

Shaping an effective renewable electricity market

No. 4 - JANUARY 2017

In this issue P2 Letter from the secretariat / P3 Why it's time to acknowledge rising consumer demand for renewable energy / P6 Corporate America's huge appetite for clean energy / P10 Interview with Ed Holt, Green Power Pioneer / P14 RECs Market Meeting news / P16 RECS news / P17 Column by Renewable Choice





Letter from the secretariat



As RECS International we have long promoted increasing the power of consumer choice in the electricity market. Historically consumers did not play a significant role in electricity markets. However, thanks to both technological and political developments in the mid-1990s, that has been changing. In both liberalized and monopolized markets consumers are exerting a greater influence on the production of electricity by specifying the product they wish to use. Individual national markets are following a similar trend around the world by providing a greater role for consumer choice and more options for on-site generation. Advanced market-based tools and greater consumer interest in renewables are further fueling this change.

The past year was a busy time for market players, consumers and other stakeholders. Never before have we seen such efforts – on a global scale – from corporates implementing renewable procurement strategies, often supplementing national legislation, all designed to support the fast transition to more renewables on the grid. As RECS International we played our part by drafting supportive legislation, giving clear guidance to stakeholders and using our years of expertise in developing markets for renewables around the world.

At RECS International we are leading these discussions, not just in Europe but globally. As we move into 2017, we want to take a moment to thank the more than 100 members who make our organization strong and support us in our mission to build more robust and reliable systems for ensuring consumer choice. Special thanks go to those new members who joined us in 2016: EDF, First Climate, Renewable Choice Energy, South Pole Group, Commerg, and 3degrees, but we also wish to thank all other members who are supporting the consumer-led transition to a more sustainable future.

We hope you enjoy this magazine and please remember that the secretariat is here to help you in our joint mission to strengthen the role of electricity end-users worldwide.

Jared Braslawsky

Secretary General of RECS International

Why it's time to acknowledge rising consumer demand for renewable energy

Across Europe, consumers are choosing renewable electricity and are doing so on a large scale. It's time to recognise this demand for renewable energy by reporting on national consumption, and not only production, of renewables. This dual reporting of renewable electricity can support consumer choice, showing the impact of collective action – and is in line with EU ambitions to empower consumers.

Why it's time to acknowledge rising consumer demand for renewable energy

Citizens are at the core of the EU's most ambitious energy strategy to date, the Energy Union, according to the European Commission. Today, there is legislation in place that requires national governments to report national figures of renewable energy production; mandatory reporting of national consumption figures would ensure consumers are also part of the national statistics.

This is the first step towards placing the energy consumer in the driver's seat. If we expect the consumer to play a larger role in the energy transition we must also acknowledge their decision to purchase renewable electricity, and not only measure the production of renewables as we do now.

Historically, electricity producers have been centralised, state-owned, top-down entities. The consumer had no choice of supplier, or of the source of their household electricity supply. The legacy of this traditional mode of energy production means that the energy sector is the only sector where we are measuring the production – and not the consumption – of a commodity. Take electric vehicles for example: to measure real progress on the ground, we count how many electric vehicles are on the road in Norway, not how many are being produced in Germany.

Across Europe, consumers are actively choosing renewable electricity and are doing so on a large scale. Last year European consumers made the conscious effort to purchase renewables for more than 550-TWh of electricity, equivalent to roughly 20% of all electricity consumption in Europe. If we include electricity that is not eligible for private consumption – such as German production that receives the feed-in tariff and is consumed equally by all German electricity end-users – nearly 770-TWh of citizen-led renewables was consumed in Europe.

Many businesses are already voluntarily reporting their CO₂ emissions from electricity usage as part of calculating their annual carbon footprint. One reporting agency alone, CDP, had more than 5,500 companies voluntarily reporting their emissions in 2015 – accounting for nearly 17% of global emissions. Linked initiative RE100 supports companies in achieving a public goal to meet 100% of their electricity with renewable sources of energy, and includes global players such as Google, IKEA, Philips, Microsoft, Johnson & Johnson and Procter & Gamble.

The demand for renewable energy from these companies and millions of households around Europe is not currently recognised in any European statistics. Shouldn't we recognise this positive choice for renewable energy in national reporting?

