

Implications of Non-harmonised Renewable Support Schemes

A CEER Conclusions Paper

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INFORMATION PAGE

Abstract

On 9 November 2011, CEER launched a public consultation on the implications of non-harmonised renewable support schemes (C11-SDE-25-04) addressing the existing differences between national support schemes in Europe and other areas of non-harmonisation in electricity markets. The document consulted on the impact these differences may have on investment decisions and on the functioning of national and European wholesale electricity markets.

The current document (C11-SDE-25-04b) incorporates stakeholders' responses to the public consultation and sets out CEER's final view on the implication of non-harmonised renewable support schemes. This conclusions paper may feed into regulators' further work in this area and, at a later stage, the European Commission's progress report required by the Renewables Directive, due by 31 December 2014.

An evaluation of responses of the public consultation (C11-SDE-25-04c) can be found in Annex 4 of this document.

Target Audience

Energy suppliers, traders, gas/electricity customers, gas/electricity industry, consumer representative groups, network operators, Member States, academics and other interested parties.

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Related Documents

CEER documents

- “Regulatory Aspects of the Integration of Wind Generation in European Electricity Markets”, A CEER Conclusions Paper, 7 July 2010, Ref. C10-SDE-16-03, http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_PAPERS/Electricity/2010/C10-SDE-16-03_CEER%20wind%20conclusions%20paper_7-July-2010.pdf
- “CEER Report on Renewable Energy Support in Europe”, CEER, 4 May 2011, Ref. C10-SDE-19-04a, http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_PAPERS/Electricity/2011/C10-SDE-19-04a_RES_4-May-2011%20final.pdf

External documents

- “Support Schemes for Renewable Energy. A Comparative Analysis of Payment Mechanisms in the EU”, EWEA, May 2005, http://www.ewea.org/fileadmin/ewea_documents/documents/projects/rexpansion/050620_ewea_report.pdf
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Table of Contents

EXECUTIVE SUMMARY	7
1 INTRODUCTION.....	9
1.1 Current developments.....	10
1.2 Significance of impacts of non-harmonisation of support schemes.....	10
1.3 Importance of non-harmonisation of support scheme factors	11
1.3.1 CEER's developed thinking	13
1.4 Perceived impacts of non-harmonisation on efficient realisation of RES targets.....	13
1.4.1 In support of the status quo (non-harmonisation).....	13
1.4.2 In support of a harmonised system.....	14
1.4.3 Consumer benefits	14
1.4.4 CEER's developed thinking	15
2 IMPACTS OF NON-HARMONISATION OF FACTORS OTHER THAN SUPPORT SCHEMES	16
2.1 CEER's developed thinking.....	17
2.2 Wider implications of RES support schemes.....	17
2.2.1 Investment decisions.....	18
2.2.2 Market functioning.....	18
2.2.3 CEER's developed thinking	19
2.3 Interaction with RES targets.....	19
3 CONCLUSIONS.....	21
3.1 Final conclusions and proposals for next steps	22
ANNEX 1 – CEER	24
ANNEX 2 – LIST OF ABBREVIATIONS	25
ANNEX 3 – LIST OF RESPONDENTS TO CONSULTATION.....	26
ANNEX 4: EVALUATION OF RESPONSES	29
Introduction	29
Consultation question 1	30
Consultation question 2.....	36
Consultation question 4.....	36
Consultation question 3.....	39

Tables

Table 1: RES support design factors ranked by submitters in order of importance 11

EXECUTIVE SUMMARY

Background

In 2011, CEER launched a public consultation document on the implications of non-harmonised renewable support schemes, in order to explore and better understand some of the effects that the differences between support schemes in Europe may have on investment decisions and on market functioning.

In addition to inviting relevant stakeholders and market participants to respond generally to this consultation and participate in the discussions on this document, CEER invited stakeholders to reply to and provide comments on the following non-exhaustive list of questions:

Public consultation questions

Question 1: How significant do you consider the impacts of non-harmonisation of support schemes to be for the development of RES and RES technologies?

Question 2: In comparison, how significant do you consider the impacts of non-harmonisation of factors other than support schemes, explored in this report (or in addition to those explored) to be for the development of RES and RES technologies?

Question 3: Please place the factors of non-harmonisation (whether explored in this report or not) in order of materiality/significance. Please separate non-harmonisation of support schemes into type, level, structure and stability of support as explored in this paper (see table 1).

Question 4: In your view, does this consultation document capture all major implications of non-harmonisation of support schemes? Are there additional impacts on investment decisions, market functioning or any other areas you consider relevant?

Implications of non-harmonised support schemes

This conclusions paper is a summative analysis of the responses received to the consultation. It focuses on the perceived impacts of efficient realisation of renewable energy sources (RES) targets arising from non-harmonisation of RES support schemes and on the impacts of non-harmonisation of factors other than support schemes.

The report finds that, across the range of factors affecting support schemes, stability was felt to be the most important. As many respondents noted, most RES technologies are characterised by high investment costs and long payback periods. These characteristics demand a stable system in order to attract positive investment decisions. Issues felt to be of the least importance were the provision structure and history of support. According to respondents' views, if provision is fair and the support scheme is stable the relevance of the history of the support is minimal.

There was a broad consensus among stakeholders that non-harmonisation has a significant impact on RES schemes and the development of RES technologies. Diverging views existed over whether these impacts are broadly positive or broadly negative.

When considering the impacts of non-harmonisation of factors other than RES support schemes, respondents indicated that the level of connection charging and connection rules were the most significant factors, followed by the time taken to connect. Other factors mentioned included: the balancing regime, the permitting/consent process, differences in market engagement rules, administrative burdens, non-harmonisation of levelised energy costs and dual positions on existing subsidies and coordination challenges.

Stakeholders also considered the wider implications of the non-harmonisation of RES support schemes and shared these additional views with CEER. Besides the EU energy strategy, the development of an internal market, the effects of the economic recession and the EU's Emissions Trading Scheme (EU ETS) carbon price on RES deployment were all mentioned. The views on these issues are explored from both the perspectives of both the investment community and (development of) the European Internal Energy Market (IEM), as well as the interaction with RES targets.

Conclusions

This report provides a comprehensive review of the implications of non-harmonisation of RES support schemes on efficient realisation of renewable targets, and reveals the range and divergence of opinion amongst European Member States.

Responses to the consultation related to the significance of RES support schemes characteristics, such as stability of support schemes and the minimisation of investment risk.

Views were also received in relation to other factors, such as 'structural enablers' for RES schemes. These enabling factors were felt to be critical, in recognition that RES could only realise its full potential with efficient transmission networks, smart grids, a mature market in 'intelligent products' and consumers equipped with smart meters.

Additionally, stakeholders shared their wider views relating to the efficient realisation of RES targets with CEER.

The report concludes that views relating to the optimal design of support schemes and the need for (non-) harmonisation of support schemes remain indeterminate and makes recommendations for future actions.

