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**REALISE-FORUM**

**Renewable energy and liberalisation in selected  
electricity markets-Forum**

**Workpackage 5**

**Deliverable D 10**

**Comparative Survey**

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## **1 Introduction**

Preceding work carried out within Workpackage 3 provided country reports. These have analysed among others the state of the art of the support of renewables and presented the findings of the national consultations in the eight countries included in the project. These are: the four Nordic countries (Denmark, Finland, Norway and Sweden), Germany, Italy, The Netherlands and Slovenia. This short report carried out within the framework of workpackage 5 compares the findings of the country reports and additional activities of the national desks and draws conclusions from the comparison.

Point of departure is the expected result of RF as formulated in the Annex I, description of the action. Realise Forum is supposed to provide for:

*An independent and coherent analysis and an assessment of the interplay between RES-E measures and liberalisation in selected new/old Member States and Associated Countries of the EU, where the liberalisation of the electricity market has already been completed or almost accomplished.*

Stakeholder consultation was the major tool to get the information for the analysis, the road map and the policy recommendations. The analysis in the project, therefore, is not technically and problem focused (what are the pro and cons of different support schemes or what are the major barriers of harmonization), but an analysis of actor positions and perceptions on problems and solutions. Realise Forum focused on how actors operating in different market settings, perceive renewables and their current and future support, the kind of problems they are facing in investing, producing, trading and consuming renewable-based electricity and the kind of solutions they suggest to mitigate the problems accompanying RES-E development in national electricity markets in the EU.

This report, therefore, analyses what can be labeled as ‘the degree of actor cohesion’ in the EU on support of renewables in the context of different (national) electricity markets. The national consultation provided the information to enable this “actor-centered analysis in context”. The “context” in our project is the national market setting of the eight countries involved in the project, with the four Scandinavian countries working together in the Nordic electricity market and one country, Slovenia, representing the position of the accession countries.

We start by presenting the major aspects of the eight national contextual settings, being the characteristics of the electricity markets, in particular the state of liberalization and ecologisation of these markets. Then we compare the different actor positions in the markets and their willingness to change the support scheme. The report ends with concluding remarks.

## **2 The context: National electricity markets**

In the original setup of the project the harmonized support scheme was expected to match with the liberalized and harmonized electricity market. The certificate trading scheme was supposed to be the best alternative in this respect, because of its market based architecture and its potential to develop from a national to the European scene. A market oriented type of support easily could be integrated in the internal (competitive) electricity market. Expectations regarding the establishment and performance of the competitive internal electricity market were rather high in 1996, the year of the acceptance of the electricity

market liberalization directive (96/92/EC) and became even higher in the years after. The certificate trading system met similar high expectations when it came to support of renewable resources for electricity production.

In 2006, after the fifth benchmark report on the establishment of the internal electricity market, one has to conclude that the promises and expectations of the end of the millennium haven't come out yet. The establishment of a competitive internal electricity market is still facing serious barriers nicely summarized in the following passage taken from the latest EU benchmark report on the establishment of the internal electricity market: *The most important persisting shortcoming is the lack of integration between national markets. Key indicators in this respect are the absence of price convergence across the EU and the low level of cross-border trade. This is generally due to the existence of barriers to entry, inadequate use of existing infrastructure and - in the case of electricity – insufficient interconnection between many Member States, leading to congestion. Moreover, many national markets display a high degree of concentration of the industry, impeding the development of effective competition.*<sup>1</sup>

On the increase of renewables in electricity production, too the Member States accepted a directive summarizing their agreement on the topic.<sup>2</sup> Member States only agreed on goals but not on type of support scheme. Consequently, several different means of support came into operation in the EU region, with the feed-in scheme as the unexpected winner. Contrary to the expectations, the feed-in scheme became very popular in almost all old and new EU Member States and turned out to be more effective and efficient than the certificate scheme.<sup>3</sup> Currently 20 of the 25 EU countries have feed-in types of support<sup>4</sup>.

So both the liberalisation and ecologisation of the internal electricity market develops differently than initially expected. The next section, therefore, will look more closely at the state of the art of liberalisation and ecologisation of the electricity markets involved in the project.<sup>5</sup>

## 2.1 Liberalisation, ecologisation and RES-E support

Figure 1<sup>6</sup> below positions the eight countries according to their resource portfolio for electricity production. In case of mixed resources (most countries) the positioning has been decided by the ranking of the sources in the national fuel mix. Norway is a clear case with its hydro dominated electricity system. Sweden combines nuclear and hydro, Finland combines all four sources in almost equal amounts, Italy combines fossils, hydro and RES, whereas in Germany the resource mix is nuclear, fossil and RES. In Slovenia the ranking of resources is thermal, hydro and nuclear. Both Denmark and the Netherlands have a fossil dominated electricity system combined with RES, but in Denmark the share of RES is already higher than in the Netherlands.

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<sup>1</sup> Communication from the Commission to the Council and the European Parliament, *Report on progress in creating the internal gas and electricity market*, Brussels, 2005

<sup>2</sup> Directive 2001/77/EC on the promotion of renewable energy sources in electricity production. Member States agreed on an indicative target being a share of 21% renewables in gross electricity consumption in 2010 in the EU. Each country takes an individual share in this effort.

<sup>3</sup> EU Commission, *The support of Electricity from Renewable Resources*, COM (2005) 627, Brussels 2005.

<sup>4</sup> With some of the EU Member States applying feed-in schemes only for one RES-E technology like the Belgian region of Flanders or Italy (both for PV).

<sup>5</sup> The following text is predominantly based on the country reports of Realise Forum.

<sup>6</sup> Please note that the axes of the figures in this chapter do not refer to any numerical values, except otherwise indicated.

