

## Discussion paper: I-REC Mechanism vis-à-vis Domestic REC Mechanism in Singapore

Singapore's electricity market has become increasingly liberalised since the 1990s. This process has seen the generation and retail of energy opened up to private commercial entities, the establishment of regulatory frameworks and a wholesale electricity market. Foreign investment is aggressively encouraged, as in other Singaporean markets.

The adoption of large-scale generation of renewable energy in Singapore is envisaged as unlikely, due to space constraints and limited natural resources. Hence, renewable energy goals have focused on solar and biomass technologies. Singapore's renewable energy target involves the increase of solar capacity to 350MWp by 2020, and potentially up to 8% of Singapore's peak electricity demand provided by renewable energy by 2030.<sup>1</sup> Legislation relevant to renewable energy involves the *Energy Conservation Act 2012* which introduced measures requiring consumers of 15 GWh of energy per annum to meet minimum standards, such as the reporting of energy use and the submission of energy efficiency improvement plans.

The regulatory body overseeing Singapore's electricity industry is the Energy Market Authority (EMA), a statutory board under the Singapore Ministry of Trade and Industry. The national electricity transmission system is privately owned by SP PowerAssets Ltd, and maintained privately by SP PowerGrid. The wholesale National Electricity Market of Singapore (NEMS) is run by the Energy Market Company (EMC), which settles all sales and purchases of electricity through the wholesale market. Generation companies offer to sell electricity into the wholesale electricity market with spot bidding every half hour. However, electricity generators and retailers can enter into financial bilateral agreements outside of the wholesale market. Generally, only generation licensees may generate electricity in Singapore, and must be registered with the EMC to connect to the grid. Owners of systems with a capacity of 1MWp or above must acquire a trading licence to sell their excess energy to the grid.

Electricity retailers are divided into: Market Participant Retailers (MPRs), which need to be registered with the EMC to purchase electricity from the NEMS to sell to contestable consumers; and Non-Market Participant Retailers (NMPRs), which do not need to register and instead purchase electricity indirectly from the NEMS through the Market Support Services Licensee (MSSL), SP Services Ltd. Contestable consumers, with an average monthly consumption of at least 2,000kWh can purchase electricity from the wholesale market which is coordinated by the EMC, or choose to buy directly from electricity retailers (all of which are also generators). Non-contestable consumers including households and small businesses buy electricity from SP Services Ltd (a subsidiary of Singapore Power) at a regulated tariff. This tariff is revised quarterly to reflect the actual cost of electricity. Eventually, all electricity consumers in Singapore will become contestable when the market is fully liberalised.

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<sup>1</sup> National Climate Change Secretariat, Prime Minister's Office Singapore, 'Singapore's Approach to Alternative Energy,' Singapore Government, 2016, accessed February 2016, <https://www.nccs.gov.sg/climate-change-and-singapore/national-circumstances/singapores-approach-alternative-energy>

Renewable energy incentive schemes by the Singaporean Government are focused on investment and Research and Development incentives.<sup>2</sup> However, there are currently no renewable energy subsidies or feed-in tariff provided to stimulate renewable energy generation, with the EMA stating that subsidies would be contrary to its role in providing cost-competitive energy prices<sup>3</sup>. Nor are retailers subject to renewable purchase obligations, quotas or other compliance obligations. Funding of S\$350 million has been provided for clean energy programs in Singapore (with an emphasis on solar energy) under the Sustainable Development Blueprint.

Singapore is piloting financial and business models such as Power Purchase Agreements (PPAs) and 'solar leasing' to address high upfront costs which can inhibit the adoption of renewable energy technologies. The largest solar leasing company in Singapore is the Sunseap Group, which announced in November 2015 an arrangement to supply renewable energy to Apple for its operations in Singapore.