1 Introduction

“Europe is substantially committed to increase the contribution from renewable energy sources (RES) to total energy consumption. In the next ten years, the share of RES in the electricity market is expected to rise from 21% today to 35%. A further growth is anticipated and desired in the period after 2020, as the longer-term objective is to decarbonise the electricity sector in a sustainable way” (2010 ETC/ACC Technical paper¹)

To help ensure the achievement of the binding European 2020 targets of 20% greenhouse gas emission reductions and 20% energy consumption from renewable sources, and to ensure current policy objectives deliver RES on a trajectory consistent with the Low Carbon Economy Roadmap 2050, the Commission recently consulted on the validity of the current energy policy framework with a view to publishing Communications on both the IEM and RES during 2012.

The timing of this review, combined with the Commission’s intention to propose guidelines for more harmonised reforms and facilitate further the development of cooperation mechanisms (due 2014), highlights the importance of understanding the impacts from (non-) harmonisation of RES support schemes. This is further underlined by the scale of investment needed in energy infrastructure in order to achieve the 2020 targets, the majority of which is associated with RES connectivity.

This conclusions document aims to set out the CEER evaluation of responses received to the public consultation on the implications of non-harmonised renewable support schemes. The consultation document was developed in order to gauge stakeholders’ views on the potentially material implications for investment patterns, electricity markets and ultimately for consumers of non-harmonised support for renewable electricity generation.

RES support schemes (and the degree to which they vary between Member States) were selected as worthy for investigation as they are often considered to be the key driver for the development of renewable electricity generation. In addition, support schemes have a direct impact on electricity markets and on end-consumers, two key areas of European energy regulatory activity.

In framing the consultation, CEER was aware that whilst non-harmonisation may lead to the most significant (positive and/or negative) impacts, other factors such as grid connection charges, balancing regimes and permitting timescales can all have notable effects on RES development at Member State and EU levels. These ‘other’ factors are addressed in this conclusions report, with a CEER view provided on their relative importance.

This conclusions document brings together responses received to the consultation, from 42 respondents (Annexes 3 and 4), and explores some of the potential issues raised, providing a CEER view where appropriate. It is intended to form a constructive contribution to the wider debate around RES targets (2020 and 2050) and the Third Package objective of a fully integrated, well-functioning IEM.

¹http://acm.eionet.europa.eu/reports/docs/ETCACC_TP_2010_18_REG_Integration.pdf

1.1 Current developments

In his 16 April 2012 speech to the EWEA, EU Energy Commissioner Oettinger highlighted several points relevant to the non-harmonisation of RES support including: the effect of abrupt changes to wind and solar support schemes; the possibility of greater Commission guidance on support schemes to Member States; the need for greater cooperation between Member States on RES development/deployment; the need to strengthen third country agreements and a renewed focus on overcoming infrastructure constraints.

1.2 Significance of impacts of non-harmonisation of support schemes

CEER had a very positive response to the public consultation, but the diversity of views resulted in an indeterminate position emerging overall.

Respondents in favour of harmonisation of support schemes cited reduced system costs (due to interoperable RES systems and infrastructure) and the contribution towards strategic, EU wide objectives, such as the achievement of 2020 RES targets.

These contributors also emphasised the importance of RES integration into network infrastructure, and linked the centrality of integrated renewable energy interactions (both in trading and actual energy transmission terms) with the progress of wider policy developments such as the Energy Infrastructure Package (EIP) and the implementation of the Third Package and European Network Codes (NCs).

Respondents who were against harmonisation of RES support schemes (hence maintaining the status quo) argued that removing national control over RES support schemes may introduce greater investor uncertainty, thereby increasing the costs of achieving the 2020/2050 low carbon objectives and reducing the variation between RES support schemes (which may have a knock-on effect on the variety of RES technologies deployed, and therefore the innovation and 'learning by doing' supply chain benefits).

Respondents' views on harmonisation were broadly split, with a slight tendency towards pro-harmonisation of RES schemes, on the basis that the present system leads to inefficient RES investment allocations and an inefficient distribution of costs amongst end consumers. However, not all respondents agreed with concerns raised in relation to reduced levels of competition and innovation amongst Member States and the negative effect of harmonisation on system-wide stability.

This lack of consensus amongst stakeholders is a useful finding in itself and is potentially of interest to the Commission in its preparation for an assessment of the functioning of RES support schemes (as part of the implementation report of the RES Directive due in 2014). It may indicate the need for further research into cooperation mechanisms as a means of bringing forward some of the advantages associated with greater harmonisation without incurring the full range of possible drawbacks.

1.3 Importance of non-harmonisation of support scheme factors

RES support schemes often pre-date RES Directive targets, and in many cases have been developed on an individual Member State basis. This has led to the emergence of three broad categories of RES (Feed-In Tariffs (FIT), Feed-In Premiums (FIP) and quota obligations) across the EU, and therefore a degree of non-harmonisation between Member States' RES support schemes.

The following chapter summarises respondents' views on the materiality of RES non-harmonisation and other/wider issues, e.g. the successful completion of the IEM.

In considering the materiality of the impact of non-harmonisation of RES support schemes, the CEER consultation set out five design factors:

- **Type of support:** price-based or quota-based scheme
- **Level of support:** high or low amount of support provided
- **Support provision structure:** fixed or variable rate over time
- **History of support:** long- or short-term duration
- **Support scheme stability:** perception of stability – stable or instable

Stakeholders were asked to rank the five elements in order of importance from their institutional, academic and/or commercial perspectives. Overall, respondents indicated that **scheme stability** was by far the most important factor (Table 1). They noted the detrimental effect of instability, uncertainty and frequent scheme modifications on attracting and retaining high levels of investment.

Table 1: RES support design factors ranked by submitters in order of importance

More important	1. Stability
	2. Level
	3. Type
	4. Structure
Less important	5. History

Most importantly, respondents considered a *stable* system to be distinct from a *fixed and unchanging* support regime. A number of submissions proposed defining stability as a reliable investment environment combined with transparent decision-making processes.

Respondents noted that the majority of RES technologies were characterised by very high initial costs and long payback periods (in many cases over 20 years). As a result, investors tended to regard legal certainty and scheme stability over and above other factors. From a commercial perspective, long-term certainty reduces the financing costs of RES and allows more accurate cash flow forecasts to be developed. This lower risk and cost facilitates more RES deployment.

Respondents assigned secondary importance to the **level and type of support** factors in terms of contributing to non-harmonisation. Overall, the **level** rather than the **type** of support was viewed as having a slightly greater impact on non-harmonisation, and of more importance to commercial interests (as support levels were felt to be central to business investment in RES technologies).

Broadly speaking, respondents felt a high level of support could compensate for a lack of stability, but only up to a point, and all acknowledged the high costs associated with this approach, mainly borne by consumers.

For both the level and type of a RES support scheme, respondents discussed the impact on non-harmonisation from the perspective of its effect on investment decisions. In the case of the level of support, they noted investment in RES is most likely to occur if the level of support is calibrated correctly to payback periods. The current variation in levels of support between EU Member States, as highlighted in CEER's consultation document, demonstrates that the level of support influences investment decisions to a far greater extent than differences in natural resources.