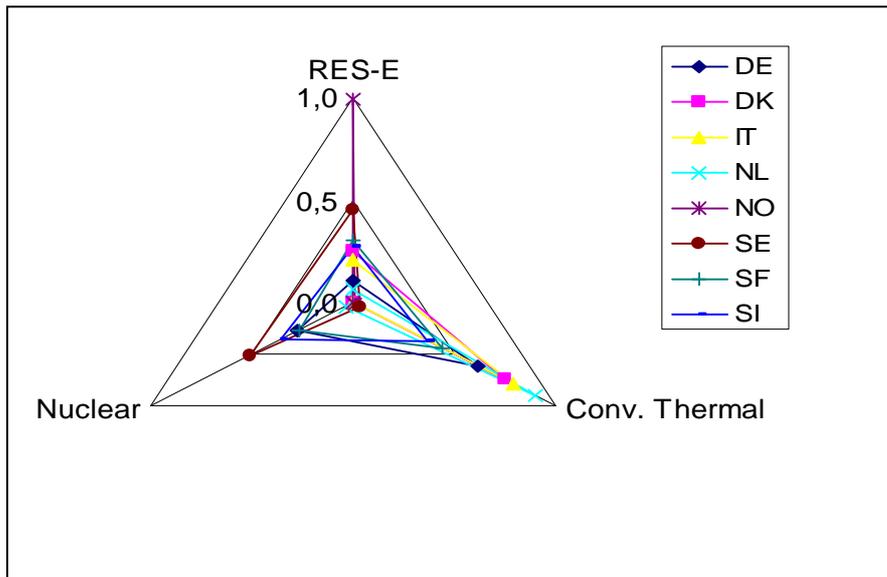


Figure 1 Resource base of Realise Forum countries

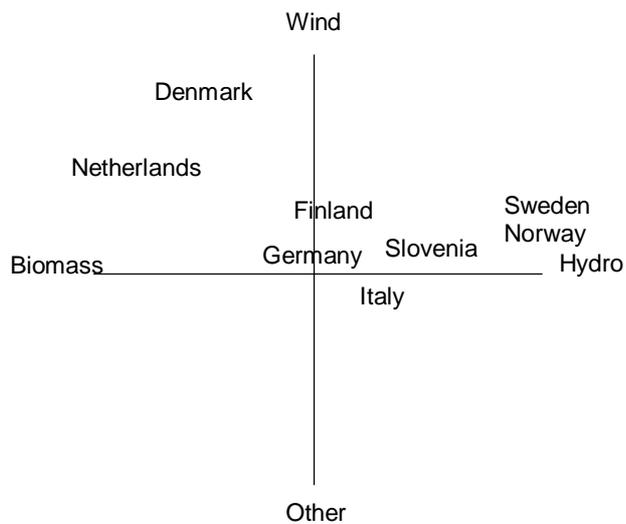


Figure 2 RES-E profiles of Realise Forum countries

Figure 2 positions the countries according to their RES-E profile. Except for Italy, all other countries are in the upper half of the figure in the hydro/wind square or in the biomass/wind square. Countries with hydro resources all use this RES-E potential. Italy possesses hydro too, but the country's second RES-E resource is geothermal energy, reason to position Italy in the lower half of the figure. The RES-E mix of Italy is (large) hydro, geothermal, biomass and wind, apart from some minor other renewable resources.

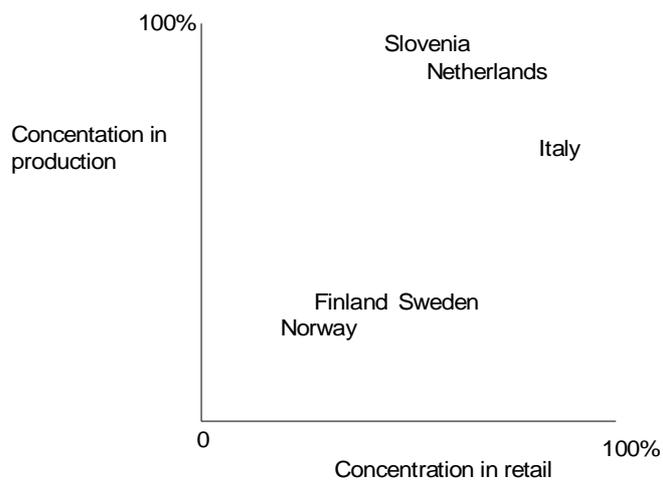


Figure 3 Degree of concentration in production and retail market  
(Source: EU fifth benchmark report)

Figure 3 shows the country positions on market concentration based on the market share of the three largest companies in the country. Denmark and Germany are not included because scores on retail markets for these countries were missing in the latest EU benchmark report. In production the position of Denmark is the same as the other three Nordic countries, because the production figure is based on the Nordic market. In Germany the concentration in production is 72%. So on concentration in production the country would position in the upper half of the figure. The markets in Slovenia and the Netherlands are most concentrated, and the Nordic markets less, with Italy in a middle position. The EU benchmarking reports consider the high degree of market concentration among the top barriers for establishing real competition in the electricity market. Moreover, concentration seems to increase instead of decreasing. Compared to the results of the third benchmark report, concentration in production in the fifth benchmark has increased in Germany, Italy, the Netherlands and Norway and only decreased in Sweden (Glachant, 2004, 170).

A recent evaluation pointed out that the circumstances haven't improved since. Competition in the electricity markets of Continental Europe hasn't matured. Almost all wholesale and retail markets of Continental Europe have too few competitors. This continues oligopoly and monopoly in supply and in some countries even openly devoted national championship. The paper concludes that real competition requires: (i) a complete separation of ownership of the transmission grid and the generation and supply in all countries and sub-markets; (ii) sufficient transmission capacity for creating a larger market; (iii) adequate margins in generation capacity; (iv) a sufficiently large number of generators to share this capacity. Therefore the prospects for a vibrant competition in Continental Europe are bleak.<sup>7</sup>

So in liberalisation of electricity markets, the EU is still facing serious barriers and problems which seem to expand rather than diminishing. The findings of the national consultations are in line with several analyses of the barriers in maturing competition in the European

<sup>7</sup> Haas, Reinhard et al., Competition in the Continental European Electricity Market: Despair or work in progress, Paper presented at the IAEE conference, Potsdam 2006.

electricity markets. For instance, according to a substantial part of the German stakeholders, the conditions for fair competition are not yet at hand or call for substantive action. Dutch stakeholders rated the competitiveness, profitability and the commercial attractiveness of both the electricity market in general and the green electricity market in particular, as insufficient. So the immature state of liberalisation is not only visible in the statistics of the market, but also in the mind set of stakeholders.

Figure 4 below positions the countries in the two dimensional space of market concentration in production and ecologisation of the electricity market. The percentage of the national RES-E goal for 2010 realized has been taken as the basis for the positioning of the countries on the ecological dimension.<sup>8</sup> Norway is not included in the figure because as a non-EU member it has no 2010 target for RES-E increase.

