specifically hampering the further deployment of renewable energy projects at the local level :*

	Very appropriate	*Appropriate*	*Not very appropriate*	*Not appropriate*	*No opinion*
Promoting the integration of renewable energy in local infrastructure and public services	X				
Supporting local authorities in preparing strategies and plans for the promotion of		X			

renewable energy					
Facilitating cooperation between relevant actors at the local or municipal level		*X*			
Facilitating access to targeted financing	*X*				
EU-wide right to generate, self-consume and store renewable electricity	*X*				
Measures to ensure that surplus self-generated electricity is fairly valued		*X*			
Harmonized principles for network tariffs that promote consumers' flexibility and minimise system costs				*X*	

[Box: Other? Please explain. Max 500 words]
Our response is mainly from a district heating point of view.

Efficient district heating and cooling is one of the most cost-effective and quickest scalable ways of deploying renewable energy at the local level. The EU should consider enhancing the better optionality for consumers to choose renewable energy sources, including DHC. In order to provide such solutions, the EU and national policies should encourage stronger decarbonisation measures in the heating and cooling sectors.

The effective promotion of renewable heating and cooling relates to the EU's upcoming heating and cooling strategy wherein the EU should promote the following principles: encouraging customer (building owner) choice on low- or no-carbon heating and cooling solutions, and ensuring fair and effective competition between different heating and cooling solutions (defining and promoting well-functioning heating and cooling markets) with the cost of CO2 equally imposed to all alternatives. Such heating and cooling market conditions can effectively steer towards decarbonisation.

15. *Should the current system for providing consumers with information on the sources of electricity that they consume be further developed and improved?*

In our opinion, the current system has been modest in providing consumers with information on the electricity they consume. The main challenges have been the double-counting of RES in electricity products and in the residual mix. Moreover, lack of harmonisation of the GO system and disclosure requirements between Member States has led to inefficiencies and lack of transparency at the EU level.

We support a mandatory GO system for disclosing information to consumers. In addition to RES, the use of GO should be extended to other energy sources as well. This would significantly improve the reliability of the system and enhance the accuracy of the statistics, leading to more accurate residual

mix information. For the products sold to the consumer as a specific branded product (e.g. hydropower or CO2-free), the corresponding amount of GO should be always cancelled. If the product is based on unknown electricity, then a residual mix should be disclosed.

Furthermore, we promote an approach in which the information given to consumers is product-based, not supplier mix-based. This would make it easier for consumers to understand what they are actually buying.

The GO role should be only to include fact-based information about the electricity source and it should not contain other information, such as additionality, or information based on opinion. Labels provided by NGOs or other private entities can be used for adding value to a certain type of production. However, labels should also use the GO system as a tracking mechanism.

[Box: If not, why? If yes, how? Should the current Guarantees of Origin (GO) system be made the mandatory form of information disclosure to consumers? Should other information, such as e.g. CO_2 emissions be included? Should it be extended to the whole energy system and include also non-renewable sources? Other ideas? To what extent has the current GO system been successful in providing consumers with information on the sources of electricity that they consume? Max 500 words]

3. Decarbonising the heating and cooling sector

Questions:

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

	Very important barrier	*Important barrier*	*Not very important barrier*	*Not important barrier*	*No opinion*
Real or perceived incoherence in existing EU policies (such as RED, EED and EPBD)	*X*				
Lack of administrative capacity and/or expertise/ knowledge/information at the national and local level	*X*				
Lack of energy strategy and planning at the national and local level	*X*				
Lack of physical space to develop renewable heating and cooling solutions			*X*		
Lack of requirements in building codes and other national or local			*X*		

legislation and regulation to increase the share of energy from renewable sources in the building sector					
Heating and cooling equipment installers lack sufficient knowledge or information to offer renewable energy alternatives when asked to replace fossil fuel heating and cooling equipment			*X*		
Lack of targeted financial resources and financing instruments	*X*				
Lack of definition and recognition of renewable cooling			*X*		
Lack of electricity market design supporting demand response, decentralised energy and self-consumption and thermal storage in buildings and district systems		*X*			
Lack of mapping tools to identify the resources potential at regional scale with local renewable energy		*X*			
Lack of tools and information to compare the lifecycle costs of the various alternative heating and cooling alternatives		*X*			
Negative public perception				*X*	