A number of respondents suggested that the definition of 'level of support' should be extended to include non-financial considerations as well. In particular, the absence of streamlined procedures for administering RES support schemes was seen as a barrier to investment.

Respondents expressed mixed views on the impact of the **type of scheme** (e.g. price-based and quota-based RES support schemes). Respondents' preferences were influenced by their own institutional or commercial perspectives. Trade bodies preferred the use of FIT, arguing that quota obligations combined with the use of tradable green certificates in the past had failed to stimulate large scale demand and been unsuccessful in reducing costs.

Other groups of stakeholders, for example academics and large power companies, felt quota-based systems were important because they provided price signals to investors and did not distort the investment decision framework. From this perspective, tradable green certificates were seen as beneficial, helping to promote competition amongst RES generators, whilst the more market-based approach was felt to promote transparency and greater integration between renewable and fossil-based generators within the electricity system.

Respondents assigned the least importance to the **support of provision structure and history of support elements** factors. For support of provision structure, respondents largely felt that as long as the provision was fair, how it was realised was of less importance. A variable support structure was not thought to unduly undermine scheme stability, as long as the mechanisms for initiating change were transparent and widely communicated *ex-ante*.

As far as the history of support is concerned, respondents felt this factor was only important to the extent that historical events could be assumed to be indicators of future scheme conditions. The point was reiterated that, if support scheme stability exists, the relevance of history of support and its contribution to non-harmonisation would be minimal.

1.3.1 CEER's developed thinking

Having reviewed respondents' comments, CEER believes support scheme stability is a necessary condition for a cost efficient bankable support scheme. As a number of respondents highlighted, 'perception' of support scheme stability is important, but the question is what the key characteristics of stability are that appeal to the investment community. CEER believes transparency and predictability lie at the centre of this. The level of support can change over time provided the methodology for calculating is known ex-ante and the long lead times for RES deployments are taken into account of when adjustments are made, i.e. stability does not have to be synonymous with constant returns. Instead, retrospective changes are by far the most detrimental to investor confidence. This degree of flexibility means harmonisation of support schemes is possible in the long-term without an adverse effect on investor confidence.

CEER also notes the wider importance of a differentiated approach to technology subsidy, in order to ensure that the development of mature technologies not currently suitable for large scale deployment (but necessary in the future to deliver longer term carbon savings) is encouraged.

It is also unclear to what extent the economic crisis has affected investors' perception of the likelihood of retrospective changes to support scheme systems.

1.4 Perceived impacts of non-harmonisation on efficient realisation of RES targets

The CEER consultation presented an overview of the potential positive and negative impacts on the efficient realisation of 2020 RES targets that could arise from harmonisation and non-harmonisation of RES support schemes.

In providing evidence in support of these positions, the majority of respondents thought that the impact of non-harmonisation of RES support schemes was significant. However, whilst there was consensus over the significant effects of non-harmonisation on RES schemes and development of RES technologies, views differed in relation to whether these effects resulted in broadly positive or negative impacts.

1.4.1 In support of the status quo (non-harmonisation)

A number of respondents thought that non-harmonised support schemes were beneficial in terms of supporting an appropriate match between RES technology type and Member States' renewable generation potential, in addition to allowing individual States to tailor support schemes to achieve the maximum benefit for their regional supply chain and workforce skills development needs.

A non-negligible amount of respondents argued against a move towards greater harmonisation on the basis it might result in an inefficient (in terms of technology choice and wider socio-economic benefits) compromise between existing schemes. One respondent felt these factors increased the benefits associated with competition, which in turn helped to drive decreases in technology/system prices.

Turning from arguments of competition to the importance of system stability, some respondents felt that a geographical concentration of renewable energy resources could affect the balance and internal functioning of the European energy system:

“Concentrating wind energy projects predominantly at “best sites” would greatly endanger system stability. System stability in a largely renewables-based scenario requires sufficient renewable capacity evenly spread throughout Europe to provide ancillary services such as reactive power, frequency control etc.”

Respondents in favour of the status quo also argued that such an inefficient allocation of RES investment would have the effect of making the transition to a climate-neutral electricity supply unnecessarily expensive for European consumers, and pointed to the risk of windfall profits for RES incumbents arising from quota-based harmonised schemes.

As an alternative to the harmonisation vs. non-harmonisation of individual Member State schemes, one respondent suggested that RES support could be incorporated within the (EU ETS at some point in the future, on the basis that a combination of a (well-functioning) carbon price and full integration of renewables within energy markets would make support schemes redundant.

1.4.2 In support of a harmonised system

From a well-functioning internal market perspective, respondents argued that continued non-harmonisation of RES support schemes would add unnecessary complexity and uncertainty to investment decisions, leading to a higher cost of capital for RES developers and so less cost-effective solutions (ultimately impacting on consumers).

“Lack of competition due to closed national support schemes and technology specific tariffs leads to cost inefficiencies and hence higher costs for customers. Harmonisation would create a level playing field allocating production to areas with the best available and most cost efficient resources and grid connection.” (Respondent view)

Respondents also thought that non-harmonisation was hampering the development of third country projects (as allowed for in the RES Directive)

Widespread harmonisation in a short time frame was considered problematic, with respondents expressing their preference for a phased approach, involving 'regional' harmonisation (regions could be defined on the basis of geographical adjacency, quality of trans-boundary transmission linkages and/or scheme similarities) supported by EU guidelines, gradually expanding and merging with other regions to maximise benefits and reduce the potential for unintended consequences.

1.4.3 Consumer benefits

Respondents in favour of harmonisation argued that a harmonised system of RES support schemes (leading to greater cross-border liquidity) may bring benefits to consumers through improved access to competitive tariffs, greater convergence between renewable and mainstream generation wholesale electricity costs and a standardisation of RES subsidies across consumer bills. Conversely, a non-harmonised system was believed to increase the social cost of a transition to a low carbon Europe in the long term.

1.4.4 CEER's developed thinking

Having reviewed respondents' comments, CEER acknowledges the tension between maintaining downward pressure on consumer bills (best achieved through competitive arrangements and innovation amongst RES technology development and deployment) and the need for rapid progress towards achieving Europe's low carbon objectives (an advantage associated with greater harmonisation of support systems and RES infrastructure integration).

This divide in viewpoints reflects the debates held prior to agreement of the RES Directive, and points to a possible hybrid regional solution. This would be neither wholly harmonised nor wholly Member State based, exploiting those areas where political and technical institutions are already part-aligned alongside readily available (and therefore cost-efficient) RES resources.

2 Impacts of non-harmonisation of factors other than support schemes

In the consultation document, CEER noted that many other factors aside from non-harmonisation of support schemes affect RES project costs and risks. In the consultation, CEER highlighted a few of these other factors:

- local terrain
- connection and charging rules
- wholesale electricity market arrangements
- ancillary services
- social acceptance, planning and permitting
- subsidies for other technologies

Respondents were asked to what extent the non-harmonisation of other factors, either listed in the report or additional ones, affected the development of RES and RES technologies. Our aim was to establish if there was a consensus view on the extent to which factors other than the non-harmonisation of support schemes impacted on the investment decision, and consequently, the overall levels of investment in RES provision.

