GREEN POWER MARKET DEVELOPMENT GROUP

Advancing green power for a clean energy future

World Resources Institute
Business Initiatives for Worldwide Climate Protection

19:30 – 21:00
December 1, 2005
Montreal, Canada
Developing corporate markets for renewable energy is important for addressing climate change.

U.S. greenhouse gas emissions, 2002*
Percent, 100% = 6,935 million metric tonnes CO₂e

CO₂ from burning fossil fuels for energy: 81%
CH₄: 9%
N₂O: 6%
Other: 4%

U.S. energy consumption by end use sector, 2002
Percent, 100% = 98 quadrillion Btu

Residential: 21%
Commercial & industrial: 51%
Transportation: 28%

* Excludes land use change and international bunkers
Source: Climate Analysis Indicators Tool (CAIT UNFCCC) Version 1.0 beta. Washington, DC: World Resources Institute; 2005
The Green Power Market Development Group

Developing corporate markets for 1,000 MW of new, cost-competitive green power by 2010 in the US

Alcoa Inc.
The Dow Chemical Company
DuPont
FedEx Kinko’s
General Motors
IBM
Interface
Johnson & Johnson
NatureWorks, LLC
Pitney Bowes
Staples
Starbucks
What does the Group do?

- Identify opportunities
  - Build business case
  - Conduct market research
  - Identify project opportunities

- Engage marketplace
  - Engage renewable energy suppliers & developers
  - Submit RFPs (aggregations when appropriate)
  - Evaluate projects & economics

- Implement projects / make purchases

- Share strategies & lessons learned
  - With one another
  - With others

- Communicate externally
  - Publicize projects
  - Share lessons
Benefits of Group to members

• Accelerated learning process
• Timely information
• Links to suppliers/developers
• Technical assistance, tools & creative solutions
• Network of peers
• Shared business cases, purchasing & financing strategies, experiences, and lessons learned
• Aggregation opportunities
• Public recognition for purchases/projects
The Group is gaining momentum . . .

Megawatts (MW)

Incremental MW

<table>
<thead>
<tr>
<th>Year</th>
<th>Megawatts (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>15</td>
</tr>
<tr>
<td>2003</td>
<td>97</td>
</tr>
<tr>
<td>2004</td>
<td>63</td>
</tr>
<tr>
<td>2005</td>
<td>185</td>
</tr>
<tr>
<td>Total</td>
<td>360</td>
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</tbody>
</table>
In 2005 the Group more than doubled its use of renewable energy, hitting the 360 MW mark

### 2005 projects & purchases

*Total = 185 megawatts (MW)*

<table>
<thead>
<tr>
<th>Product</th>
<th>MW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wind RECs</td>
<td>138</td>
</tr>
<tr>
<td>Low impact hydropower</td>
<td>42</td>
</tr>
<tr>
<td>Solar &amp; other</td>
<td>3</td>
</tr>
<tr>
<td>Biomass RECs</td>
<td>2</td>
</tr>
</tbody>
</table>

### Total projects & purchases since 2000

*Total = 360 MW*

- **Wind power**: 21 MW
- **Solar & other**: 9 MW
- **Biomass RECs**: 34 MW
- **Hydrogen fuel cells**: 35 MW
- **Landfill gas RECs**: 37 MW
- **Landfill gas thermal & electric projects**: 42 MW
- **Low impact hydropower**: 161 MW
- **Wind RECs**: 42 MW
Areas where Group has had leadership impact on market

- Renewable energy certificate market
- Landfill gas for corporate on-site thermal energy
- On-site solar PV: Pioneering innovative financing approach
- Certified low-impact hydropower
- Hydrogen fuel cells
- Building the business case
- “Blazing trail for others to follow”
Ten largest corporate purchases of RECs / green power in U.S.

kWh/year (as of November, 2005)

**Member of Green Power Group**

- **Johnson & Johnson**: 295,000,000*
- **DuPont**: 170,000,000**
- **Starbucks**: 150,000,000**
- **IBM**: 110,000,000*
- **Safeway**: 78,000,000**
- **Whole Foods**: 71,000,000
- **HSBC**: 68,000,000**
- **NatureWorks LLC**: 59,000,000**
- **White Wave**: 50,000,000**
- **Staples**: 48,000,000**

* Mix of RECs and green power purchases
** RECs

Source: U.S. Environmental Protection Agency, WRI GPMDG project progress database
Five largest corporate purchases of wind RECs / green power in U.S.