[Box: Other? Please specify and explain. Max 500 words]
The main obstacle in the heating and cooling sectors is that they lack a properly functioning market where consumers can make choices based on their preferences. This applies also to deploying renewable energy in the sectors.

It should be acknowledged that some heating and cooling methods are subject to ETS and some are

not. Equal treatment of all alternatives is important.

The EU targets for heating and cooling should be based on energy efficiency (primary energy first) and decarbonisation. This can be effectively steered and done by providing equal exposure to CO2 costs between various heating and cooling alternatives. Currently almost 60% of heating (i.e. small-scale gas boilers) in Europe is outside ETS, while the majority of DHC systems and electricity-based heating are covered by EU-ETS.

Further, the lack of regulatory incentives is a barrier for the deployment of efficient, low-carbon district heating and cooling, which requires a substantial up-front capital expenditure to deploy. Currently, there is no EU-wide recognition of best regulatory practices in the heating and cooling sectors. The national legislative, regulatory and other conditions vary substantially, and therefore the EU should aim for a common definition. For example, commercial and industrial heating customers (building owners), which typically account for 20% to 40% of the heating and cooling sector, could easily be provided with competitive heating and cooling market conditions as a stepwise transition towards full liberalization in countries of heavy-handed regulation today, similar to how the deregulation of the electricity and gas markets was implemented. However, such conditions for well-functionality would require one-of-a-kind considerations that take into account the unique characteristics of effective heating and cooling markets and effective competition elements that benefit customers and promote decarbonization.

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

	Very effective	*Effective*	*Not very effective*	*Not effective*	*No opinion*
Renewable heating and cooling obligation[2]			*X*		
Requirement for energy suppliers and/or distributors to inform consumers of the costs of heating and cooling and to offer renewable heating and cooling solutions			*X*		
Requirement that all urban and municipal infrastructure upgrades (energy			*X*		

[2] 'Renewable energy obligation' means a national support scheme requiring energy producers to include a given proportion of energy from renewable sources in their production, requiring energy suppliers to include a given proportion of energy from renewable sources in their supply, or requiring energy consumers to include a given proportion of energy from renewable sources in their consumption.

infrastructures, and other relevant infrastructure, such as sewage water, water and waste chains) make it possible and promote the distribution and use of renewable energy for heating and cooling and hot water generation					
Measures supporting best practices in urban planning, heat planning, energy master planning, and project development	*X*				
Criteria and benchmarks for promoting district heating and cooling taking into consideration the local and regional conditions		*X*			
Nearly zero-energy building (NZEB) standards to include a mandatory minimum use of renewable energy			*X*		
Including systematically renewable energy production in buildings' energy performance certificates				*X*	
The promotion of green public procurement requirements for renewable heating & cooling in public buildings			*X*		
Heating and cooling equipment installers should present renewable			*X*		

energy alternatives when asked to replace fossil fuel heating and cooling equipment					
Develop best practices for enterprises, including SMEs, to integrate renewable heating and cooling into their supply chains and operations			*X*		
Requirement to consider renewable energy alternatives in subnational, national, regional or EU security of supply risk preparedness plans and emergency procedures		*X*			
Targeted financial measures	*X*				

[Box: Other? Please specify and explain. How could such measures be designed? How could they build on existing EU rules? Max 500 words]

In our view, the most effective means to decarbonise the heating and cooling supply can be listed as follows: (1) Defining and enabling effective heating and cooling market conditions (some EU-level steering would be needed, but major imposition should be done at the national level and taking into account the national and local circumstances); (2) Making the cost of fossil fuel usage meaningful for end customers (CO2, taxation); (3) Providing the customer with free choice of alternatives that have equal treatment in regard to emission requirements and costs; (4) When major, one-off capital expenditure are expected (as in the case with building new DHC networks), sufficient regulatory allowances and incentives to boost the development should become an important means to implement.

