

EIE/04/085/S07.38569

REALISE-FORUM

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

Deliverable D 14

Recommendations for policy



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February 2007

Acknowledgements

The REALISE Forum recommendations draw on the analysis and results of the work carried out within Work Package 3 (National desk activities/National Dialogue, National consultations with stakeholders), Work Package 4 and Work Package 5 of the REALISE-Forum project.

We gratefully acknowledge the individual engagement of the members of the national desks of the participating countries. Additionally, we would like to thank all the twelve members of the Steering Group for their active participation in the activities of the project, for the constructive discussion with the consortium and for their valuable suggestions.

Policy Recommendations

1 Introduction

This deliverable provides the recommendations of the REALISE Forum project. These are based on the analysis carried out in the various work packages of the project and draw evidence from the national stakeholders surveys and in depth interviews, the outcome of the national hearings, the findings of the international workshops and of the final conference.

The next sections present the major lessons learnt from the national consultations, especially the stakeholders' perceptions about the barriers playing against a harmonisation/coordination of support schemes and the conclusions of the international workshops and final conference. Section 4 specifies recommendations for the European Commission, national states and different stakeholder groups.

2 Lessons from the national stakeholders' consultations

2.1 Stakeholders viewpoint on harmonisation and coordination of support systems

The Country Reports and the Comparative Survey (WP-5, Deliverable D-10) have provided a detailed appraisal of the stakeholders' consultation in the REALISE Forum countries and have analysed also their various viewpoints and perceptions about the support instruments in use in their countries. In spite of national, country specific or even instrument-specific (FIT, Quota and TGC) differences which originated some noteworthy discrepancies in viewpoints, on the whole, it can be stated that the cross country cohesion among the stakeholders groups on the major issues is fairly good. Even though some more or less scattered distribution of viewpoints has occurred, the outcome of the consultations does provide a sound starting point for drawing recommendations. In the following, we mainly refer to those issues of surveys, hearings and interviews carried out in the consultation process of REALISE-Forum which have allowed identifying some majority trends among national RES-E stakeholders or coherent positions across the borders. In several cases, the same answer distribution pattern was noticed in both the two main stakeholder blocks considered: the RES-E producers, equipment manufacturers and respective associations with a direct interest in RES-E deployment on the one side, and the "outside world", namely those with a less direct interest in RES-E on the other. This is especially striking in the case of Italy, Germany and to some extent the Netherlands.

The Communication from the European Commission "The Support of Electricity from Renewable Energy Sources", Brussels, 7th December 2005¹, indicated the need for a postponement of an EU-wide, harmonised RES-E support framework. A prevailing number of stakeholders (in Italy, Germany and the Netherlands) answering the REALISE-Forum questionnaire in summer 2005 also shared this view. Rather a few stakeholders said harmonisation was unneeded or impossible, but a large share of them (Italy, Germany and Slovenia) felt that it could be possible after 2010. Particularly, RES-E Producers and RES equipment manufacturers turned out to be a little more pessimist than other stakeholders (esp. in Italy) with regard to a hasty/premature harmonisation of RES-E support at EU level.

¹ EU Commission, *The support of Electricity from Renewable Resources*, COM (2005) 627, Brussels 2005.

As a general conclusion, the need for some harmonisation was confirmed, but how and when to do it remained an open question.

As the Commission proposed a process of co-ordination and optimisation of national systems, Realise Forum stakeholders were subsequently asked which actions could, in practice, best help to pursue these aims and which institutions should take on the task of starting them up.

Institutional actors and RES-E associations in Germany pointed to the successful cooperation in the framework of the German Spanish feed in cooperation². In general, in the opinion of a large number of stakeholders (ranging from GSE in Italy to BWE in Germany), a co-ordination process at the level of the European Union should, in principle, above all aim at establishing a uniform framework of rules ensuring fair access of RES-E to the market and the electrical system. Action should therefore be taken with regard to aspects such as plant permitting procedures, grid-connection rules, electricity market participation, RES-E priority in generation plant dispatching. It has however been pointed out that the definition of these rules has, of course, to take place through energy policy measures taken by individual Member State governments.

In the opinion of RES-E producers (e.g. APER in Italy, BWE and BEE in Germany) a process for co-ordinating RES-E support schemes at the European level requires in the first place a careful analysis of the situation and developments within each EU Member State. Once the peculiarities of each national market have been set off, it will be possible to find out the weak and strong points of each support mechanism and hence assess its possible effectiveness in different countries. Such an analysis should of course be carried out by independent, qualified bodies, e.g. research institutions or national regulators, possibly in cooperation with sector industry association, which could help identify the main needs of the categories they represent.

In its Communication of December 2005, the EC states that "it is impossible to isolate the discussions of support schemes from the issue of (administrative) barriers". This has indeed been also the experience made in the consultations carried out at national level by the national desks of the Realise Forum. In addressing issues concerning the optimal RES-E support, the role of the various barriers has also been discussed. Whilst technology specific or administrative barriers have been dealt with in a number of EU projects and studies, the focus of REALISE Forum has been to investigate whether the barriers identified or perceived by the national stakeholders are more on a general level (related to technical, administrative, social or financial questions), are country specific, are strongly related to the instrument design of the feed in (both premium and fixed tariff schemes) and quota and certificate systems or whether they are even stakeholder's group specific.

Although a very differentiated picture has emerged, it can be summarised that, the barriers designated by the stakeholders in the RF countries are not only of technical and administrative nature - as in the case of the barriers identified in the EC document -, but also of social and financial nature or specific to the instrument design. Some of these barriers (and drivers) for an increased development and deployment of RES-E are also playing a role in the case of enhancing coordination/harmonisation of RES-E support schemes. The following sections indicate in a condensed manner the barriers that the RF stakeholders perceive as especially crucial.