How it works

CDP companies report CO₂ emissions from electricity usage based upon a national/regional production mix (location-based accounting) and a company-specific consumption mix (market-based accounting), a method developed by the Greenhouse Gas Protocol. This voluntary dual

Why it's time to acknowledge rising consumer demand for renewable energy

reporting ensures companies are responsible – for both where they consume electricity, but also, what market choices they make for their company's electricity consumption. Dual reporting would be similar for national governments: report the national production of renewables and report the national consumption of renewables.

Already member states measure national renewables production through the Guarantee of Origin (GO) instrument defined in the Renewable Energy Directive (Article 15). GOs are electronic certificates issued to renewable energy producers for every 1 MWh of energy produced. The electronic document is used to guarantee to the consumer that the energy delivered is produced from renewable sources. Once the energy is sold, the GO is then cancelled to avoid double counting. Collaboration over the last fifteen years between national regulators, market players, stakeholders and consumers has resulted in a robust and reliable GO system.

The European market for renewable energy, documented with GOs, increased by 26.5% in 2014 compared to 2013. In 2014, the demand surpassed 300 TWh for certificates adherent to the European Energy Certificate System (EECS) standard, held by the Association of Issuing Bodies (AIB). This is nearly one tenth of all electricity demand in Europe (ca. 3,300 TWh) and one third of all electricity from renewable sources in Europe (ca. 900 TWh).

In 2015, for the first time, an increase in cancellations of GOs, (and therefore of renewable energy demand) together with the decrease in

issuing volumes, created a shortage of supply. This scarcity of supply marks a turning point in the development of Guarantees of Origin, setting the market in a good state for 2016 and the years to come.

With limited exceptions, Guarantees of Origin are issued by members of the Association of Issuing Bodies (AIB) – mostly transmission system operators, electricity regulators and energy market operators. Measuring consumption of renewables based on GOs is therefore relatively simple to implement, and will highlight the increasing demand from consumers and businesses for renewable energy.

What now?

The European Commission is currently preparing proposals for a new renewable energy directive (REDII) for the period 2020-2030, with a draft published 30 November 2016. It's not too late to include a dual reporting obligation in the new directive to support the citizens and businesses that are driving the European energy transition – and show that collective action can make big changes.

←



by Elias Hinckley

Corporate America's huge appetite for clean energy

Page 7/18

Corporate America's huge appetite for clean energy



For decades most Fortune 1000 companies did little more than try to manage costs as they bought electricity and fuel from the existing marketplace. This model of simply relying on the existing marketplace to meet energy needs has, however, suddenly become outdated. More and more companies are realizing the strategic advantages of sourcing renewable power. Companies that fail to adapt will face serious competitive disadvantages as this trend accelerates.

There are several reasons for this explosion in interest in direct purchases of clean energy. Reasons range from pure cost per kWh purchased, to market and regulatory certainty, to the brand value of reducing reliance on fossil fuels, to concerns over the future of specific markets in the face of a changing climate. Consistent in every one of these reasons is an underlying economic case – replacing electricity generated from burning fossil fuels with electricity from wind and solar is a good business strategy. Over the past few years electricity from wind and solar has become cheap – in many cases it is less expensive to build new generating capacity from wind or solar than from to build a new gas or coal plant. Buying renewable electricity removes fuel price volatility so prices are much more stable. Wal-Mart has been aggressively buying renewable power for years, primarily for the cost saving the company realizes. Ikea constantly touts immediate costs savings as the primary driver for its massive clean energy purchasing. Oil refining giant Valero uses wind power to drive refining operations in Texas because wind power was cheaper and the price was more stable than what was otherwise available in the market.

Aggressive targets

Renewable electricity is clean, and an increasing number of companies are setting aggressive clean energy and greenhouse gas emission reduction targets. Companies across the business spectrum – from Apple to General Motors, which both publicly announced goals for 100% renewable power for their global operations are using clean energy investments to gain competitive brand advantage, companies ranging from Bank of America to Dow have built advertising plans around their clean and sustainable investments.

