ESTELA
European Solar Thermal Electricity Association

ESTELA Answer To EC Consultation

Preparation of a new Renewable Energy Directive for the period after 2020

EUROPEAN SOLAR THERMAL ELECTRICITY ASSOCIATION

10 February 2016

ABOUT ESTELA

ESTELA, the European Solar Thermal Electricity Association, is a non-profit association created in 2007. ESTELA represents members from the industry and research institutions, active along the whole STE value chain. Joining hands with national associations – Protermosolar (Spain), ANEST (Italy), Deutsche CSP (Germany) and the SER-CSP (France), ESTELA is devoted to promoting solar thermal electricity not only in Europe, but also in MENA region and worldwide. To act widely, ESTELA with AUSTELA and SASTELA in 2012 jointly created STELA World. Today, ESTELA is the largest industry association in the world promoting the solar thermal electricity sector.

ABOUT SOLAR THERMAL ELECTRICITY

Solar Thermal Electricity, also known as concentrating solar power (CSP), is a renewable energy technology that uses mirrors to concentrate the sun's energy and convert it into high-temperature heat to create steam to drive a turbine that generates electricity. STE is a carbon-free source of electricity that is best suited to areas in the world with strong irradiation: Southern Europe, Northern Africa and the Middle East, South Africa, parts of India, China, Southern USA and Australia.

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]

Up to now, the RED has set the regulatory framework to trigger respective legislation, RES-targets and support schemes on a national level thus enabling considerable growth in RES power generation which considerably contributes to meeting EU's overall RES target of 20% of energy consumption. The RED has galvanised decision makers at both the national and European level in order to lift RES development onto an unprecedented level.

One of the main weaknesses of the envisaged revised RED is that it lacks the effective tools to monitor and coerce compliance with the renewable energy policy and objectives during all the time of applicability. Thus, ESTELA considers that in order to be effective, the revised RED should **include a broader range of provisions to guarantee the minimum necessary consistency between the different instruments of EU's energy policy**.

In 2016 and the years to come, renewable energies will no doubt increase their penetration into the electric systems.

However, this will no longer happen as a result of governmental support schemes. This will be triggered by low costs and/or self-consumption strategies – mostly at distribution level and in many cases without consideration of the abundancy of the respective resource across Europe.

ESTELA believes that this fundamental change has not been yet properly taken into account. Neither by EC services when designing the consultation under review and even less by policy-makers in charge of energy in most EU Member States.

Time has come to raise our look on energy policy a bit above LCOEs. This metric may remain for academic purposes, but it is not supportive to a far-reaching energy policy-making leading to system planning decisions and support schemes since leaving aside the value of such elements as energy security, local economic impacts including effects on job creation, impact on trade balance, etc.

ESTELA's main comment to the consultation is that it does not build on **the essential distinction between 'value' and 'cost' related to the various renewable technologies.**

The guiding principle in 2016 should no longer be **"how much a generated kWh"** in a given plant will cost in terms of CAPEX/OPEX over its lifetime (which is for solar thermal electricity (STE) plants systematically underestimated since based on 20-25-year PPAs while the effective lifetime reaches 40 years).

Instead, **the value added to the system by this kWh should be the core term.** This value can be expressed both in operational terms (effective operation hours, costs for re-dispatching, contribution to system services, induced generation curtailment, etc.) and in terms of added capacity (investments avoided to cover demand in all timeframes on top of the investment of the new plant itself).

As an example, *40 GW in PV are announced in Spain as commercially viable without public support. What will be their added value for the Spanish/European system? Will they lead to increased generation curtailment at high-sun hours that cannot be transferred to regions with less abundant resources? Will they reduce natural gas consumption? Will they reduce the prices of gas turbines running even less hours per year?*

