ISAP2009持続可能なアジア太平洋に関する国際フォーラム

コペンハーゲンに向けて:低炭素で持続可能 なアジア太平洋を実現する新たな道筋

> 環境エネルギー政策の新しいパラダイムに向けて Toward New Paradigm of Energy & Environmental Policy

> > モード1からモード3へ From Mode 1 to Mode 3

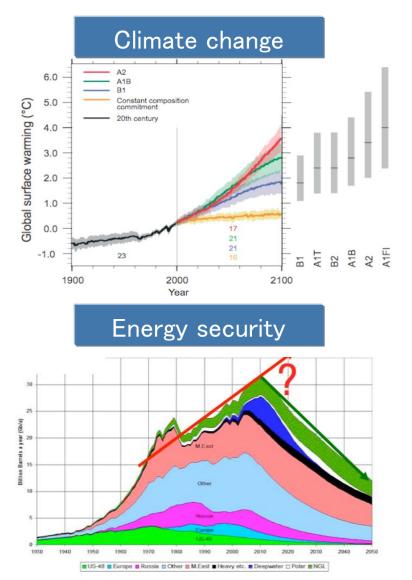
> > > June 26, 2009

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# Needs for rapid and global scale of energy change



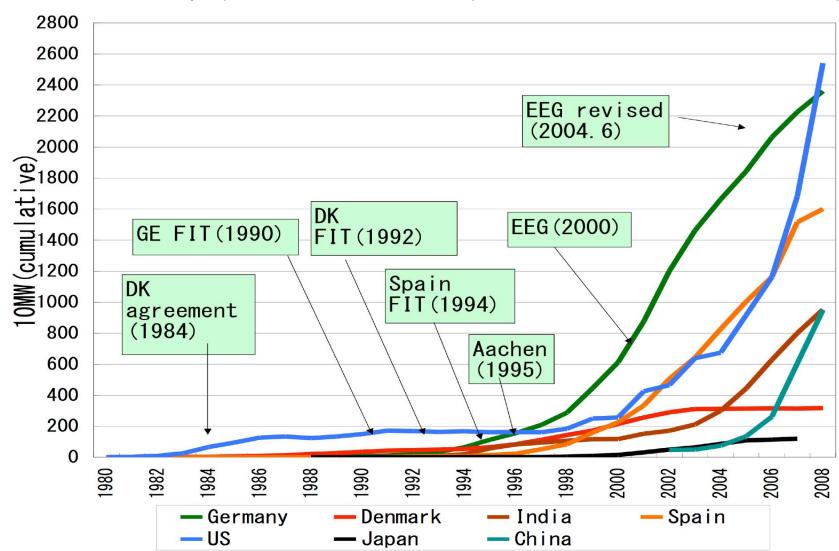








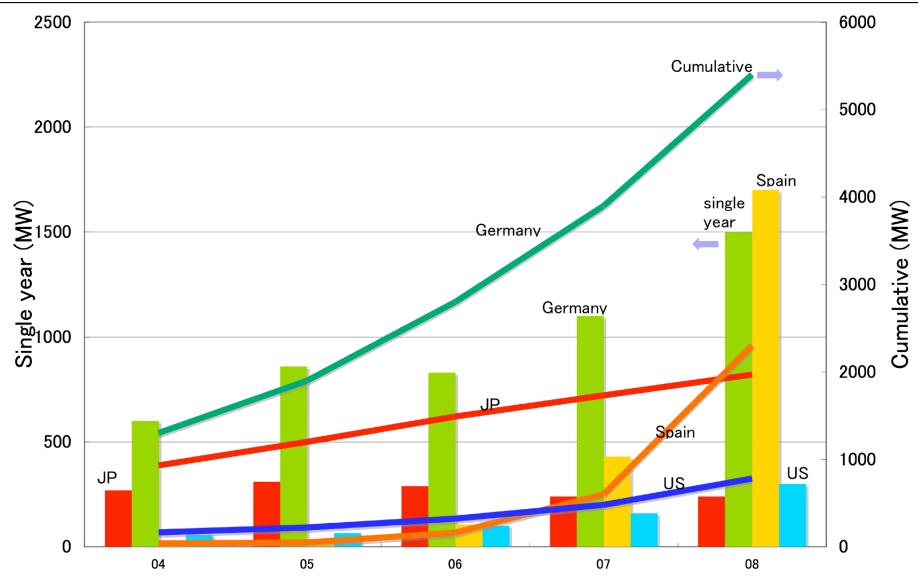
### Renewable energy into mainstream - wind power lead