Consumers, both individuals and businesses, place real value in their buying choices based on



Corporate America's huge appetite for clean energy

the energy and climate footprint of brands. Forward-thinking companies are committing to buying clean power in an effort to build a competitive advantage with these consumers. Corporate interest in renewables is also being driven by anticipation of significant climate-policy changes, which could materially disrupt the market and existing cost structure of fossil fuelbased electricity. Several countries have put serious carbon pricing regimes in place as part of their efforts to meet the goals laid out in the Paris Climate Accord, and the two largest global markets, China and the US have both formally joined the pact.

In the US, EPA's Clean Power Plan is still being contested, and the effects of specific implementation remain uncertain, but a material impact on power markets and electricity customers remains virtually certain. Around the globe many other countries are working through the implementation of new laws to reduce greenhouse gas emissions, all of which shifts value towards renewable electricity generating sources.

Many large corporations are not only trying to calculate the effects of these regulatory shifts, but are directly supporting these climate change driven policy changes. Amazon, Apple, Google, Microsoft, Mars, Ikea, Blue Cross and Blue Shield, and Adobe all submitted briefs supporting the Clean Power Plan in its appeal before the DC Circuit Court of Appeals. While there was a diverse set of reasons for each of these companies' support for the Clean Power Plan, from getting regulatory certainty on the future of power markets, to mitigating the negative health effects (and costs) to a belief it will support longer term global economic stability, each was rooted firmly in the conviction that the Clean Power Plan would lead to long-term valuation creation for these companies.

As more corporations see the value of aligning their business with mitigating and managing climate change, the pace of clean energy acquisition by corporations will only increase, growing a market worth hundreds of billions of dollars for new solar and wind projects.

Two dynamics

The potential for this new market, which is worth hundreds of billions of dollars, has grabbed the attention of clean energy developers and investors. While the renewable energy market has grown rapidly over the past few years, developers and investors have become frustrated by many utilities which are reducing the amount of wind and solar generated electricity that they are willing to buy under long-term contracts. These long-term commitments to buy the electricity generated from a wind or solar facility are typically necessary for an investor or lender to put money into the construction or purchase of a new wind or solar farm. Without these long-term agreements billions of available dollars are not being committed to projects.

Corporate America's huge appetite for clean energy

New corporate buyers will be a vital and growing segment of the solar and wind markets. Developers and investors are actively looking for ways to gain access and market share in this new segment. The Renewable Energy Buyers Alliance (REBA), which was created by the Rocky Mountain Institute, the World Resources Institute, the World Wildlife Federation and Business for Social Responsibility (BSR), has attracted more than one hundred of the largest corporate buyers to join its membership, as well as dozens of leading renewable energy developers, private equity fund managers, and banks to REBA events.

The combination of these two dynamics – developers and investors looking for new longterm commitments to buy power, while businesses are looking to lock in long-term supplies of clean and inexpensive solar and wind power – is driving a fundamental shift in the electricity market. In 2012 500 MW of renewables were directly contracted for using corporate power purchase agreement, by 2015 more than 3400 MW of capacity was contracted for by corporate buyers and the Rocky Mountain Institute projects this market to be more than 60,000 MW by 2025.

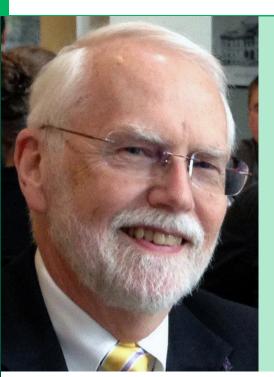
In addition to shifting corporate strategy and a matching demand for long-term buyers, changes in the electric regulatory structure and innovations in the deal structures used to sell and finance electricity have helped open this new market for buyers to contract directly with power plants many miles away. Additionally, an explosion in available data about usage as well as new tools to manage energy consumption are making the intermittent nature of solar and wind power easier and cheaper to manage, further supporting the economic case for shifting corporate energy consumption to renewable power.

Developers and investors must reconcile this huge new segment of the market for power as part of their respective strategies. Effective, forward-thinking energy planning will be an important part of future competitive advantage across most businesses – and the companies that get this transition right will be rewarded. It will be vital for corporations to learn the power contracting and delivery process at a level of detail that only a select few strategic-thinking super-users of energy have ever considered. Finding the experience and talent to succeed in this dynamic new market will be increasingly challenging. Early adopters are building a critical advantage by being ahead of this market, and building a solid foundation for either the buying or selling of renewable power directly to corporations will be a barometer of success for businesses of all types.