Value of solar power according to shares

- **Example of California for 33% and 40% RE shares**

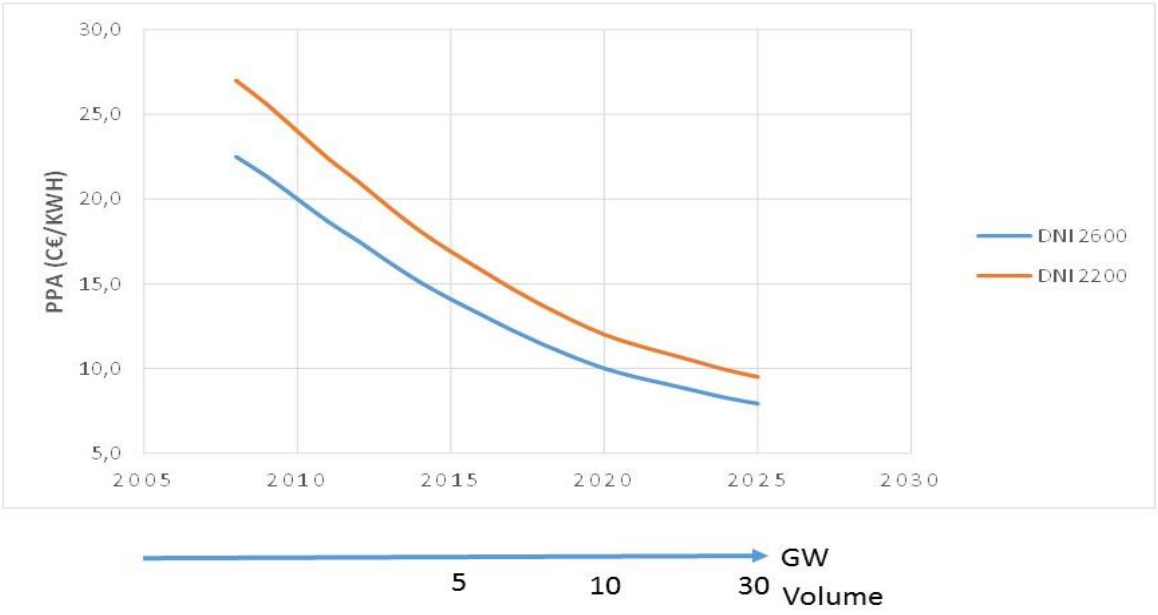
Value component	33% renewables		40% renewables	
	STE with storage value (USD/MWh)	PV Value (USD/MWh)	STE with storage value (USD/MWh)	PV Value (USD/MWh)
Operational	46.6	31.9	46.2	29.8
Capacity	47.9-60.8	15.2-26.3	49.8-63.1	2.4-17.6
Total	94.6-107	47.1-58.2	96.0-109	32.2-47.4

Jorgenson, J., P. Denholm and M. Mehos (2014), *Estimating the Value of Utility-Scale Solar Technologies in California under a 40% Renewable Portfolio Standard*, NREL/TP-6A20-61695, May.

The main conclusion is that nowadays - with 33% penetration of RE in California – it is economically equivalent to pay 5 $c/kWh to a new PV plant than 10 $c/kWh to a STE plant with storage and furthermore that the value of PV decreases substantially when the RE share increases.

Technologies that deliver such added value, such as STE plants, cannot yet do it at large in Europe. The reason for that is common sense: neither were these plants designed for it, nor does the electricity market design offer a specific segment where RES generation technologies can compete for firm deliveries on demand (→ see ESTELA answer to the consultation on market design).

In spite of the resulting low market volume, flexible RES technologies achieved a substantial, but slower cost reduction curve compared to non-flexible RES technologies.



The revised RES-Directive should therefore:

- not support the achievement of the politically agreed percentage of renewables (for 2020 and 2030) **at lowest possible cost**, but with **the highest possible value**.
- establish not just a global goal for RES by 2030 and 2050, but most importantly, a minimum threshold of dispatchable electricity generation in the generation mix to achieve such goals in a sustainable and reliable way. Otherwise a CO_2-free generation system will not be feasible and the business cases for RE investments will not be sustainable any longer.
- incentivize Member States to cooperate towards optimizing power generation according to best available resources at European level. Therefore, flexible **cooperation mechanisms** as laid out in the current Renewable Energy Directive should be further promoted and strengthened in legislation. Flexible cooperation mechanisms between Member States are essential to integrate the different renewable energy potentials of the Member States most effectively so that the EU 2030 renewable target can be achieved in a cost-efficient way.

