Renewable Energy Certification Promotion and Matchmaking Conference – Taichung Session

National Renewable Energy Certification Center- Chen, Peng-Chun

I. Background

(I) The Bureau of Standards, Metrology & Inspection (BSMI), of the Ministry of Economic Affairs (MOEA) was directed by the Executive Yuan last year (2017) to carry out the "Renewable Energy Center and Testing/Verification Capacity Development Plan." The National Renewable Energy Certification Center was established by the BSMI in June of the same year. The Center has been working actively to formulate the relevant rules and procedures. With an emphasis on assisting renewable energy power plants with applying for renewable energy certification and helping to bring about the trading of renewable energy certificates (T-RECs); A total of 46 project sites have so far been approved as of the first half of this year (2018). 31,390 RECs were issued and 35 transactions were successfully concluded on a total of 852 certificates. The general public is still unfamiliar with topics such as "renewable energy certification" and "deregulation of green electricity"；so invitations were sent out by T-REC to REC market stakeholders and potential applicants. Renewable energy producers that do not supply wholesale electricity to Taipower, those who received subsidies from the Bureau of Energy (BoE), and power generation system installers; Potential users such as: major electricity consumers, those subject to greenhouse gas (GHG) audits by the Environmental Protection Administration (EPA), international supply chain operators, and companies that embrace their corporate social responsibility took part in the renewable energy certification promotion and matchmaking conferences organized by local county/city governments.

(II) The "Renewable Energy Development Act" is now going through the second reading process in the Legislative Yuan. In addition to cities that have already implemented their own autonomous statues for carbon reduction, other local governments are now drafting their own regulations before the central government act is passed(Note 1). The conference covers topics such as Renewable Energy Development Act being drafted by BoE, the renewable energy certification scheme, local governments' explanation of local policies and subsidies, as well as "wheeling and grid-connected direct supply" by Taipower. The comprehensive explanation of government policies provided attendees with an understanding of the laws and available resources to boost their willingness to participate in the green electricity market and ultimately accelerate the pace of energy transformation in Taiwan.

(III) This conference was targeted at Taichung City with a total of 613 organizations invited, including 523 major electricity consumers with a contract capacity in excess of 800kW (Fig. 1), 85 non-wholesale suppliers or recipients of BoE subsidies (Note 2)（total installed capacity of 3,223kW) and 5 local renewable energy generation installers.

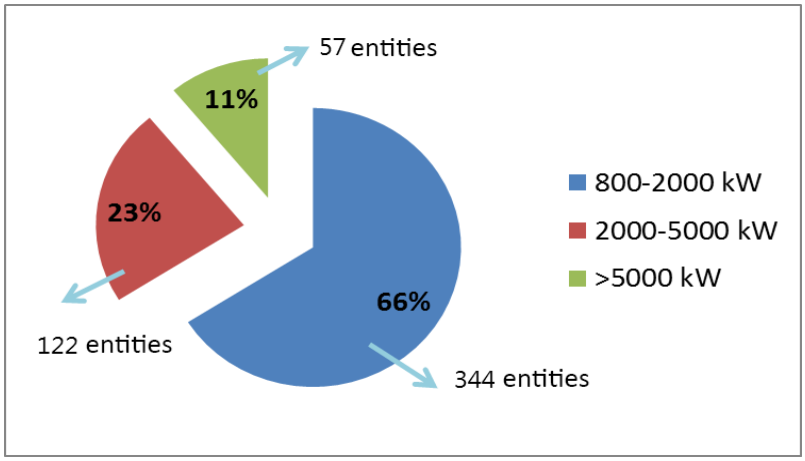

Figure 1. Graph showing distribution of contract capacity for major electricity consumers in the Taichung region

(IV) A total of 101 organizations represented by 150 people actually attended on the day, including 54 major electricity consumers in the 800-2,000kW range (15% of the region), 23 in the 2,000-5,000kW range (18% of the region) and 13 over 5,000kW range (22% of the region); 7 attendees came from non-wholesale suppliers or recipients of BoE subsidies; and 4 energy industry operators.

(V) Generally speaking, there was strong attendance by major electricity consumers due to the rigorous enforcement of Taichung's local autonomous statutes and possibility of financial penalties. Those with greater contract capacities may take a more active interest in related issues; Interest in attendance may have been lower among those that generate power for internal consumption because the certification is voluntary and they are unclear on the actual trading value of certificates.

