



Green Side of Life

Introduction

Looking at the number of news items in the context of global climate changes and the Kyoto norms, everybody will recognize the fact that environment protection is an hot item these days. Most likely this will remain so for the next few decades.

Measurements are taken on both regional and global level with an impact of various aspects of our everyday life. In a large number of cases, even without our awareness.

Looking at the production-to-consumption processes in the electricity market, the impact of these measurements translates to a number of different mechanisms such as:

- Production-supporting mechanisms where governments are supporting the local production of green energy in accordance to the agreements made on international level
- Branding mechanisms for suppliers who wants to brand themselves or a subset of their product as 'green' to attract interested consumers
- Tracking mechanisms for the tracking of the consumed electricity as the consumer buying a 'green' product must be able to get a guarantee of the origin of his consumed energy

To support these processes, tracking mechanisms are being used.

Tracking of Electricity

In general, several approaches are possible for the tracking of items

- Contract – based tracking where the contracts between parties are used to track (e.g. a model like customs the and declaration of import taxes)
- Item- level tracking where each individual item gets labeled (a model like a packet-delivery service)
- a certificate-based approach where the products of an item receives certificates from a recognized organization and that can be used to guarantee the production amount.

Specific for electricity, tracking the flow based on contract or item are infeasible, the first due to the number of involved parties and the number of times electricity can be traded between parties before it reaches the consumer and the latter because there is no practical way to label electrons on their path through copper wires.

The tracking process itself is comparable to a small stock exchange. Where the producers of green energy receive the certificates according to the amount of producers. These certificates can then be traded by suppliers who need to redeem them in order to brand their products as 'green' and in order to comply with their governmental obligations.

Certificate Tracking System

Going further into detail on the stock-exchange parallel, the certificate tracking system is a system that supports the following business processes:

- Import of measurement data for the production of green energy
- Creation of green certificates based on measurement data
- Transfers of certificates being sold, both within the region
- International transfers (import / export) of green certificates
- Redemption processes for the suppliers to label their products as green
- Redemption processes for the compliance with international agreements as part of Kyoto norms

and is being used by different parties:

- Governments who use the system to certify the fulfillment of their part in the international agreements
- The certificate issuing bodies who operates the system and hold reliability for the proper operation of the processes
- Suppliers who use the system for the redemption processes
- Producers who sell the certificates received from the production of green energy
- Residential producers who own a small production plant such as a roof-based solar installation
- Brokers interested in the trade of renewable energy certificates
- End customers who need assurance their supplier has fulfilled his obligations regarding his green products and the source of origin of their energy.

Analysis

The certificate system has a number of aspects that are similar to a stock exchange application or a web store application. Where certificates can be created, traded and redeemed.

As with all systems containing valuables, security and a robust end-to-end management of the lifetime of the processes are critical success factors for the system.

The usage of the certificates as tracking of electricity is part of a complex context, with a large variety of different parties involved.

Importance of usability is high and the learning curve must be low as the users of this type of system will vary from professional users who use the system on a frequent basis (owners of a large green energy production plant or suppliers) to occasional users who own a small roof-based photovoltaic production plant.

References

- Association of Issuing Bodies (AIB): owner of the protocol for the international exchange of GoO-certificates – www.aib-net.org
- Green energy Information Platform: News sources for news items regarding green energy <http://www.greenprices.com/eu/index.asp>