EASE response to Public Consultation

EC Green Paper on a 2030 framework for climate and energy policies

COM (2013) 169 final

June 2013

Transparency Register:
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Promoting the use of energy storage in Europe and worldwide

EASE, the European Association for Storage of Energy, represents the voice of the energy storage community, actively engaged in promoting the use of energy storage in Europe and worldwide. EASE strongly supports the Green Paper in a 2030 framework for climate and energy policies, particularly for continuously shaping an EU inclusive energy policy and ensuring a smooth transition to a low-carbon energy system.

EASE commends the European Institutions for the work and progress achieved so far and takes the opportunity to provide feedback as well as to offer expertise in a constructive dialogue with the European institutions concerned.

EASE Key Messages

In general, when designing policies for 2030, the EU should look for a higher degree of coherence between those policies already in place and those to come when compared to the 2020 framework.

EASE therefore calls for:

- A 2030 framework that provides long term **stability** and **clarity** for investors;
- Binding targets for **GHG emission reduction**;
- A **fair market design**: the main challenges for energy storage are not only economic and technological but also regulatory as there is no clear EU framework to incentivise the building of storage capacity and provision of storage services;
- The recognition that energy storage is expected to greatly contribute to the achievement of **overall socio-economic targets**. For instance energy storage technologies not only ease the **market and technical integration** of variable RES, but also ensure a higher **security of energy supply**;
- **Focused RD&D support** for energy storage technologies, which aim at supporting a competitive, low-carbon economy;
- An optimisation of instruments such as the **EU ETS** to help driving investments forward provided that it can function efficiently (and thus deliver on its principle of a market-based and technology neutral means of CO_2 reduction).

4. QUESTIONS

4.1. GENERAL

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

In general, when designing policies for 2030, the EU should look for a higher degree of coherence between those policies already in place and those to come when compared to the 2020 framework. Sound and integrated policies are fundamental for enabling a smooth transition towards an EU decarbonised energy system.

For instance, although targets were established for Renewable Energy Sources (RES) development, not enough was done to support their technical integration into the system. This is especially true for variable RES (wind and solar photovoltaic (PV)). Energy storage can help in this regard, and should be supported from a regulatory and political perspective.

Regardless of feed-in-tariffs (FIT) being available for RES, curtailment challenges business models. Given that it is often the decision of a private developer to invest, targets for additional variable RES deployment must go hand in hand with support for technical integration of this generation into the system.

The growing penetration of RES, in particular non-dispatchable generation, will increase the need for flexibility in the energy system. Energy storage is especially well suited to respond to this challenge and ensure a continued security of energy supply at any time.

Therefore, investments in Transmission & Distribution (T&D), demand-side management (DSM) and dispatchable generation should be considered against energy storage projects without neglecting and being in line with grid development plans. These projects would be tested for the requirements of these investments on this basis. Perhaps an offsetting of the investment would be achievable in some cases. At the same time, T&D investments could be integrated with other smart transmission solutions. Investments would therefore need to be developed and improved to cope with this significant change in the system paradigm.

The EC Energy Roadmap 2050 (COM (2011) 112) sets important milestones for greenhouse gas (GHG) emission reduction for 2030 and 2040. These should also be considered when designing the 2030 framework. The communication recognises the vital role of storage technologies for a progressively decarbonised European energy system. The benefits of energy storage should be better reflected both in the Roadmap and the PRIMES model and any other energy economic models used by the EU.

When defining new policies, consideration should be given to EU competitiveness and the added value that technologies such as energy storage provide throughout the entire energy value chain. With this in mind, we propose that the EU should project energy costs with and without energy storage to quantitatively assess the value provided.

Last but not least, any policy must look at the instruments available for its cost-effective implementation. The European Emission Trading System (EU ETS) can in this regard help drive investments forward provided that it can function efficiently (and thus deliver on its principle of a market-based and technology neutral means of CO_2 reduction). In this context, it is important to note that some national policies (e.g. RES support schemes) are not necessarily compatible with the EU ETS system.

4.2. TARGETS

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

Targets for 2030 will enable investments in measures to reduce GHG emissions by providing clarity and a higher degree of certainty to investors.