• Renewable will play a role in 21th century same as the car in 20th century

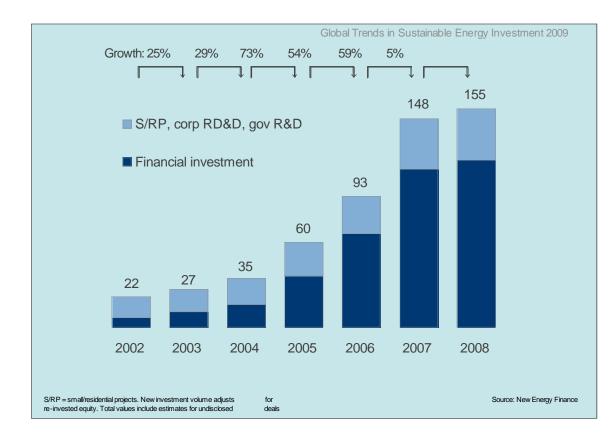
Sep Institute for Sustainable energy policies

# Global PV market change



Source: REN21

### Explosive renewable energy market expansion



#### source: New Energy Finance

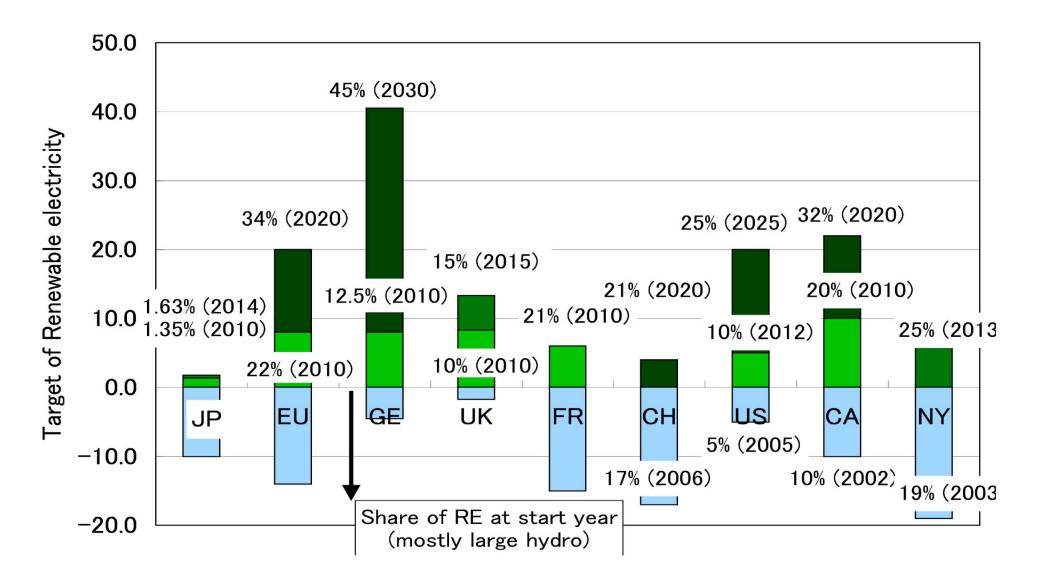
### Renewable industries

(b\$, Stock value as of July 2008)