When considering the impacts of non-harmonisation of factors *other than* support schemes for the development of RES and RES technologies, respondents indicated that the most significant factors were:

- level of (connection) charges and connection arrangements ('rules')
- time taken to connect
- balancing regime
- time and complexity of permitting/consenting process

Respondents also highlighted a broad range of other issues, including, but not limited to:

Differences in market engagement rules - Respondents indicated a range of 'market participation' impacts (and therefore higher operating costs) arising from differences between Member States support schemes. These include: variable grid connection and charging arrangements, wholesale market design, the requirement to provide/participate in ancillary services and risks associated with failure to meet grid balancing obligations;

Administrative burdens - It was felt that, whilst minor in relation to build and operating costs, the non-harmonisation of administrative, monitoring, reporting and certification processes across RES support schemes incurred an on-going financial and operational burden on RES operators;

Non-harmonisation of levelised energy costs (LEC) - Different approaches to defining system boundaries and discount rates between Member States when calculating LEC were perceived to have an impact, particularly in terms of reflecting the higher capex/lower opex characteristics of RES and the extent to which additional costs and benefits are incorporated (e.g. investment in flexible, 'intelligent' distribution systems; reduced impacts on the environment and public health);

Dual positions on existing subsidies – The issue of existing subsidies generated a range of views amongst respondents, with arguments in favour of continuing subsidies for RES back-up technologies (gas, Combined Heat and Power (CHP) etc.) set alongside calls for reduced subsidies for fossil fuel generation. Capacity incentive mechanisms were raised as a possible means of balancing the need to maintain peak demand capacity (for security of supply reasons) with the need to manage intermittent generation sources (to encourage the emergence and integration of RES);

Coordination challenges – Low levels of financial interoperability and physical connectivity between markets was felt to be a key factor influencing the emergence of a functioning IEM. Responses highlighted the need for higher and more responsive transmission/interconnector capacity to allow for intraday trading, common and coordinated planning of grid connection for offshore RES, and the economic inefficiencies associated with a lack of top-down EU grid development (particularly in relation to incentivising investment in smart grids);

In addition to the ‘other factors’ highlighted above, the list of wider effects also includes the *emergence and integration issues associated with heat networks* and how to reflect *RES technology ‘externality’ costs*.

2.1 CEER’s developed thinking

As many countries start to address the need for capacity mechanisms to help balance security of supply concerns with the emergence of RES, there may be a need to explore more fully the interactions between support schemes designed to support the increased deployment of RES, and capacity mechanism schemes designed to ensure resource adequacy. This report highlights only the existence and potential significance of interlinks between RES support schemes and capacity mechanism. We recommend this issue is examined in more detail by relevant bodies as a separate work stream.

2.2 Wider implications of RES support schemes

The CEER consultation document suggested that the non-harmonisation of RES support schemes can have a number of impacts on the energy industry, and thus on the RES targets.

These impacts were split into two categories. The first category was the impact of non-harmonisation on investment decisions for project development. This includes the location of RES development, connection decisions, RES concentration into more than one market, etc. The second category was the effect that non-harmonisation can have on the functioning of national and European wholesale electricity markets, e.g. the effects of electricity wholesale market prices.

In the consultation, CEER invited respondents to comment on these wider considerations (i.e. non-harmonisation affecting areas such as investment decisions or market functioning). CEER’s aim was to find out to what extent non-harmonisation of RES support schemes caused sub-optimal RES location decisions and/or price distortions in electricity wholesale market prices. If stakeholders viewed non-harmonisation as not being the sole contributing factor, we sought to understand what these other contributing factors were and the relative importance of each of these compared with non-harmonisation. Establishing the consensus view, if one exists, allows us to propose suitable recommendations for future action.

Where respondents commented on these broader considerations and the wider effects of RES, they generally adopted a narrow focus commenting only on the issues that were most relevant to their interests and did not explore the issues in detail. As a result, these are discussed in more detail here with an update on the latest developments in these other areas drawn out.

A number of respondents commented on wider implications associated with the development of RES. One respondent felt we should not regard the shortcomings of national support schemes and the overall current EU approach to RES merely from a non-harmonisation point of view, arguing instead for a **longer-term vision** (defined as 2018 onwards) for RES development and deployment which would help provide long term market certainty and smooth out near-to mid-term concerns over national scheme.

Several respondents also pointed to the successful development of RES being subject to an **overall level of support offered** (rather than schemes being unified or not). Minimum installation volumes would play an important role, and non-harmonisation of support schemes was a small part of the problem when set against the imperfections of the wider internal electricity market.

There were also calls for support for RES to be delivered via **industrial R&D and public/private innovation programmes** (capacity building and industrial policy) rather than generation subsidies.

2.2.1 Investment decisions

From an investment perspective, ENTSO-E has argued that true market integration will only occur when adequate transmission capacity exists to support it. Their draft Ten Year Network Development Plan (TYNDP) identifies a need for €104bn of investment in transmission and interconnection projects of pan-European significance, and estimates that 80% of projects are related to supporting the integration of RES.

These figures highlight the important role RES are foreseen as playing in the future of the IEM. The fact that RES are specifically mentioned in the draft TYNDP strengthens the need for their efficient allocation, which will in turn drive investment in RES infrastructure. Optimal and efficient location is also essential to ensure that the incurred investment- and operation-related costs are efficient and affordable.

2.2.2 Market functioning

From a markets perspective, the 2014 target calls for a harmonisation of market characteristics in order to achieve market coupling and deliver consumer and carbon benefits. The 2014 target date for completion of the IEM highlights the importance of (non-) harmonised RES support.

Continued non-harmonisation of support schemes was felt by some respondents to interfere with effective market functioning (given the distorting effect of non-harmonised support schemes on the cross-border wholesale market price of electricity). However, all parties acknowledged that market distortions were not unique to the degree of RES support (non-) harmonisation, as imperfections already existed in the differences between Member States' balancing regimes and pricing approaches.

2.2.3 CEER's developed thinking

In summary, CEER is supportive of the call for a greater cooperation in both RES support schemes and 'enabling infrastructure' (such as efficient cross-border transmission capacity, intelligent distribution grids and more dynamic supply/demand interactions between generator and end-users).

2.3 Interaction with RES targets

Respondents' views on non-harmonisation of RES support schemes in Europe and its impact on RES targets varied widely. Whilst harmonisation was preferred by a small majority of respondents citing non-harmonisation as limiting investors' ability to make optimal investment decisions, the impact on investment decisions was highlighted as an important issue by both sides and one of the main reasons cited by those against harmonisation. In essence, respondents' views on costs and efficient resource allocation, and hence the overall cost of realising RES targets, was largely determined by the importance they placed on investor confidence and a predictable framework versus the absence of distortions in realising the most efficient solution.

Respondents in favour of harmonisation argued that without this the cost of transition towards a low carbon/climate neutral energy supply would be higher. They argued that an inefficient distribution of capital expenditure in Europe results from locations that have the highest RES deployment potential for particular RES technologies not being fully and cost-efficiently utilised. They warned this may undermine public acceptance of meeting RES targets as the overall cost will be higher, a cost which will ultimately be borne by consumers.