² The International Feed-in Cooperation aims at demonstrating the advantages of a feed-in system. In this context, the participating countries intend to stimulate the enhancement of feed-in tariffs worldwide by including other countries into their information exchange process. For instance, existing knowledge and experiences gained serve as valuable information for other countries planning the introduction or further development of feed-in tariffs. The knowledge exchange is realised by various international workshops and is supported by the information available on the Cooperation's website (www.feed-in-cooperation.org).

2.2 Stakeholders viewpoint and perceptions on barriers (and drivers) to harmonisation and coordination

A number of barriers have been indicated in the majority of national hearings and consultations and are considered to hamper a forced penetration of RES-E as well as attempts towards coordinated /harmonised support systems.

REALISE Forum stakeholders have been very homogeneous (with respect to stakeholder group and country) in indicating the fragmentation of the authorisation procedure and differing administrative competences (national, regional and municipal) of the permit and siting of RES-E, the lack of consideration for RES-E installations in the spatial planning and the long lead times to obtain a permit as the primary hindrances. The existence of several levels of competence in the administration is not only an obstacle in the case of siting procedures for new RES-E plants, but also for a coordinated path of promotion schemes.

It is perceived that steady (and growing) incentives are necessary to stimulate potential investors and reduce the uncertainty or risk connected with the long and uncertain siting procedure. This viewpoint/perception is also homogeneous and is shared by the RES-E industry and RES-E associations in all RF participating countries. Some discrepancy was evident in the case of Slovenia, where citizens groups and NGOs exert influence during the planning process. In some cases there has been a strong opposition for reasons such as landscape intrusion and particularly bird endangerment. Some additional barriers have been indicated in countries where the best exploitable sites are dwindling, and some technical barriers arising from lack of plant sites have been indicated as likely to add to regulatory and commercial barrier issues. Unavailability of new sites stem from bureaucratic hindrances as well as from environmental problems.

The insufficient availability of grid capacity is perceived as the next strongest barrier for both RES-E expansion and for co-ordinating the support systems, especially by Italian, Slovenian and partly German stakeholders. This hindrance stems from the fact that the current electricity grids in the EU countries were conceived for transmission of electricity produced by large, centralised conventional power plants, whereas the RES-E generation is generally characterised by smaller and scattered plants, which are often located in remote areas where resources are available, but the existing grid is weak. Moreover, the production of RES-E plants is often intermittent over time, as is typically the case of some technologies such as wind power. At present, large parts of the existing grids in the EU Member States actually have limited capacities left for connection of substantial amounts of RES-E power plants. For instance, in areas such as Northern Germany, Denmark, Southern Italy, Sardinia etc., expansion and reinforcement of the grid are, to some extent, indispensable if envisaged medium and long-term RES-E penetration targets have to be attained without any prejudice to the proper performance of the electrical system. It is also worth pointing out that increasingly higher penetration levels of intermittent sources (e.g. of wind) could pose other problems, e.g. with frequency regulation. In this case, the electrical system would require additional spinning reserve from conventional plants to work with the same level of quality and reliability. To make up for that, the grid operator might, in the future, even ask intermittent RES-E plants to provide some additional performance (ancillary services).

Some studies have already been carried out in various countries (Germany, Ireland, the United Kingdom, the U.S.A. etc.) to assess extra costs possibly ensuing from the upgrading of existing grids. The results have generally turned out to be reassuring, at least if penetration of intermittent sources does not exceed a given threshold (below 20-25% of overall domestic consumption). Nevertheless these issues always have to be borne in mind and timely evaluated to avoid possible negative impacts on the deployment of RES-E plants.

As to procedures for grid connection, many stakeholders, especially in Italy, Germany and Slovenia, perceive that they are not always fully transparent, require long lead-time to obtain authorisations and are costly, too. Stakeholders call for more transparent procedures for grid connection providing project developers with tools to verify technical and cost data presented by the grid operator. For instance, Italian developers and their RES-E producer association APER, lamented that they do not know the situation of available grid capacity and cannot verify technical and cost data of grid connection stated by the grid operator.

The fact that the interests of DSOs and electricity utilities in some countries (i.e. Germany) are the same (also from the corporate point of view) is perceived as a serious barrier by the RES-E associations, but also by research institutes, consumers' organisations and NGOs and it is feared that this affects a bias of the grid operator towards independent RES-E producers. The experience of countries not included in the RF project such as Spain shows that some project developers are even willing to take up more costly and risky alternatives such as a direct connection to the transmission grid in place of the distribution grid, just in order to avoid problems with the DSO. Therefore the majority of stakeholders request the unbundling of grid and production and require strong regulatory authorities (e.g. Germany).

NGOs viewpoints and positions (especially in Slovenia and to some extent Italy) make evident that NIMBYs or BANANAs³ attitudes represent a major barrier in siting and increasing the acceptance of RES-E (plants). Transparent information and early participation in the decision making process are therefore designated as crucial elements to win support from local public and local authorities. The viewpoint of Consumers' and NGOs organisations (especially in Germany) points to the still low awareness of the benefits of RES as an additional barrier. Putting order in the present jungle of green electricity labels and disclosure of the origin of electricity can play therefore an important role in raising awareness among end-users with regard to where the electricity comes from and what impact it has on their environment.

Research institutes, RES-E associations and NGOs, especially Greenpeace, have indicated the peril of the intransparency of the costs of electricity from conventional sources. Thus whilst the costs related to grid connection and construction of RES-E installations are attributed to the kWh cost price of this source, in the case of fossil and nuclear energy the costs of subsidisation are hidden. This applies equally to the costs of nuclear waste and to the subsidies to coal mining which are not reflected in the kWh cost price of the respective generated electricity.