There are currently no Renewable Energy Certificate (REC) or voluntary Green Power schemes in place. Plans to develop a REC programme are being considered by the National Environment Agency (NEA), but these are only at an early stage.<sup>4</sup> A pilot scheme is also under development, led by the Solar Energy Research Institute of Singapore (SERIS) with a number of corporate partners (likely Apple/Sunseap as mentioned above). This is also at an early stage, and is intended to be exclusively for solar electricity. Since a domestic REC scheme is only presently being considered as a future development with an unknown and uncertain implementation date, a renewable energy project in Singapore should be able to claim and re-issue I-RECs. If and when such a domestic REC scheme comes into the place in the future, a renewable energy project in Singapore should be able to claim I-RECs or domestic tracking instruments at any given point in time. This is in line with the relevant I-REC clause: "*An I-REC can exist sequentially from another energy attribute tracking methodology (e.g. the Guarantee of Origin in Europe) such that only one is active at a point in time.*" Hence, any renewable energy project from Singapore applying for I-REC Production Device should be acceptable if the Registrant/Participant undertakes that only one form of REC (I-REC or others as appropriate) shall be issued for each MWh generated by the project.

## **Conclusions and Recommendations:**

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<sup>2</sup> E. Tay, 'Guide to Singapore Government Funding and Incentives for the Environment,' *Green Future Solutions*, 2015, accessed February 2016, <http://www.greenfuture.sg/2015/02/16/2015-guide-to-singapore-government-funding-and-incentives-for-the-environment/>; Singaporean-German Chamber of Industry and Commerce, 'Singapore – Renewable Energies industry', 2014, accessed January 2016, [http://www.sgc.org.sg/fileadmin/ahk\\_singapur/DEinternational/IR/diffIR/Renewable\\_Energies\\_Report\\_2014.pdf](http://www.sgc.org.sg/fileadmin/ahk_singapur/DEinternational/IR/diffIR/Renewable_Energies_Report_2014.pdf).

<sup>3</sup> DLA Piper, 'Renewable Energy in the Asia Pacific: A Legal overview, 3<sup>rd</sup> Edition', 2014, accessed January 2016, [https://www.dlapiper.com/~media/Files/Insights/Publications/2013/08/Renewable%20Energy%20in%20the%20Asia%20Pacific%20A%20Legal%20Ove%20Files/Renewable\\_Energy\\_in\\_Asia\\_Pacific\\_3rd\\_Edition/FileAttachment/Renewable\\_Energy\\_in\\_Asia\\_Pacific\\_3rd\\_Edition.PDF](https://www.dlapiper.com/~media/Files/Insights/Publications/2013/08/Renewable%20Energy%20in%20the%20Asia%20Pacific%20A%20Legal%20Ove%20Files/Renewable_Energy_in_Asia_Pacific_3rd_Edition/FileAttachment/Renewable_Energy_in_Asia_Pacific_3rd_Edition.PDF); C. Yi Wen, 'New business models set to shake up solar energy sector', Singapore press Holdings Limited, Singapore Government, 2015, accessed January 2016, <http://www.spring.gov.sg/NewsEvents/ITN/Pages/New-business-models-set-to-shake-up-solar-energy-sector-20150622.aspx>; Winston & Strawn, 'Feed-in-Tariff Handbook for Asian Renewable Energy Systems' 2014, accessed January 2016, <http://cdn2.winston.com/images/content/9/1/v2/91697/Feed-In-Tariff-Handbook-for-Asian-Renewable-Energy-Systems.pdf>

<sup>4</sup> Based on discussions via email with the National Environment Agency of Singapore, the Singapore Economic Development Board and the Sustainable Energy Association of Singapore, February 2016 (see Annex A)

Noting that the National Environment Agency are reluctant to endorse or encourage the implementation of the I-REC system in Singapore while they are in the process of evaluating options for the development of a national system, and noting also that biomass energy does not fall within the official definition of renewable energy for the purpose of reporting, and is not included in the NEA's present mandate, it is recommended that the I-REC Board approve the RotW Issuer to Register biomass projects only. Confirmation has been received from both the NEA and the Energy Market Authority (regulatory body responsible for the whole electricity market) that they have no objection to this (see Annex A).