←







Interview with Ed Holt, Green Power Pioneer

Ed Holt is president of Ed Holt & Associates, Inc., an American consulting firm that specializes in green power markets and renewable energy policy. He provides strategic and programme planning, market analysis, and policy research and analysis to government, utilities and advocacy organizations. When Ed started consulting, green power was largely unknown, so he encouraged utilities to develop voluntary green pricing options for customers, through a newsletter, publications and presentations. In 1996 he wrote the Green Pricing Resource Guide, which he later updated. In 2009, the US Center for Resource Solutions presented him with the Green Power Pioneer award.



In 2009 you received the Green Power Pioneer Award from the Center for Resource Solutions. Can you explain how you see your role as a Green Pioneer?

I was in at the ground floor. I didn't invent the idea of green power as a voluntary choice, but I nurtured it very early. In the mid-1990s, a few utilities began to experiment with the concept and I wrote the Green Power Newsletter (hard copy in those days, distributed by snail mail to utility regulators and environmental advocates). In essence, I created an information exchange that was later taken up by others when the web developed. Most observers felt that only residential consumers would be interested, but in the late 1990s, based on some research I did, I began promoting the idea that non-residential consumers had reason and motivation to choose green power, too.

Since you started out in renewables a lot has changed. The renewables market and its influence on the electricity sector have grown. What are the big changes which you didn't see coming back in the late 1990's when this all started getting moving?

Despite my last comment, I admit that the strength of the non-residential market has exceeded my expectations. One thing that took me by surprise is how politicized renewable energy became, just as it was really taking off. I suppose it was naïve not to expect a backlash from entrenched industries threatened by the success of renewables, but it was disappointing when it came.

As you know, RECS International has historically mainly focused on developments related to electricity attribute tracking markets in Europe. In the last two years, however, it has started to bridge the gap between Europe and the rest of the world, and particularly the United States. What tips can you give to RECS International's European members in their understanding of how US markets function?

Any new markets can be confusing if you don't fully understand the context. Here are a few points to help you get oriented.

- The same instrument the REC is used for both compliance and voluntary markets.
 Compliance markets refer to states that have adopted renewable portfolio standards (RPS).
- REC marketers can participate in both markets, but for any given REC, they must choose which market they will sell into, because the same REC can't be used for both.

Interview with Ed Holt



- You should be aware that some states have restructured electricity markets and support retail competition, while others continue to operate traditionally regulated markets.
- Compliance markets are defined by each state with an RPS, and each one is different. If you're going to compete in compliance markets, your customers will be the utilities or competitive load-serving entities (LSEs).
- For compliance markets, it's critical that you learn the rules for each state where you want to do business. Different eligibilities, as well as different RPS targets, create different market dynamics.
- In particular, I would say that most states impose geographic eligibility requirements, often requiring energy delivery to the state or to the multi-state electricity grid control area.
- REC prices in compliance markets tend to be higher than prices in the voluntary market, as much as \$40 to \$60 a REC in some states, versus \$1 or less (wholesale) or \$10 (retail) for RECs selling in the voluntary market.
- Life is simpler in the voluntary market. It tends to be one market, so prices converge more readily. (There are exceptions, of course, for example when a consumer wants to buy only local resources.)
- Regardless of how consumers buy green power (build generating capacity on-site, enter into a power purchase agreement, contract for differences, community choice aggregation, community solar, bundled or unbundled RECs), the sale must include the RECs to support a valid renewable energy or environmental claim.

- The Green-e Energy standard is the predominant certification label for voluntary markets in the US. Even if a buyer doesn't insist on certification, you should become familiar with that voluntary standard.
- With respect to GHG accounting, RECs include emission attributes in the voluntary market. (For RPS compliance, state rules are not always consistent on this point, but there is no separate market for emission attributes.) This means that US sales can easily conform to the GHG Protocol Scope 2 Guidance. Our weakness is that we don't have a uniform or comprehensive calculation of residual mix.
- The treatment of avoided emissions is in flux. The Clean Power Plan – President Obama's proposal to reduce power plant emissions – would introduce some complexity in the interaction with voluntary renewable energy markets, but the next administration seems likely to rescind those rules.

