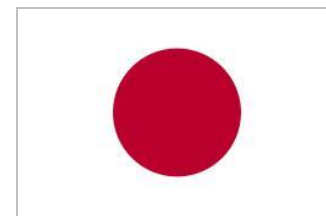


Activities of Photovoltaic Power Generation WG, JASE-W



December 11, 2010

2nd Arab-Japan Economic Forum

Assistant chairman
Photovoltaic Power (Generation) WG
Japanese Business Alliance for Smart Energy –Worldwide

General manager
System Integration Business Department
JX Nippon Oil & Energy Corporation

Atsushi Mizoguchi



Japanese Business Alliance for Smart Energy Worldwide

Photovoltaic Power WG, JASE-W(1)

- **JASE-W, Japanese Business Alliance for Smart Energy - Worldwide**
 - established in Oct. 2008
 - government / private joint activity
 - contributes to the world through the promotion of Japanese energy-conservation technology.
- **Photovoltaic power generation WG (PPWG)**
 - est. in Nov. 2009



Corporate Members(28)

| | companies | Major activities / Strength |
|-----------------------------------|---|--|
| Trading firms | Itochu, Marubeni, Mitsubishi, Mitsui, Sojitz, Sumitomo, Toyota Tsusho | Trading, Project development & management, Investment (IPP), O&M (diversified global business innovation) |
| EPC | Chiyoda, JGC, Kandenko, | EPC (Engineering, Procurement, & Construction), Project development & management, Investment (IPP), O&M (excellent EPC project management) |
| PV manufacturing | Kaneka, Kyocera, Mitsubishi Electric, Mitsubishi Heavy Industries, Panasonic, Sharp, Solar Frontier | Photovoltaic module manufacturing (whole range of quality & bankable products - crystalline and thin film) |
| Machinery / BOS | Hitachi, JFE Engineering, Meidensha, Toshiba, Yokogawa Electric | Balance of systems (Inverter, rack, batteries, monitoring), EPC , project dev. (reliable inverters and systems) |
| Energy / Utility | Tokyo Electric Power, JX Nippon Oil & Energy | Investment (IPP), O&M (excellent operation experience) |
| Finance / Insurance/ lease | Daiwa Securities Capital Markets, Mitsubishi UFJ Lease & Finance, Sumitomo Mitsui Banking, Tsunami Network Partners | Finance, Insurance , leasing equipment (competitive and favorable finance & insurance) |

Photovoltaic Power WG, JASE-W(2)

- **Government-private joint activity** for
 - globalizing Japanese advanced photovoltaic power generation technologies with excellent project management and finance
 - investigating & identifying potential countries and regions for photovoltaic power projects
- Private companies take initiative later.
- Workshop & Missions
 - Solar workshop & exhibition at the 1st Arab-Japan Economic forum (Tokyo)
 - Morocco and Egypt (Sep 2010)
 - Tunisia and Algeria (Dec 2010)



Four initial phases of project development



Government

Private Sector

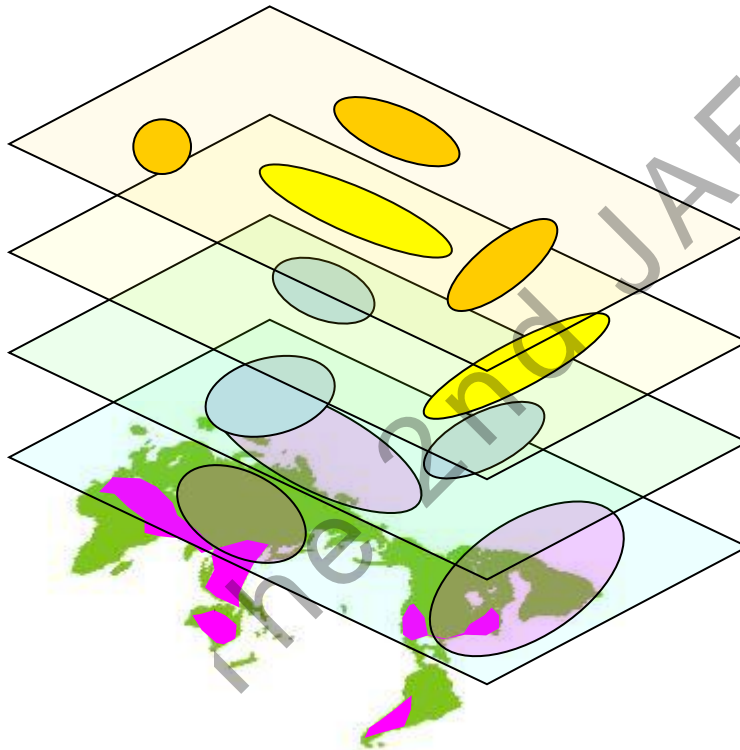


Time



Selection

- Potential countries and regions are selected with different criteria (layers).