Respondents expressed diverging views on the impact of non-harmonisation on competition between support schemes. One group argued that different national support schemes would help facilitate competition. The other group thought that national RES support schemes enhance competition between EU countries, and thus prevent RES generation investments being developed in the most optimal way. This highlights a potential conflict of interest between the EU and individual Member States. A higher RES subsidy in a Member State positively affects RES growth since more RES investment will occur here, but it makes the overall cost of realising RES targets at an EU level higher, the cost of which is ultimately borne by consumers. The prevailing outcome will determine how high the overall cost of meeting RES targets at an EU level is.

The overall view of respondents reflects the generally positive opinion surrounding the harmonisation of RES support schemes, whilst recognising that harmonising RES support schemes alone would not be enough. The process of harmonisation demands a clear line of implementation, and a holistic view on energy markets in Europe.

Since different RES technologies complement each other, the timing of decision-making needs to be considered.

3 Conclusions

The aim of the analysis was to provide an assessment of the implications of non-harmonisation of support schemes on the efficient realisation of RES targets.

The report sets out CEER's final view informed by responses to the public consultation paper C11-SDE-25-04 (Implications of non-harmonised renewable support schemes).

The report also builds on earlier findings set out in CEER Reports C10-SDE-16-03 (Regulatory aspects of the integration of wind generation in European electricity markets, 2010) and C10-SDE-19-04a (Report on renewable energy support in Europe, 2011).

The intention is for the conclusions presented below to feed into further regulatory work in this area (particularly High-Level Group of Member State representatives on reform of RES support schemes), and contribute to the European Commission's progress report on implementation of the RES Directive, scheduled for 31 December 2014.

Conclusions relating to the significance of RES support scheme characteristics:

- *Stability* of support schemes was felt to be the most important characteristic, reflecting the need for investment certainty given the 'high up-front costs, long payback period' profile typically associated with RES. Importantly, stability was not felt to be the same as 'no change'. Respondents to the consultation felt that stability could also be defined as a reliable investment environment combined with transparent decision-making processes;
- *Minimisation of risk* was a key factor affecting investment in RES, both in terms of *governance risk* (RES support scheme 'rules' being altered or curtailed) but also risks associated with *under-estimating RES performance* (resulting in balancing penalties). Greater levels of R&D was called for to help address the latter risk area;
- The *appropriate level of support* was felt to be consistent with a fair rate of return point for investors, but also needed to reflect *non-financial elements* such as administrative burdens and monitoring/reporting regimes.

Conclusions relating to factors other than support schemes:

- RES support schemes alone will not achieve the efficient deployment of RES; other non-harmonised factors need to be considered. These include the level of connection charging and 'rules', the time taken to connect (including time and complexity of permitting) and the balancing regime (becomes increasingly important with harmonisation).

Wider considerations relating to the efficient realisation of RES targets:

- It was felt that certainty around a *long-term vision for RES deployments* (supported through legally binding targets) and the *overall level of support* (rather than harmonisation vs non-harmonisation of specific schemes) were the most significant factors affecting investment support for RES.

3.1 Final conclusions and proposals for next steps

The divergence in the design of support schemes by EU Member States and their contrasting views on the need to harmonise these schemes, if at all, as well as the timescale over which this should be done, all highlight the lack of consensus in this area. Since meeting RES targets will involve substantial increases in consumers' bills, it is imperative that the most cost-efficient approach is adopted.

As a grouping of European energy regulators with responsibilities for promoting competition and protecting consumers, CEER encourages a balanced debate between the merits of harmonisation and more efficient deployment on the one hand, and the risks of uncertainty and perceived instability of support on the other.

Going forward, as technologies and cost reductions allow RES to be located in areas that were previously not possible, it may be more efficient for some RES generation, for example offshore wind, to connect directly into an interconnector rather than into a national network or to connect into more than one market. This highlights the need for a more integrated approach at an EU level.

To date, the majority of RES support schemes have been developed and deployed at the national level, reflecting particular Member States' individual economic, social and technological circumstances. However, the linked issues of: the rise in RES volume (the overall renewable energy share in the EU has increased from 8.5% to 12.4% between 2005-10), the move towards an IEM and the prospect of challenging post 2020 targets may also imply a move towards greater cross-border exchanges (widening the cost-efficiency point above to incorporate system balancing benefits and/or to share deployment risks on novel technologies). In this situation, national-level RES support schemes will have to address the fact that domestic generation will no longer be exclusively connected.

Reaching an overall consensus at EU level may prove to be too difficult. However, through regional initiatives, such as the North Seas Countries Offshore Grid Initiative (NSCOGI), a greater degree of cooperation and harmonisation of regimes may be attainable. With regional initiatives like these, EU Member States have similar RES potential technology interests and so a move towards more integrated projects and decision making may be possible. Given that countries with similar RES potential in a particular technology broadly align with similar resource potential/geographical areas, for example countries with high wind RES potential (northern and western Europe) and solar photovoltaic RES potential (southern Europe), co-operation between Member States affected by potential projects of common interest is a realistic goal.

Since RES technology location decisions have implications for the wider network infrastructure, the absence of a co-ordinated approach surrounding support scheme regimes are felt more widely. For example, one of the European Commission's 12 priority corridors outlined in the EIP is electricity highways. In the absence of a co-ordinated approach, the total cost of meeting RES targets will be higher and this cost will ultimately be borne by consumers. A top-down approach may be required to help realise the most efficient developments (such as using the TYNDP to help identify key opportunity and constraint areas). However, this may run counter to the preferred bottom-up decision-making approach preferred between Member States.

CEER believes that the lessons learned from this report should inform decisions taken on forthcoming legislation and during policy negotiations. These areas may also be usefully developed into further research proposals.

In particular,

- The relationship between subsidies for RES support schemes and the emergence of capacity mechanisms in Member States, and the possible evolution of RES support schemes from subsidy-based to market-based (through possible linkages to the EU ETS).
- The potential for RES support subsidies to cause inefficiencies in cross-border trade of electricity;
- The potential (not directly reflected in the report but highlighted by several respondents) for the design/development of network codes in overcoming some of the identified barriers to efficient RES deployment (such as tariff differences and grid access);
- Further research into cooperation mechanisms and possible regional approaches (between full harmonisation and the status quo).

Finally, CEER notes that these issues are not exclusive to Europe. In particular, the potential for alignment of European systems with adjacent non-EU countries and North African energy sources (e.g. the Mediterranean Solar Plan promoted by the Union for the Mediterranean (UfM)) is relevant to both the technical and financial aspects of the harmonisation agenda, and CEER will continue to monitor emerging research in this area under the auspices of the International Confederation of Energy Regulators (ICER) and in cooperation with the NRAs of the Mediterranean.

