The Kyoto Mechanisms
Japan Carbon Investors Forum

Investment Opportunities in the Polish Power Industry – problems and possibilities

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Tokyo, March 14th – 15th of 2006
Agenda

1. The Republic of Poland – brief information
2. Japan activity in Poland
3. Industrial sectors interested in CO₂ trading
4. Problems with implementation of JI & CDM mechanisms
5. New proposal – Green Investment Scheme
6. Investment possibilities
7. Summary
The Republic of Poland – brief information

- EU Member: **one of EU25**
- Location: **Central Europe**
- Area: **312’685 km² – 83% of Japan**
- Population: **38,2mln – 30% of Japan**
- GDP @ 2005: **312’257mln$ – 6,5% of Japan**
- Electricity production @ 2005: **154 TWh – 14,7% of Japan**
- Major energy sources: **hard coal; lignite; natural gas**
Members of *Polish Chamber of Power Industry and Environment Protection* are enterprises, companies and institutions from the entire Power Sector:

- Power plants;
- Combined heat and power plants;
- Utility suppliers;
- Producers of machines, devices and equipment for the Power Industry and Environment Protection;
- Companies providing related services: design, assembling, construction, software, and others;
- Energy trading companies;
- Small and medium-size enterprisers cooperating with the Power Sector;
- Insurance companies and banks.

The Chamber associates more than 150 companies, with annual turnover exceeding 22 billion$ and total employment higher than 70 thousands employees.
Major Japan investments in Poland

- **Warszawa**: Tohoku Pionieer (speakers), Bridgestone (tyres), Calsonic (air-cond.), Sumitomo Denso (wires), Sanden (air-cond.), Toyoda Boshoku (wires and others), AKS Precision Ball (balls for bearings), Yagi (hub bearings), Daisel (air bag fillers), Takata Petri (air bags and others), NSK (electric steering shafts), Toyota (TM, engines), Toyota Tsusho -Daiki (aluminum castings), NTK (ceramic disks), NGK (diesel exhaust filters), Isuzu (diesel engines), Toyo Seal (bearing parts), MOI Tech (v – belts), Fujitsu Kyushu (software), Eurocomfort (down export), Yusen (logistics), Sumitomo Shoji

- **Poznań**: Matsushita Battery (batteries), Toyoda Boshoku (wires and other), YKK (zips), NSK (bearings), Yoshida (rubber gaskets), Mizuho (rubber gaskets), Showa (rubber gaskets), Sumitomo (rubber gaskets), Jelcz-Laskowice (rubber gaskets), Tsubaki-Hoover (bearings), Tsubaki-Hoover (rubber gaskets), YKK (zips)

- **Kraków**: Toyota (diesel engines), Tsubaki-Hoover (rubber gaskets), NSK (bearings), Tohoku (speakers), Bridgestone (tyres), Fujitsu Kyushu (software), YKK (zips), Yusen (logistics), Sumitomo Shoji

- **Szczecin**: MOI Tech (v – belts), Fujitsu Kyushu (software), Eurocomfort (down export), Yusen (logistics), Sumitomo Shoji

- **Gdansk**: MOI Tech (v – belts), Fujitsu Kyushu (software), Eurocomfort (down export), Yusen (logistics), Sumitomo Shoji

Underlined  and  - automotive industry
Not underlined  and  - others
*italic  and  - without plants
  - operating  - under construction
The Republic of Poland
– carbon dioxide emission allowances

<table>
<thead>
<tr>
<th>#</th>
<th>Code</th>
<th>Installation type</th>
<th>Allowances</th>
<th>Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>E1</td>
<td>Combustion of fuels</td>
<td>597 324 300</td>
<td>83,7%</td>
</tr>
<tr>
<td>2</td>
<td>E2</td>
<td>Petroleum</td>
<td>10 113 300</td>
<td>1,4%</td>
</tr>
<tr>
<td>3</td>
<td>E3</td>
<td>Coke ovens</td>
<td>11 950 800</td>
<td>1,7%</td>
</tr>
<tr>
<td>4</td>
<td>F2</td>
<td>Iron &amp; steel</td>
<td>40 642 200</td>
<td>5,7%</td>
</tr>
<tr>
<td>5</td>
<td>M1.1</td>
<td>Clinker</td>
<td>33 979 200</td>
<td>4,8%</td>
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<tr>
<td>6</td>
<td>M1.2</td>
<td>Lime</td>
<td>8 606 400</td>
<td>1,2%</td>
</tr>
<tr>
<td>7</td>
<td>M2</td>
<td>Glass</td>
<td>5 804 100</td>
<td>0,8%</td>
</tr>
<tr>
<td>8</td>
<td>M3</td>
<td>Ceramics</td>
<td>4 468 800</td>
<td>0,6%</td>
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<tr>
<td>9</td>
<td>O2</td>
<td>Paper &amp; cartoon</td>
<td>867 300</td>
<td>0,1%</td>
</tr>
</tbody>
</table>