The various dimensions of "flexibility" as addressed in the consultation documents:

Flexibility covers for electricity generation at utility-scale various dimensions should be duly addressed in a wider cost/benefit analysis (value-approach instead of cost-approach):

- Flexibility left post-2020 to Member States to design and maintain national support mechanisms;

- Flexibility left to Member States to cooperate across various RES support schemes with the Union);
- Flexibility in generation output (essentially linked to storage capability);
- Flexibility in plant design (some utility-scale plants can be designed for specific markets (peak or base load, system services, regional balancing, etc.) according to their respective access modalities to these markets.

Ultimately, the revised Directive should:

- lead to a better balanced share between cheap non-flexible renewable generation sources and valuable flexible renewables that are able to shift power according to demand via their own storage capabilities;
- contribute effectively to reduce Europe's dependence from fossil-based backup systems;
- bring substantial (macro)economic benefits to Europe, especially when combined with the implementation of already defined interconnection objectives.

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]

National targets have so far helped to boost national RES deployment at an early stage, primarily aimed at raising the overall RES share and capacity. Since then, national energy action plans and progress reports have monitored whether Member States have been on track for meeting their respective national targets. Nevertheless, RES technologies and development have now entered a phase where aspects of cost-reduction and advanced integration of RES into the electricity market become more and more important and require more flexible regulatory approaches.

Investor confidence in EU's energy policy has been weakened due to the dramatic retroactive cuts in various Member States causing severe economic damage to renewable investors. Moreover, confidence especially of potential investors has also been eroded since the EU-wide binding target for renewable energy for 2030 will apparently not be broken down in national targets, so its enforceability seems to be questionable.

ESTELA considers that binding national targets are necessary, as well as more aggressive enforcement tools for the EU institutions to guarantee compliance. The post-2020 Renewable Energy Directive should reinforce the powers of the European Commission over Member States' progress.

Additionally, the revised RED should incorporate a set of basic principles which would act as "red lines", so that both investors and the EC have more solid grounds to take legal action in case of any Member States adopting any measure against the common objective of promoting renewables.

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 production	X				
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]

National energy and climate plans should become the backbone of the governance system. National Plans must provide a holistic overview of Member States' approaches so to demonstrate their commitment to delivering EU's long term decarbonisation objectives and inform investors on expected market growth potential. Also specific supporting measures should be introduced in other areas and sectors (such as tax benefits, less onerous environmental and administrative proceedings for RES projects, etc.)

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***
☒ ***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***

[Box: Please explain. Max 500 words]

In principle, the geographical scope of support schemes should be EU-wide. There is little dissent among experts that the EU-ETS should be seen as a central instrument to encourage RES by promoting the most cost-efficient form of GHG abatement but not distorting the internal energy market. Beyond 2020, there should be more focus on enhancing and strengthening the carbon price signal.

However, in a transition period, there will be a need for direct support to cover capital costs of new investment and in particular to drive the development of less-mature technologies. ESTELA thinks that the greater the geographical scope of support schemes – i.e., regional or even European level – the better. This transition towards the 27% target should be achieved by considering the whole electrical European system, i.e., not taking the lowest cost approach, but the maximum value of different technology choices. Thus, this will open the door for extended cooperation within the EU on harmonizing support schemes which can be an important milestone on the way to full market integration of RES.

The absence of coordination between national support is critically interfering with the completion of the internal market. Limited development of the cooperation mechanisms or joint schemes provided for in the existing RED has led to primarily national approaches to RES development, which resulted in the fact that renewable electricity generation sources have not always been deployed at best sites.

Nevertheless, considering the current diversity of national RES support schemes, the process towards a significantly more coordinated if not harmonized approach to RES development is likely to be an evolutionary one: the EU guidelines on State Aid already require market-based mechanism as well as an opening of national support systems for participants from abroad.

It needs to be mentioned that market integration of RES is making good progress under the auspices of EU State Aid Guidelines, Gradual alignment of national support schemes through common EU rules and national support schemes fully or partially open to renewable energy producers in other Member States can pave the way for regional level support schemes as precursors of potential EU-wide level support schemes.

Support mechanisms should be based on a common methodology and consider the cost-effectiveness of the different technologies.

