기후행동 컨퍼런스 2018
CLIMATE ACTION CONFERENCE 2018
[발표자료집]
Panel Discussion

Moderator  Byung-Wook Lee (Professor, Graduate school of Public Policy, Sejong University)

Panel  Jung Mee Lee (Senior Director, Conservation & Partnership WWF-Korea)
Jee-Young Kim (Senior Professional, Environment, Health & Safety Center, Samsung Electronics)
Joojin Kim (Managing Director, Solutions For Our Climate)

[ Session II ]
Accelerating energy transition in align with Paris Agreement (1.5°C)
Renewable Energy Buyers Alliance
- Improving Access to Renewable Energy around the world & Increasing the Impact of Renewable Energy Sourcing -

JungMee Lee
Senior Director
Conservation & Partnership
WWF Korea

We power the corporate movement toward renewable energy.

October 10th, 2018
Renewable Energy Buyers Alliance
Goal to deploy 60 GW from voluntary buyers by 2025

REBA: coalition of NGOs that grows large buyer demand for clean energy

The four REBA initiatives:
- WWF’s Renewable Energy Buyers’ Principles
- Business for Social Responsibility’s Future of Internet Power
- the Rocky Mountain Institute’s Business Renewables Center
- World Resources Institute’s Electricity Initiative
Renewable Energy Buyers Principle

Buyers’ Principles on facilitation of WWF and WRI:
1) spur progress on RE and 2) add perspective to the future of the U.S. energy and electricity system

The Principles launched in July 2014 with 12 signatories, 8.4 million MWh of RE by 2020
As of June 2018, 75 companies have signed on, over 69 million MWh annually by 2020

1. Greater choice in procurement options,
2. More access to cost competitive options,
3. Longer- and variable-term contracts,
4. Access to new projects that reduce emissions beyond BAU,
5. Increased access to third-party financing vehicles as well as standardized and simplified processes, contracts and financing for renewable energy projects
6. Opportunities to work with utilities and regulators to expand our choices for buying renewable energy
CORPORATE RENEWABLE ENERGY BUYERS’ PRINCIPLES: INCREASING ACCESS TO RENEWABLE ENERGY

74 COMPANIES
67 MILLION MWH OF DEMAND FOR RENEWABLE ENERGY
7 TRILLION IN MARKET CAP

www.buyersprinciples.org
Why Utilities?

Even the most energy-efficient big box stores can only supply 30% of their electricity on-site with rooftop solar energy; data centers, for example, can self-supply far less.

30% 70%

The remaining 70% of renewable energy needs must be delivered through the grid. Today, many companies have no way to choose renewable energy options from the grid, whether through their local utility or other generators.
Driving Beyond Green Tariffs in Regulated Markets

WRI Launched Clean Power Council in September, 2017

Year 2013

Now………………

Utility Renewable Energy (RE) Deals

- Green tariff(s) and executed RE deal(s) through tariff
- Green tariff(s) but no deal(s) through tariff to date
- Considering a green tariff (proposal with the PUC)
- One-on-one RE deal(s) between companies and utilities, but no green tariff to date
- Electric retail choice easily available (BPA)
- No known direct large-scale RE access available

http://buyersprinciples.org/corporate-re-strategy-map

Climate Action Conference 2018
Market Expansion: New Buyers

Climate Action Conference 2018
Lay of the Land: 11 GW of corporate deals now
Just The Past 5 Years: 2013-2018

51 new buyers joined the market — 10x growth vs. 2008-'13

Raise awareness
- Increasing understanding
- Providing balanced view
- Supporting buyer-internal case

Build community
- 214 members, inc. 117 buyers
- Active member networking
- Community meets semi-annually

Develop tools and resources
- Primers, guides, templates and case studies
- In-person training sessions
- Market place of developers and projects
Future of Internet Power

Vision: An internet powered by 100% renewable energy

- Started as 4 tech companies to now 13 members across industry sectors.
- **best practices** in deploying renewables at colocation data center
- Launched **Corporate Colocation and Cloud Buyers’ Principles**
A project of

Founding Members:

LOREAL
MARS
Kimberly-Clark
City of Philadelphia
Cargill

Heating & Cooling
A Climate Challenge

50% of global final energy is comprised of energy used for heating and cooling.

39% of GHG emissions from energy-related sources can be attributed to heating and cooling.

$270 billion amount heating and cooling cost in the United States annually.

