Going Green?
Andrew DeWit
Rikkyo University
Really, Mr Nakagawa?

"Japan leads the world in energy efficiency and, through its hard work, has achieved the world's premier level of environmental quality."

Liberal Democratic Party (LDP) Diet member
Nakagawa Shoichi
(former METI/Finance Minister)

June 2008 Voice
#1 in Energy Conservation?

• Japan’s energy consumption rose considerably between 1997 and 2007 (from 506.6 million tonnes of oil equivalent to 517.5 tonnes).

• Cf Germany (337.8 tonnes to 311), Denmark (21.7 to 18.2), UK (220.4 to 215.9), Sweden (50.4 to 50.2)

BP, Statistical Review of World Energy 2008
“Primary energy consumption trends” p 40
Are you sure, Professor Takenaka?

Japan is "the only country in the world that can solve the global environmental problem."
Japan is so energy efficient that, in order to produce a given unit of GDP (whether measured in dollars or yen), Japan emits "half the level of the Western countries."

Takenaka Heizo,
July 2008 Ushio
<table>
<thead>
<tr>
<th></th>
<th>Japan</th>
<th>US</th>
<th>UK</th>
<th>Germany</th>
<th>France</th>
<th>Italy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Intensity</td>
<td>6539</td>
<td>9113</td>
<td>6048</td>
<td>7243</td>
<td>7201</td>
<td>5788</td>
</tr>
<tr>
<td>Ton Oil Equiv/Capita</td>
<td>4.18</td>
<td>7.91</td>
<td>3.91</td>
<td>4.22</td>
<td>4.43</td>
<td>3.17</td>
</tr>
<tr>
<td>TPES/GDP (PPP)</td>
<td>0.16</td>
<td>0.22</td>
<td>0.14</td>
<td>0.16</td>
<td>0.19</td>
<td>0.17</td>
</tr>
<tr>
<td>Ton CO2/TPES</td>
<td>2.28</td>
<td>2.49</td>
<td>2.30</td>
<td>2.44</td>
<td>1.42</td>
<td>2.51</td>
</tr>
<tr>
<td>Ton CO2/Capita</td>
<td>9.52</td>
<td>19.73</td>
<td>8.98</td>
<td>10.29</td>
<td>6.22</td>
<td>7.95</td>
</tr>
<tr>
<td>CO2/GDP (PPP)</td>
<td>0.35</td>
<td>0.54</td>
<td>0.32</td>
<td>0.39</td>
<td>0.23</td>
<td>0.31</td>
</tr>
</tbody>
</table>

Sources: International Energy Agency (IEA Statistics), EIA Statistics
Note: Energy Intensity=BTU/US$2000 (PPP)
PPP=Purchasing Power Parity, TPES=Total Primary Energy Supply
## Dependence on Oil, Imported Oil, and Imports from the Middle East, 2003

<table>
<thead>
<tr>
<th></th>
<th>Japan</th>
<th>US</th>
<th>UK</th>
<th>Germany</th>
<th>France</th>
<th>Italy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil Dependence</td>
<td>50</td>
<td>40</td>
<td>35</td>
<td>36</td>
<td>34</td>
<td>48</td>
</tr>
<tr>
<td>Imported Oil Dependence</td>
<td>100</td>
<td>62</td>
<td>-36</td>
<td>97</td>
<td>98</td>
<td>93</td>
</tr>
<tr>
<td>Dependence on ME</td>
<td>89</td>
<td>24</td>
<td>6</td>
<td>10</td>
<td>25</td>
<td>32</td>
</tr>
</tbody>
</table>

Source: METI, 2006 Energy White Paper, Section 5
Japan certainly has pecuniary incentives.
More Incentives?

Source: SEFI, New Energy Finance
Jeffrey Immelt, CEO General Electric

“I believe we are going through more than a cycle. The global economy, and capitalism, will be “reset” in several important ways. In a reset economy, the government will be a regulator; and also an industry policy champion, a financier, and a key partner”
Irony: Japan was a pioneer in sustainable energy policies

- 1974 Sunshine Project (esp solar)
- 1978 Moonlight Project (esp energy conservation)
- 1980 NEDO (subsidies, targets, and other supports)
- 1993 New Sunshine Project

But:
- 1990s pork barrel vs strategic investment (latter lost)
- 2000s turn to “structural reform” ideology
- 2009 - back to the pork?
Smart Public Policies

A few examples:

Feed-in tariff

Renewable Portfolio Standards

Cap and Trade (or better yet, carbon tax)

ie, subsidize good, tax bad. This is not rocket science.
In 2008, Solar Market Doubled to 6 Gigawatts
Wind Energy

2008: 120 GW
Avg growth past 10 years: 28%

Main markets: China, EU, US

US: 42% of new generating capacity
Foster An Energy Revolution

Mandated levels of Electricity Produced via Renewables

- California: 20% by 2017 (33% by 2020)
- Germany: 45% by 2030 (feed-in tariff)
- China: 16% by 2020 (% total energy)
- Japan: 1.35% by 2010 (1.63% by 2014)

Power is 27% of global CO2 emissions, transport 17%
Investor Sentiment

Attractiveness for renewables investment: US is #1, followed by Germany, China, India and Spain.

Japan is ranked 20th.

Ernst and Young “All renewables index at Q3 2008,” in Renewable energy country attractiveness indices, Quarter 3 2008.
Japan: Back of the pack

Figure 7. Renewable Power Capacities, Developing World, EU, and Top Six Countries, 2009


Note: Excludes large hydropower


Source: New Energy Finance

Source: SEFI, New Energy Finance
Welcome to the “Energy-Climate Era”

ET=“energy technology”

“ET is the new IT”

The renewable-energy revolution has become so obvious that, last year, Thomas Friedman published a book on it.
Paradigm Shift

“The return of the state: How government is back at the heart of economic life”

Financial Times, August 21 2008
Taking Stock

- Japan is not the Top-Runner on energy and environmental policy
- Climate and energy risks are outpacing projections
- Negative externalities have ended the market fundamentalist era, except in Japan (i.e., no targets)
- The Renewable Energy Revolution is already underway, but Japan risks becoming, at best, a subcontractor

Recommendation:
Understand this is a fight between incumbent and emergent Industries

Forgo the greenwash and use the state properly