MWh/year (as of Dec, 2005)

- **Starbucks**: 150,000
- **IBM**: 110,000
- **Johnson & Johnson**: 86,000
- **Safeway**: 78,000
- **Whole Foods**: 71,000

Source: U.S. Environmental Protection Agency
Seven Group members now purchase green power or RECs for 10% or more of their U.S. electricity consumption (above and beyond government mandates)

- NatureWorks: 100%
- Johnson & Johnson: 28%
- Starbucks: 20%
- FedEx Kinko’s Office and Print Services: 14%
- Interface: 10%
- Pitney Bowes: 10%
- STAPLES: 10%
The Green Power Group kick-started the popularity of certified RECs among non-residential energy users

MWh (as of September, 2005)

- Green Power Group purchases

“Having DuPont, Johnson & Johnson, and other Fortune 500 firms start buying RECs in 2003 established the credibility of the voluntary REC market and helped it take off!” – REC supplier

Source: Center for Resources Solutios, Verification Report Year 2002, 2003; WRI GPMDG project progress database
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Five largest corporate users of landfill gas for thermal energy in the US

MMBtu/year (as of Sept, 2005)

- General Motors: 1,961,000, 5 projects
- DuPont (incl. Solae): 1,782,000, 2 projects
- Honeywell Nylon: 1,197,000, 1 project
- BMW: 1,064,000, 1 project
- Dart Container Corp.: 824,000, 1 project

Source: U.S. Environmental Protection Agency (Landfill Methane Outreach Program), 2005
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Five largest corporate users* of on-site solar PV in the US

MW (as of Sept, 2005)

- Lowe’s Home Improvement (CA) 2.4 MW
- Johnson & Johnson (CA, PA, NJ) 2.2 MW
- Fala Direct Marketing (NY) 1.0 MW
- General Motors (CA) 1.0 MW
- FedEx (CA) 0.9 MW

* Excluding utilities, electricity suppliers, and major solar PV manufacturers

Source: Solar Electric Power Association (2005)
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Low Impact Hydropower Institute Certification – Alcoa

• Alcoa’s Tapoco project is the 2nd largest certified project in U.S. and first to receive special eight-year certification

• LIHI certification is voluntary and based on:
  – A multi-stakeholder evaluation process, e.g., NRDC, American Rivers, technical experts
  – Strictly measured criteria including:
    → Water quality
    → Watershed protection
    → Fish passage and protection
    → Threatened and endangered species protection
    → River flows
    → Recreation and cultural resource protection

For more information visit www.lowimpacthydro.org
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  • “Blazing trail for others to follow”
Five largest fuel cell projects in the world

MW (as of Dec, 2005)

- Member of Green Power Group

Dow (TX): 35 (under development)
Tokyo Electric (Japan): 11
Starwood (CA, NY, NJ): 2.75
Verizon (NY): 2.0
Juvenile Training School (CT): 1.4

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Business case for using renewable energy

1. Reduce emissions
   - Regulated emissions
   - Unregulated emissions

2. Strengthen stakeholder relations
   - Customers / branding
   - Employees and local communities
   - Shareholders

3. Lower or stable operating costs
   - Lower corporate energy costs
   - Stable corporate energy prices (hedge against fossil fuel price fluctuations)

Source: Interviews

VARIES BY COMPANY
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Today, WRI & The Climate Group announce the launch of the Green Power Market Development Group – Europe

A unique partnership dedicated to building commercial and industrial markets for renewable energy in Europe

British Telecom
The Dow Chemical Company
DuPont
General Motors
Holcim
IKEA
Interface Europe
Johnson & Johnson
Nike (CSC)
Staples
Tetra Pak

THE CLIMATE GROUP
Thank you

For more information visit:
www.thegreenpowergroup.org