EASE believes that GHG emission reduction targets for 2030 are essential if Europe wants to keep on the path towards a low-carbon, secure and less import-dependent economy. These targets need nevertheless to be realistic and achievable as they impact the entire economy.

GHG emission reduction should remain a priority on the EU agenda. All energy options should remain available as long as the market allows and as long as climate policy objectives together with security of supply and EU competitiveness are not jeopardised. This is particularly true for any additional growth of RES, which would need to be addressed on the European level in a system integrated manner, as it should be already the case today.

This means that any future commitment to variable RES deployment – as one of the technologies that enable GHG reductions – has to be supported by flexibility means such as energy storage. Energy storage promotes the integration of RES generation by allowing e.g. a time- and geographic-wise displacement between consumption and generation sites.

An EU level target should remain as the overarching policy. Sectoral improvements are important. Any EU measure should however not go beyond the provision of guidelines rather than the definition of precise sectoral targets. Member states should be encouraged to use discretion on local targets where those targets exceed the wider EU policy.

The establishment of legally binding targets has the advantage of ensuring a certain level of coherence in the years to come despite external interventions (e.g. unilateral decision of Germany to phase out nuclear power generation).

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

Although it is difficult to predict what Europe's future energy mix will look like, the underlying inevitability is that energy storage will be critical to achieve a sustainable energy system.

In line with the recent EC Communication on Energy Technologies & Innovation (COM (2013) 253), decision makers need to look at the whole energy system when setting priorities. The integration aspect and impact on the whole energy system should be emphasised, and a level playing field should be created for such technologies. The instruments chosen for this should be designed in a market orientated, non-discriminating and technology-neutral manner. This European approach will also ensure the adequate consideration of energy

storage. The role of technologies such as energy storage, which provide services and value to the entire system, must be given due attention.

In that sense, the lack of a holistic system approach in the 2020 framework should not continue in the 2030 framework.

A well-functioning EU ETS, which can drive investment, must also be re-established as soon as possible, together with a level playing field for full competition between all available enabling technologies, including energy storage, and all of this is to be supported by a solid EU innovation policy.

Finally, the design and architecture of a framework for 2030 must support the achievement of an Internal Energy Market by 2014 and consider the impact of energy costs on industry and households.

Are targets for sub-sectors such as transport, agriculture, industry appropriate and, if so, which ones? For example, is a renewables target necessary for transport, given the targets for CO_2 reductions for passenger cars and light commercial vehicles?

EU policy should look for more efficient and least cost pathways in the transformation of the energy system.

The introduction of sectorial targets should be handled very carefully due to the risk of distortion of competition between different sectors. Aggregation should be allowed (e.g. transfer of CO_2 emissions and efficiency reductions from one sector to the other should be allowed and could be even fostered in order to achieve the least cost and most efficient pathway).

Thus setting an EU-wide GHG target for energy is recommended but sectoral targets should not be given in order to avoid hampering technological developments.

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

Innovation is helping to achieve EU targets at a lower cost. Competitiveness is key to the EU and its economic development. The Innovation Union will be strengthened by specifically supporting enabling technologies and by allowing them to demonstrate their abilities.

A continuous reality check of targets against implementation measures is extremely important, and should respond to progress monitoring systems. This would allow for a better understanding of the different technology maturity levels and for an adequate response, in time and resources, whenever gaps are identified. Constant investment, both public and private, in those technologies that prove to be successful could therefore be envisaged in a more effective manner.

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

For energy, security of supply can be defined by meeting a capacity adequacy indicator.

Energy storage is already ensuring a continued security of energy supply and can deliver a number of strategic services both in the regulated and the deregulated parts of the power industry. It also addresses, among others, three major challenges: balancing demand & supply; management of T&D grids; and increasing energy efficiency of the overall system. Continuous RD&D support as well as a favourable regulatory framework for storage technologies need to be put in place to allow for this potential to develop.

Furthermore, energy storage allows for the integration of very high shares of variable RES and thus (indirectly) supports the reduction of energy import dependency of EU economy by utilising indigenous energy sources to a much higher degree.