II. Focal Issues

No.	Question	Response
1	Can those already connected to the Taipower grid for wheeling and self-usage still apply for equipment installation subsidies from the Taichung City Government if they wish to install renewable energy generation equipment?	All new renewable energy equipment installed for private-use power generation this year that are registered or approved may apply to the Taichung City Government for an equipment installation subsidy of NT$300,000.
2	Taichung City's low-carbon autonomous statute requires users that exceed a certain contract capacity to install renewable energy generation equipment of a certain capacity. If a user is unable to meet its obligations through the installation of renewable energy equipment can they purchase certified green electricity instead?	Whether certificates can be used to meet such obligations involved the articulation of certificate usage data between the local government and the certification center. The matter is therefore still being studied by the Taichung City Government.
3	The factories of most businesses are built on leased land. Lease periods and land zoning may however cause problems if renewable	All users that should install renewable energy equipment in each of the three phases have now been announced by the

No.	Question	Response
	energy equipment is to be installed for compliance with the low-carbon autonomous statute. Does the city government have any mechanisms for resolving these issues?	Taichung City Government and given a 3-year period for the equipment to be installed. If an user is unable to install the equipment within their factory then they should find another piece of land to do so or ask the City Government to liaise with the land-owner. If an user is unable to complete the equipment installation within three years then they may apply to the City Government for a three-year extension. Up to two extensions are allowed.
4	Are those that received equipment installation subsidies still eligible to apply for site certification?	If the electricity produced by the renewable energy generation equipment can be verified as being for self-use and not sold wholesale to Taipower or is not involved in a credit trading scheme then an application for site certification can still be made with the Certification Center.
5	Can site certification be used in parallel with the existing Taipower meter or is a separate dedicated meter installed?	There must be a meter for reading the amount of electricity generated by the renewable energy equipment; BoE is now discussing with Taipower the possibility of sharing smart meters if one has already been installed.
6	If newly installed equipment is to apply for certified site status, can an application be submitted while the equipment is being built to ensure a seamless transition after installation is completed?	Applications for certified renewable energy sites must include their BoE equipment registration or consent to be approved so does not conflict with the application process of other agencies.
7	Does renewable energy certification cover co-generation?	Renewable energy certification only covers renewable energy sources as defined in the "Renewable Energy Development Act." Co-generation is not currently classified as renewable energy under the Act.
8	Is there an effective expiry date for T-REC?	Certificates have no expiry time. What differences there are applied to the scope of use and annual requirements. IA business carrying out a GHG inventory for 2017 should use certificates from the

No.	Question	Response
		corresponding year. The power generation period recorded on the certificate only indicates that the renewable energy was produced by the equipment over that period and is not the expiry time.
9	As above, can certificates from the previous or other years be purchased this year?	The EPA would prefer that certificates from the previous year should all be transferred by the end of March of the following year to facilitate auditing and articulation. There are no actual restrictions on when certificates can be purchased. Users can buy the certificates they need to meet their demand.
10	If there are not enough certificates on the market, can certificates be issued to wholesale electricity purchased by Taipower so that enterprise or user can purchase the certificates from Taipower in turn?	The environmental benefits of electricity sold wholesale to Taipower are already incorporated into the calculation of the emission coefficient of the public utility. No certificates will therefore be issued for wholesale electricity to avoid the double-counting of environmental benefits.
11	RECs can be used as a tool for calculating Scope 2 emissions in EPA GHG inventories. Can it also be used for calculating carbon emissions during ISO 14064 inventories or environmental reviews?	The linkage between the certificates and EPA is primarily intended for those subject to Scope 2 GHG inventories. The certificates are not intended for use with carbon credit and trading under ISO or other environmental audit schemes.
12	As above, when an inventory is conducted by enterprises they will retain an independent third-party entity to assist with verifying their inventory. The enterprise then reports the results verified by the third-party to the EPA. The EPA then sends people to conduct its own inventory. The ISO 14064 inventory includes the inventory of Scope 2 emissions. What happens if a third-party verification entity refuses to recognize the certification while the EPA accepts the certification as a basis for inventory calculations?	The ISO 14064 standard does not include the use of certificates for the GHG inventory calculations. However, if a enterprise applies to use the GHG inventory and registration guide published by the EPA, or cites the relevant guidelines of the WRI during their inventory, the renewable energy certification can then be counted. Enterprises should clarify the purpose and guidelines of related inventories then adjust their inventory standards accordingly. (A business subject to mandatory inventory should use the the GHG inventory and registration guide published by the EPA as the inventory