You have always been active in market developments albeit primarily from the policy and regulatory development perspective. As a board member of the I-REC Standard do you see this as a continuation of your previous work?

Definitely. I agreed to help the I-REC Standard because I believe that attribute tracking infrastructure is critical to the integrity and

Interview with Ed Holt

RECS

credibility of a well-functioning market. Also, I want to see best practice standards from Europe and the US copied in other parts of the world. Standardization will make it easier for multinational corporations with operations around the globe to substantiate their renewable energy and GHG emission claims in a consistent manner.

As a board member, how do you see the I-REC Standard as well as individual national electricity attribute tracking systems developing?

Development will occur organically, wherever there's an interest and a need. In some cases it will be top-down, to serve government policy, and in others it will be bottom-up, in response to corporate demand. To take a few examples, in the next year or two I would expect to see tracking systems developed in South Africa, India, China, Brazil, Mexico and the Philippines.

I would like to ask a wider question to finish this interview: What does the future hold for attribute tracking systems more broadly?

In a word: growth. More and more companies are announcing 100% renewable energy goals and we need standards in order to track progress. There's also a need to account for and substantiate greenhouse gas progress at the corporate level. Attribute tracking systems provide all this, ensuring consistency and transparency. I don't think there's any going back.

←



RECS Market Meeting 2017 Amsterdam, the Netherlands

Consumers are driving the change in the energy transition – the RECs Market Meeting 2017 will be held soon

In the wake of political setbacks in Europe and around the globe, consumers and business leaders are increasingly playing a leading role in

The world of renewables is changing rapidly and consumers are driving the change.

The RECs Market Meeting is the only European event that focuses on the demand side of the renewable electricity market.

What initiatives are corporates taking to achieve their targets? Which instruments and tools are available to support the transition to a consumerdriven market? To what extent can corporate actors influence the renewables market? How necessary are standards and what standards are available? What can we say about volumes and prices? the transition to a sustainable economy. The seventh edition of the RECs Market Meeting (which will take place in March 2017 in Amsterdam in the Netherlands) will be dedicated to this topic. We invite you to join the discussions, view the many expert presentations and strengthen your network.

Throughout the event we will focus on current and anticipated future legislation in the European renewables market, market instruments such as power purchase agreements (PPAs), setting standards and many more topics related to the energy transition. The RECs Market Meeting provides you with a great opportunity to closely follow the latest developments in this dynamic field.

04

RECS Market Meeting 2017 Amsterdam, the Netherlands

Building on the success of workshops in previous years, we have scheduled two special pre-conference workshops on 20 March 2017 (note that separate registration is required). The topics are:

Fast track towards the Guarantee of Origin market.

This workshop will help you build up expertise about the European renewable energy market. As well as the history of the Guarantee of Origin (GO), we will cover four other topics: residual mix calculations, national disclosure rules, consumer choice and the main specifications of the EECS-GO Standard. If you're not yet a market player or a knowledgeable consumer, this workshop is for you.

Renewable Energy Certificates Trade Agreements (RECTAs) and Corporate Power Purchase Agreements (CPPAs).

In this workshop we will discuss recent developments in drafting and negotiating agreements for the sale of renewable source electricity, renewable energy certificates and associated renewable benefits. Based on a number of case studies and taking an interactive approach, this workshop will give participants first-hand knowledge on various topics related to power purchase agreements.

For the latest RECS Market Meeting programme please go to www.recsmarket.eu





RECS News

The market for European EECS-GOs continued to grow at a record rate in 2016

Preliminary figures compiled by **RECS** International indicate that 2016 was another top year for both issuance and cancellation of European Guarantee of Origin certificates. In the statistics for market activity in 2016, which were released by the Association of Issuing Bodies, there were 324 TWh of EECS-GO cancellations in Q1 through Q3 2016, and in the same period there were 326 TWh of EECS-GO issuances. This could indicate that the market is short (i.e. there is higher demand for certificates than it is possible to procure).

For the last six years there has been steady growth in the market for EECS-GOs. The reason for this is that more and more countries have decided to comply with the EECS Standard, improved national legislation, increased interest by (small and large) end-users and generally a greater willingness to pay for renewable electricity among all end-users. Official figures for the use of the EECS-GO market are expected to be released by the Association of Issuing Bodies early in 2017.