Annex 1 – CEER

The Council of European Energy Regulators (CEER) is the voice of Europe's national regulators of electricity and gas at EU and international level. Through CEER, a not-for-profit association, the national regulators cooperate and exchange best practice. A key objective of CEER is to facilitate the creation of a single, competitive, efficient and sustainable EU internal energy market that works in the public interest.

CEER works closely with (and supports) the [Agency for the Cooperation of Energy Regulators \(ACER\)](#).

ACER, which has its seat in Ljubljana, is an EU Agency with its own staff and resources. CEER, based in Brussels, deals with many complementary (and not overlapping) issues to ACER's work such as international issues, smart grids, sustainability and customer issues.

The work of the CEER is structured according to a number of working groups, composed of staff members of the national energy regulatory authorities. These working groups deal with different topics, according to their members' fields of expertise.

This report was prepared by the Sustainable Development Task Force of the CEER Electricity Working Group.

Annex 2 – List of abbreviations

Term	Definition
CEER	Council of European Energy Regulators
CHP	Combined Heat and Power (Cogeneration)
CWE (region)	Central West Electricity (region)
DECC	Department of Energy and Climate Change
EC	European Commission
EEX	European Energy Exchange
EIP	Energy Infrastructure Package
ENTSOE	European Network of Transmission System Operators for Electricity
EU	European Union
EUETS	European Union Emissions Trading Scheme
FIP	Feed-in-Premium
FIT	Feed-in-Tariff
GB	Great Britain
GOs	Guarantees of Origin
Green Package	The Climate Action and Renewable Energy Package (2008)
ICER	International Confederation of Energy Regulators
IEM	Internal Energy Market
LEC	Levelised Energy Costs
MWh	Megawatt hour
NRA	National Regulatory Authorities
NC	Network Code
NSCOGI	North Seas Countries Offshore Grid Initiative
RES	Renewable Energy Sources (Also used in this report to mean renewable generation)
RES Directive	The Renewable Energy Directive (2009/28/EC)
ROCs	Renewable Obligation Certificates
TGC	Tradable Green Certificate
TSO	Transmission System Operator
TWh	Terawatt hour
TYNDP	Ten Year Network Development Plan

Annex 3 – List of respondents to consultation

CEER received 42 responses, including 5 confidential ones. Non-confidential responses were received from the following organisations:

Submitter	Member State	Short description
Asociacion de Comercializadores Independientes de Energia (ACIE)	Spain	Independent Marketers Association of Energy
Association of Energy and Water Industries Germany (BDEW)	Germany	Represents the interests of gas, electricity and water industries in Germany
Bundesverband Erneuerbare Energie e.V. (BEE; German Renewable Energy Federation)	Germany	Umbrella organisation of the renewable energy industry in Germany
European Federation of Local Energy Companies (CEDEC)	European	Unites the interests of local utilities in the energy sector at European level
CEZ a.s. (CEZ)	Czech Republic	Producer of (mainly coal-sourced) electricity and supplier
Czech Photovoltaic Industry Association (CZEPHO)	Czech Republic	Founded by Czech RE Agency and other key subjects of the Czech PV sector with the aim to join efforts and promote development of the photovoltaics in the Czech Republic
EDF Energy	UK	Integrated energy company
EDF	France	Integrated energy company
Edison SpA (Edison)	Italy	Electricity producer
European Network of Transmission System Operators for Electricity (ENTSO-E)	European	Represents electricity TSOs in Europe
European Federation of Energy Traders (EFET)	European	Represents over 90 trading companies in more than 20 countries
European Geothermal Energy Council (EGEC)	European	International non-profit association in Brussels
E.ON AG	Germany	Energy company
ESTELA	European	European Industry Association created to support the emerging European solar thermal electricity industry for the generation of green power in Europe and abroad, mainly in the Mediterranean region
Eurelectric	European	Represents the common interests of the electricity industry at European level
Association of European Energy Exchanges (EuroPEX)	European	a not-for-profit association of European energy exchanges
European Wind Energy	European	Represents the wind industry at European

Submitter	Member State	Short description
Association (EWEA)		level
Fortum	Nordic countries, Russia, Poland, Baltic countries	Activities cover the generation, distribution and sales of electricity and heat as well as related expert services
Fortum Power and Heat	Nordic countries, Russia, Poland, Baltic countries	Divisions of Fortum
Fraunhofer-Institute for Systems and Innovation Research ISI (Fraunhofer Institute)	European	Application-oriented research organisation
Iberdrola	Spain	Electricity generator, network owner and supplier in Spain and rest of Europe
IFIEC Europe	EU	Represents companies in energy intensive industries at a European level
IWEA	Ireland	National association for the wind industry in Ireland
juwi Holding AG (juwi)	International	Constructor of solar, wind and bio energy plants as well as hydro power and geothermal projects
MEDGRID	France, Germany, Spain, Italy, Morocco, Egypt, Syria, Jordan	Medgrid was set up to develop electrical interconnections between countries north, south and east of the Mediterranean
ÖsterreichsEnergie	Austria	An independent advocacy group for the Austrian electricity industry
Paikallisvoimary	Finland	Local Power Association
RECS International (RECS)	International	An association representing the interests of European renewable electricity (certificate) producers, traders, suppliers, facilitating organisations like consultancies, research institutes and brokers with 251 members (Q1 2010) in more than 22 countries
RWE AG	Germany	Generator, trading, network owner and supplier in many Member States in Europe
Nordenergi	Germany	Trade and logistics of wood pellets
Czech Association of Large consumers (SVSE)	Czech Republic	National association of large energy consumers
StadwerkeMünchen (SWM)	Germany	Utility

Submitter	Member State	Short description
Vienna University of Technology, Energy Economics Group (TU WIEN)	Austria	University
Union for the Mediterranean (UfM)	Spain	A multilateral partnership encouraging regional integration and cohesion among Euro-Mediterranean partners
Vattenfall AB	European	Integrated energy company
Verbandkommunaler Unternehmen (VKU)	Germany	The Association of Municipal Utilities represents the interests of municipal utilities and waste management in Germany
WackerChemie AG	Germany	Globally operating chemical company
Bundesverband Wind Energie e.V. (BWE)	Germany	Federal Wind Energy Association

Annex 4: Evaluation of responses

Introduction

This section contains the evaluation of all the responses, organised according to the questions listed in the consultation document. CEER has evaluated the comments provided through the public consultation, mainly in terms of their applicability and consistency.

In the public consultation, CEER posed 4 questions. Due to the large number of responses, we have not provided an exhaustive analysis of responses to each question, but instead have addressed the key points.

The following evaluation template has been used to address the key points and themes emerging from respondents' feedback.

Themes/issues	Overview of respondents' feedback	CEER's developed thinking
<p style="text-align: center;">↑</p> <p>For each question, themes have been identified and drawn out from respondents' feedback.</p>	<p style="text-align: center;">↑</p> <p>Summarised views from respondents.</p>	<p style="text-align: center;">↑</p> <p>CEER's view of the emerging themes (where appropriate)</p>

Consultation question 1: How significant do you consider the impacts of non-harmonisation of support schemes to be for the development of RES and RES technologies?

