EFET European Federation of Energy Traders

Towards an EU target of 20% renewable power production by 2020 - Ideas for the reform and harmonisation of renewable energy support schemes in EU States

1. Introduction

The European Council on 9 March 2007 reached an apparently historic agreement to set a binding 2020 target covering the generation of electricity from renewable sources. The minimum percentage of renewable energy usage, including generation from renewable resources, and taken across the European Union, is set for that year at 20%. The ambitious step of making the target binding, while at the same time leaving scope for the 27 Member States to use different means to achieve it, poses a clear challenge to the European Commission. In addition to the task of finding the modalities for sharing the 20% total burden, there is a pressing need for the Commission to bring forward proposals better to approximate renewable energy support mechanisms to the internal electricity market framework. (Some key energy regulators and energy ministries in Europe, as well as the environment ministry in Germany, are already starting to evaluate reform measures with this latter purpose in mind.)

This paper attempts a first outline of ideas for how to facilitate burden sharing. The ideas are founded on principles, adherence to which participants in the wholesale power markets see as essential in a viable future process of reform and harmonisation. It also begins to examine the European-wide application of market mechanisms founded on those principles.

Before even describing our ideas, we state the objectives, which we assume should stand behind a renewable electricity legislative reform initiative at the European (or indeed EU Member State national) level.

2. Objectives

1. Continuing to promote the generation of electricity by the use of renewable sources, so that an overall 20% renewable energy target may be met across the EU by 2020
2. Finding means which permit Member States to share the burden of meeting the overall EU target on the basis of EU-wide cost optimisation
3. Bringing the physical sale and purchase of electricity produced from renewable sources consistently into the mainstream of European power

market liquidity at the wholesale level, and thereby diminishing the future non-transparent and subjective application of grid access rules in the case of generation presently commanding feed-in tariffs

4 Minimising additional disruption to the management and operation of transmission grids from the arrangements for dispatching unpredictable power output from some sources of renewable energy

5 Applying, at least in respect of new projects, market based mechanisms to the provision of financial support for renewable energy production, particularly with a view to facilitating the non-discriminatory attribution, as between different Member States, of a value to instruments evidencing any given volume of renewable generation

6 In the meantime causing least disruption to the financing arrangements for already existing renewable energy projects, until they achieve pay-out to investors

7 Harmonizing and later merging national schemes for the issuance and redemption of renewable energy related certificates, whether based on voluntary underwriting and purchase of guarantees of origin or on obligatory certificated supply quotas

3. Ideas for medium term reform

1 **Introduction of market mechanisms:**
This will be the most economically efficient way to reach sustainable levels of renewable energy supply and production across Europe. Modes of financial support linked to market appetite are already implemented in some Member States (e.g. Sweden, Italy, the Netherlands and the UK) today. Provided market mechanisms are properly applied, they will not only support investors' interests, but also encourage technological innovation. That in turn will lead to more efficient overall market pricing, improved choices for consumers and a superior potential for equitable burden sharing across the EU.

2 **The preferred market mechanism - renewable obligation, or "green", certificates:**
The potential transfer of each GHG emission related permit, or eligible reduction credit, in the EU Emissions Trading Scheme (ETS) leads to a cost-effective reduction of greenhouse gases, because a contributory technical abatement measure may then be taken by the company that can achieve the greatest mitigation effect at least additional cost. The same principle should apply in relation to the lowest cost means of renewable power production.

In the classic version of a certificate scheme (as currently in the UK and the Netherlands), a "renewable supply obligation" encourages all electricity suppliers to meet an escalating target for supplying a proportion

of their power from renewable sources. All licensed suppliers must source a proportion of their power from eligible renewable sources including, for example, wind, solar and biomass. Power from eligible generation is awarded certificates that suppliers must acquire to prove that the required percentage of their power sales comes from renewable generation. A variation of the scheme sees the obligation fall on consumers rather than suppliers (as in Sweden).

Renewable obligation certificates (ROCs) are awarded to accredited generators of eligible renewable electricity produced within the relevant geographic area. Any supply companies, which are unable or unwilling to source the required amounts of certificates from generators, have the option of "buying out" their obligation. The buy out price is initially set by government and is normally then adjusted annually in line with the retail price index. If an under-supply of ROCs transpires over a given period, their market value increases, encouraging more expensive generation to be developed to meet the gap in the renewable electricity market.

It is to be emphasized that the subsidy for the energy must in this case be uncoupled from the physical means by which the electricity is distributed. Only a trade in certificates that is separate from physical trading in electricity will develop the requisite flexibility and volume. Normally a minimum renewable quota requirement for all electricity suppliers within one Member State will constitute the means to give the certificates an intrinsic value at national level.

It is desirable that, as soon as is politically feasible, each European government should legislate for its own quota scheme and for the trading of certificates related to the quota, even if that scheme runs in parallel with existing subsidy arrangements .

3 **Creating a European wholesale market for "green" certificates:**
Transfers of renewable production incentives or obligations are unlikely to be achieved in an ultimately economically efficient manner, unless a "wholesale" marketplace in the appropriate instruments is accessible to all generators and suppliers across the EU. In any case nationally insulated issuance and redemption schemes are not in keeping with fundamental EU principles of freedom of investment and freedom of trade in goods and services.

The European Union must thus legislate for mandatory mutual recognition, by 2012 at the latest, of transfers of internationally compatible (even if nationally issued) renewable production certificates.