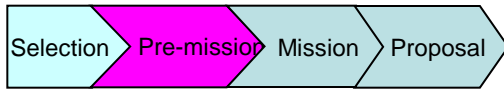


Political Layer

Economic & Market Layer

Geographical Layer

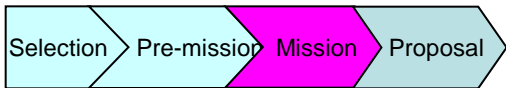
Meteorological Layer



Pre-mission

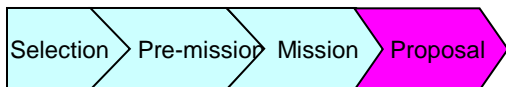
- Preliminary mission is sent to potential countries and regions.
- Following issues are investigated and discussed,
 - Electric power (grid) network
 - Supply & Demand of electric power
 - Market dynamics / Target for RE
 - Governmental support & Subsidy
 - Potential site condition





Mission

- Technical & financial presentation along with discussion will be provided (with exhibition).
- Detailed discussion about legal framework, if it were not existed.



Proposal

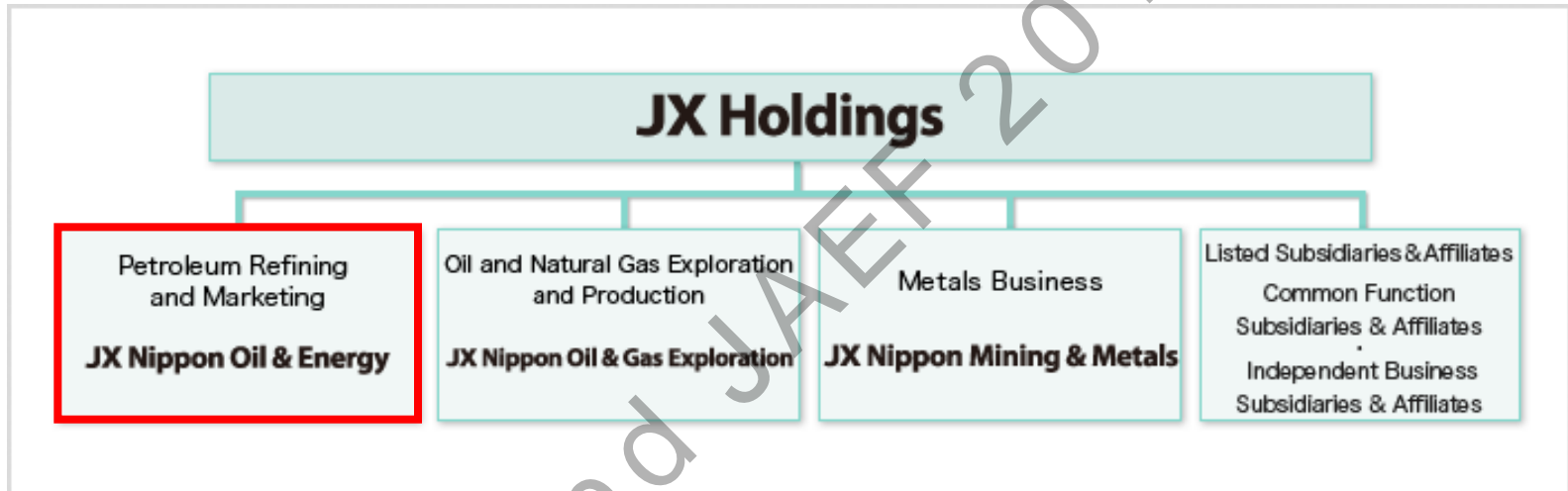
- Once opportunities are identified, private companies take initiative and will provide proposal to the host country, if its market were attractive.



JX Holdings



Established on April 1, 2010, with the joint share transfer by Nippon Oil and Nippon Mining Holdings.



Integrated “Energy, Resource, and Materials” business group

JX Nippon Oil & Energy

Core Business : Petroleum Refining and Marketing

Domestic market share : 34% (2009)

Refining Capacity : 1,792 kBD (April 2010)



Japanese Business Alliance for Smart Energy Worldwide



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