The still missing understanding of RES-E projects and lacking confidence on behalf of credit institutes is still playing a clamming role for renewables. The consequence is - as remarked by industrial actors, especially developers - that banks charge high risk premium conditions. Thus according to the RES-E associations, these risks have to be offset by predictable and long financial backing (incentives/subsidies) and sufficient internal cash-flow. Other barriers which have been addressed are specific only to few RF countries or number of stakeholders and are less significant for drawing recommendations.

As already illustrated through the pentagon of complexity in the comparative survey (WP-5 Deliverable D-10), not only (policy) sub-targets, but also market drivers may vary from region to region and across countries, depending on market relevance of the domestic RES-E industry (sub policy targets: industrial policy, employment, security of supply, technology policy, environmental policy); consumer's awareness and preference for green power (sub policy target: environmental policy), etc.

³ NIMBY means Not In My Back Yard and BANANA means Build Absolutely Nothing Anywhere Near Anything (or Near Anyone)

Stakeholders were also asked about their views and aspirations about future developments of the electricity market in general. According to the results of all RF surveys, the liberalisation of energy markets is perceived at the same time as a barrier, but also as a driver for the coordination/harmonisation of RES-E support systems. This is the case of most Italian and Scandinavian stakeholders, but this issue has been brought to the fore also by a number of German market actors. A large number of stakeholders (especially in Italy), regardless of their role, saw market liberalisation favourably and judged the chance to sell RES-E on the free market (see below) as a good alternative or even a decisive opportunity for RES-E development. The progress made through the unbundling of the energy utilities in Scandinavia, the Netherlands and Italy has enlarged the number of market actors and helped diversifying technologies.

On the other hand, when asked whether a fully liberalised framework (with energy prices set only by the market) should be preferred to a regulated framework (with energy prices set by tariffs) as an effective way for developing RES-E plants, the largest share of stakeholders in Italy were in favour of a mixed framework, where either way can be chosen by producers. The same trend was remarked within most stakeholder groups, thus confirming that guarantees provided by some regulations are still felt largely necessary. As with respect whether in a market framework with supply largely exceeding demand, the offering price of RES-E could be unlinked from the oil price and become another reference price as opposed to unsteady fossil fuel prices. This perspective was considered in a controversial way, either as "desirable" and "unfeasible". This fact gives the impression that RES-E stakeholders had not yet given many thoughts to this possible development (something like this had already happened in Italy, where for some years the energy supplied by plants getting CIP 6/92 feed-in tariffs was sold by GRTN at a price independent from the free market price).

It has been remarked that "...monopoly utilities are replaced by profit driven energy producers, which may be reluctant to develop and invest in alternative/renewable energy technologies. A market-based set up may particularly disfavour renewable energy technologies. Energy producers perceive them as high risk and they tend to be capital intensive and have long return time frames. This makes them highly exposed to the changing electricity prices in spot markets and costly to finance".⁴ On the other hand, privatisation has also been alleged by some stakeholders (mainly from the Scandinavian countries) to have promoted renewables (through new sources of capital) and to have acted as a major driver to boost efficiency in the market in order to become more competitive.

The lack of cooperation between MS in the EU on best practice for grid connection/access, in removing market imperfections in relation to RE, new interconnections, integration of intermittent RE sources and promoting demand response in energy markets also represents a barrier for strengthening the cooperation or the harmonisation of RES-E support systems at regional or EU level. This has become evident in both attempts such as in the failed Nordic coordination between Sweden and Norway about a common TGC market as well as the ongoing cooperation efforts between Spain, Germany and most recently Slovenia within the so called Feed-In Cooperation.

⁴ See Neuhoﬀ (2005), p. 95. Neuhoﬀ, K. (2005), "Large-scale deployment of renewables for electricity generation", Oxford Review of Economic Policy, Vol. 21, No. 1, p.95

2.3 Support scheme related barriers for a coordinated approach

In general, the consulted stakeholders perceived neither the FIT schemes nor the quota/TGC schemes as very risky. Nevertheless, the risks of FITs are mostly deemed low, whereas the risks of the Quota/TGC scheme were perceived to be somewhat higher. On average, the social cost of the system was deemed medium to high for both mechanisms, but somewhat higher for the FIT scheme. There were also noteworthy differences in opinion between stakeholders groups and national groups on this subject (see Deliverable D 10).

Following barriers have been designated as major hindrances for a harmonisation on the basis of a FIT scheme or a coordinated path based on FIT systems.

- Too short time period of purchase guarantee for RES-E and/or too low tariffs. Although normally leading to a certain level of investment security, if feed-in tariffs are set below the marginal RES-E generation costs or for a too short time period (impeding a reasonable return on investment, a market creation/stimulation will not take place or RES-E investments will only take place for the cheapest RES-E technology.
- Lack of tariff differentiation according to each RES-E technology. However, in the three RF countries Germany, Slovenia and the Netherlands, a technology differentiated tariff design exists.
- In the case of technologies closest to the market eventual windfall profits, depending on the siting characteristics of the countries. This pitfall can be avoided with well designed adjustment mechanisms for the tariffs/premiums, such as yearly depression rates for new RES-E installations or stepped feed-in tariffs as well as regular (i.e. every four years) revisions of the tariffs/premiums (for new installations).

Following barriers have been designated as major hindrances for a harmonisation on the basis of a Quota & TGCs system or a coordinated path based on Quota schemes.

- The current quotas (in Sweden and Italy) were perceived at the beginning of the consultations in 2005 as too low. For Italian stakeholders (esp. RES-E investors) the TGC market was perceived as risky and needing action to provide the necessary confidence (market stability, banking and borrowing, authorisation procedures). The actions implemented at the national level are not perceived as ambitious enough to reach the targets and the time horizon of quota obligations were perceived as too short. However, the prolongation occurred in 2006 in Italy from 8 to 12 years and to 15 years in Sweden helped establishing investors' confidence.
- Lack of penalties / too low penalties in case of non-fulfilment of set quotas (see also the bad experience with the smear back mechanisms in the UK). Too low buy-out prices⁵. In Italy, Decree 387/2003 stated that penalties would be the task of the Regulatory Authority. No noteworthy failure to comply with the obligation has occurred yet, but RES-E Italian stakeholders indicated that settling this aspect more clearly would render the investors more confident.
- Low liquidity of TGC market.⁶
- (Relatively) high transaction costs (especially in small national or sub-national level (i.e. in Belgium)).⁷

⁵ See the esp. Santokie's presentation in the Proceedings of the RF final conference (downloadable under www.realise-forum.net).