No.	Question	Response
		standard.)
13	The development of renewable energy currently has the wholesale system and renewable energy certification system operating in parallel. The wholesale system is currently favored in the market due to stable purchasing over the long-term and having no other costs. Once the certificate market is fully developed then certificates will be a more favorable option. Are there any recommendations for businesses wishing to move from the wholesale system to the certificates system? Additionally, how should businesses measure the returns on private-use power generation equipment if the electricity is sold wholesale or used to apply for certification?	Article 9 of the amended draft of the Renewable Energy Development Act allows renewable energy generators to move freely in and out of the wholesale or certificate system using the wholesale tariff rate at time of completion. As for investing in renewable energy, if the generating capacity of the renewable energy equipment installed by a business already cancels out some of its factory's power consumption, the business should try determine whether self-usage or wheeling of renewable energy can also be used to cancel out its phase 2 and phase 3 power consumption so that the amount of contract capacity with Taipower can be reduced. Alternatively, it may also be used for GHG inventory or CSR declarations. This will help the business determine a better way of investing in and using green electricity.
14	Has a price been set for RECs?	Please refer to recommended pricing interval from the the domestic pilot project for REC trading for an idea of certificate prices. Actual transaction price is however determined through mutual agreement.
15	If a business purchased more certificates than expected can the excess unused certificates be sold?	Certificates may only be transferred once. To avoid purchasing too many certificates, a business should refer to its power consumption from the previous year and other related requirements to gage the amount of certificates it needs to purchase.
16	If a business wishes to transmit electricity from an existing renewable energy site to another of its sites for internal use, what costs will this incur?	If those with generating equipment for internal consumption wish to transfer the electricity to another site, they must first check to see if this complies with the relevant rules in Article 71 of the Electricity Act, including whether the carbon emission coefficient factor is in compliance and whether the co-owner's shareholding

No.	Question	Response
		exceeds 5%. Please note that excess electricity from by wheeling for private use feeds directly into the Taipower grid. It is therefore effectively gifted rather than sold to Taipower. For those that meet the above criteria and still wish to transfer electricity through Taipower for private use, Taipower can use the meter from both ends to calculate the amount of wheeling. Taipower will multiply the metered electricity by the transmission rate and other ancillary service fees to generate a wheeling billing statement.
17	Demand currently outstrips supply in the REC market. In the presentation, it mentioned that Apple's supply chain in Taiwan has a demand of 1.6 billion kWh. How can business demand for certificates be satisfied under these circumstances?	Only a relatively small number of unbundled certificates from private-use power generation is available for trading on the certificate market at the moment. A business can look at its green electricity requirements then decide whether to obtain green electricity and certificates through direct supply, wheeling or construction of its own renewable energy equipment. Businesses that are major electricity consumers will find it hard to meet their green electricity requirements through purchasing unbundled certificates alone. It will also be at odds with their long-term planning on use of green electricity.
18	Is there a list of wheeling companies?	After hosting a number of matchmaking conferences, some buyers and sellers are now in the negotiation phase. There is a relatively clear list of suppliers for wheeling. Demand is however gaged through the quantity of green electricity purchased in the past so this may not fully reflect the actual situation.
19	How is the REC used to control peak electricity consumption?	There are two ways that wheeling can be used to lower electricity prices. Those on contact capacity with time-of-use tariffs can sign wheeling contracts with

No.	Question	Response
		renewable energy providers whose generation mode matches their peak consumption time period to cancel out part of their peak consumption. The contract capacity with Taipower can also be reduced though this does carry the risk of exceeding the contract. For those on progressive tariffs their contract is based on kWh count. If excess electricity is provided for wholesale or there is a power shortfall that must be met from grid power then rates are based on progressive tariffs. While the price of renewable energy wheeling contracts are set by mutual agreement between the supplier and buyer, it is still influenced by electricity prices so a large discount on grid power rates is not guaranteed. How to secure a contract with lower tariffs will depend on the bargaining power of the buyer and seller.
20	What is the current level of connection between the certification and CSR evaluation schemes such as CDP or DJSI?	CDP included T-REC in its technical note this year so businesses can use it as a reference during CSR preparation. The actual method of writing will still depend on the technical note issued by CDP. Efforts are continuing to connect with DJSI.

III. Conclusion

(I) Certificates are mainly issued by small private-use power generation projects at the moment so most certificate-holders also have a requirement for green electricity and are reluctant to sell. BoE is now actively reaching out to project sites established with BoE subsidies before 2009 that are not wholesale suppliers. We are also continuing to advise renewable energy providers on participation in the direct supply/wheeling business models. Supply should be increased in the future.

(II) T-REC used this conference as an opportunity to listen to feedback for all parties. We will continue to refine the system and revise our implementation so that a better certificate system can be created.