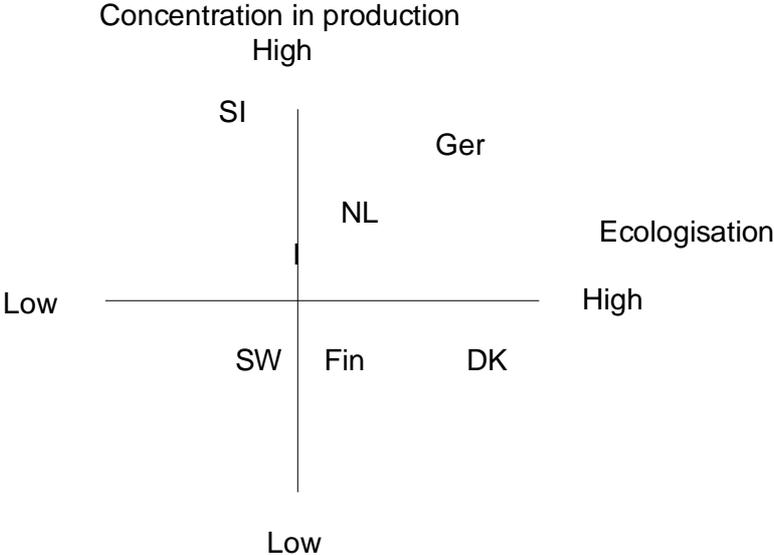


Figure 4 Degree of market concentration and ecologisation in Realise Forum countries

Denmark and Finland perform best on both dimensions. These two countries combine a low degree of concentration (rather well developed competition in the electricity market) with a good track record in the greening of electricity production, taking the development of the 2010 RES-E goal attainment as the basis for the positioning of the countries on the ecological dimension. Denmark heavily invested in wind technology whereas Finland relies on hydro and biomass. Sweden also shows a low degree of market concentration, but decreased its total RES-E during the last years, because of reduced rainfalls and lower hydropower production (although with some increases mainly in the biomass field). Slovenia and also Germany to some lesser extent still have a relatively high concentrated electricity production. Even though Slovenia increased its total RES-E production during the last years (predominantly by hydropower), the overall RES-E share decreased because of a fast growing electricity consumption. Germany strongly increased its RES-E share (basically by wind) with relatively stable electricity demands at the same time. The Netherlands and Italy prove lower market

<sup>8</sup> Degree of goal attainment is based on EU Communications from the Commission, The support of electricity from renewable energy sources, {SEC(2005) 1571 }

concentration as Germany and Slovenia. Whereas the Netherlands also increased its overall RES-E share, Italy exhibited stagnancy with regard to goal attainment.

A next aspect of national context of the countries involved in the project is summarized in figure 5. The figure positions the countries on the degree of competition in support scheme and the ecologisation of the electricity market. Only Italy<sup>9</sup> and Sweden have adopted the competition oriented green certificate trading system, the other countries have feed-in based support schemes. The figure clearly shows the progress made in the greening of electricity production in hydro based electricity systems. On support scheme the unanimity of the Nordic countries is lacking due to the Swedish choice for the certificate scheme. This is remarkable, since the Nordic countries tend to take similar and joint decisions in almost all other electricity market topics.

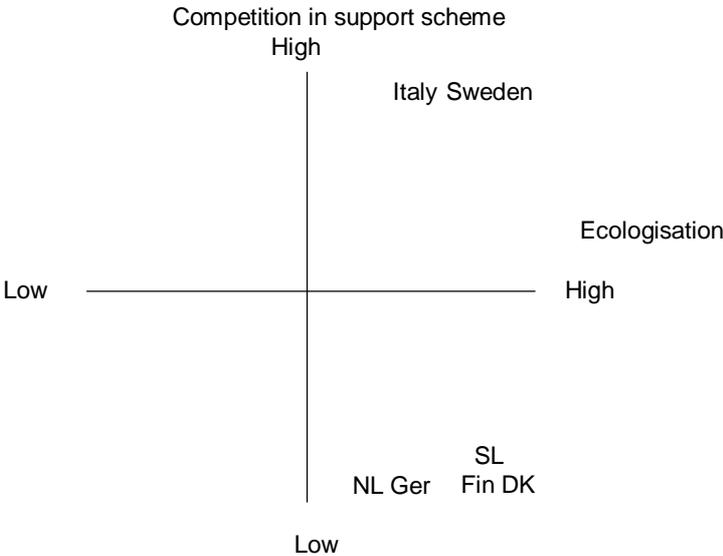


Figure 5 Degree of competition in national support scheme and degree of ecologisation of the electricity market

Another aspect of the national context is summarized in figure 6. The figure positions the countries according to the change rate of the support scheme for renewables and the degree of competition in support scheme. Change rate of support scheme has been classified high if the support scheme changed one or more times since 2002, the year the RES-E directive was accepted. The figure shows a change of support schemes in only three countries. The Dutch support of RES-E has changed once, but quite radically. Changes in the Netherlands became even more radical when the government in August 2006 decided to stop instantly the support of new RES-E investment projects under the MEP. Denmark announced a similar change, but without effectuating it. In the other countries support has been rather consistent since 2002. Except for Norway and Finland, the other countries have feed-in or certificate based systems. Norway and Finland combine fiscal measures with tax incentives. Italy and Sweden also changed support of renewables. Italy changed from the feed-in to the certificate scheme.

<sup>9</sup> Italy has introduced in August 2005 a feed-in scheme for PV along the line of the German support.