| 1 ΤΟΥΟΤΑ                       | 16,378 |
|--------------------------------|--------|
| 7 HONDA                        | 6,550  |
| 8 CANON                        | 6,548  |
| 16 New Nippon Steel            | 4,043  |
| 17 TEPCO                       | 3,774  |
| 18 NISSAN                      | 3,675  |
| Iberdrola Renovables(Spain)    | 2,971  |
| 27 SHINETSU                    | 2,774  |
| Vestas(DK)                     | 2,524  |
| First Solar(US)                | 2,361  |
| 34 TOSHIBA                     | 2,328  |
| 45 KYOCERA                     | 1,758  |
| 49 SHARP                       | 1,661  |
| 50 MHI                         | 1,653  |
| Renewable Energy Corp.(Norway) | 1,534  |
| 62 SUZUKI                      | 1,300  |
| Gamesa (Spain)                 | 1,293  |
| 75 Tokyo GAS                   | 1,110  |
| Q-cells (Germany)              | 1,076  |
| EDP Renovaveis(Portugal)       | 1,041  |
| 88 New Japan Oil               | 975    |

Source : ISEP

# Trand in setting higher political target of renewable energy

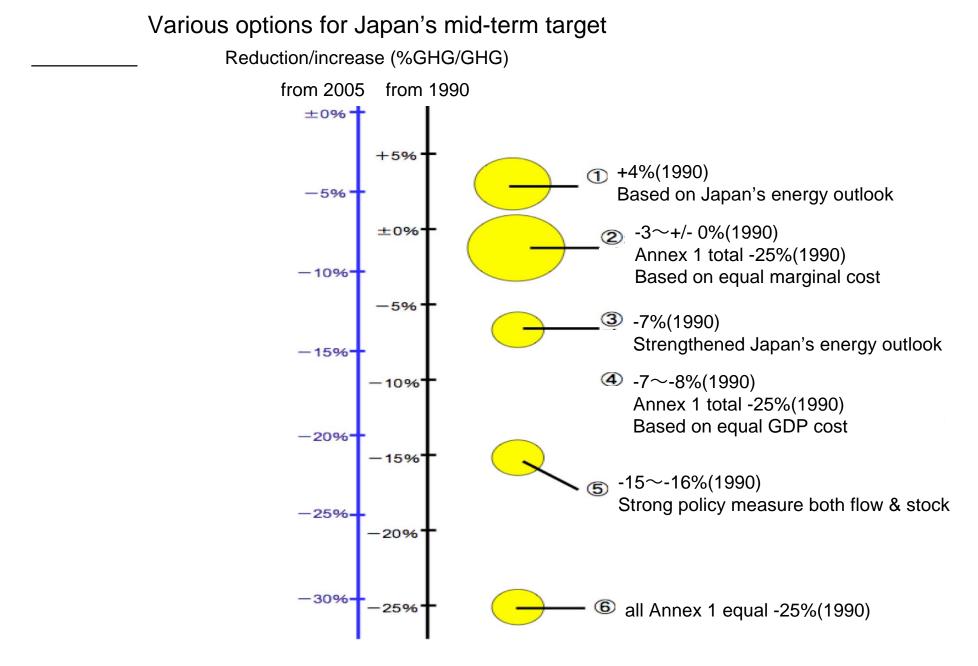


Continuing "carbonization" of Japan's electricity supply

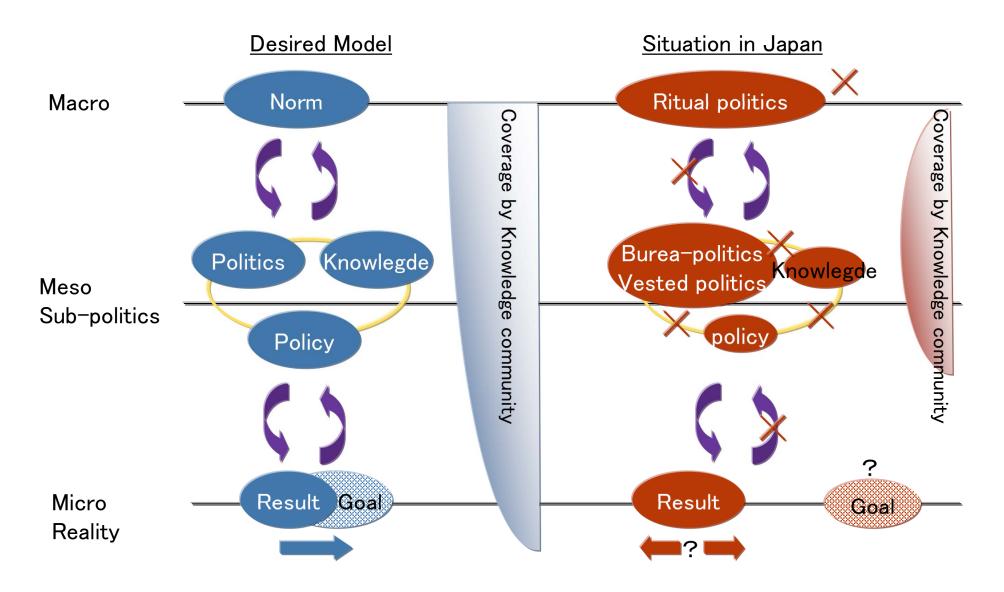
Japan's failure of Kyoto target mostly due to failure of electricity policy

#### +9.2% (2009) from 1990 Continuous growth of coal power 300 18.0% 2007年度における我が国の排出量は、基準年比8.7%上回っており、 CO2 from coal power 議定書の6%削減約束の達成には、9.3%の排出 削減が必要 石前 (電力排出原単位を0.34kg-CO<sub>2</sub>/kWhと仮定した場合、排出削減必要量は1.1%) (Mton-CO2) 排出していていいい 13億7,100万トン <前年度比+2.3%> 排出量 250 15.0% (+8.7%) Share of CO2 from coal (億トンCO。) 