Existing EU rules are not very effective. The EED promotes efficient district heating and cooling and high-efficient cogeneration, but an overall approach towards the heating and cooling sectors is to be covered by the EU's heating and cooling strategy. The key EU consideration should focus on what and how EU-level steering should be implemented via the RED, EED and EPBD. However, the main elements in heating and cooling should remain under national policy and decision making, because a high degree of national flexibility will be needed.

A key enabler would be the development of well-functioning and effective (in terms of reaching policy objectives, customer satisfaction, low carbon and competitiveness) heating and cooling market conditions from the EU, national and local perspectives. To a certain degree, such EU-common conditions can be developed, similar to the electricity and gas sectors, i.e. free choice of customers,

and a sufficient and level playing field between the alternatives. The upcoming EU communication on heating and cooling strategy should address this issue effectively.

4. Adapting the market design and removing barriers

Questions:

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? Please indicate the importance of the following elements to facilitate renewable integration:*

	Very important	*Important*	*Not very important*	*Not important*	*No opinion*
A fully harmonised gate closure time for intraday throughout the EU		*X*			
Shorter trading intervals (e.g. 15 min)			*X*		
Lower thresholds for bid sizes		*X*			
Risk hedging products to hedge renewable energy volatility		*X*			
Cross border capacity allocation for short-term markets (i.e., some capacity being reserved for intraday and balancing)				*X*	
Introduction of longer-term transmission rights (> 3 years)				*X*	
Regulatory measures to enable thermal, electrical and chemical			*X*		

storage					
Introduction of time-of-use retail prices	*X*				
Enshrine the right of consumers to participate in the market through demand response	*X*				

[Box: Any other view or ideas? Please specify. Max 500 words]

Market integration of renewables is probably the most important item related to RES requiring EU involvement. It must be addressed in connection with the market design legislation or state-aid guidelines.

The integration of renewables requires short gate-closure times for the intraday market. However, fully harmonised gate-closure times throughout the EU are not essential if the liquidity and integration of continuous intraday trading is otherwise sufficient. Wind power forecasts are relatively good already one hour before realisation. Thus shorter 15-minute trading periods are not very important for at least wind power, which can well be traded by hourly products.

The bid size thresholds should be small enough to allow generation companies to choose how to trade their generation to the market. Hedging products can be further developed in the market based on commercial needs, but their use should be voluntary.

Cross-border capacity should be primarily used for the day-ahead market, thus maximising the exports of renewable generation to replace fossil-fired generation. Remaining and reversed capacity can be used in the intraday and balancing markets. Longer-term transmission rights are not needed, as hedging products can be developed further for each bidding zone.

Grid investment should be the primary measure to reduce transmission congestion. Common European and regional grid planning and fast permitting should be prioritised.

Storage should be developed based on market principles. Grid charges and taxes should not be applied to storage as both load and generation.

Smart metering enables time-of-use pricing for both retail sales and network charges as well as dynamic retail prices based on spot market prices. This makes it possible to reach a fair distribution of grid costs and a market-based valuation of RES generation and demand response at the retail level, too. Smart metering is also a prerequisite for active demand response based on the spot market prices and clearly defined balance responsibilities.

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?

X□ *Yes, in principle everyone should have full balancing responsibilities*
□ *No, we still need exemptions*

[Box: Please specify: If exemptions remain necessary, please specify if and in which case and why exemptions would still remain necessary (e.g. small renewable producers, non-mature technologies)? Max 500 words]

All market participants, regardless their technology or size, should be subject to balancing responsibilities either directly or through a service provider. At the retail level, the balancing responsibilities are covered by the retail sales company that the customer with distributed generation has chosen for his electricity sales and purchases based on smart metering and competing offers from the sales companies.