Theme/Issue	Overview of respondents' feedback	CEER's developed thinking
<p><i>1. Investment decision factors</i></p>	<p>Respondents noted that non-harmonisation of support schemes could affect the decisions of investors regarding RES investment in particular Member States. This in turn may impact the development of RES and RES technologies, with RES investments being driven by reasons other than cost-efficiency.</p> <p>Some respondents suggested that non-harmonisation may lead to RES development being stimulated only in those countries with favourable types/levels/stability of support, rather than with an abundance of renewable energy resources.</p> <p>Respondents concerned about the impact of non-harmonisation for RES development cited the impact of investors building projects in countries with favourable type/level/stability of support.</p> <p>In particular, they argued that it distorts technology markets, stimulates investors to move focus from one country to another depending on the support condition, and does not effectively stimulate RES utilisation in locations with the highest RES potential</p>	<p>In response to the feedback received, CEER recognises that the type, level and stability of national support schemes can have a significant effect on the investment decisions for RES development and deployment.</p> <p>However, CEER recognises the need for Member States to reform support schemes to ensure continued cost-effectiveness, and as NRAs we would encourage a balanced debate on the relative merits of harmonisation against the risk of investor certainty.</p>
<p><i>2. Type of subsidy impact</i></p>	<p>Respondents expressed contrasting views on the impact of the type of subsidy on the development of RES and RES technologies.</p>	

Theme/Issue	Overview of respondents' feedback	CEER's developed thinking
	<p>Some respondents felt that renewable generators should be exposed to market risk, with revenues coming from a wholesale market electricity price plus a premium, rather than a FIT. They argued this would incentivise generators to optimally manage risk since the current system is not fully internalising those risks due to price variation.</p> <p>They envisaged that over time these producers would be able to progressively compete with non-renewable generation leading to more RES deployment as the different RES technologies and the renewable energy industries mature and industrialise, and the cost of greenhouse gas emissions rise. The role of a 'strong' carbon price was also discussed in this context, with some respondents arguing that incentives should be based on a measure of total carbon emissions reduction for electricity supply</p>	<p>Over time, and subject to satisfactory transitional arrangements being put in place, CEER supports the closer market integration of renewables.</p>
<p><i>3. Technology maturity</i></p>	<p>Respondents stressed the need for non-harmonisation of support schemes by technology, in particular regarding exposure to market risk. They noted one of the main reasons for support schemes was to support immature RES technologies, e.g. tidal power and geothermal, to help those technologies progress down the learning curve and reduce their costs.</p> <p>For the development of RES and RES technologies, a large number of respondents indicated that the effect of the currently non-harmonised system was minimal in comparison to R&D, cost effectiveness and appropriate technology selection (even if solar is the most cost-effective technology, in northern Europe it may not be appropriate due to conditions) and minimum installation volumes.</p>	<p>CEER concurs that a broad portfolio of RES technologies should be encouraged, in order to provide consumers with the efficiencies associated with mature technologies whilst 'bringing' on the novel technologies required to meet long term climate goals.</p>

Theme/Issue	Overview of respondents' feedback	CEER's developed thinking
	<p>The need for a differentiated approach to technology subsidy was felt to be important, as whilst certain technologies were not currently suitable for large scale deployment, they would be necessary in the future to deliver longer term carbon savings. As a result, policy priorities in supporting renewables should vary by phase of deployment with less support for mature technologies (it was noted that this type of differentiated approach was easier to achieve through non-harmonisation at a Member State level).</p> <p>Respondents also commented that differentiating by technology also allowed the value and specific detail of the support mechanism to be fine-tuned (rather than harmonised) in accordance with existing energy market characteristics, to reflect desired technology support for nascent technologies or to address particularly monopolistic energy market structures with large national incumbents.</p>	
<p><i>4. Effects of national targets</i></p>	<p>Respondents noted that, to date, all laws on the promotion of renewable energy development throughout Europe have regulated the development of renewables on a national level only.</p> <p>Several respondents highlighted that Member States' national RES action plans were based on the achievement of targets on a national level, with little or no focus on cooperation mechanisms. This was felt to be an understandable consequence of the existence of separate binding targets for Member States to meet their respective RES obligations.</p> <p>In the long term, some respondents highlighted the potential for certain Member States with an abundance of RES resources to engage in the export of</p>	<p>See CEER response to (1) above</p>

Theme/Issue	Overview of respondents' feedback	CEER's developed thinking
	<p>renewable energy, and the post-2020 needs of some Member States to rely on imported RES.</p> <p>This was felt to allow more flexibility and efficiency amongst Member States in reaching the 2020 renewables targets (projects between Sweden and Norway, and Italy and Serbia were referenced).</p>	
<p><i>5.Arguments in support of non-harmonisation</i></p>	<p>Respondents held diverging views on whether non-harmonisation was good or bad for RES development. Those in favour argued that national support schemes were delivering RES capacity in all locations across Europe, and that calls for greater harmonisation were unhelpful as it could lead to uncertainty amongst investors.</p> <p>They also argued that different national support systems can help to facilitate competition for the most effective support scheme, which could add to further development of RES technologies and RES support policies.</p> <p>Several respondents noted that this differentiation between support schemes had the benefit of supporting national flexibility and allowing responses to different objectives and ambitions within the Member States, which would be impossible under a harmonised system.</p> <p>This flexibility was felt to be important when the prevailing energy policy landscape differed significantly between Member States, for example in: electricity market structures; existing generation mix; degree of interconnection; national objectives for the rate of decarbonisation of electricity supply; and the selected national route for electricity decarbonisation.</p> <p>Other reasons cited for non-harmonisation included harmonisation leading to renewable energy projects predominantly at 'best sites', ones with high technology potential deployment, and so may pose a threat to overall system</p>	<p>CEER recognises that the existence of different national support schemes for renewables can affect location and investment decisions.</p> <p>At the same time, however, CEER recognises that whilst harmonisation would be desirable, it is not a precondition for the further development and deployment of RES. Indeed, given the challenges associated with introducing a harmonised EU-wide support scheme, it may be more appropriate to consider interim steps (such as development of regional coordination models) which allow natural geographies and adjacent economic areas to develop compatible support arrangements.</p> <p>CEER encourages a balanced debate</p>

Theme/Issue	Overview of respondents' feedback	CEER's developed thinking
	<p>stability and reduce the contribution of RES to ancillary services. Non-harmonisation was felt to be a default position in the RES Directive (2009/28/EC), with cooperation mechanisms introduced as a compromise to allow MS to meet their targets. The existence of joint support mechanisms (between MS) might lead to cross-border projects (e.g. wind farms) without requiring the harmonisation of support schemes.</p> <p>A harmonised system was felt by two respondents to lead to the over-deployment of existing technologies (with little support available for the stimulus/development of novel RES technologies).</p> <p>Due to the lack of a fully integrated IEM, harmonisation of RES support would have negative impacts and cost more overall.</p>	<p>where changes are considered by balancing the merits of harmonization and more efficient deployment against the costs of uncertainty and perceived instability in support arrangements</p>
<p><i>6. Transition to harmonisation</i></p>	<p>Those respondents arguing for harmonisation extended a range of views, including:</p> <p>Policy intervention may not be required, as the more renewables occupy the mainstream and the more the carbon price rises, the less the corresponding need for support schemes;</p> <p>Non-harmonisation of support was felt to risk RES investment between countries not being based on cost-efficient reasons. It was felt that, given the importance of meeting Europe's 2020 and 2050 RES targets, the inefficient distribution of capital expenditure in renewable energies in Europe might undermine in the future the public acceptance of renewables due to higher social costs. They expressed concern that a lack of public acceptance may delay or mean some RES development may not be built, making realisation of these targets more difficult;</p>	<p>As above</p>