⁶ See Verbruggen and Santokie presentations in the Proceeding of the Milan Workshop and Di Nucci & Reiche in the Proceedings of the Maribor Conference (downloadable under www.realise-forum.net).

⁷ See Verbruggen's presentation in the Proceeding of the Milan Workshop

- Small RES-E producers face the problem of planning security. In the case of quota systems, not the large energy suppliers but the small investors/RES-E producers bear the entrepreneurial risk.
- The international implementation of quota & certificate systems favours geographical and technological hot spots. This means a certain technology at an optimal location will be extensively used. The negative environmental impact must be set against the benefits of income for those regions
- The Italian experience has shown that the current TGC scheme, where all renewable sources compete on the same level, favours the development of more mature technologies, but is not helpful to those technologies that are still more expensive than others. The corrective actions taken with the introduction of FIT schemes for photovoltaics have substantially reduced the market risks, but on the whole the system is still far from bringing in a support system similar to the former CIP 6/92 feed-in tariffs. Some major requirements typical of a feed-in scheme are still lacking, such as different prices trimmed to the various sources and certainty of conditions for energy purchase in the long term.

3 Lessons from the two international workshops and final conference

The first international workshop entitled “Three Years of Green Certificates: Are They out of the Infancy Phase?” took place in December 2005 in Milan. The conference showed that TGC schemes can work well for the deployment of new RES-E capacity, although in a way and to an extent that vary from one country to another. Nevertheless, quota & TGC schemes are more suitable for the RES technologies closer to maturity, whilst less competitive technologies need other instruments such as FIT-schemes. It can hence be inferred that TGC and FIT-schemes can be complementary rather than competing, and the optimum set-up of RES-E support instruments can therefore vary widely from one country to another, depending on its peculiar electricity market and economic and social conditions. Therefore, making an effort to achieve better co-ordination between similar national support schemes looks, at least for the short term a more feasible path for the EU than implementing a fully harmonised support framework.

The second international workshop entitled “Experiences with Feed-in Tariffs: Lessons from the German and the Spanish Model for the New Member States”, was held in Maribor, Slovenia in May 2006. The workshop aims were to present the important potential strategies of renewables for the new EU members and accessions countries in transition from a centrally-planned monopoly to a more market oriented structure of the power sector, environmental initiatives and implementation practices and review the experiences made with trans-national coordination approaches with Feed-in schemes and with market based instruments.

Following the Directive 2001/77/EC, much discussion focused on the target to increase the share of RES-E in the EU gross electricity consumption from 13.9 % in 1997 to 21 % in 2010 and the adequacy of the current support systems in use to enable to achieve it. The topics of the presentations and the discussion ranged from a comparative analysis of the diffusion of support schemes for green electricity in the enlarged EU to the interaction of green certificates with green pricing and emission trading. Insights were also provided on policy diffusion and replicability of national policy paths, especially in the case of the comparative analysis of instruments in Spain and the Czech Republic. A whole section was dedicated to the question whether the Spanish and/or the German system could present a model for Europe and possible paths for a co-ordinated approach were discussed. The

existing regional co-operation schemes were presented and discussed as for example the feed in co-operation between Germany and Spain and the planned Scandinavian certificate market. A number of different questions were addressed, as for example: which groups are going to gain the most benefits? Should only the most efficient technologies be stimulated or a broad range of technologies? Should the system tend to be harmonised at EU level or should take into consideration differences among member states? Should the system of RES-E support be compatible with the system of greenhouse gases emissions trade? Should different consumers bear the burden of fulfilling international obligations? Should they be exposed to those burdens at all?

The third, final, international conference of the project took place in Berlin in November 2006. The debate emphasised that it is very important to fully understand the context of the discussion and it was argued that the discussion about the supremacy of one system over another is still very circumstantial. The performance of every system relates to the detail of its design, monitoring and supervision, with the necessity to identify the characteristics of the separate RES-E technologies, and to refine the regulation by technology and by the state of its maturity. The (perceived) pros and cons of feed-in or quota support systems together with TGCs depend on the objectives of policy makers/stakeholders and national sub-targets such as industrial policy, environmental policy, competition policy, technology policy etc. This was expressed in the project by the illustration with the so called pentagon of complexity (see D 12- "Proceedings of the final conference" and Deliverable 10).

Scenarios for renewables in the EU until 2020 were presented and it was stated that even for conservative scenarios high investments are necessary. One of the main goals thereby is to make sure to start with these investments now and seek instruments that enable good investment conditions. Even if progress has been made at national or EU level, when discussing renewables one has to keep in mind that we are starting out from a very low point and also consider that energy demand is increasing as well. If one excludes traditional biomass and large hydro, on a global level, the share of renewables on total primary energy supply has only slightly increased. Furthermore, developing countries as China are increasing their energy consumption steadily. The EU should not just be satisfied with own national achievements. In order to achieve the best scenario of 39 % renewables in 2050 a strong political/policy change is necessary.⁸

Since only around 5 % of the electricity supply in Europe is from new renewables, before starting the discussions on how to harmonise support-schemes for RES-E it would be necessary to harmonise the whole energy market. Thereby, the EU should make sure that there is real competition on the European electricity market, as the direct and indirect subsidies to the conventional power production are still massive and national respectively regional monopolies in the electricity supply do still dominate the market. This includes internalising external costs and forbidding further subsidies for nuclear and coal based technologies. In a better functioning European market with external costs internalised, many renewable technologies would be competitive today.

