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CLEAN COAL DAY in JAPAN 2009

Keynote Speech 6

Japan's CCT: A Key for Cool Earth

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Introduction: Two misleadings

(1) Competition over national reduction targets

- : Re-emergence of the Kyoto Protocol pitfalls
- : De-emphasis on consideration of cost-effectiveness

(2) Characterization of coal-fired power generation as the villain

- : Loss of a weapon not only from the standpoints of economy and energy security but also that of the environment
- : Lack of an international vision

I. Cost effectiveness of CO2 emission reduction

- June 2009: Medium-term target announced by Japanese PM Taro Aso
 - : Reduction of 15% by 2020 relative to 2005
 - : Increase in the annual cost burden per household by JPY76,000

- July 2009: Long-term target at the L'Aquila Summit
 - : 80% reduction by developed countries by 2050
 - : Increase in the annual cost burden per household by JPY192,000

- The cost burden as a critical obstacle to target attainment

I. Cost effectiveness of CO2 emission reduction

■ Effects of major measures to reduce CO2 emissions (2020, case of maximum application/case of continuation of current status)

1. Energy conservation in buildings (housing, office buildings, etc.):	about 38 million tons
2. Next-generation automobiles and improved fuel efficiency:	about 21 million tons
3. Energy-saving electrical products for the home:	about 17 million tons
4. Transport flow measures:	about 16 million tons
5. Energy-saving IT equipment (green IT):	about 15 million tons
6. Photovoltaic power generation:	about 15 million tons
7. High-efficiency water heaters (residential use):	about 9 million tons
8. Innovative steel-making technology:	about 5 million tons
9. Innovative chemical industry technology:	about 4 million tons
10. High-performance industrial furnaces, boilers, etc.:	about 3 million tons
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Total:	about 143 million tons (equivalent to 10.5% of the total emissions in 2005)
* Promotion of nuclear energy (case of fixed current status):	about 110 million tons

I. Cost effectiveness of CO2 emission reduction

■ Cost of major measures to reduce CO2 emissions (up to 2020)

1. Next-generation automobiles:	about 12 trillion yen
2. Photovoltaic power generation:	about 8 trillion yen
3. Energy conservation in buildings (housing, office buildings, etc.):	about 8 trillion yen
4. Energy-saving electrical products for the home and traffic flow measures:	about 7 trillion yen
5. High-efficiency water heaters:	about 5 trillion yen
6. Energy-saving IT equipment:	about 4 trillion yen
7. Cogeneration systems and fuel cells (industrial and commercial use):	about 2 trillion yen
8. Innovative steel-making technology:	about 1 trillion yen
9. Wind power generation:	about 1 trillion yen
10. Innovative chemical industry technology:	about 1 trillion yen
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Total:	about 49 trillion yen

II. Coal-fired power generation technology as a key for CO2 emission reduction

(1) Global environmental problems ought to be resolved on a global scale.

: GHG emissions: Japan accounts for 5.1% of the world total (2005).

(2) Coal-fired power generation is the main type of power generation worldwide.

: coal 39.6%, NG 19.5%, hydro 16.5%, nuclear 15.6%, oil 6.7%, other 2.1% (2004, kWh basis)

(3) A huge emission reduction could be achieved by the spread of Japan's CCT.

: Reduction of 1,347 million tons by horizontal expansion of Japanese best practice (BP) to the USA, China, and India (equivalent to 99.0% of Japan's total emissions in 2005)

II. Coal-fired power generation technology as a key for CO2 emission reduction

■ Breakdown of power generation output by source in major countries (% , 2004)

Country	Coal	Oil	Natural gas	Nuclear power	Hydropower	Other
Japan	27.2	12.3	22.6	26.1	9.5	2.2
USA	50.1	3.3	17.5	19.5	7.1	2.4
China	77.7	3.2	0.9	2.3	15.8	0.1
India	69.1	5.4	9.5	2.5	12.7	0.8
Russia	17.3	2.7	45.2	15.5	19.1	0.2
Germany	50.0	1.6	10.0	27.1	4.5	6.8
France	5.0	1.0	3.2	78.3	11.3	1.1
UK	33.8	1.2	40.3	20.2	1.9	2.5
World total	39.6	6.7	19.5	15.6	16.5	2.1

II. Coal-fired power generation technology as a key for CO2 emission reduction

■ Effect of dissemination of Japanese BP for reduction of CO2 emissions from coal-fired power generation

(millions of tons, 2004) $a+b+c = -1,347$

Country	Actual emissions	Emissions after BP application	Reduction effect
Japan	269	246	-23
USA	1,949	1,562	-387(a)
China	2,269	1,493	-776(b)
India	572	388	-184(c)

III. Outstanding issues

- Establishment of an international framework
 - : Incentive design
 - CDM, emissions trading, linkage with local environmental problems
 - : Systemic/institutional arrangements
 - International deployment of human resources in and beyond APP
- Identification of what can be done immediately and what is possible further in the future
- Making cost effectiveness visible and plain to all

Conclusion: From JCOAL to ICOAL

- Use of Japan's Clean Coal Technology as the key for reduction of CO2 emissions worldwide would clearly underscore Japan's *raison d'être* (worth) in the 21st century.
- *Evolution from "Japan Coal Energy Center" to "International Coal Energy Center"*