

Towards an improved tracking of electricity

Whether from renewable or conventional sources of energy, once electrons go into the electricity grid they cannot be distinguished from each other. To make up for this, tracking systems have been created in many countries to guarantee to end users the nature of the electricity they consume. However, the multitude of tracking systems around Europe leads to uncertainty regarding the accuracy of the information displayed to consumers. Mark Draeck suggests that the E-TRACK model can go a long way in addressing concerns.

The EU Electricity Market Directive (2003/54/EC) obliges electricity suppliers to inform their consumers on the individual share of each energy source in the electricity that is provided to them. A disclosure system requires that the characteristics of the electricity produced (such as the energy source, the technology used, related emissions and nuclear waste, support that was granted to the plant, country of origin, time of production etc.) are recorded and tracked all the way from the production source down to the consumption side.

In a context where energy markets are more and more integrated and large volumes of electricity are traded between countries, it is a real challenge to ensure that consumers are provided with reliable and accurate information on the electricity they are buying. This is exactly where tracking systems come in.

A multitude of certification systems

From the numerous private initiatives which emerged to ensure the provision of information on electricity to end-consumers, RECS (Renewable Energy Certificate System) has the largest geographic scope. It was initiated in the end of the 90s by Danish and Dutch energy utilities and is maintained by the AIB (Association of Issuing Bodies, www.aib-net.org). At the end of 2003 the obligation to implement a system to prove the renewable origin of electricity production was put on Member states by the European Commission through the RES-Directive 2001/77/CE, introducing the concept of Guarantees of Origin (GO).

Needless to say, this led to a multitude of different national implementations. Although Directive 2003/54/CE obliges suppliers to disclose the composition of their electricity mix and Directive 2001/77/CE introduced GO as the primary means to this purpose, it is not specified that GO are the only means to be used for disclosure, nor was this specified in the new RES Directive 2009/28/EC, which was published in June 2009. As a result, different methodologies have been implemented nationally or even by each supplier in the absence of national rules.

A mixture of production statistics, RECS certificates, GOs (standardised or not) and labels are used in an often uncoordinated way.

The objective of the E-TRACK project is to streamline all these different tools. The E-TRACK project team, led by Öko-Institut (Germany), consists of nine partners throughout Europe, including IT Power for the UK. The first part of this project (2005-2007) consisted of defining a tracking standard for electricity in order to ensure the coherence of national systems and to facilitate the trading of electricity and guarantee the quality and reliability of the information supplied to end consumers.

This standard is based on electronic certificates which record all characteristics for a specific MWh of electricity and which can be exchanged between producers and suppliers who then redeem them on behalf of end-consumers. The physical electricity is traded separately and without any characteristics. A reconciliation of the physical electricity and certificates is made at the supplier's level, balancing it in the composition of its commercial mix. Although green electrons cannot go directly to the consumer, the corresponding certificates ensure that the green electricity has been injected onto the grid on behalf of the consumer.

This concept of tracking creates unambiguous links between power plants and supply to final consumers – thus transferring information about power generation attributes to consumers or other parties.

This standard fits all Member states' national legislation frameworks and enables coordination of all types of already existing certification systems (based on certificates or not) in order to reduce the loss of information or double counting. It is also recommended to use standardised GO as the basis of the information provided to end consumers. The second part of the project (2008-2009) has monitored and promoted the implementation of the E-TRACK standard by Member states.

Situation in UK

The UK overall has an advanced disclosure system in place which is primarily based on GO.

However, a number of weaknesses remain. The Green Supply Guidelines, which aim to increase transparency and reliability towards end-consumers, were published in February 2009 by Ofgem, the UK energy regulator. The Guidelines mention a volume test to exclude double-counting with other labels and certificates in use inside or outside of UK, and the supplier will have to demonstrate the abatement of a minimum threshold of carbon dioxide emissions. The exact methodologies for this volume test as well as the carbon dioxide emissions are not yet clear. The related accreditation scheme is currently being developed by the industry and is expected to take off in September.

Apart from the awaited methodologies, the remaining issues primarily have to do with the fact that only the domestic sector and small and medium enterprises sectors are covered by the Guidelines. Industrial and commercial sectors, where most of the interest and demand for green supply is, are not included, although it was indicated these sectors might be included at a later stage.

Large consumers in the industrial and consumer sector are buying green electricity as part of their Corporate Social Responsibility policy. A number of players were particularly unhappy with the guidelines as these prescribed that the carbon dioxide emissions related to green supply – through procurement of green electricity or even through own green electricity production – could not be counted toward the company's carbon reporting commitments. Instead the grid average for carbon dioxide emissions has to be applied, a position which was taken over from the Defra guidelines on carbon reporting.

From a tracking perspective this position is correct, and mostly in line with international best practice on this matter, as the carbon dioxide emissions are not contained in a GO, but rather in yet other types of certificates which are administered by yet another EU Directive, by the flexible mechanisms under the Kyoto protocol, or by voluntary standards such as the Gold Standard. These certificates or credits can be bought, but they come at a high price, eg ranging from €3-12.

A potentially promising approach would be to distinguish different levels of greenness, with the consumer given the choice between the products, and the ultimate green product being green electricity which contains the related reduction in carbon dioxide emissions and which has not received support. The provision of such a product differentiation in an accurate and reliable manner can confidently be taken on by researchers such as the E-TRACKII project team and others. Whether Member States will be willing to work towards cross-border compatible systems, and more importantly, whether the consumer will still be with us, remains to be seen. ●

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