Some stakeholders, as for example the European Renewable Energy Council (EREC), asserted that quotas and certificates are not market oriented. The tradable green certificates may be superior in theory. However, official EC reports⁹ have proven that feed-in systems in the majority of the assessed RES-E technologies work better with regard to effectiveness and cost efficiency. Although when assessing the performance of the different RES-E support schemes, the EU Commission in its communication from December 2005 already emphasised that the experience with green certificates is more limited than with

⁸ See for example the presentation of R. Vigotti in the proceedings of the final conference (downloadable under www.realise-forum.net).

⁹ See for example the communication of the EC COM 2005 (627) final, pp. 5-6.

feed in tariffs, the analysis showed that in the case of wind energy, small-scale hydropower and photovoltaic, RES-E support schemes based on feed-in tariffs performed better than quota systems together with TGCs regarding cost efficiency and effectiveness. In the case of RES-E based on biomass and biogas, the analysis was more complex, as the effectiveness of the support system was also influenced by factors other than the choice of the financial instrument (infrastructure barriers, installation sizes, optimal forest management and the existence of secondary instruments in the case of biomass forestry and agro-economic possibilities, the choice of the size of plants as well as the existence of a complementary support scheme in the case of biogas). Concerning biomass, the Finish hybrid support system (tax relief and investment incentives) together with the Danish feed-in system clearly showed the best performance, in terms of both effectiveness and economic efficiency of support. With regard to biogas, six of the EU-15 countries performed above average, whereof four used FIT schemes (Denmark, Germany, Greece and Luxembourg) and two (Italy and the UK) applied quota systems & TGCs.

Whilst stakeholders such as certificate trading companies and electric utilities believe that the European energy market is in the middle of a liberalisation process, they argue that renewables should be part of this process and that the support systems for renewables should also be as market oriented as possible. Other ones sustain that the EU however should promote a mix of both systems. Other stakeholders representing the interests of the RES-E producers and industry (EREC, BWE, etc.) recommend a possible harmonisation on the basis of feed-in systems or suggested that a new discussion on the tradable certificates should start only when it is demonstrated that they are more effective and efficient than the FIT system. Greenpeace argued that changes would cause uncertainty for investors. The EU should improve the present framework and help countries which have not developed a good support system yet. The EU should also help EU member states with similar RES-E promotion schemes to reach cross border agreements (regional clustering of RES-E promotion systems).

The major deduction of the conference is that it is too early for delivering policy recommendations to the EC with regard to a harmonised RES-E support scheme. The markets are not ready for harmonisation yet. The harmonisation of the support systems on a European level should not take place yet since competition is needed on the whole energy market first. At the same time, more coordination between countries with similar support systems is needed in order to promote cross-border trade. There are a number of preconditions, which need to be met before harmonising the market. These are: effective competition, no subsidies for fossils, sufficient shares from renewables, and mandatory goals for all markets – not only for electricity but also for heat and bio fuels, grid extension, mainly with regard to the international interconnections as well as long term successful support policies.

Furthermore, Europe needs to ensure that technological diversity is given. Mandatory RES-E targets should be set for 2010 and 2020. Also administrative barriers including those related to grid access should be removed. One of the first measures for a European market is an expansion of the grid. Therefore an improvement of the cooperation of the national network operators is necessary as well as the creation of an EU grid operator. Finally it was remarked that REALISE Forum should not recommend sharp policy changes. The project should rather stress the dynamic of the issue rather than recommending one simple support system.

Summarising, major conclusions of the final conference are:

- It is still too early for harmonisation of RES-E support in the EU.
- Co-existence of feed-in and quota/certificate system provides a good learning ground on RES-E support, in particular more experience is needed with quota based certificate trading. Quota based certificate trading needs a larger market to increase market liquidity.
- There are administrative and grid barriers for RES-E, which need to be addressed.
- In too many member states the investment context is still too risky. Support is too low and too unstable. In others support is not sufficiently tuned to the development requirements of the particular technologies, giving rise to windfall profits.
- The compatibility between the RES-E market niche and the internal electricity market should be facilitated by rules on disclosure GO, redemption, trading, labelling and the like.

4 Recommendations for a coordinated approach

In drawing lessons for policy and in formulating recommendations, Realise Forum takes the goal of European market integration and the current dominant systems for the support of RES-E as point of departure, and assumes the co-existence of both dominant systems in the coming years, together with the voluntary green market. The project considers these three development paths as complementary rather than competing.

The recommendations of Realise Forum are addressed to the EU Commission, the Member States and specific stakeholder groups in the EU. Recommendations and guidelines at the Member State level will be restricted to the Realise Forum countries (Denmark, Finland, Norway and Sweden, Germany, Italy, The Netherlands and Slovenia). They can be however considered by all means to be representative.

4.1 Recommendations for the EU Commission

This section formulates recommendations for the EU Commission. The largest part of the REALISE Forum recommendations addresses – not surprisingly - the Commission because of its prominent position in the EU debate on RES-E support. As in the other sections below, the numbers of the recommendations do not express any priority among them but simply the sequence of appearance in the text.

Pluralism of support systems and their coordination

Lessons Learnt (LL): The pluralism of national RES-E support regimes (feed-in and quota/certificate) in combination with the voluntary green market in the EU has both positive (P) and negative (N) sides:

N: Due to the lack of common regional support systems and the co-existence of different national approaches, it is still too early for an (harmonised) internal European RES-E system.

P: The diversity of national RES-E promotion schemes nevertheless represents a big potential for learning with regard to the strengths and weaknesses of the two main RES-E support instruments.

LL: It is necessary to ascertain which support scheme offers better conditions for functioning at a trans-national level.