Theme/Issue	Overview of respondents' feedback	CEER's developed thinking
	<p>Regional harmonisation was felt to be desirable under certain circumstances (particularly within the framework of coupled systems). Those respondents concerned about the impact of the inefficient distribution of capital expenditure in renewable energy (resulting from non-harmonisation) argued that the cost of transition towards a climate neutral energy system would be lower under a harmonised system;</p> <p>Several respondents also noted that non-harmonisation makes it more difficult for investors to find the optimal investment decision due to often very different rules in support schemes which can be a barrier to investors deploying RES in a Member State they are not currently operating in, especially if they are subject to (frequent) change;</p> <p>Most respondents argued that any move towards harmonisation may introduce investor uncertainty and delay investment in RES technologies if handled incorrectly, with the example of frequent and/or retrospective adjustments to existing support schemes highlighted. In order to avoid investor uncertainty, respondents felt there was a need for any move toward harmonisation to be planned well in advance and phased in slowly, particularly given the urgency of RES investments for meeting RES targets and the RES industry may be severely affected by any 'stop-go' effects. Some respondents indicated that a staged approach (across different timescales) may be help reduce uncertainty;</p> <p>In relation to the possible nature of a fully harmonised scheme, several respondents identified that FITs represent the majority of all support schemes in the EU, which needs to be taken into account when considering the possible harmonisation of all support schemes.</p> <p>A number of respondents also highlighted that, to date, progress towards RES</p>	

Theme/Issue	Overview of respondents' feedback	CEER's developed thinking
	<p>National Action Plans have been based on achievement of targets at a national level, but that post 2020, several MS may need to access RES imports which would imply a move towards greater harmonisation, possibly through the use of cooperation mechanisms and "flexible instruments";</p> <p>One respondent commented that continued non-harmonisation hindered the development of the IEM, arguing on the basis of very different price and cost differentials between a liberalised electricity and gas market on the one hand, and a tightly regulated closed market (RES support schemes) on the other.</p>	

Please note: responses to questions 2 and 4 have been merged

Consultation question 2: In comparison, how significant do you consider the impacts of non-harmonisation of factors other than support schemes, explored in this report (or in addition to those explored) to be for the development of RES and RES technologies?

Consultation question 4: In your view, does this consultation document capture all major implications of non-harmonisation of support schemes? Are there additional impacts on investment decisions, market functioning or any other areas you consider relevant?

Theme/Issue	Overview of respondents' feedback	CEER's developed thinking
<i>Redesign of market and regulatory arrangements</i>	<p>Several respondents to Questions 2 and 4 raised the overlapping regulatory regimes (between heat and electricity for example) and suggested that the lack of harmonised regimes meant that subsidies were often complex to understand and diluted in value.</p> <p>Turning to market integration issues, a number of respondents suggested that FITs do not promote cost-efficient behaviours amongst generators (as the fixed</p>	<p>CEER acknowledges the potential for institutional cooperation mechanisms to help deliver the 2020 Renewables Target.</p> <p>CEER sees strong evidence for</p>

	<p>payment insulated them from risk). Alternatively, a wholesale price + premium would better reflect the payments to mainstream generators and allow RES to progressively integrate with the market.</p> <p>The expected increase in intermittent RES generation was considered to place a burden on the short term balancing of the system if RES generators were exempted from contributing to balancing costs.</p> <p>Turning to market redesign, two respondents noted the possibility of RES competing with mainstream generation sources via the EU ETS</p> <p>Several respondents felt that current wholesale electricity market rules were designed at a time when centralised base load generation was the predominant form. With more decentralised, variable electricity coming on stream, it was felt that the rules will have to be adapted (so that both the time-horizon and balancing regime more closely reflected the characteristics of RES).</p>	<p>certain renewables (e.g. wind) to be subject to the same balancing obligations as other types of generation on the grounds of market integration. As above, this issue should be addressed as part of the framework guidelines on electricity balancing.</p>
<p><i>Transmission</i></p>	<p>Two respondents considered the under-development of a pan-European transmission grid and the differences in network access arrangements to be of particular significance.</p>	<p>CEER recognises that grid capacity and connectivity (particularly cross-border) should be a priority issue for regulators.</p> <p>In addressing this, CEER suggests that the TSO's TYNP has an important role to play in identifying investment areas and in considering overall system resilience.</p>
<p><i>Ancillary services and social acceptance/permitting</i></p>	<p>The majority of respondents highlighted the importance of well-distributed RES in providing ancillary services (both for system stability and RES income benefits).</p>	<p>As above</p>

	Social acceptance and its effect on permitting was also mentioned regularly as a significant wider factor.	
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Consultation question 3: Please place the factors of non-harmonisation (whether explored in this report or not) in order of materiality/significance. Please separate non-harmonisation of support schemes into type, level, structure and stability of support as explored in this paper.

Respondents' feedback

26 respondents provided an explicit ordinal ranking of the materiality of the five factors of non-harmonisation (design elements of support schemes listed in the consultation document). Overall, the ordinal ranking was:

1. **Support scheme stability**
2. **Level of support**
3. **Type of support**
4. **Support provision structure**
5. **History of support**

Over half (15) of these respondents said support scheme stability was the most important factor, either outright or jointly. Only one respondent thought it was the least important.

Level of support was significantly behind **support scheme stability** in terms of materiality, with an average ranking of 2.48 compared to 1.6 for support scheme stability. However, almost a third (8) of respondents said it was the most important factor, either outright or jointly. Again, only one respondent thought it was the least important factor.

Type of support was the third most important factor with an average ranking of 2.80. This reflected diverging views amongst respondents in terms of the importance of this factor; five felt it was the most important factor whilst another five felt it was the least important factor (in both cases either outright or jointly).

Support provision structure and **history of support** were viewed by respondents as being the least important factors. This was reflected in only one respondent believing either of these factors were the most important factor (either outright or jointly). Around a third of respondents ranked these factors outright last or joint last in terms of importance (8 for support provision structure and 10 for history of support). This explains the average ranking of 3.40 and 4.00 for support provision structure and history of support respectively.

A further two respondents said all factors were all equally important. Another four respondents said providing an ordinal ranking was not possible because these factors were mutually interconnected making discerning the impact of an individual factor very difficult.

The remaining respondents did not directly answer the question.

CEER's developed thinking

On the basis of the evidence, CEER agrees that support scheme stability, level and type are three of the key factors affecting successful RES deployment in a non-harmonised system.

