Meeting the Cost – A Financial Perspective on Renewable Energy

Dr. Armin Sandhoevel, CEO Allianz Climate Solutions GmbH
Chair Climate Change Working Group
UNEPFI key findings on renewable energy

- Investment capital flowing into renewable energy jumped from US$ 80bn in 2005 to US$ 100bn in 2006
- 176 clean energy funds have been set up, 150 disclosed almost US$ 18bn under management (excluding infrastructure, technology and hedge funds)
- In 2006, US$ 110-125bn was invested in new power generation globally, of which 18% were invested into renewables plant financing
- Financial institutions serve as a principal facilitator and provider of capital

* toe: tons of oil equivalent
In order to raise the EU’s share of renewable energies to 20% by 2020, investments of EUR 443 bn are expected (2001-2020).

The highest investments and growth rates will occur in wind and solar energy.

Growth in biomass technologies and geothermal power will be notable (depending on countries and regions).

Projected investment in RE in Europe (2001-2020)

- Wind: 156 Billion EUR
- Solar-heat: 91 Billion EUR
- Biomass: 89 Billion EUR
- Photovoltaics: 76 Billion EUR
- Hydropower: 20 Billion EUR
- Geothermal: 11 Billion EUR

Σ = 443 Billion

Sources: EREC, IEA

1) incl. annual growth rates in percent
2) Tidal and wave power
Renewable energies experience a rapid development in Europe

**Planned Share RE of energy supply by 2010 in Europe**

<table>
<thead>
<tr>
<th>Country</th>
<th>1997</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hungary</td>
<td>3.6</td>
<td>21</td>
</tr>
<tr>
<td>Malta</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Estonia</td>
<td>5.1</td>
<td>5.7</td>
</tr>
<tr>
<td>Luxemburg</td>
<td>6.7</td>
<td>6.7</td>
</tr>
<tr>
<td>Cyprus</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Belgium</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Lithuania</td>
<td>7.5</td>
<td>7.5</td>
</tr>
<tr>
<td>Poland</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Czech Rep.</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Netherlands</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>UK</td>
<td>12.5</td>
<td>13.2</td>
</tr>
<tr>
<td>Ireland</td>
<td>13.2</td>
<td>20.1</td>
</tr>
<tr>
<td>Germany</td>
<td>21</td>
<td>29</td>
</tr>
<tr>
<td>Greece</td>
<td>25</td>
<td>29.4</td>
</tr>
<tr>
<td>France</td>
<td>31</td>
<td>31.5</td>
</tr>
<tr>
<td>Italy</td>
<td>33.6</td>
<td>33.6</td>
</tr>
<tr>
<td>Denmark</td>
<td>39</td>
<td>49.3</td>
</tr>
<tr>
<td>Spain</td>
<td>60</td>
<td>78.1</td>
</tr>
<tr>
<td>Slovakia</td>
<td>60</td>
<td>78.1</td>
</tr>
<tr>
<td>Finland</td>
<td>60</td>
<td>78.1</td>
</tr>
<tr>
<td>Slovenia</td>
<td>60</td>
<td>78.1</td>
</tr>
<tr>
<td>Portugal</td>
<td>60</td>
<td>78.1</td>
</tr>
<tr>
<td>Latvia</td>
<td>60</td>
<td>78.1</td>
</tr>
<tr>
<td>Sweden</td>
<td>60</td>
<td>78.1</td>
</tr>
<tr>
<td>Austria</td>
<td>60</td>
<td>78.1</td>
</tr>
</tbody>
</table>

- Development is significantly supported by the EU’s target to raise the share of renewables in total energy consumption to 20% by 2020.
- The share of renewable energy in electricity generation shall grow to 21% by 2010 (1997: 12.9%).
- RE sector is attracted by bundled solutions incl. insurance, financing, equity, asset management.

Source: BMU
Investment volumes and high growth rates in developing countries: the case of China

**Annual consumption of RE worldwide (2010-2040)**

- **Given its rapidly growing energy demand**, China is a pivotal player in global climate protection & renewable energy markets.
- **Until 2030**, China and India will account for 45% of the increase in energy demand by 2030.
- **By 2020**, China will invest 150bn Euro in renewable energy to generate 300 GW hydropower, 30 GW wind, 20 GW biomass, and 1 GW solar power per year.

**Sources:** EREC, IEA  
1) incl. annual growth rates in percent  
2) Tidal and wave power
CDM & the RE market: Less attractive?

- Around 60% of existing CDM projects invest in RE, but only 15% of generated CERs are from this sector
- Facts reducing attractiveness of including carbon components into RE investments:
  - Cash flow modeling based on feed-in-tariffs, prices from fossil fuels and sinking manufacturing costs
  - High level of costs of RE investments, but small part of IRR of carbon component
  - High transaction costs (bureaucratic regulations)
  - Investment horizons of RE (12-20 years) not compatible with insecure perspective of Post 2012

* toe: tons of oil equivalent
Renewable energies: Tailor-made products to participate in global growth trend

1. Insurance products
2. Financing activities
3. Project financing, equity & debt placement, IPO and asset acquisition
4. Funds in clean energy market
5. Acquisition of renewable energy assets and investment opportunities
6. Due diligence for business and technical issues, technical advice

Cross-selling supported by full product range
UNEPFI key recommendations to policy makers

Promote a significant expansion of investments in renewable energy and energy efficiency. This can be achieved by:

- Leveling the playing field with conventional fuels, for example through removing subsidies for dirtier, less efficient production and uses.

- Setting ambitious goals for renewable energy generation with clear support mechanisms and so reflecting environmental, security and supply benefits.

- In the long-run competitiveness of RE sector must be key driver of investments.
Contact

Dr. Armin Sandhoevel
Chair UNEPFI Climate Change Working Group

Allianz Climate Solutions GmbH
Theresienstrasse 1-5
80333 Munich, Germany
Tel. +49.89.3800 12203
Email: armin.sandhoevel@allianz.com