Recommendation (R)

1. The EC should foster initiatives to strengthen trans-national feed-in “discourses” to support coordination and similarisation of the rules currently applied under the feed-in systems in the EU. The German, Spanish and Slovenian Feed-in Cooperation¹⁰ offers a promising point of departure.
2. The EC should identify best practice examples throughout Europe. The EC should specify design criteria for successful policy implementation of feed-in systems such as a

¹⁰ As a consequence of the broad acceptance of the FIT scheme in Germany and the (political) will - mainly of the German Ministry for the Environment, Nature Conservation and Nuclear Safety – to improve the cooperation among EU Member States using FIT schemes and in order to promote the exchange of experiences with the national systems, the governments of Spain and Germany at the International Conference for Renewable Energies in Bonn in June 2004 (renewables 2004) initiated the so called Feed-In Cooperation. Thereafter, a joint declaration between both governments was signed on October 6, 2005 in Madrid. On January 29, 2007, Slovenia signed the joint declaration.

sufficient long time period for which the tariffs are guaranteed, the application of technology-specific tariffs, the choice of a second tariff option based on a premium on top of the electricity pool price to increase market orientation, annual tariff degression for new plants to provide incentives for cost reductions, stepped tariffs in order to reflect different power generation costs within the same technology, etc.

3. The EC should discuss necessary further steps towards a harmonised feed-in system at EU level on the longer run between the Member States with feed-in systems such as
 - a harmonised approach based on a feed-in law with modular and transparent tariffs;
 - premiums (on top of the electricity pool price) for RES-E producers, which consider technology costs, some grid services (grid stability, sustaining tension gaps), etc.;
 - political incentives and national priorities (promotion of some RES-E sources beyond official national target at EU level, such as additional premiums for RES-E generators, if the power plants fulfil certain criteria (i.e. for building integrated PV, high-efficient RES-E plants, plants using certain innovative technologies or fuels);
 - incentives for re-powering or incorporating demand orientation in the feed-in tariff level (i.e. tariff differentiation depending on the day time and season), etc.
4. This common approach should also comprise mechanisms
 - to update and revise the tariffs or premiums (for new installations),
 - to avoid windfall profits for producers and
 - to share technology innovation benefits with electricity consumers while maintaining incentives for innovation.
 - This might be reached with fixed degression rates combined with regular (i.e. every four years) revisions of the tariffs/premiums (for new installations) or degression rates based on a semi-linear step function (i.e. with adjustment periods every four years including a two year gap between assessment of cost per kWh of newly commissioned plants and the adjustment) as well as by setting an early trigger for revision of targets when a technology is nearing its goal (e.g. 50%).
5. The proposed common approach should also take into account other necessary considerations for harmonisation, such as
 - grid access (explicit provisions to guarantee connection and transmission;
 - deviations allowed for intermittent renewable sources, length of bidding window, etc.);
 - definition and standards, ownership of rights derived from renewables and
 - exceptions for small non-commercial producers and energy-intensive industries.¹¹
6. “Quota discourses” should do the same for the rules of quota systems currently in use. Such a discourse should pay special attention to the symmetry between the national quota-based systems.
7. This dialogue should focus on specifying design criteria for successful policy implementation of quota systems such as:
 - specifying symmetry conditions for integrated market operations across countries;
 - specifying balancing criteria for setting quotas that represent realistic stretching goals, but with sufficient escalation to eventually stimulate new capacities;
 - establishing transparency and liquidity;
 - eventually securing efficient competition between suppliers of new renewables;
 - establishing time horizons that allow return on investments;

¹¹ These recommendations integrate the analysis and discussions carried out within the framework of the workshops of Maribor, German Desk and of the RF final conference with the results of the workshop of the Feed-In Cooperation held in Madrid on November 23-24, 2006.

- identifying best practice examples throughout Europe;
- discussing necessary further steps towards a harmonised quota system at regional and EU level.

LL: Whereas many stakeholders see feed-in and quota systems as mutually exclusive, there is also the view that they could be complementary. Part of RES-E learning in the EU could be to consider RES-E support also in a dynamic perspective¹². In such a perspective the type of support scheme is a function of the learning curve of RES-E technologies with feed-in and quota based support systems considered complementary to each other.

LL: There is evidence of coexistence of both systems at national (respectively sub-national) level (Italy, Flanders with TGC in combination with PV support through feed-in).

R: The appropriateness of RES-E support mechanisms should be analysed together with the maturity of the individual RES-E technology.

Guarantee of Origin

LL: Dutch actors are quite satisfied with the consequent way the Netherlands have organised and regulated the Guarantee of Origin. Respondents agreed on the necessity of such a robust and reliable system to foster the further penetration of renewables in electricity production. The advantage of the Dutch GO system is that it prevents double counting and therefore is very reliable. This gives confidence to the consumers. In other countries double counting still cannot be excluded due to a less mature system of GO as compared to the Netherlands.

R: The EC should consider the strict way the Dutch have organised the GO as the reference model for the EU in this respect.

RES-E trade on the voluntary market

LL: The voluntary market currently represents the only existing successful evidence for integration at European level, since in 2005 the voluntary trade has already developed as regional market, covering 19 countries.

LL: The compatibility between the RES-E market and the internal electricity market can be facilitated by rules on GO, disclosure, redemption, trading and so on. Standardised GO is the prerequisite for support systems preventing doubling of support and adequate target counting.

R:

1. Accelerate the introduction of a minimal set of common rules for disclosure, redemption and labelling based on the standardised GO.
2. Make a clear connection between standardised GO and RES-E support, especially regarding target counting, GO central database, etc.

Liberalisation

LL: Liberalisation of the pan European electricity market is still far from being accomplished, though certain regions have reached considerable liberalisation and integration. Significant problems with the liberalisation and Europeanisation of electricity markets are still:

¹² See Midttun, Atle and Gautesen, Kristian, "Feed in or Certificates? Competition or Complementarity? Combining a Static Efficiency and a Dynamic Innovation Perspective on Greening of the Energy Industry", in: *Energy Policy*, Volume 35, Issue 3, March 2007, pp. 1419-1422.