TOTAL 713 756 400 100,0%
Industrial sectors interested in CO₂ trading – according to share

- Power sector (combustion) 83.7%
- Iron & steel 5.7%
- Clinker 4.8%
- Cokery 1.7%
- Petroleum 1.4%
- Lime 1.2%

Major energy sources:  
*hard coal, lignite, oil, natural gas*
The Republic of Poland
– brief information

- Electricity production @ 2005: **154 TWh – 15,5% of Japan**
- Electricity production in professional power plants: **123 TWh – 78% share**
- CO₂ emission from professional power plants @ 2005: **120 mln Mg CO₂**
- Allocation for professional power plants @ 2005: **124,5 mln Mg CO₂**
- Total annual allocation in Poland @ 2005 (emission trading potential): **239 mln Mg CO₂**
- Governmental surplus (2008 – 2012): **approximately 150 mln Mg CO₂**
Problems with implementation
JI & CDM mechanisms

General issues: *Joint Implementation*

- Definition of baselines; authorities; subjectivity
- In case of technology recipient – complex due to scarcity of allowances at the level of individual enterprises
- Post 2012 uncertainty of direction of development of JI
Problems with implementation
JI & CDM mechanisms

General issues: *Clean Development Mechanisms*

- Investments have to be located in non-Annex I countries
- New instrument in „power engineering business”
- In case of afforestation – developed technology in selected regions of the globe
- CDM applicable technologies ready
- Investors prefer intergovernmental agreements
- Valuation, verification and certification of emission reductions
- Conversions of ERU & CER into emission allowance
Green Investment Scheme
– idea for Polish Industry

General issues: international level

• An intergovernmental agreement may be necessary
• Necessity of enterprise authorization
• Administrative body – legal position
• Independent technical authority – legal position, legal scope of decision
• Potential rising of issue of forbidden public aid for private
• Equality of opportunities for producers within the European Union
• Transparent tender procedures for all investors
Green Investment Scheme
– idea for Polish Industry

General issues: technical level

1. Technologies should follow local conditions and allow further development
2. All elements and technologies clearly described and documented
3. Service and spare parts suppliers potentially available locally
4. „Black box” technology is not preferred
5. Settlements of accounts based in relation: lifetime x emission reduction is clear, but future allowance price assessment is uncertain
6. Technical solutions acceptable for Japan and Poland authorities
7. The best way of technology transfer – cooperation with technical universities and experts
Green Investment Scheme
– opportunities in Poland

Preferred solutions in the Power Sector:

energy savings, fuel switch, renewable energy sources

1. Energy savings – efficiency increasing and CO₂ emission reduction:
   • two turbosets modernization
   • new 460MW supercritical hard coal power plant with fluidized bed boiler
   • two new high efficiency 470MW units in existing power plant

2. Renewable Energy Sources:
   • additional equipment for biomass & coal combustion
   • 30MW biomass boiler
   • 600kW small water power plant

3. Cogeneration plant:
   • Conversion from power plant into CHP – 4 units @ 370MW each
Preferred solutions in the Power Sector: 

*reduction of non-\( \text{CO}_2 \) GHG emissions*

**Methane capture and utilization**

Methane from sludge treatment and waste disposal

**Beyond Kyoto activities in the Power Sector:**

- Installation of exhausted gases desulphurization line
  – \( \text{SO}_2 \) emission reduction
- Installation of high efficiency electrostatic precipitators
- Denitriding equipment for plants bigger than 1400MW
The new idea

The new idea to capture emerging opportunities

Clearing house
for information on

technology transfer and environment protection

Features:

• Aimed at companies and enterprises interested in emission trading and technology transfer
• Meets supply and demand
• Offers assistance for big and medium size projects – matching technology needs and technology transfer offers
• Service based on advanced competency of technical university
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Thank You

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