Climate Action Conference 2018
Over 100 offices in 60 countries
Growing Climate Business Engagement across the network
Priority focus on scaling corporate demand for and access to renewables to drive transition

Priority Markets: Mexico, India, China
Ongoing work: Australia
Emerging work: Western Europe, South East Asia
Emerging focus: Renewable supply chain
Progress on REBA Mexico

WWF playing a central convening role; creating a "center of gravity" for business
Navigating the market post-reforms
Certificate obligations beginning in January
Similar to REBA - US model

- Benchmarking and business case - identifying companies that are most likely to obtain benefits from sourcing RE;
- Benefits and risks of different sourcing options - Sourcing Guide
- Buyer's Roadmap
- Guides and personalized technical assistance
- Bootcamps - Training sessions with experienced buyers, developers, suppliers, experts and regulators + Webinar
- Access to RE providers and experts
- REBA Summit
Progress on REBA India

- WWF & CII focus energy intensive sectors first
- Buyers first and then regulators, policy-makers, DISCOMs
- Identifying companies with energy intensity and readiness
- Buyers’ Day – buyers only discussions: challenges, opportunities, buyers principles, capacity and training needs, etc..
- One annual "Summit" event to bring together the industry and unify the learnings of the year
**Progress on REBA China**

- WWF paying the coordinator role.
- Build Awareness on motivation, options and available resources
- Policy advocacy to enable corporate renewable purchasing
- Facilitate communication by stakeholders (buyers, sellers, grid, NGOs)

<table>
<thead>
<tr>
<th>Workshop</th>
<th>Guidebook/tools</th>
<th>Institutional network</th>
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<tbody>
<tr>
<td>• With Swedish Embassy and H&amp;M to build capacity &amp; facilitate best practice sharing</td>
<td>• <a href="#">Distributed Photovoltaic Project Development Guideline for Corporations</a></td>
<td>• Green Electricity Consumption Cooperation Organization</td>
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<tr>
<td>• With APPLE to identify demand from international brands and their Chinese suppliers, and to jointly advocate for policy improvement</td>
<td>• China Renewable Energy Buyer’s Working group (with WRI China &amp; RMI China) under GECCO</td>
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Together Possible !!!
Making Power Prices Right

Solutions for Our Climate
Joojin Kim

October 10, 2018
Ministry of Trade, Industry and Energy’s power cost projections (submission to National Assembly dated Sept. 28, 2018)

<table>
<thead>
<tr>
<th>2030 Korea (KRW/kWh)</th>
<th>Coal</th>
<th>LNG</th>
<th>Renewables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academy of Industrial Organizations</td>
<td>92.8~109.6</td>
<td>92.9~94.7</td>
<td>67.9~88.9</td>
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<tr>
<td>KEEI</td>
<td>100.1</td>
<td>98.7.1</td>
<td>66.0~80.3</td>
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</tbody>
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<table>
<thead>
<tr>
<th>2022, US EIA ($/MWh)</th>
<th>Coal</th>
<th>Natural Gas</th>
<th>Renewables</th>
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</thead>
<tbody>
<tr>
<td>130.1</td>
<td>49.0</td>
<td>63.2</td>
<td>59.1</td>
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<table>
<thead>
<tr>
<th>2025, UK BEIS (£/MWh)</th>
<th>Coal</th>
<th>Natural Gas</th>
<th>Renewables</th>
</tr>
</thead>
<tbody>
<tr>
<td>136</td>
<td>82</td>
<td>63</td>
<td>61</td>
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Unlike common belief, is coal still a cheap power source?
Bloomberg’s Analysis of Coal and Renewables in “Korea”
(not the US or the EU, but Korea)

Despite such analysis, Korean policy-makers sometimes believe coal is cheap because of the way coal is priced in the hourly power market.

Source: Bloomberg New Energy Finance, Presentation made on June 26, 2017 at Westin Chosun Hotel
How Power Pricing gets wrong

 Coal, nuclear and LNG prices here do not accurately reflect key business risks

 Spot price of each electricity source (similar to variable interest rate)

 Similar to 15-20 yr. forward price of PV and wind (similar to fixed interest rate)


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<thead>
<tr>
<th>Risk</th>
<th>Coal, Nuclear</th>
<th>Renewables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Currency Risk</td>
<td>KEPCO (consumer) pays</td>
<td>GENCO pays</td>
</tr>
<tr>
<td>Fuel Price Risk</td>
<td>KEPCO (consumer) pays</td>
<td>GENCO pays</td>
</tr>
<tr>
<td>Redundancy Risk</td>
<td>KEPCO (consumer) pays (Capacity Payments)</td>
<td>Limited Risk (except for curtailment)</td>
</tr>
<tr>
<td>ETS / Climate Risk</td>
<td>KEPCO (consumer) pays</td>
<td>Limited Risk</td>
</tr>
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If coal or nuclear were to enter into 5 year power purchase agreements, would the prices be the same?
KEPCO submission to National Assembly dated Feb. 19, 2018, re insufficient climate / environment risk disclosure

- KEPCO will disclose at the level equivalent to SEC disclosures beginning with its 2017 business report to be disclosed in Mar. 2018
- KEPCO has made disclosures pursuant to the Korean Capital Markets Act, which does not have compulsory requirements on risk factors
- With regard to domestic disclosures, KEPCO discloses a Korean summary of its Form 20-F by the end of April each year, which includes environmental regulation, gov’t policy related risks