- High Market concentration
- Vertical foreclosure – difficult new entry
- Lack of market integration – incumbent still large and dominant
- Lack of transparency
- Limited confidence how prices are set (closer look at price – setting mechanisms)
- Regulatory risk - investment certainty
- Insufficient interconnecting infrastructure between national systems
- Insufficient incentives to improve cross border infrastructure
- Inefficient allocation of existing capacities
- Incompatible market design (e.g. differences between balancing regimes, nomination procedures, differences in power exchanges, TSO and spot market operators)
- Reduced reserve margins
- More commercial flows and “missing” transmission links
- Loss of integrated business approach
- Disappearances of regulated investments in generation
- Higher risk (on return) both for generation and transmission
- More complex transmission management (common congestion rules and data exchange)

LL: Improved competition in the internal electricity market is a precondition for harmonising RES-E support schemes on the long run. This applies especially for quota systems together with TGCs.

R:

1. The EC should consider the improvement of competition in the internal electricity market as a major target and as a precondition for harmonising RES-E support schemes on the long run. This applies especially for quota systems together with TGCs.
2. The EC should foster the transparency of cost calculations related to grid connection and grid extension to provide the project developers with tools to verify technical and cost data presented by the grid operator. This might be reached with the establishment of an EU agency responsible for the collection and verification of cost data of grid operators.
3. The EC should foster the standardised GO for approval procedures of RES-E plants.

RES-E Targets

LL: Although Directive 2001/77/EC clearly states that target counting should be based on consumption, there is still confusion on target counting with respect to production or consumption. Target counting on the basis of consumption facilitates international trade more than target counting on the basis of RES-E production.

R:

1. Be as clear as possible about target counting and counting procedure.
2. New ambitious mandatory RES-E targets will act as an important guidance for corporate RES-E investment strategies. Mandatory sectoral targets should be considered in this respect.

LL: Some countries as for example Italy strive the achievement of the indicative target through import of RES-E.

R:

1. The European Commission should look with favour at the possible addition of imported RES-E as far as achievement of the national target are concerned, but clearly on the condition that the country where this RES-E amount has been produced will not count the same energy for the benefit of its own target (double counting).
2. If imported RES-E is certified by earnestly applying the Guarantee of Origin in the country where it has been produced, there can be nothing against counting it for the purposes of the achievement of national target.

LL: The January 2007 communication of the EU Commission lists an (long-term) overall mandatory green energy target of 20% RES (on primary energy consumption) by 2020 and (therein) only specifies a sectoral target for biofuels of 10%.

R: The EU Commission should also formulate a specific mandatory target for RES-E increase as well as for RES heat and cooling in 2020.

LL: There exists a significant diversity of stakeholder positions within each country and between countries. Divergent priorities supported by different stakeholders in sub-targets (technology policy, competition policy, environmental policy, industrial policies, security of supply).

R: The EU Commission should set a binding overall target based on primary energy consumption as well as mandatory sectoral targets (for RES-E, RES heat & cooling, biofuels). The achievement of sub targets (for technology policy, competition policy, environmental policy, industrial policies, and security of supply) could be kept as national policy matter.

LL: Converging stakeholder's interests across national borders could represent a basis for pan European integration. For example big energy producers and big energy consumers tend to demand market driven international instruments and solutions.

R: The EU Commission should strengthen the harmonisation of the internal energy market

Interdependencies between trading schemes

LL: There exists a certain overlap between the trading schemes for greenhouse gas emissions, green certificates and white certificates as they all contribute to reducing CO₂ emission. Linking their associated environmental markets would risk undermining the objectives of the respective schemes (as for example in Italy where green certificates on the basis of CHP for district heating are admitted).

R: Trading schemes for greenhouse gas emissions, green certificates and white certificates must be carefully designed to keep the different markets separate.

Public procurement

LL: Green procurement is a big driver for a stronger use of RES-E in addition to national RES-E support systems.

R: Increase the volume of renewable based electricity by a mandatory procurement for the whole EU administration.

4.1.2 Recommendations to Member State governments

The recommendations in this section address individual Member States. The advancement of renewable energies in Europe depends significantly on the success of national policies and the developments fostered by each Member State. The prerequisite for the achievement of new, ambitious goals at the EU level is the fulfilment of existing national provisions and goals. Member States have their own responsibility in the support of RES-E and within their span of control they also can contribute to making next steps in furthering a coordinated approach of RES-E support. Like in the previous section, in this section too, the numbering of the recommendations does not express any priority order among them.

LL: Member States are primarily responsible for a stable investment climate. This can be assured by stable and consistent RES-E policy and by assurance of financial support for a fixed period of time.

Pluralism of support system and their coordination

LL: For the coordination between support schemes it is very important that countries using the feed in system for RES-E support establish a feed in dialogue as in the case of the feed-in cooperation between Germany, Spain and Slovenia

R: Each Member State with a feed in system should join this dialogue. Within this cooperation, the members

- should specify design criteria for successful policy implementation of FIT systems,
- should identify best practice examples throughout Europe,
- should discuss necessary further steps of a harmonised feed-in system at EU level on the longer run between the Member States with feed-in systems,
- should take into account other necessary considerations for harmonisation, such as grid access (explicit provisions to guarantee connection and transmission, deviations allowed for intermittent renewable sources, length of bidding window, etc.), definition and standards, ownership of rights derived from renewables, and exceptions for small non-commercial producers and energy-intensive industries.¹³

LL: For the coordination between support schemes it is very important that countries using the quota system for RES-E support establish a quota dialogue.