4.3. INSTRUMENTS

Are changes necessary to other policy instruments and how they interact with one another, including between the EU and national levels?

More consistency in linking the different EU initiatives is needed. On one hand, the Strategic Energy Technology (SET) plan pinpoints energy storage as a key enabling technology (KET), yet on the other hand, only some of these technologies have been given real support through the creation of European Technology Platforms (ETPs) and European Industrial Initiatives (EIIs). These implementation instruments are crucial to link the efforts of technology developers, investors, public authorities, member states and the EU.

The same is true for the fact that not all relevant technologies have been automatically taken up in Horizon 2020.

How should specific measures at the EU and national level best be defined to optimise cost-efficiency of meeting climate and energy objectives?

Specific measures should not be technology-prescriptive. Technologies that contribute in the most cost-efficient way to reduce GHG emissions and to achieve sustainability goals, and which provide more market integration through provision of a wide range of services, should face profitable market conditions. Most importantly, stable and predictable frameworks provide investors with the necessary investment certainty. Thus, frequent and retro-active policy changes need to be avoided.

New technologies, such as RES or energy storage, have different demands for a functioning energy market than a fossil fuel based centralised energy generation (e.g. OPEX versus CAPEX). So, market design becomes an important instrument in paving the way for these technologies to make use of their full potential. When defining specific measures, policy makers need to ensure that the blueprint is optimised in order to take into consideration these new demands when building new systems.

How can fragmentation of the internal energy market best be avoided particularly in relation to the need to encourage and mobilise investment?

Compatibility of markets is key; however, the fact that each member state has to address particular issues must be accommodated.

The third package for the realisation of the internal market should be about more than just cross-border trade. In addition, member states' markets should be transparent to allow for an understanding of business models throughout Europe, which will enhance investment opportunities.

Key market indicators need to be defined, i.e. exposure of imbalances to RES, the structure and timing of gate closures needs to be aligned, and the basic principles within each market should be harmonised on a European level as opposed to each member states creating rules which may create distortions.

These are high level design principles. This will clarify the position of investments and not necessarily define or encourage the investment. If further investments need to be encouraged within this framework, this should be done on the member state level as well on EU level via e.g. structural funds.

The EU should, however, send out a clear message that RES growth cannot be met unless the framework to integrate this source of energy into the system is improved.

Which measures could be envisaged to make further energy savings most cost effectively?

Energy storage has shown and proven to create savings in the energy market for the final consumer. In this regard, more should be done to accommodate further development and integration of proven energy storage solutions.

In order to achieve this, regulatory obstacles must no longer be a barrier to the development process.

Artificial regulatory control over markets in the form of price caps and floors needs to be removed to allow the energy market to develop naturally. This would encourage investment and ultimately allow the most cost efficient technology to excel, leading to savings to the end consumer.

How can EU research and innovation policies best support the achievement of the 2030 framework?

EU research and innovation policies need to be defined in a manner which supports the development and deployment of innovation in smart technologies and storage on a bulk and grid asset scale.

The SET-Plan, its governance review, and its implementation instruments should reflect these needs. The same is applicable for Horizon 2020; the inclusion of a new sub-task for energy storage within the topics considered in European RD&D calls would be a strong impulse for the development of these technologies.

Due to the fact that multiple storage technologies will be needed to cover the various requirements of the system (short vs. long duration, small vs. large scale), technological innovation in storage technologies is highly necessary to unlock the significant development potential inherent in most current storage technologies (e.g. chemical, electrical, electrochemical, mechanical, thermal).

Currently, a number of technologies exist at a sufficient level of technical and industrial maturity for deployment, but they are not competitive yet. These technologies have a large potential for cost savings. However, the lack of volume, the subsequent lack of industrial capacity, and an unsuitable market design leads to a lack of competitiveness compared to the established technologies in the field of generation, transmission and distribution. Therefore, in addition to technology support, regulation should also take into account the technical and economic potential of energy storage (e.g. market design which further facilitates the use of energy storage for provision of reserve and balancing power).

EASE has undertaken work with the European Energy Research Alliance (EERA) in this regard resulting in the publication of the Joint EASE/EERA recommendations for a European Energy Storage Technology Development Roadmap towards 2030.