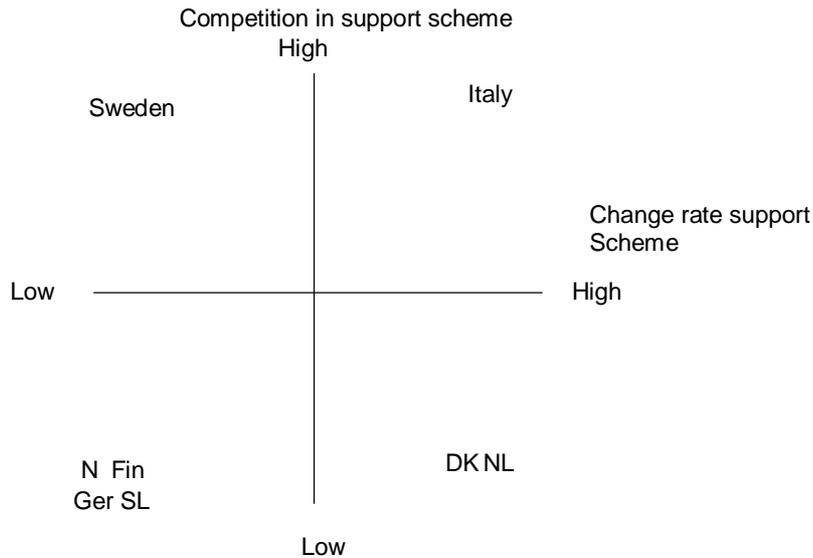


Figure 6 Change rate and degree of competition support system

A final aspect of the context is country's position in the EU debate on the renewable directive and how countries conceive the role of renewables in their future resource portfolio. Based on the ambition to increase the share of renewables in 2010 as compared to 1997, it shows that the ambition in the three countries with predominantly thermal based electricity systems is much higher compared to the countries with hydro power. In the EU negotiation round on the renewables directive both Germany and Denmark took advanced positions, because both countries already followed ambitious domestic programs for more renewables in electricity production. Denmark is generally recognized as the European forerunner in this respect. The country started relatively early with large scale investments in onshore wind technology. Germany followed after the inauguration of the red green coalition that initiated an ambitious program supported by a feed-in system. This turned out to be effective in initiating investments in new production capacity. Germans are the forerunners in feed-in based support of renewables. The commitment of the Netherlands was also substantive, but without being based in a passionate domestic renewables program. In the EU negotiations the Dutch tried to end up as close as possible to the domestic target for renewables, which was already considered fairly ambitious, despite the small figures in absolute terms (see Dutch country report for further details).

All three EU Member States with hydro (Italy, Sweden and Finland), had footnotes on the 2010 target in the appendix of the renewables directive. Except for Finland, both other countries extensively conditioned the 2010 ambition in reference to increase in total electricity consumption and/or hydro specific climate conditions.

Italy basically assumed an absolute target of domestic RES-E production by 2010 and stated that its percentage target, as set in the Directive, would hold only if gross national consumption would be of a given value. This position was likely due to the awareness that large hydropower resources had mostly been exploited and a further substantial RES-E growth should depend upon other sources (wind, biomass, solar) of more uncertain potential.

## 2.2 Conclusions on context

The previous overview showed the state of the art of the Realise Forum countries on liberalization, ecologisation and RES-E support. The picture is diverse on all three major topics of reform. If the selection of countries involved in the Realise Forum project is representative for all EU countries, than one can conclude that there still exist major cleavages on the three topics within the EU, separating countries basically in two groups:

On resource position: Countries with and without hydropower

On liberalization: Countries with less and with more concentrated electricity markets

On ecologisation: Relatively fast and relatively slower moving countries

On RES-E support: Countries that did or did not change support scheme since the RES-E directive came into force

Only the Nordic countries combine a relatively good state of liberalization of the electricity market with a relatively good track record in RES-E<sup>10</sup> increase. The track record of the other countries in particular on the liberalization dimension is still bad. Markets are still far too concentrated and there are no clear signals that circumstances will improve shortly. Market and business dynamics seems to point in the direction of more instead of less concentration in the electricity markets of the EU.

All countries are making progress in increasing the share of renewables in electricity production, but some countries are more ambitious than others in this respect. Ambition seems to be more related to type of support scheme than to degree of liberalization. Denmark and Germany are the most ambitious countries where RES-E increase has been realized under feed-in based systems of support, whereas their concentration of the electricity market differed. Both countries made progress in RES-E increase thanks to political commitment. In both the German and the Danish case governmental decisions instead of market dynamics underlies the progress made in RES-E increase. Such a strong political commitment seems to be lacking when it comes to establishing adequate conditions for competition in the electricity market. On this topic the performance is less impressive than on ecologisation, except in the Nordic countries.

Against the background of the market context of the countries involved in the Realise Forum project, the next section compares the findings of the stakeholder consultation in the eight countries.

## 3 Stakeholders and stakeholder preferences

Realise Forum had eight national consultations. Stakeholder consultation was the common activity but each of them was organized in a specific way. Interviews with representatives of the major stakeholder groups were part of the consultations in all countries. In Italy, Germany and the Netherlands the interviews were combined with (online) surveys and in Germany, Italy and Slovenia with one or more (thematic) meetings with groups of stakeholders.<sup>11</sup> This diverse structure of the eight national consultations give a nice mixture of stakeholder information on the support of renewables in the countries, their willingness to change the support scheme and the various problems stakeholders are facing in their every day practice. This section compares the findings of the stakeholder consultation in the eight countries.

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<sup>10</sup> Except for Sweden regarding RES-E increase.

<sup>11</sup> See national chapters for details. In the Netherlands the stakeholders have been questioned twice during the project in 2005 and in 2006, before and after the evaluation report of the Commission on the progress in the support of RES-E.

### 3.1 Who was involved?

The national chapters have learned that the Realise Forum consultation probably covered the whole range of actors currently active in the electricity market. The consultation included:

- Producers of (renewable-based) electricity
- Investors in renewable-based electricity production
- Producers of (renewable based) technology
- Traders
- Grid companies
- Certifying organizations (Guarantee of origin)
- Electricity supply industry
- Consumer (associations)
- Relevant NGO's (environmental groups)
- Public agencies responsible for renewable electricity policies and support
- Financing and research institutions

It also showed that each survey had its accent in participation.<sup>12</sup> So the results discussed in this section are based on the ideas and perceptions of the variety of stakeholders currently involved in electricity markets in Europe. The next sections comparatively analyze the major topics discussed in the national consultations.

### 3.2 Perception of the market

The country analyses showed that the assessment of the electricity market is not that positive in the countries. The rather modest evaluation counts for both the grey and the green electricity market. The project's findings on this point are in line with the EU assessment in the latest benchmark report. In particular the Dutch stakeholders ranked all four features of the grey and green electricity market (competitiveness in production, profitability, accessibility of newcomers and commercial attractiveness) rather low. Each country is facing its own problems in this respect, but a general problem still is the high degree of market concentration, both in production and in retail. Competition in national electricity markets is still immature and in need of improvement. This is even stressed by the Nordic stakeholders, who operate in the most competitive market setting of the EU. Nordic stakeholders plea for more competition both at the national and the European level. In particular a European level playing field is highly needed but still lacking according to these stakeholders.