DCCE authorized by Dubai Supreme Council of Energy to become an I-REC Standard Issuer

On November 7 2016 the Dubai Supreme Council granted the Dubai Carbon Centre of Excellence (DCCE) the exclusive rights to document and issue RECs in the United Arab Emirates. The I-REC Secretariat is working closely with the I-REC Standard board and DCCE to ensure that the I-REC Standard is implemented in the UAE in a reliable and transparent manner. Issuance is expected early in 2017. As elsewhere in the world, renewables are cost effective in the UAE and through the implementation of an attribute tracking system the demand for renewable energy can provide the necessary incentive to drive increased generation of renewables in the country. RECS International supports national governments that adhere to international tracking standards such as that of the I-REC Standard or the EECS Standard (held by the AIB in Europe). RECS International will cooperate with the I-REC Standard and ensure that implementation of the I-REC Standard meets the expectation of both local and international market players and consumers.

RECS International sets up Consumer Claim Standards Working Group with the goal of publishing a Renewables Good Practice document

The Renewables Good Practice (ReGP) document summarizes best practice for supporting electricity end-users in relation to reliable use of renewable energy and clarity about the claims connected to that use. The aim of the ReGP document is to provide guidelines for procuring renewables which endusers – and their suppliers – can use to distinguish robust renewable purchases which can be reliably associated with renewable procurement claims.

To support the secretariat in developing the ReGP a working group known as the 'Consumer Claim Standards Working Group has been created. The intention of this working group is to help establish criteria, text and insights for producing a ReGP checklist. The working group has been recruited from RECS International members.



Column by Renewable Choice

The rise of the corporate buyer signals a market shift

2015 was a watershed year for the purchase of corporate green power in the United States; more than half of the capacity newly contracted in that year was a direct result of long-term, utility-scale power purchase agreements (PPAs) entered into by corporate buyers.

In 2016, corporate interest in US green power buying remains high, both among public and private buyers. This is a direct result of recently extended wind and solar tax subsidies. It is now economically feasible in the US for buyers to choose renewables instead of conventional generation. However, these same corporate buyers are increasingly interested in the international renewables market. Uncertainty over an incoming Trump administration will almost certainly result in additional development in the international market.

Corporate interest in diverse markets, ranging from Southeast Asia to Scandinavia, has been driven by the Scope 2 protocol. The protocol requires two-pronged GHG reporting. Companies must disclose both their utilization of purchased electricity (the 'location basis') and their use of so-called contractual instruments that may reduce the carbon footprint of that purchased electricity (the 'market basis'). What's more, those instruments, which include energy attribute certificates such as I-RECs and PPAs, must be paired geographically with the location where they are used.

This requirement is driving corporate interest in emerging markets around the world, as companies can no longer rely solely on US RECs to meet their needs. Favourable economic conditions in many markets are also making large-scale PPAs possible in regions where many global companies have power-intensive operations, such as Mexico and India.

Renewable Choice is delighted to partner with RECS International to help open – and advance – these markets in order to provide our clients with ever increasing choices when it comes to their green power procurement. Contact us at www.renewablechoice.com to learn more.



RECS Magazine

RECS International is a non-profit organization that promotes an open, pan-European renewable energy market, facilitated by commonly accepted and harmonized tracking systems.

In order to realise this vision we encourage the dissemination of accurate information to consumers regarding their electricity and energy purchases.

RECS International is a membersbased association with over 100 corporate members from 22 countries. If you are interested in the benefits of membership with RECS International, please contact the secretariat via

The articles in this magazine have been edited by the secretariat of RECS International, but the opinions held by the authors are theirs alone and do not necessarily express the views of RECS International. Please send letters to the editor to:



This logo is available for use by RECS members

(advertisement)



For more than 15 years, the pioneering team of experts at Renewable Choice Energy has been connecting companies to clean energy and carbonreducing products and services. We work to help our commercial, industrial, and institutional buyers (C&I) set and achieve strategic emission reduction targets through the use of energy attribute certificates, emission reductions, and power purchase agreements (PPAs). Together, Renewable Choice and our clients have executed clean energy buying strategies in more than 50 countries.



4775 WALNUT STREET, STE. 230 | BOULDER, CO 80301 877.810.8670 | RENEWABLECHOICE.COM