These recommendations aim at identifying critical ES technology gaps and at providing milestones for technology development. The need for a coordinated approach in research activities, thus leveraging and optimising RD&D investments, is an important aspect considered in the publication.

The technologies selected for the above-mentioned Roadmap are those that EASE and EERA judge to have the most promising potential for development to market-based deployment in a time horizon of 10-20 years. Emphasis has been placed on the present industrial maturity and the potential market status for the technologies after appropriate development.

EASE therefore believes that the realisation of a 2030 framework cannot ignore the benefits of energy storage.

Indeed, the main energy storage functionalities include:

- The ability to time-shift electrical energy
- The ability to inject energy to the electrical grid (technically acting as a generator)
- The ability to extract energy from the electrical grid (technically acting as a demand).

Energy storage would therefore be expected to greatly contribute to the achievement of overall socio-economic targets:

- Security of the power supply of the Electrical System
- Security of power quality
- Cost minimisation: direct & environmental costs through the incorporation of greater levels of primary energy from renewables and therefore the greater substitution of fossil-fuels.

4.4. Competitiveness and security of supply

Which elements of the framework for climate and energy policies could be strengthened to better promote job creation, growth and competitiveness?

The decarbonisation of the European energy system will not only affect the power business but the entire economy. A comprehensive approach is needed, entailing a robust European industrial policy focusing on investments, innovation, human capital and skills. Policies aimed at job creation and tools to anticipate skill needs are necessary to equip the labour force for industrial transformation.

But not only Employment policies should be reviewed at member state level. In this respect, DG Education and Culture should be more involved in the process as it coordinates, within the EC services, the European youth-relevant programmes.

Reinforcing European technology leadership through increased RD&D support would avoid brain drain.

EASE members were involved and keep supporting initiatives such as the SET-Plan Energy Education and Training Initiative.

What evidence is there for carbon leakage under the current framework and can this be quantified? How could this problem be addressed in the 2030 framework?

X

What are the specific drivers in observed trends in energy costs and to what extent can the EU influence them?

Specific drivers are related to international energy markets (linked to the exploitation of indigenous resources such as shale gas in the US) and the European dependence on energy imports. Energy prices affect not only industry but also households, while energy-intensive industries are most vulnerable to energy prices.

According to the IEA, Europe's dependence on net oil and gas imports is set to increase.

Europe can influence the increasing costs of energy and needs therefore to channel investments wisely, towards power generation assets that are more efficient and towards enabling the use of indigenous energy sources, to T&D assets that lead to a more interconnected Europe and the completion of the internal energy market will help to curtail energy costs.

Energy storage is essential to integrate very high shares of RES and, at the same time, reduces dependence on fossil fuel imports from outside EU and ultimately leads to a lower cost energy system compared to a business-as-usual scenario.

Last but not least, the external dimension of the EU energy policy should be reinforced in neighbouring countries through strategic energy partnerships.

How should uncertainty about efforts and the level of commitments that other developed countries and economically important developing nations will make in the on-going international negotiations be taken into account?

X

How to increase regulatory certainty for business while building in flexibility to adapt to changing circumstances (e.g. progress in international climate negotiations and changes in energy markets)?

Early adoption of High Level design principles is important, together with the alignment of rules throughout Europe.

A cross over transition period of assistance may be required so as to not hinder the progress of projects which are in development and which are expected to reach commercial operation date (COD) around the same time as the change in policy.

This is particularly the case where completion of the internal energy market requires substantial alterations to current arrangements.

Uncertainty over member states reaching deadlines needs to be examined, as this increased risk will negatively affect investment opportunities.

Any proposed delays need to be discussed publicly at an early point. It is important to outline how such delays affect those with derogations (i.e. is the derogation from 2014, or the date at which the change occurs throughout mainland Europe).

The main challenges for energy storage are not only economic and technological but also regulatory as there is no clear EU framework to incentivise the building of storage capacity and provision of storage services.