R: Each Member State with a quota system should join this dialogue. This dialogue should focus on specifying design criteria for successful policy implementation of quota systems such as:

- specifying symmetry conditions for integrated market operations across countries;
- specifying balancing criteria for setting quotas that represent realistic stretching goals, but with sufficient escalation to eventually stimulate new capacities,
- establishing transparency and liquidity,
- eventually securing efficient competition between suppliers of new renewables
- establishing time horizons that allow return on investments,
- identifying best practice examples throughout Europe,
- discussing necessary further steps of a harmonised quota system at regional and EU level.

¹³ These recommendations integrate the analysis and discussions carried out within the framework of the workshops of Maribor, German Desk and of the RF final conference with the results of the workshop of the Feed-In Cooperation held in Madrid on November 23-24, 2006.

Guarantee of Origin

LL: The coordination between support schemes in the EU could benefit from the implementation of the standardised Guarantee of Origin in all Member States.

LL: The coordination between support schemes in the EU can profit when Member States make the standardised Guarantee of Origin basis for disclosure, redemption and labelling in their home market.

R:

1. The coordination between support systems should be optimised by making the standardised GO basis for disclosure, redemption and labelling in their home market.
2. In case of involvement in the voluntary market, regulate this market in accordance with the standardised GO.
3. In case of non-involvement voluntary market: join this initiative and regulate in accordance with the standardised GO.

Public procurement

R: Stimulate the increase of RES-E production by an obligatory green procurement for the whole domestic public sector.

Additional RES-E support measures

R: Additionally to production support the increase of RES-E consumption should benefit from additional incentives. Consider tax reduction/rebates to stimulate the consumption of RES-E (as in the case of the Dutch tax exemption).

LL: Investors perceive national and regional permitting procedures as major barriers for increasing RES-E generation capacities. Small private investors are claiming that the burden of lengthy, non-integrated and sometimes even contradictory procedures can jeopardise their very existence. A coordinated policy and support for diminishing administrative barriers is urgently needed to pave the way to more standardised and faster administrative and technical procedures.

R: Member States should take up decisive measures to overcome the technical and non-technical barriers for RES-E investments and production.

4.1.3 Recommendations to stakeholder groups

The national consultations have shown the rich diversity in the positions, perceptions and opinions of the different stakeholder groups. The pentagon of complexity described in Deliverable D-10 tries to capture the multiplicity of stakeholder viewpoints which does not follow national borders. The diversity crosses borders of countries and stakeholder groups and positions are not always consistent at the EU level. Sometimes positions and perceptions are typically national. Thus national stakeholders might pursue objectives that are relevant only for that country. This section however makes recommendations to different stakeholder groups appealing to their responsibility to strengthening efforts to a coordinated approach.

Energy Companies

LL: Energy companies are important RES-E stakeholders which are expected to contribute significantly to RES-E production.

R: Energy companies should:

1. Join and support the voluntary green market in the EU as much as possible.
2. Develop a corporate strategy for the greening of the electricity supply.
3. Produce, offer and label renewable based electricity as much as possible under the standardised rules of the Guarantee of Origin and make this strategy visible.

Grid companies/TSOs/regulatory authorities

LL: One of the essential measures for a European market is an expansion of the grid. An improvement of the cooperation of the national network operators is necessary, the creation of an EU grid operator a possibility. The EC Green Paper states that it is necessary to develop a flexible European grid to support the functioning of the internal energy market, but also to enable the large scale use of wind energy and distributed generation and increase the security of supply.

R: Grid companies could play a leading role in increasing the share of RES-E. They should:

1. Standardise access conditions for renewable based electricity.
2. Address present bottlenecks with a common strategy and pursue common technical and regulatory solutions.
3. Solve technical problems of (international) grid connections.
4. Implement grid codes taking into account minimum technical standards for intermittent RES-E technologies like wind power (i.e. aggregation of production forecast requirements).
5. Give priority access and dispatching to RES-E when technical feasible.

Issuing bodies

LL: Issuing bodies are very significant stakeholders since they are expected to guarantee the reliability of RES-E production, trade and supply in the EU.

R: Issuing bodies therefore should:

1. Ascertain the reliability of GO's.
2. Use an electronic GO.
3. Use tradable GO's.

4. Commit to the standardised GO and use it for disclosure and redemption.
5. If there are several issuing bodies active in a given geographical area, then the government should establish one issuing body responsible for all relevant certified schemes of disclosing electricity including renewables based CHP.

Producers and consumer associations

LL: (RES-E) Producers and consumers associations have been active members of most national desks. Consumers' organisations have been mostly active in the national Desks in Germany and Slovenia. Up to now the degree of involvement of Consumer organisations in this field has been rather limited and it appears that the potential benefits of disclosure and labelling have not been clearly identified as a means to facilitate the international trade of RES-E, to increase the share of demand for RES-E, to avoid duplication of support and to make the market more transparent.

R: Producers and consumers' associations of renewable based energy technology should:

1. support actively the standardised GO in the EU for RES-E,
2. improve the transparency of RES-E labelling in EU,
3. intensify consumers' campaigns for the transparency in the (green) electricity market and create awareness of consumers,
4. push the standardisation of labelling of renewable based electricity production. This labelling system should be linked with GO and disclosure classification of electricity.
5. intensify consumer campaigns to increase consumption of renewable based electricity.

NGO's and environmental groups:

NGO's are indeed important stakeholders of RES-E everywhere in Europe. NGO's in particular are concerned with the siting of RES-E production facilities and for that reason have a special responsibility on these issues.

LL: NGOs often face conflicts of interest between nature protection and general sustainable development targets.

R: In order to achieve a coordinated approach, especially towards abatement of siting and administrative barriers, NGOs should intensify cooperation at national and EU level.

1. NGOs should aim at the establishment of general criteria for siting of RES-E installation at national and possibly European level.
2. NGOs should have a more proactive attitude towards a standardised GO.