20. Please assess the importance of stronger EU rules in the following areas to remove grid regulation and infrastructure barriers for renewable electricity deployment:

	Very important	*Important*	*Not very important*	*Not important*	*No opinion*
Treatment of curtailment, including compensation for curtailment		*X*			
Transparent and foreseeable grid development, taking into account renewable development and integrating both TSO and DSO level and smart technologies	*X*				
Predictable transparent and non-discriminatory connection procedure	*X*				
Obligation/priority of connection for renewables				*X*	
Cost of grid access, including cost structure		*X*			
Legal position of renewable energy developers to challenge grid access decisions by TSOs			*X*		
Transparency on local grid congestion and/or market-based incentives to invest in uncongested areas	*X*				

[Box: Comments and other ideas, including whether there are any consideration concerning gas from renewable energy sources, for instance expansion of gas infrastructure, publication of technical rules, please explain. Max 500 words]

For the development of renewable energy, cross-border grid investments should be prioritised in order to enable exports of renewable electricity. Smart metering is essential for market-based distributed RES generation, storage and demand response.

All generators should be treated equally in grid connection and costs. Grid connection procedures, charges and congestion management should be transparent. Congestion should be managed with market-based procedures.

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?

□ *Yes, exemptions are necessary*
X□ *No, merit order is sufficient*

[Box: Please specify: If yes, in which case and why? What are the lessons from the implementation of RED? Max 500 words]

Renewable generation can operate in the power market in the same way as all other generation. No exemptions are needed. Possible RES support systems need to allow for renewable generation to react to short-term power market prices.

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

	Very important	*Important*	*Not very important*	*Not important*	*No opinion*
Creation of a one stop shop at national level to allow for more streamlined permitting procedures		*X*			
Online application for permits	*X*				
A defined maximum time-limit for permitting procedures, and effective consequences if deadline is missed	*X*				
Harmonisation of national permitting procedures		*X*			
Special rules for facilitating small-scale project permitting,		*X*			

including simple notification					
Pre-identified geographical areas for renewable energy projects or other measures to integrate renewable energy in spatial and environmental planning		*X*			

[Box: Any other views or ideas? To what extent has the RED been successful in reducing unnecessary administrative barriers for renewable energy projects in the Member States? Please specify. Max 500 words]

23. Please identify precise challenges with regard to grid regulation and infrastructure barriers in EU Member States that you are aware of.

The European cross-border power transmission capacities are currently insufficient for facilitating the targeted growth of renewable generation. Grid investment should be done based on European and regional planning, irrespective of national borders. Innovative new solutions should be enabled (e.g. power trade between Sweden and Finland via the Åland Islands). The permitting of new grid infrastructure should be streamlined. The connection of renewable generation as such does not face any major grid regulation challenges in the Nordic countries.

Hydropower is valuable both as renewable energy and as a flexible resource in balancing the variability of wind and solar power. In the Nordic countries, taxation and environmental restrictions on hydropower create obstacles for efficient utilisation and capacity additions of hydropower. Capacity-based grid charges for generation discourage peaking hydropower and pumped-storage generation, as well as wind power and solar generation having relatively low load factors and thus high capacity charges.

In the revision of the RES Directive, due attention should be paid to the importance of hydropower in the overall European legal renewables framework. Hydropower production as a crucial enabler of other renewables should hence be subject to double-counting its share towards the EU RES target.

[Box: Max 500 words]

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

	Very important	*Important*	*Not very important*	*Not important*	*No opinion*
Administrative burden					
Cost of compliance					

[Box: Please explain. How could the administrative burden and cost of compliance be reduced in the period after 2020? Max 500 words]

We do not have sufficient information or experience in this matter to make an informed judgement.

25. Please rate the importance of stronger EU rules in the following areas to remove barriers relating to renewable energy training and certification:
designers?