IV. Acknowledgments

Our thanks go to the Economic Development Bureau of Taichung City Government and Taipower. Their participation and support ensured the success of this conference.

V. Remarks

(I) Draft Taipei City Autonomous Statue for a Habitable Sustainable City, Taoyuan City Autonomous Statute for Development of Low-Carbon Green City, Tainan City Low-Carbon Autonomous Statute, Taichung City Autonomous Statue for Development of Low-Carbon City, draft Changhua County

Autonomous Statute for Renewable Energy Management and Development, Pingtung County Autonomous Statute for Development of Low-Carbon Townships, Yilan County Autonomous Statute for Renewable Energy and Green Industry, Kinmen County Low-Carbon Island Autonomous Statute

(II) Those with an installed capacity under 5kW are excluded due to manpower costs of applications and return on investment.

Figure 2. Conference on the day

Renewable Energy Certification Promotion and Matchmaking Conference - Taipei Session

National Renewable Energy Certification Center - Yang, Ting-Yi

I. Background

(I) The increasing severity of global warming and depletion of conventional energy resources have seen national governments around the world adopt new energy strategies with carbon reduction as one of their key policies. The above backdrop as well as the policy goal of a Non-Nuclear Homeland led to our government setting a target of having renewable energy account for 20% of total power generation by 2025, increasing Taiwan's energy self-sufficiency, stimulating the development of the emerging green energy industry, building a power system of high quality and stability, accelerating the deregulation of the electricity market, maximizing energy conservation and improving energy efficiency. It is hoped that a platform for innovation can be constructed in the future that will see green energy pilot trials and ecosystem clusters take shape. The platform will also help drive the development and exportation of the green energy industry.

(II) To promote the national REC scheme, renewable energy stakeholders were invited by T-REC to attend REC promotion and matchmaking conferences held on June 29 and July 6. The conference focused on the introduction of the REC scheme along with local government regulations and subsidies. The goal of the conference was to give businesses in the Greater Taipei region with a picture of government policies and resources. This will in turn help accelerate the development of renewable energy and bring about a transformation in energy resources.

(III) A total of 111 organizations and 146 representatives took part in the two conferences. Attendees also asked many questions on the day regarding regulations for major electricity consumers, Taipei City/New Taipei City subsidies, Taipower's future plans on direct supply/wheeling as well as any related restrictions, application details and procedures. Each of the questions were answered by representatives from the MOEA Bureau of Energy, Department of Economic Development of Taipei City Government, Economic Development Department of New Taipei City, Taipower and the Bureau of Standards, Metrology & Inspection (BSMI).

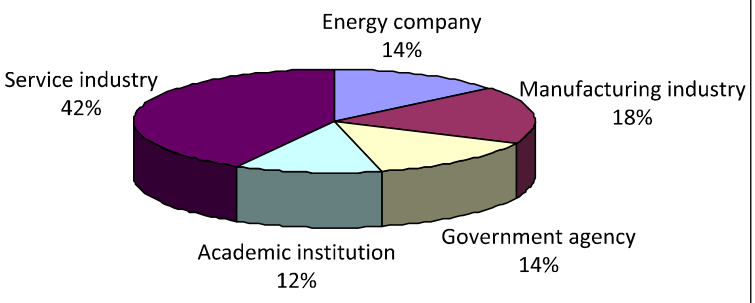

Fig. 1. Industry analysis of participants

II. Focal Issues

Serial number	Question	Response
1	Major electricity consumers are required to have a certain installed capacity of renewable energy or purchase a certain proportion of green electricity as substitute. Are there any regulations specifying how much must be paid for amounts over the contract capacity if the payment in-lieu option is chosen? Or how much must you pay for certificates instead?	Once the Renewable Energy Development Act is passed, the industry and local governments will be convened to discuss this matter together and provide feedback during the drafting of sub-laws.
2	Can power generation equipment be installed in another building separate from the company offices if it is owned by the company?	The rules allow major electricity consumers to have an installing on its own rooftop, install power generation equipment at another site, or purchase RECs. Only one of these conditions need to be met to be in compliance.
3	Will the sub-laws of the Renewable Energy Development Act set different standards and rules for different industries and companies?	Whether major electricity consumers in some industries may be excluded has not been studied for the sub-laws yet. We recommend submitting the suggestion in writing to the BoE for the competent authority's reference during the drafting of sub-laws.
4	What will be the management review and review standards for FIT and converting freely between direct supply/wheeling?	FIT and direct supply/wheeling conversions, restrictions, application details and procedures are governed by Taipower branches. Please contact them for more details.
5	Does going with FIT mean you can't apply for certificates?	REC applicant refers to renewable energy power generation businesses or those with renewable energy power generation equipment for private-use. However, parties adopting a wholesale system and greenhouse gas emission quotas in swaps of special reduction quotas are excluded.
6	Are there any measures for coping with the current shortage of RECs?	All project sites are currently private-use power generation sites so their installed capacity is relatively small. The