Following this, discussions will continue between the IREC Secretariat, the NEA and other relevant parties as to the potential for using the I-REC system as the basis for the new national REC system, and the implementation of I-REC for biomass will provide a useful test-case for this.

## Annex A: Email conversations with relevant bodies in Singapore

### 1) Economic Development Board

**From:** Kelly HX CHEN (EDB) [[mailto:Kelly\\_HX\\_CHEN@edb.gov.sg](mailto:Kelly_HX_CHEN@edb.gov.sg)]  
**Sent:** Friday, 19 February 2016 5:57 PM  
**To:** Chee Kiong GOH (EDB); XXXX  
**Cc:** Joseph TAY (EDB); Sok Kuan LEE (EDB); Priscilla TAN (EDB); Jeremy NG (NEA)  
**Subject:** RE: Biomass

Hi XXXX,

I understand that you spoke to my colleague, Sok Kuan, yesterday too. We would like to confirm that there is no existing renewable energy certification programme in Singapore today. There are plans to develop one, though we are in the initial phase of identifying suitable partners. The National Environment Agency (NEA) leads this effort, and you may wish to get in touch with Jeremy NG from NEA to share more about XXXX's capabilities.

Thank you,  
Kelly

Kelly Huixin CHEN ■ Assistant Head ■ Cleantech  
Singapore Economic Development Board ■ tel: +65 6832 6508 ■ web: [www.sedb.com](http://www.sedb.com)  
250 North Bridge Road, #28-00 Raffles City Tower, Singapore 179101

### 2) National Environment Agency (1)

**From:** Jeremy NG (NEA) [[mailto:Jeremy\\_NG@nea.gov.sg](mailto:Jeremy_NG@nea.gov.sg)]  
**Sent:** Monday, 22 February 2016 9:02 PM  
**To:** XXXX  
**Cc:** XXXXXXXX; Justin WU (NEA); Mei Ling TNG (NEA); Chee Yung THYE (NEA)  
**Subject:** RE: Biomass

Dear XXXX,

Thank you for sharing the information with us.

The NEA is looking into renewable energy certification as a possible policy lever to encourage offsite PPAs for solar energy in Singapore. We are still at the early stage of studying the various standards and practices in renewable energy certification overseas and therefore do not have details to share as yet. Nevertheless, we are open to considering the various technologies, as well as whether such a scheme should be voluntary or made mandatory.

We agree that it will be easier to discuss this over the phone. We would be keen to find out more about the renewable projects you mentioned in your email.

Do let me know when we can have this conversation, sometime in the first 2 weeks of March?

Regards

Jeremy Ng • Engineer • Energy Efficiency & Conservation Department • National Environment Agency  
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### 3) Sustainable Energy Association of Singapore

**From:** Yeo Kim Dek [<mailto:Kimdek@seas.org.sg>]

**Sent:** Thursday, 25 February 2016 1:04 PM

**To:** XXXX

**Subject:** RE: Enquiry at SEAS

Good Afternoon XXXX,

Currently in Singapore, from my understanding there isn't a voluntary green purchasing programme and there isn't a legislated renewable energy target. We do have a target to reduce energy intensity and at this stage it's initially left to market forces within Singapore to push for the reduction through drivers such as grants.

Best Regards,

**Yeo Kim Dek**

Business Development Manager

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#### 4) National Environment Agency (2)

**From:** Jeremy NG (NEA) [mailto:Jeremy\_NG@nea.gov.sg]

**Sent:** Monday, 4 April 2016 8:33 PM

**To:** XXXX; Jared Braslawsky, I-REC Standard

**Cc:** Peter Niermeijer, I-REC Standard; Justin WU (NEA); Mei Ling TNG (NEA); Chee Yung THYE (NEA)

**Subject:** RE: Introduction re IRECs / Singapore Renewable Energy Market

Hi XXXX,

Apologies for the tardy response.

We have checked with colleagues from the Energy Market Authority (EMA) with regards to registering a biomass facility under the I-REC standard in the absence of a national renewable energy certification system. They have no objections to companies participating in third party green certification processes on a voluntary basis.

Thank you.

Regards

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