	Very important	*Important*	*Not very important*	*Not important*	*No opinion*
Incentives for installers to participate in certification/qualification schemes		*X*			
Increased control and quality assurance from public authorities		*X*			
Understanding of the benefits and potential of renewable technologies by installers		*X*			
Mutual recognition of certificates between different Member States	*X*				

[Box: Comments, other ideas, please explain. To what extent has the RED been successful in reducing unnecessary training and certification barriers in the Member States? Max 500 words]

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

The key in promoting public acceptance of RES projects and infrastructure development is transparency and involvement of the public at a local level at the earliest phase possible. It should be noted that possibilities to strengthen public acceptance by means of legislation are limited and hence imposing a one-size-fits-all solution may not work in practice. Moreover, very often public acceptance of an issue is culture-dependent, i.e. the best practices of one Member State may not prove effective in another Member State. There may be differences even within Member States. Involvement at a local level in a proactive and early manner is crucial in this sense. It is equally important for RES and grid companies to offer information about the pros and cons of the projects with a view to linking the locally perceived impacts of the project to the big picture of climate change mitigation.

[Box: Max 500 words]

5. Increase the renewable energy use in the transport sector

Questions:

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

The RED has been successful in fostering the use of electric vehicles. The special calculation methodology for electric vehicles as stipulated in Article 3 (4) c of the RED has proved very useful. Therefore, the calculation methodology promoting electric transport should be maintained also in the new directive.

Ways to promote power to gas technologies and hydrogen cars should also be looked at.

In this context, Fortum takes the opportunity to re-state its view that there should be an EU-wide harmonised set of criteria for the sustainability of solid and gaseous biomass. Fortum hence calls for the Commission to present a proposal for an EU instrument in this regard in order to provide predictability for the biomass investments of the industry.

With regard to sustainability criteria for both liquid biofuels and solid (and gaseous) biomass, the EU should strive for full mutual recognition of sustainability schemes among Member States.

	Very successful	*Successful*	*Not very successful*	*Not successful*	*No opinion*
Contribute towards the EU's decarbonisation objectives				X	
Reduce dependency on oil imports				X	
Increase diversification of transport fuels		X			
Increase energy recovery from wastes					X
Reduce air pollution, particularly in urban areas			X		
Strengthen the EU industry and economy competitiveness		X			
Stimulate development and growth of innovative technologies		X			
Reduce production costs of renewable fuels by lowering the level of investment risk					X

Facilitate fuel cost reduction by integration of the EU market for renewable fuels					*X*

[Box: Any other view or ideas? Please specify. Max 500 words]

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

The higher purchase price of electric vehicles in comparison with ICE vehicles hinders the transition to electric mobility, especially since a change in behavioural patterns is involved. The charging infrastructure for long-distance travel and for overnight charging for people in urban areas is missing. A technological-neutral and stronger connection between CO2 emissions and related carrots and sticks is required. The relative benefit of choosing 0g emission is too low.

[Please explain, and quantify your replies to the extent possible. Max. 500 words.)

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:

	Very effective	*Effective*	*Not very effective*	*Not effective*	*No opinion*
Increased use of certain market players' obligations at Member State level				*x*	
More harmonised promotion measures at Member States level		*x*			
The introduction of certain market players' obligations at the EU level			*x*		
Targeted financial support for deployment of innovative low-carbon technologies (in particular to the heavy duty transport and		*x*			

aviation industry)					
Increased access to energy system services (such as balancing and voltage and frequency support when using electric vehicles)		*x*			
Increased access to alternative fuel infrastructure (such as electric vehicle charging points)	*x*				

[Box: Any other view or ideas? Please specify. Max 500 words]
Access to a basic infrastructure is needed. Simultaneously, the focus should be on increasing the volume of electric vehicles. As the example from Norway shows, increased demand creates the required infrastructure investments. In an early phase of technologies, public support for charging infrastructure might prove to be necessary.