It is also key that the modified RED includes certain EU common rules applicable to all Member States, providing and/or protecting investor confidence. These rules should act as "red lines": for instance,

- total proscription of retrospective regulatory changes (those affecting already existing projects).
- obligation not to discriminate renewable energies vis-à-vis non-renewable ones.

The introduction of such principles in the articles of the Directive would not only grant legal capacity to the EC, but also allow any stakeholder to take legal action whenever such principles are breached.

This change in the RED will solve one of the main problems faced currently by investors – the absence of a clear legal basis to defend themselves against Member States actively going against renewable deployment. This lack of legal grounds has also been constantly mentioned by the Commission as the justification for its lack of action in several cases. This flaw of the legal system should be amended, even more under a new regime without binding national targets but with a binding EU target.

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?*

[Box: Max 500 words]

Bi-lateral cooperation for RES investments between Central/Northern and Southern European countries appears to be the building-block to achieve an optimal use of available resources in Europe: e. g., If Luxembourg would invest in a STE plant in Greece, such RES generation shall account for the national share of RES in proportion of the countries' financial contribution to the investment, and thus contribute and support the participating countries to achieve the national goals for RE share. Such projects shall benefit from additional EU grants, or such grants could be limited to the first GW of dispatchable RES. [To be read in connection with Question 6 below.]

Barriers to more cooperation in RES support are primarily due to political concerns about "controlling" investments in renewable energy sources that are physically located outside of national geographical borders. Since this lack of confidence by Member States (ECOFYS Studies) is in itself outrageous to the Union's fundamental principles of free movement of people, capital and services this should be addressed by the revised RED.

Completing the single energy market requires a 'culture shift' such that renewables policy is no longer seen as a 'national' matter but something that is addressed and shared on a European basis. As such, a single EU certificate system, linked to Guarantees of Origin and relying on flexible quotas in various Member States should be considered as a way of meeting the 27% target. With regards to the design of support mechanisms, EU State Aid Guidelines outline a set of appropriate support mechanisms like auctioning, market premium or quota systems which ensure RES generators are integrated into the wholesale market.

ESTELA considers regional concepts as a long-term vision as they will replicate the difficulty of breaking down on overarching target into concrete commitments. ESTELA also considers that such regional support

schemes might be introduced in the long-term and that EU financial support for RES projects should be better coordinated with national plans.

Also regarding support mechanisms, as pointed out in Question 4 above, ESTELA considers that in the long term the Commission should develop a common methodology for the design of the support schemes, to be used in all Member States.

Hence, one of the most effective options would be a feed-in premium (as a top-up to market prices) which will ensure market responsiveness, but with certain limits so as to help boost investments and protect investors' expectations.

The level of the premium would vary from one Member State to another to reflect the specific costs for developing renewable energy in the different countries (cost of capital, grid connection costs, administrative costs, availability of resource, etc.).

Such methodology should also provide a "bottom level" to the price per MWh to be received by the producers (in order to guarantee the projects' bankability, given the investment structure of many renewable technologies with high up-front investments and low operating costs). The lack of a minimum remuneration would deter investments and thus make the introduction of renewables more difficult for Europe.

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.*

[Box: Max 500 words]

Member States should just use what is in the current directive which ESTELA considers valid tools and not invoke instead lack of trust both in RES targets and cooperation on investments within the Union (see results of the ECOFYS Study (http://www.ecofys.com/files/files/ec-ecofys-tuvienna-2014-cooperation-member-states-res-directive.pdf)

Political concerns and unclear legal provisions resulted in the fact that, although the existing RED allows for support schemes to be open to producers in other countries, it has not evolved in practice.

A more coordinated approach would promote the development of projects at locations where they provide the most value for money.

Therefore, ESTELA supports any effort to facilitate a 'market' for renewable energy across borders as well as a more coordinated approach across all Member States, i.e., in terms of design of support schemes and targets for renewables. This better coordinated approach should lead to more compatible support schemes based on common principles which help to reduce regulatory complexity and uncertainty for investors. This will contribute to higher investments, lower risk premiums and ultimately to a more cost-efficient deployment of renewables.