The stakeholder's perception indicates that the EU still has a way to go in improving the conditions for adequate competition in the grey and the green electricity market. Markets are still predominantly nationally oriented. The regionalization of the electricity market, as suggested in the latest benchmark report, is proceeding very slowly. Even in the Nordic region with the integrated electricity market of the four countries, stakeholders still see a lot of problems with competition and the improvement of the green electricity market. Even in this rather integrated region, differences in circumstances are still substantial.<sup>13</sup>

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<sup>12</sup> The response of the online surveys in Germany, Italy and the Netherlands did not exceed 50%, which is quite normal for surveys of this kind.

<sup>13</sup> In June 2006 the national governments of Germany, France and the Benelux countries decided to join forces for stronger integration of their national electricity markets. This is a second initiative to establish a regional electricity market in the EU region additional to the Nordic market. Regionalisation of electricity markets is one

In conclusion, according to the stakeholders there is plenty of room to improve the conditions for competition in both the grey and the green electricity market. Those stakeholders having been asked for, all are quite gloomy about the current state of competition in the EU electricity market.

### **3.4 Perception of the national support system**

The survey's showed agreement between stakeholders about the type of support currently provided by the countries of the project. Italy and Sweden provide support by the certificate system, the others by (variations) of the feed-in model. The Italian survey asked stakeholders to compare features of the old feed-in system and the new certificate system. In Italy both types of support schemes have been applied. Italy changed the main support system from a feed-in scheme to a certificate scheme in 2001-2002. The scheme started in 2001, but the first RES-E production obligation was set for 2002 even though a feed-in system has recently been reinstated specifically for supporting photovoltaics only. Dutch support also changed, but in opposite direction. The Dutch scheme changed from certificate trading to feed-in.<sup>14</sup> The questioning in the other countries concentrated on the latest support scheme.

In general stakeholders approve the type of support in their country. The satisfaction refers to the amount, duration as well as technology specificity of the support. But our analyses also showed that the specific structuring of the support mechanism and the organization of the support to a large degree determines stakeholder's opinions in this respect. Stability of investment context and the amount of risk of investments is without question the number one condition of a productive investment climate in the perception of stakeholders. This has been stressed by the stakeholders in almost all countries involved in the project. The country analyses pointed to a relationship between the stability of the support system and stakeholder's satisfaction with the support scheme. The more stable the support, the greater the agreement of stakeholders about the quality of the support. Germany and Denmark are two clear examples in this respect. German stakeholders consider the amount and duration of support adequate. According to them, duration of support should be decided by the type of technology, since some technology is more distant to the market than others. Dutch stakeholders are still rather critical about the national support system. This attitude goes back to the early period of RES-E support in the Netherlands, when support systems too often changed. The frequent changes made the Dutch investment climate rather unpredictable and investors quite uncertain. Only since 2002, investments in new Dutch green production capacity increased, before that the increase numbers stayed behind expectations. Part of the problem was a leakage in the Dutch support system till 2003, which made the import of renewable electricity much more attractive and profitable than domestic production. Consequently, import instead of domestic production became the dominant activity under the Dutch certificate trading scheme.

The Italian and German desks learned more about the stakeholder perception of the detailed differences and similarities between the feed-in and the certificate system. According to the Italian stakeholders the feed-in system was more effective in increasing the share of renewables in Italian electricity production. The risks of the feed-in as perceived by investors and financial organizations were assessed lower than the risks of the certificate system. A significant risk of the certificate system is a too low quota resulting in too low market prices,

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of the major strategies suggested by the Commission to take next steps in the harmonisation of the grey and the green electricity market.

<sup>14</sup> See the Dutch country report for the reasons of changing the Dutch support scheme.

which increases the investor's risks. According to the Italian stakeholders, the certificate system performs better in compatibility with a competitive electricity market. But both systems, the old feed-in scheme and the current certificate scheme, were considered to perform rather poor in pushing technological variety. Some technologies were discriminated over others, with those technologies at the greatest distance to the market in a backward position.

The German stakeholders held similar opinions. They only considered certificate trading better on price competition. On all other aspects, including transaction costs they considered the performance of the feed-in system superior to the certificate trading system. So the findings from the Italian and German desk on the comparison of both dominant systems of support confirm the findings of the Commission in the 2005 report on the progress in the national support of RES-E. The report analyzed the similarities and differences of both support systems in technical terms. The findings of our stakeholder consultation are in line with the outcomes of this technical comparison of the performance of the feed-in and the certificate trading system.

In general the debate on the support of renewables in the Nordic countries followed the above findings, but added two interesting points:

- The connection between renewables, energy saving and heat production
- The establishment of a regional certificate market.

The first point also has been mentioned by stakeholders in other countries and involves a plea for developing a closer connection between energy saving and renewable electricity. This connection should also be established at the level of support schemes, meaning that stakeholders would consider it wise to have some connection between support of renewable electricity, CO<sub>2</sub> trade and energy saving. A closer match between the mechanisms of support is quite difficult, because the support of renewables is dominated by feed-in based systems whereas CO<sub>2</sub> trade is dominated by quota/scheme based systems and for energy saving also a quota/certificate based system is considered. So despite the strong connection between the three topics in terms of problem perception, there are some difficulties to develop closer relationships between the policy mechanisms for RES-E support and CO<sub>2</sub> reduction. These problems are not caused by differences in the details of both types of support mechanisms, but by fundamental differences between the mechanism to support RES-E on the one hand and to reduce CO<sub>2</sub> on the other.