4 **Signalling an expected EU-wide market equivalent level value for national supports for <u>new</u> projects pending the introduction of a**

single European certificates scheme:

In a phased, pan-European programme for the introduction of fully harmonised, mandatory certificate schemes, it will be desirable for Member States to agree, or for the European Commission to acquire powers to insist, that national levels of new investment or feed-in support are approximated (by 2010 at the latest) to the expected market value of the "green" certificates, which would be issued under a putative harmonized European wide scheme (post 2012, as indicated above). Such approximation, based on advance modelling of the putative European scheme, could help align the level of monetary investment subsidies with the expected price signals, upon which the burden of the EU-wide realisation of the renewable production target for the next phase (2010 - 2020) could be economically shared.

4. Shorter term EU measures and national transitional arrangements

Improvements achievable by 2010 under a revised EU Directive on Renewable Energy

In the shorter term EU legislation could specifically require each Member State to recognize Guarantees of Origin (GoOs) both as evidence of production from a renewable source in an "exporting" country and as the basis for claiming payment by way of redemption in an "importing" country. A natural corollary of that requirement would be to treat the redemption, for EU burden sharing purposes, as filling a part of the national renewable production target in the "importing" country, while deducting the equivalent output from the exporting country's target, in order to avoid double-counting. And *to make sure that a GoO derived from one country can be redeemed for fair value in another, all Member States who do not yet have supply obligation led schemes will need to establish non-discriminatory, objective and transparent procedures, to allow "exporters" of instruments to "bid" in their output as substitutes for, or supplements to, volumes subsidised in the national renewable generation support mechanism.*

The challenge in changing some national feed-in tariff regimes:
Feed-in tariffs have been used to support the renewable energy programmes in Denmark, Germany and Spain. Germany, for example, has adopted, through the Renewable Energy Sources Act (*Erneuerbare-Energien-Gesetz – EEG*), which came into force in 2004, special tariffs, to subsidize all renewable power, by guaranteeing a premium price (according to the renewable technology used e.g. wind or solar) for all electricity produced by eligible plants.

Feed-in tariffs in Germany are not target driven and therefore place no limits on the amount of capacity installed, since any plant that qualifies as renewable under the scheme is eligible for the feed-in tariff. This feed-in tariff model assumes that there is a more-or less fixed schedule of payments, in Germany made by TSOs receiving the power, in money per kW/h for renewable electricity production, for a given period. We note however that the feed-in system currently operating in Spain pays to RES producers an "incentive bonus" for the “greenish part” of the power, but the producers themselves must sell the power into the market, collecting the hourly market price. So, in this case, the national wholesale market price for power is not so directly influenced by the “distortion” of promoting RES.

Most variants of feed-in tariffs are payable irrespective of electricity demand. For instance, a wind park delivers its power to the electricity market for a fixed price, regardless of the need for that power at any given time. Even if the excess of wind power is so large that the short run price sinks very low, the renewable energy generators in Germany still get their fixed price; this causes a growing distortion in the power market and some disturbances to grid management. We contrast again the comparable arrangement in Spain, where there is a fallback discretion for the national grid operator to declare constraints for wind generators (and even suspend feed-in bonus payments), in case network congestion is directly attributable to an excess of wind power.

We may admit that the German feed-in system has been effective in increasing renewable power output within Germany, but state with certainty that it is not a long-term option for Europe. It is simply to clumsy, being sensitive neither to efficiency nor to operation of the competitive wholesale market for electricity overall. Certificates evidencing compliance with a renewable supply obligation, on the other hand, disclose the origin of the power purchased for target accounting purposes, and they do not have a fixed price. Instead, their price should represent a reflection of the value the market, guided by environmental policy decisions, places on sustainable energy from time to time. Some production sources may achieve that price at a profit, others exceed it in terms of their fixed and operating costs.

A timeline for moving away from guaranteed, fixed, feed-in tariffs:
While a certificate-based system must thus constitute the goal, it cannot be reached overnight in countries where existing renewable production facilities have been financed based on feed-in tariffs. Therefore EFET Deutschland has developed some proposals for a transitional phase, as a basis for an amendment of the EEG. In the short term, volume allocation and output forecast risk in Germany need to be improved, and in the medium term the German financial support model needs to be reformed.

EFET Deutschland insists that over a transitional period TSOs will need to start volunteering to regulators and to wholesale power market participants much fuller information about the dispatching of renewable generation sources, especially wind farms, and about resulting network flows. Regulators will need to monitor how any “take-or-pay” discretion on the part of TSOs or of incumbent suppliers is exercised. Market participants must all have access to information about the criteria and timing for dispatch of renewable units in real time, so as to maintain a level playing field. If any high voltage transmission capacity at potentially constrained points on the inter-connected grid is not allocated by a TSO owing to renewable output contingencies, all market participants, regulators and other TSOs will need clear and timely information as to how and why the reservation of capacity is claimed.

In the meantime both renewable power generators and TSOs need to be encouraged to help each other, themselves and the whole market, by making greater use of smart technology to accommodate unusual surges or drops in output. Examples of potentially useful technologies for this purpose are remote meters, AC/DC converters, and turbine operational flexibility (to permit faster ramp rates or frequency changes).

5. Conclusion

Renewable electricity certificates could be traded in a competitive arrangement across Europe if incentive schemes were harmonised. The creation of a single EU market in green electricity certificates would ensure that investment goes to the most cost-effective schemes across the whole continent, while not impeding the operation of the pan-European wholesale power market overall.