As such, the cross-border validity and attributes of renewable electricity within the single market must be further promoted and supported, e.g., via Guarantees of Origin.

In the absence of national targets, it is unclear what incentives Member States will have to cooperate on. For cooperation mechanisms to be applicable in the post-2020 period, the European Commission should

introduce an obligation at national level to assess and duly publish whether the benefits of cooperation are higher than country-based renewable energy deployment. Furthermore, the success of cooperation mechanisms beyond 2020 will largely depend on the Commission's ability to create incentives that make cooperation economically attractive.

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.]

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.*

[Box: Max 500 words]

To further promote cooperation political, technical and legal barriers need to be reduced, e.g.,

- overcome political rigidity of national targets, i.e., create acceptance of buying role in politics and society ("achieving European targets as a team work");
- promote further market and grid integration to allow for more physical cross-border trading of renewable energy. However, physical transfers should not be mandatory, as this would restrict transnational cooperation possibilities, while not being at all necessary for the integrity of the EU target;
- reduce uncertainty on state aid and compliance on EU level;
- allow for sufficient flexibility on cooperation options (statistical transfers, joint projects, opening of support schemes) so that Member States can choose the option which suit best both partners' interests.

Support could also be provided across borders comprising of fungible green certificates linked to Guarantees of Origin (GOOs) and being administered according to the blueprint of the EU-ETS. In order to improve confidence and traceability, all countries should have an electronic system for transferring and recognizing GOOs. Indeed, the system could be administered at the European level (as for emissions allowances)

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]

EU-level support to research, innovation and industrialization of still-less-deployed renewable energy technologies is key for further RES deployment. Support schemes like NER300 should be much better integrated in national policies to become successful.

ESTELA believes that stable regulatory frameworks and a robust, reliable and transparent governance system are the keys to provide investors certainty for the post-2020 period. The governance mechanism needs to be set in legislation, providing clarity over Member States concrete contributions to the 27%, outlining safeguard measures and providing enforcement tools for the EC to supervise and ensure target delivery.

Besides, the Commission should create a global framework supporting the development of renewables, i.e., taking into account the potential of RES deployment when deciding new instruments in any area of activity of the EU (e.g., definition and management of structural funds, R&D programs, public procurement, granting of public aid, tax policy and even agricultural policy).

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

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 so far been effective and efficient in improving renewable energy industrial development and EU competitiveness. Nevertheless, in order to establish the EU as global "number one in renewables" key aspects mentioned above have to be further developed: cost-reduction in the various RES technologies and a more coordinated approach to the flexible cooperation mechanisms, promote further market and grid integration to allow for more physical cross-border trading of renewable energy, etc.

The new RED should act as the supreme legal framework to guarantee the implementation of the package of measures selected by each Member States, but not only that. ESTELA believes that the new RED must take a further step setting out general rules pertaining to other areas not specifically connected to energy production. Such general rules should be consistent with the RED purpose, e.g. tax benefits for both renewable energy producers and consumers, easier access to financing schemes for new renewable projects, development of an effective guarantee of origin regulation and market. They should not only be oriented to improve the information provided to final consumers, but designed as a key tool to implementing specific incentives for the production and consumption of renewable energy.

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			X		

electrical storage onsite are too expensive					
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		

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

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

☐ *Highly under-exploited*
☐ *Under-exploited*
☐ *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]

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 level				X	
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 ***(known issue in ITALY)***		X			

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

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 renewable energy			X		
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]

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

[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 legislation and regulation to increase the share of energy from renewable sources in the building sector					X
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]

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 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					X
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

[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.

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 energy alternatives when asked to replace fossil fuel heating and cooling equipment					X
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]

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 storage	X				
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]

The crucial factor towards ensuring that the market evolves so as to facilitate RES integration, is to fairly expose RES generation to market forces and balancing responsibility.

There is a need for identifying new products matching the specific needs (of TSOs) for operational needs in the various markets relevant for system security which could be marketed separately.