To achieve a fair market design:

- EASE recommends a legal framework for energy storage at EU level to allow grasping all the added value energy storage can deliver, bearing in mind that the completion of the European single market for energy is crucial. A leeway for national approaches should be incorporated, as long as they do not create market distortion.
- EASE believes that energy storage constitutes a special and important asset of the complete energy value chain. Therefore the current levy structures (grid fees, taxes or similar) may not hinder the integration of energy storage.
- Storage devices can render services to the regulated and non-regulated part of the energy system. In providing such services, market based solutions should be preferred whenever possible.

- EASE believes that energy storage gives an added value on different levels in the energy system. Therefore the operator of such devices may differ. The market design could also allow specialised storage operators to emerge, as long as this does not trigger market distortion.
- EASE recommends that potential future capacity markets/payments must be shaped in such a way that without discrimination every energy storage technology should be eligible to participate, if able to fulfil the requirements.
- EASE reminds that storage technologies must be considered comprising its capabilities in sector export (e.g. power to gas, hybrid electric vehicles, heat storage…). Given the important consequences for the markets involved, EASE reminds that an integrated approach is advisable.
- EASE believes that adequate financial support for RD&D must be made available on EU level to allow grasping the full benefit that energy storage technologies can bring to the energy system

How can the EU increase the innovation capacity of manufacturing industry? Is there a role for the revenues from the auctioning of allowances?

Today, the EU ETS Directive only recommends that at least 50 % of the revenues from the EU ETS should be used for climate action. EASE would support this threshold to be increased to 100% and be made binding, so as the revenues coming from the auctioning of allowances would be yearly earmarked to national RD&D program to encourage research in enabling technologies, or gathered in a "Technology Fund for Cleaner Energy" and allocated after competitive process (NER 300 – like).

How can the EU best exploit the development of indigenous conventional and unconventional energy sources within the EU to contribute to reduced energy prices and import dependency?

X

How can the EU best improve security of energy supply internally by ensuring the full and effective functioning of the internal energy market (e.g. through the development of necessary interconnections), and externally by diversifying energy supply routes?

The internal energy market should help deliver the right business case and help remove barriers to energy storage. Those cross-border services that energy storage can provide are, for instance in many cases, not sufficiently addressed on EU level. EASE believes that those services would have a significant impact in ensuring security of supply. Energy storage is already ensuring a continued security of energy supply, and can deliver a number of strategic services both in the regulated and the deregulated parts of the power industry.

Energy storage is needed for better flexibility and stability to:

- cope with the increase of the peak demand
- cope with the increase of the level of variable RES
- reduce the level of RES curtailment
- reduce the import dependency in fossil fuels
- improve the payback of RES investments

In a longer perspective, energy storage will be demanded for non-electrical uses (e.g. transport and heating).

In addition, energy storage has shown and proven to create savings in the energy market for the final consumer. In this regard, more should be done to accommodate further development of proven energy storage solutions.

4.5. CAPACITY AND DISTRIBUTIONAL ASPECTS

How should the new framework ensure an equitable distribution of effort among Member States? What concrete steps can be taken to reflect their different abilities to implement climate and energy measures?

X

What mechanisms can be envisaged to promote cooperation and a fair effort sharing between Member States whilst seeking the most cost-effective delivery of new climate and energy objectives?

X

Are new financing instruments or arrangements required to support the new 2030 framework?

The EU should not look for additional financial instruments, but make sure that the ones in place function properly and deliver the expected added value. An optimisation of instruments such as the EU ETS to help driving investments forward provided that it can function efficiently should be a clear priority.

Limiting the budget for energy related activities in Horizon 2020 can have dramatic consequences for European industry and knowledge centres, thereby limiting European competitiveness and growth.

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The European Association for Storage of Energy (EASE) is the voice of the energy storage community, actively promoting the use of energy storage in Europe and worldwide.
EASE actively supports the deployment of energy storage as an indispensable instrument to improve the flexibility of and deliver services to the energy system with respect to European energy and climate policy. EASE seeks to build a European platform for sharing and disseminating energy storage-related information. EASE ultimately aims to support the transition towards a sustainable, flexible and stable energy system in Europe.

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Disclaimer:
This response was elaborated by EASE and reflects a consolidated view of its members from an Energy Storage point of view. Individual EASE members may adopt different positions on certain topics from their corporate standpoint.