The second topic addressed in the Nordic dialogue is the ambition to establish a Nordic green certificate trading market, with the integration of the Nordic market into the Swedish green certificate market. According to the Nordic stakeholders this is a promising idea, but difficult to effectuate even among countries as close in culture and linguistics as Sweden and Norway. This debate as well as the skepticism about the establishment of a regional green market holds an important lesson when it comes to next steps in EU wide support of renewables. There are other non economic reasons that might keep countries from participation in common support schemes.<sup>15</sup>

As a relatively young country, Slovenia is facing typical problems in domestic support of renewables. Despite the improvements perceived by Slovenian stakeholders after the introduction of the feed-in system, the support is still facing problems. One of the core problems is the amount and duration of the financial support which is considered insufficient to initiate investments in new production capacity. In Slovenia the amount of support does not

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<sup>15</sup> Norway recently decided in favor of a feed-in based type of support.

follow annual inflation rates and in particular the duration of support for PV is considered far too short to initiate any investments in this technology at all. Consequently, the larger part of domestic RES-E production comes from existing (hydro) power plants and some biomass. Hardly other types of renewable based technology have come into operation in Slovenia yet. These problems are difficult to solve, due to other socio-economic problems the young country is coping with.

On support schemes we can conclude that the national consultations showed quite some agreement among stakeholders regarding quality of support of RES-E. Foremost all stakeholders want a reliable and predictable investment context free of high risk. Such an investment context is still best guaranteed by a clearly defined and managed support scheme guaranteeing price and investment support for a certain number of years. The featuring of such an investment and production context in the countries is different. Stakeholders don't care for these differences and prefer the support scheme of their country as long as this schemes guarantees a stable and reliable investment and production climate for RES-E.

### **3.5 Compatibility of national support scheme with competitive electricity market**

This topic has been addressed in almost all national desks and everywhere the findings are different. A major finding on this aspect of the consultation is that both types of support schemes are considered compatible with the (internal) competitive electricity market. It showed that a majority of the German stakeholders holds this opinion, which is quite remarkable, because the German feed-in system is still based on tariffs and not on the more market conform feed-in premiums. Moreover German stakeholders stressed the need to first improve competition in the national and the European electricity market before any new initiative to improve coordination or harmonization between national support schemes in the European electricity market.

The majority of the Italian stakeholders are convinced that the Italian quota/certificate support system, despite its market-based design, is not yet compatible with the European-wide internal competitive market. Indeed, some of its features as the reciprocity clause and the obligation to feed all the supported green electricity into the Italian grid to obtain certificates, can be seen to clash with the conditions of an internationally competitive electricity market.

Dutch stakeholders hold the opinion that the Dutch support is compatible with the competitive market. However, those most experienced with the support system, the producers of green electricity, were most skeptical on this point.

The German stakeholders quite nicely summarized the EU challenge on this point. A harmonized EU wide support system is only possible if the competition of the internal electricity market is adequate. So first remove the current distortions in the internal market and then harmonize national support schemes. According to the Germans, such a harmonized support scheme doesn't need to be a certification based trading system; it could also be a feed-in type of support.

### **3.6 Willingness and need to change support scheme**

On this point the results of the national consultations are rather similar. Stakeholders all stressed the need to continue public support of renewables after 2010. This means that the realization of the EU ambition on renewables after 2010 continues to be dependent on public

financial support. Stakeholders don't foresee any market pull of renewables yet; all expect the political push to be necessary at least in the coming decade.

Stakeholders also agree on the necessity to develop and improve a European level playing field both in the grey and the green electricity market. But having said that, they continue stressing the problems involved in coordination and harmonization of support of renewables. Consequently, stakeholders don't want to change the current certainty of national support for an uncertain EU wide type of support. They all stress the differences between the countries on electricity market development in general and the support of green electricity in particular. Stakeholders want stability and consistency of support and a fair play of the game. This means no double counting, but instead clear and transparent definitions in combination with reliable certification of resources, products and procedures. The Dutch case provides a clear example how such a system could look like, with the Guarantee of Origin at the heart of it and a financial compensation based on the non competitive costs of the renewable electricity. But the Dutch case also shows the problems involved in such a system with politically decided compensation tariffs. It is very difficult to determine the non-competitive costs for each technology, which causes a lot of disagreement and discussion. Moreover it is quite realistic to assume other considerations than costs to be part of the political decisions on the compensation rate for the non competitive costs of renewables. This is exactly what the Dutch stakeholders' blame Dutch government for: budget considerations instead of real costs decide the compensation for the non competitive part of the costs of producing renewable electricity. A second problem of politically decided compensation tariffs is technology choice. Here too the Dutch case is a good example. Dutch government based the financial compensation of PV on priority considerations instead of cost compensation with the ultimate result that investments in PV based production of electricity instantly went down to zero.

These kinds of politically motivated decisions cause a lot of uncertainty and hesitation among investors, financial organizations and producers. These stakeholders put lots of energy in lobbying to influence the political decisions on compensation. Getting access to the national government is already extremely difficult; let alone the difficulties when the EU should take these kinds of decisions. Harmonized political decision making at the EU level on cost compensation for renewables is probably the most horrifying scenario in the mindset of stakeholders and reason for them to be very skeptical and hesitant on harmonized or even coordinated RES-E support in the EU.

Next to reasons of harmonisation and coordination, the German and Italian stakeholders were asked for their willingness to change support anyhow. A change to quota and certificates schemes has been advocated by conservative parties, especially the liberals, and the confederation of the electric utilities (VDEW). It was argued that the introduction of volume based trading system of green certificates, with target quotas for all distribution companies and a penalty for not meeting these targets could provide a more efficient system. They also asserted that this instrument encourages increased competition and helps reducing prices. VDEW warned that maintaining the current system would add €10 billion to the national electricity bill by 2020.

All other German stakeholders kept to the current system, which they consider reliable and effective. Although the survey is not representative, the picture given of the comparative evaluation of advantages/disadvantages of the two systems illustrates convincingly the position of the various stakeholders and pressure groups.

They admitted that the current feed-in system is perhaps not the most efficient one, but they don't think that the overall support scheme would improve by a change to a certificate trading system. So according to German stakeholders the current feed-in system optimizes the differentiated aspects of RES-E support (effectiveness, efficiency, transparency, etc.) best.

Finally, German stakeholders stressed the dominance of the feed-in system in the EU, which is another proof of the good performance of this system. German stakeholders did not endorse harmonisation on account of preservation of established and favourable domestic support conditions. Yet approximately 29 % of the interviewed stakeholders stressed the importance for a harmonised support system across the EU and favoured the convergence of the national systems to promote RES. This was a somehow composite front comprising almost all stakeholder groups. The majority of respondents of the survey agreed that harmonisation of policies across the EU is not yet necessary. They endorsed the position of Commissioner Piebalgs that it is premature to propose a harmonised European support scheme. Approximately 14 % of the respondents gave two answers, thus conceding that whilst competing national schemes could be seen as the best solution, on the short and medium term a coordination of the existing systems is necessary. The popularity of the feed-in system should be taken more seriously in the debate on coordination/harmonisation of support schemes. It is worthwhile to explore the feasibility of EU coordination/harmonisation of RES-E support on the basis of feed-in in stead of certificate trading. The architecture of such a feed-in based system was not communicated in the German hearing, but should be explored in more detail according to German stakeholders.

