Trade and Investment in Clean Power Generation – Significance and Risks

Submitted by: Rhodium Group (RHG)
Trade and Investment in Clean Power Generation
Significance and Risks

Shashank Mohan
Senior Analyst, Rhodium Group (RHG)
smohan@rhgroup.net

Environmental Goods NTMs Trade Policy Dialogue
Big Sky, Montana
May 12, 2011
## Definition of Environmental Goods

<table>
<thead>
<tr>
<th>Category</th>
<th>WTO</th>
<th>World Bank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Renewable Energy Plant</td>
<td>28</td>
<td>24</td>
</tr>
<tr>
<td>Environmental Monitoring, Analysis, and Assessment Equipment</td>
<td>29</td>
<td>2</td>
</tr>
<tr>
<td>Management of Solid and Hazardous Waste</td>
<td>24</td>
<td>6</td>
</tr>
<tr>
<td>Air Pollution Control</td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td>Heat and Energy Management</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Waste Water Management and Potable Water Treatment</td>
<td>29</td>
<td>3</td>
</tr>
<tr>
<td>Cleaner or More Resource Efficient Technologies and Products</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Environmentally Preferable Products</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Noise and Vibration Abatement</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Clean up or Remediation of Soil and Water</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Natural Resource Protection</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Natural Risk Management</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>153</td>
<td>43</td>
</tr>
</tbody>
</table>

Source: WTO, World Bank, RHG
Wide Spectrum of Climate-Friendly Technologies

gigatonnes of additional CO2 abatement in “climate-friendly” scenario

Source: WEO 2010, IEA
Investment in Global Clean Power Generation
2009 $ billion, average annual investment (2009-2035)

Currently Announced Policies
Investment: $275 billion/year

Climate-Friendly
Investment: $400 billion/year

Source: IEA, RHG
Investment in Global Clean Power Generation
2009 $ billion, average annual investment (2009-2035)

Currently Announced Policies
Investment: $275 billion/year
 Tradable Market: $172 billion/year
 Potential Trade: $16 - 52 billion/year

Climate-Friendly
Investment: $400 billion/year
 Tradable Market: $240 billion/year
 Potential Trade: $25 - 75 billion/year

Source: IEA, RHG
Stimulus Measures of Select Economies
US$ billion

- **United States**: $1000 billion
  - Green Fund: $200 billion
  - Traditional: $800 billion

- **Japan**: $800 billion
  - Green Fund: $100 billion
  - Traditional: $700 billion

- **China**: $600 billion
  - Green Fund: $200 billion
  - Traditional: $400 billion

- **EU**: $500 billion
  - Green Fund: $100 billion
  - Traditional: $400 billion

- **South Korea**: $100 billion
  - Green Fund: $50 billion
  - Traditional: $50 billion

- **Australia**: $50 billion
  - Green Fund: $10 billion
  - Traditional: $40 billion

Source: HSBC, PwC, RHG
Falling Tariff Barriers

% trade weighted applied tariffs

Source: TRAINS, RHG

Renewable Energy Products (based on World Bank list)
All Products
Growing Non-Tariff Barriers

- **Sustainability Standards (biofuels)**
- **Local Content (Wind)**
- **Import Ban on Government Procurement (Wind)**
- **Import Ban (UMPP)**
- **Export Quotas (Rare Earth)**
- **Target to reduce import share**
- **Buy America**
- **Tax Reimbursement**

Source: RHG
Costs may outweigh the Benefits

2009 $ billions, for United States under clean electricity target of 80% by 2035

INCREASE IN DOMESTIC SPENDING DUE TO
A) INCREASED LOCAL SOURCING
B) HIGHER PRICES OF PRODUCTS
BECAUSE OF IMPORT RESTRICTIONS

INCREASE IN ENERGY EXPENDITURES DUE TO
HIGHER INVESTMENT COSTS

Source: RHG-NEMS analysis based on 50% increase in overnight capital costs of all clean electricity technology