Serial number	Question	Response
		BoE is now actively reaching out to sites established with BoE subsidies before 2009 that are not wholesale suppliers. Organizations can also obtain the certificates they need by purchasing green electricity through direct supply/wheeling.
7	Can certificates be applied for excess electricity provided for wholesale from private-use power generation? How is the amount of electricity calculated?	Project sites can apply for certificates on excess electricity for wholesale but certificates may only be issued for the self-usage component. As for calculating the amount of electricity, metering will be installed by BSMI on the generator-side to track the actual amount of generated power.
8	If the excess electricity wheeled from private-use power generation can't be supplied wholesale, how will it be handled? Also, if insufficient electricity is generated, how will it be supplied and priced by Taipower?	The Electricity Act does not allow excess electricity from wheeling for private use to be sold to the transmission/distribution industry and public power utilities. Taipower is there unable to purchase the excess electricity. If the user does not generate enough electricity and must draw on the grid then it is charged at Taipower rates.
9	How will certificate transfers be handled if renewable energy sellers are established under the REC market structure set up under the revised Electricity Act?	RECs can only be transferred once and renewable energy sellers act only as agents. Certificates are transferred directly from the power producer to the user so secondary transfers are not an issue.
10	The draft amendments to the Renewable Energy Act states that "private-use power generation equipment may not be installed by the electricity industry." What is the exclusion criteria?	This will be governed by sub-laws of the Renewable Energy Development Act but the restriction will probably be loosened.
11	Will there be a gap when converting between direct supply and wheeling?	Wholesaling and direct supply/wheeling are contractual transfers so there won't be a gap during

Serial number	Question	Response
		conversion.
12	Why does Taipower use 15 minute intervals as the pricing unit for wheeling? Is there are limit on wheeling capacity?	Major electricity users are charged by time so can't be calculated on a monthly basis. 15- minute intervals are therefore used as the basic unit of pricing; Wheeling capacity is a private contract between two parties and no restrictions are set by Taipower.
13	The operating rules for wheeling include the scenario of multiple suppliers to multiple consumers. When will this take place?	Due to the complexity of the multi-supplier/consumer scenario it is now being studied internally by Taipower.
14	What is the current progress on linking RECs to CDP and DJSI? Is it now recognized for GHG inventory and ISO 14064?	CPD currently includes the certificate as a hyperlink option in the survey and is not a public document. DJSI will use CDP as reference guidelines for now. BoE will continue to monitor and track the connection progress. The ISO 14064 international standard does not use certificates as a contract tool. If a business is subject to mandatory controls under the GHG Reduction and Management Act then the reference standard for inventories will be the inventory guidelines issued by the EPA. The BoE, certification bodies and the EPA are currently cooperating to help ISO 14064 inventory auditors understand the certification scheme.
15	Will the sub-laws of the Renewable Energy Development Act set different standards and rules for different industries and regions?	Currently whether major electricity consumers in some industries may be excluded has not been studied for the sub-laws yet. The suggestion has been passed on to the BoE for the competent authority's reference during the drafting of sub-laws.
16	Are applications for wheeling and grid-connected direct supply all made by electricity producers?	According to the Electricity Act, wheeling applications can only be made by the renewable energy producers, renewable energy sellers, and those

Serial number	Question	Response
		with private-use power generation equipment. Only renewable energy producers can apply for grid-connected direct supply.

III. Conclusion

(I) Certificates are mainly issued by small self-generation for self-consumption projects at the moment so many certificate-holders also have a requirement for green electricity and are reluctant to sell. BoE is now actively reaching out to project sites established with BoE subsidies before 2009 that are not wholesale suppliers. We are also continuing to advise renewable energy providers on participation in the direct supply/wheeling business models. Supply should be increased in the future.

(II) T-REC used this conference as an opportunity to listen to feedback for all parties. We will continue to refine the system and revise our implementation so that a better certificate system can be created.

IV. Acknowledgments

Our thanks go to the Department of Economic Development of Taipei City Government, the Economic Development Department of New Taipei City Government, Taipower and the MOEA BOE think tank Taiwan Institute of Economic Research. Their participation and support ensured the success of this conference.

Conference 1. Conference on the day

Figure 2. Q&A time during the conference