The Italian stakeholders also expressed low willingness to change their current certificate based support system, which, on the other hand, works in such a way that certificate prices are not set merely by the interplay between offer and demand, but is somehow controlled to give more guarantees of good income to RES-E investors. Change was preferred only as far as it could decrease further investor's risks. As in other countries, the willingness to change the national support scheme in favor of EU harmonization or to establish a European level playing field, was almost zero in Italy too.

Although not that explicitly written down in the Nordic chapter, the willingness to change support in favor of EU harmonisation in these countries is also neglectable. Stakeholders stressed the need of harmonization, in particular to compensate for imbalances between national investment contexts. At the same time they don't want to change support, which is most clearly shown by the failure of integrating the Norwegian and Swedish support scheme. The unwillingness to change the national support system for the benefit of taking next steps in EU coordination and harmonization is perhaps the most clear indication how strongly energy continues to be a national topic.

The case of Slovenia shows how different the position of the accession countries probably is on willingness to change support in favor of EU harmonization. Change of support is definitely an issue in the country, but the debate is certainly not motivated by harmonization. The Slovenian debate is actually a debate on the maturation of the support system and the improvement of the support conditions for investors and producers, in particular new and small ones. Incumbent companies seem to find their way in Slovenia, where newcomers face difficulty to get into the system.

### **3.7 Stakeholder consultation: Conclusions**

The findings of the national stakeholder consultations show much more similarities between the countries than the findings on liberalization and ecologisation of the electricity markets. The consulted stakeholders in the different countries share similar views on a number of topics addressed in the national consultations. Without exception all consulted stakeholders are rather dismal on the quality of competition in the electricity market of their countries. They are quite pessimistic on the prospects of competition in the EU electricity markets and

on the establishment of a competitive internal electricity market in the short term. All national consultations stressed the challenge the EU is still facing on this topic. The stakeholder's views on this topic are in line with findings on market analyses in the EU region.

A second topic stakeholders agree on, indifferent of contextual national setting, is satisfaction with the RES-E support system currently in use in the countries. No matter the state of liberalization and ecologisation of the market, and no matter type of support system, feed-in or certificate trading, stakeholders are quite content with the type of support they are currently facing. On performance stakeholders expect support mechanisms to provide for a stable investment climate for a certain period of time and for acceptable and manageable investment risks. On this point our stakeholder consultation confirms the findings of more technical and economical analyses of the functioning and performance of national support systems in the EU region.<sup>16</sup>

A third major topic stakeholders agreed on is the compatibility of both types of support systems with the competitive electricity market. A particular interesting finding of the national consultations is that the stakeholders in a feed-in type of setting are more convinced on this topic than the stakeholders in a certificate type of support setting. Compare for instance the findings of the German and Italian hearing on this point. The findings on compatibility of support system are very important for taking next steps in harmonization of RES-E support in the EU. The majority of the stakeholders are under a feed-in system. If the EU keeps to the idea of harmonized support on the basis of certificate trading than it is facing an extra barrier in the mindset of stakeholders all over Europe. Most stakeholders prefer the feed-in system which they consider compatible with a competitive electricity market. This is quite the opposite of what the Commission initially had in mind for harmonization of support in the EU region.

The forth and final major topic of the consultations stakeholders agree upon is the willingness to change the support system currently in use. The agreement on this topic is indifferent of contextual national setting. This topic has been addressed in all national hearings and stakeholders are rather determinate on the issue: no change of the current support system except when change will improve the stability of the national investment climate and will reduce investment risks. For the rest change is not acceptable. Stakeholders in particular reject change of support for the benefit of EU harmonization. They fear a loss of stability when it comes to EU harmonization of RES-E support in the short or medium term. The whole setting for RES-E in the European context is considered still too fragile and immature for making any next steps in harmonization of RES-E support. In particular the national settings are considered too diverse and still too different for making any move on the harmonization track. Stakeholders stressed the need of further institutionalization of RES-E at the EU level as a sufficient condition for any further harmonization in support.

In several consultations stakeholders stressed the need first to improve the conditions for competition in the EU electricity market and than consider the need to harmonize RES-E support. If harmonization is required, of which stakeholders are not yet convinced of, for them it is no question that harmonization with feed-in is as likely as harmonization on the basis of certificate trading. Stakeholder's preference in this respect depends on the type of support they are in. Since most stakeholders are in feed-in types of support systems, it might be difficult to change the mindset of these stakeholders in favor of certificate based types of harmonization.

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<sup>16</sup> See for instance Huber, Claus, et al, Final Report of the project Green-X, Vienna, 2004.

#### 4 National consultations: Conclusions

The results of the national consultations show the high complexity involved in RES-E support in the EU. The range of opinions and preferences is highly diverse and does not stop at national borders. They vary in and between national and international stakeholder groups. It is very difficult to generalize from the richness and variety of stakeholder positions and preferences, without harming the detailed analyses of the country reports and the diversity and nuance in the stakeholder positions. This makes it very difficult to draw general conclusions in terms of stakeholder positions or stakeholder preferences. This also makes it hard to draw any guidelines or recommendations on the stakeholder consultation as such. Despite this hesitation, the stakeholder consultation was very valuable because it showed in a very detailed and varied way the complexity of the current RES-E debate in the EU. The stakeholder consultation showed that the current RES-E debate actually is a multidimensional space that can be visualized as a pentagon. The corners of the pentagon list the dimensions involved in the RES-E debate. The debate on RES-E support is related to liberalisation and ecologisation of the EU electricity market, and thus includes concern with competition policy as well as environmental policy. The debate is also about security of energy supply and about industrial policy and technology policy considerations and interests. The debate is further complicated by the fact that some issues, like security of supply are primarily focused at a European level, whereas other issues, like industrial and technology policy are still focused on the national agenda.