The following adjustments to the market rules would be essential to facilitate renewable integration and to create a more level playing field:

- Complete the integration of internal energy-only market and balancing and reserve services, by fostering liquidity and cross-border trading in all market timeframes.
- Participation of renewables in balancing services must be maximized and encouraged (e.g. opening a balancing market segment reserved to RES in which the various technologies would compete and reveal their intrinsic value for the system).
- Finally, fostering the liquidity of long-term markets and developing new financial products to hedge against price and volume risks.

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, 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]

Full balancing responsibilities are crucial for effective wholesale market operation and efficient dispatch.

Exemptions from balancing responsibility should remain in those countries where no level playing field is ensured for renewable power generators. Conditions under which renewable power generators could have full balancing responsibilities include:

- Existence of a functioning and integrated intraday and balancing market;
- Trading intervals are aligned with the imbalance settlement period;
- Fully participation of renewable power generators in balancing markets is allowed and encouraged;
- Market mechanisms that properly value the provision of ancillary or grid support services for all market participants including renewable power;
- A satisfactory level of market transparency and proper market monitoring;
- The necessary transmission infrastructure (matching the interconnection objectives 10 respectively 15% of installed capacity).

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]

Converting RES resources to gas has a very poor life-cycle assessment and a negative environmental footprint. It goes also against the overall objective of decarbonizing the European power system by 2050.

The only rationale for this builds on the hope to benefit from extremely low prices of cheapest intermittent RES generation at given times to produce gas. This is something that both legal instruments such as the RED and market design should avoid.

Instead, legal instruments such as the revised RED set to drive RES deployment up into the next decade 2030 and possibly beyond should set **as binding target for the European power system a balanced share between flexible and not flexible RES**.

In other words, legal instruments such as the RED **should address the causes and not the effects of the current imbalance between flexible and non-flexible CO_2 free generation which TSOs are facing with concern and that may trigger a step backwards in decarbonizing the power system.**

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 (**Value approach, improved Cost/Benefit Analysis**)*
    ☐ *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]

RES should benefit from priority dispatch until the following conditions are met:

- Priority dispatch should no longer apply to conventional generation and all other forms of non-renewable power generation;
- Existence of functioning, fully integrated and liquid intraday and balancing markets;
- The calculation method for spilled energy during curtailments and corresponding costs should be transparent (published)
- An independent market monitoring entity prevents and scrutinises any possible market distortive behaviour;
- Achieve a minimum level of grid reinforcements at transmission and distribution level.

Renewable energy developers face certain important barriers regarding grid connection:

- Absence of clear information on the available grid connection capacity
- Insufficient grid capacity to deliver electricity to the network without restriction.
- Lack of planning for future grid extension and reinforcements needed.
- Unjustified energy curtailments, in some cases contravening priority dispatch.

Priority of access and connection for renewable energy plants must not only be prioritised but guaranteed, which will trigger the development in due time of the necessary grid infrastructure to effectively integrate renewable energy.

All the access and connection procedures at the EU and national level should include such principles so as to guarantee that all agents in the EU market really maximize the production of clean energy.

These provisions should be thus included explicitly in the new RED so that they are respected by all EU and national regulators and authorities.

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, including simple notification		X			
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.*

[Box: Max 500 words]

Deficiencies in stability, transparency and certainty for investors in long-term grid and infrastructure projects due to regulatory uncertainty. These long-term investments can only be planned and financed if respective regulation and market design rules offer sufficient reliability.

Long planning and permit procedures, especially for very large grid and infrastructure projects.

Growing public acceptance problem with regard to any kind of power generation (conventional, RES), grid and infrastructure projects.

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		X			
Cost of compliance		X			

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

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

	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?*

[Box: Max 500 words]

Public acceptance can be improved via more transparency given by the grid operators on their website, an early participation of the concerned citizens and especially on-site consultations.

This includes clear communication practices (by politicians, regulators and industry representatives alike) about challenges, interactions between different aspects and necessary trade-offs in the context of the European energy transition.

The promotion of partnership models on a voluntary basis with local partners to raise public acceptance, especially for RES projects. It is helpful to highlight job and value creation on the local level.

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?

	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?
[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 aviation industry)					X
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]

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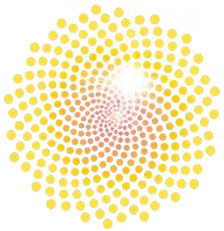

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