It showed that stakeholders consider the current state of liberalization of the electricity markets in Europe as disappointing. In particular the adequate conditions for competition are still lacking and the process of liberalization to establish these conditions is hampering. Electricity markets in the EU region are too concentrated and concentration tends to increase instead of decrease.

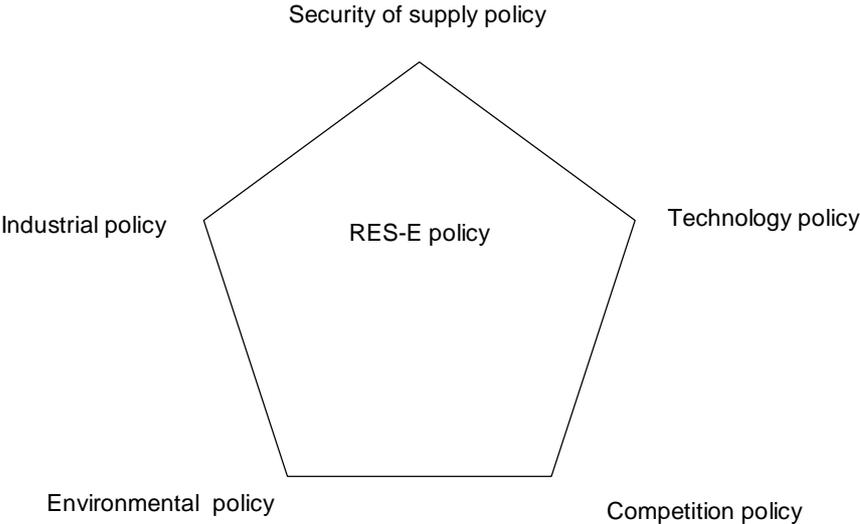


Figure 7 Multidimensional space of RES-E support in EU

On liberalisation the EU is facing the challenge to improve the conditions for competition. In almost every country of the EU liberalisation is still “work in progress” and many

improvements to enhance competition are required. The latest EU benchmarking report on the establishment of the internal electricity market considers the high degree of market concentration among the top barriers for establishing real competition in the electricity market. Moreover, concentration seems to be increasing instead of decreasing. Compared to the results of the third benchmark report, concentration in production in the fifth benchmark has increased in Germany, Italy, the Netherlands and Norway and only decreased in Sweden (Glachant, 2004, 170).

A recent evaluation pointed out that the circumstances haven't improved since. Competition in the electricity markets of Continental Europe hasn't matured. Almost all wholesale and retail markets of Continental Europe have too few competitors. This continues oligopoly and monopoly in supply and in some countries even openly devoted national championship. The paper concludes that real competition requires: (i) *a complete separation of ownership of the transmission grid and the generation and supply in all countries and sub-markets*; (ii) *sufficient transmission capacity for creating a larger market*; (iii) *adequate margins in generation capacity*; (iv) *a sufficiently large number of generators to share this capacity*. Therefore the prospects for a vibrant competition in Continental Europe are bleak.<sup>17</sup>

So in liberalization of electricity markets, the EU is still facing serious barriers and problems which seem to expand instead of diminish. The findings of the national consultations are in line with several analyses of the barriers in maturing competition in the European electricity markets. For instance, according to a substantial part of the German stakeholders, the conditions for fair competition are not yet at hand or call for substantive action. Dutch stakeholders rated the competitiveness, profitability and the commercial attractiveness of both the electricity market in general and the green electricity market in particular, as insufficient. So the immature state of liberalization is not only visible in the statistics of the market, but also in the mind set of stakeholders.

Member States also show different commitments to liberalisation of the electricity market. Some countries reform their markets with a European focus on competition; others continue to focus on national interests (national champions). Part of the problem of these differences in foci is disagreement on electricity market liberalization and harmonization. Disagreement on this point is growing in Europe. Our stakeholder consultation indicates that there are two dominant orientations currently emerging in the EU: one focusing on the competitive harmonized market and one focusing on the national interests. This emerging differentiation in policy beliefs also affects the debate on RES-E support. Emerging disagreement on this topic "contaminates" the climate for harmonization and even coordination of RES-E support.

The short term challenge of *ecologisation* is to attain the indicative national goals on RES-E increase and the overall EU goal in 2010. Mid 2006 it turned out that the EU will only attain the 2010 goal if countries are willing to take additional support measures. Without intensified policy efforts only a very few Member States will be able to meet their indicative target in 2010. But the greening of the European electricity system is expected to continue after 2010. The EU is already considering new goals for 2020 and will soon start debating this topic. This issue will also affect next steps in RES-E support. But, the national attitude vis-à-vis ecologisation and renewables seems to be rather defensive and reluctant. Additional to the indicative targets, national governments don't have any clear longer-term ambition regarding the ecologisation of electricity supply or any passionate national program supporting such an

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<sup>17</sup> Haas, Reinhard et al., Competition in the Continental European Electricity Market: Despair or work in progress, Paper presented at the IAEE conference, Potsdam 2006.

ambition.<sup>18</sup> Similar ambitions are lacking in the market too. The market seems to consider investments in RES-E innovation and new production capacity as a prime responsibility of politics. Without clear and substantive support, market actors are not willing to invest in the ecologisation of electricity supply in Europe.

The national consultations also showed that the debate on RES-E support is also about the *security of supply* position of Member States in the longer term. Renewables are assumed to contribute to the future energy resource portfolio in the EU and all Member states want a beneficiary position in this respect. From this perspective, all have specific interest to have RES-E production capacity within the national borders.

This means that there are country specific considerations at stake in *industrial and technology policy*. Domestic industry and domestic technology development are expected to benefit so as to create positive industrial and technological effects. Country interest could therefore easily come into conflict with the idea of coordinated or harmonized RES-E support in the EU if such support would lead to distributive bias across nations. These country specific industrial and technological considerations therefore intervene in the current debate on RES-E coordination and harmonisation.

Indifferent of national setting, therefore, the willingness to change current support systems is very low, except when change improves the investment and production conditions. There might be fractions of stakeholders who favours a change of support in the future, but these fractions are minorities everywhere. The majority of the stakeholders want to keep to the current support system, indifferent of type of support scheme and indifferent of national setting.

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<sup>18</sup> Only Germany and the United Kingdom have formulated and accepted long-term RES-E objectives.

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