13億4,000万ト power (%) 9.3%の排出 194<sup>205</sup> 全称四重に口のの割百(物) 8.39 13 200 12.0% 181 12億6,100万 (0.34kg-CO2/kWh と仮定した場合) 169 1-2 1.1%の削減が必要 154 (+0.5%) 12億5,4007 14112億6,700万 森林吸収源対策で3.8% 150 電力排出原単位が0.34kg-CO<sub>2</sub>/kWhであったと仮 トン 9.0% トン 定した場合 (-0.6%) 12412 京都メカニズムで1.6% 97 102 110 110 88 (京都議定書目標達成計画における電力排出原単位目 <前年度比-0.8%> 標値が0.34kg-CO2/kWh程度とされている。) 11億8,600万 の確保を目標 トン (-6%) 60 66 72 79 100 6.0% 11 50 3.0% 10 n ▶年度 0.0% 基準年 2006 京都議定書削減約東 2000 2001 2002 2003 2004 2005 2007 (原則1990年) (2008年~2012年) 1998 2002 (速報値) 1990 1992 1994 1995 1996 1999 2000 2003 2004 2005 1991 $\mathbf{m}$ 266 2001 199

εđ.



# Political structure of energy & climate issue



## Needs for updating knowledge community toward "Mode 3"

|        | Science                         | Environmental                     | Style                        |
|--------|---------------------------------|-----------------------------------|------------------------------|
|        |                                 | Policy                            | atmosphere                   |
| Mode 1 | Gov. science<br>(pre War~today) | opposition                        | Resistance                   |
|        |                                 | Command & control                 | paternal                     |
|        |                                 | (1970~)                           |                              |
| Mode 2 | Ind. science                    | Professionalization               | Value neutral                |
|        | Busi. science                   | expertisation                     | Market                       |
|        | (post War∼today)                | (1980~)                           | orientation                  |
| Mode 3 | Open source                     | Network and innovation by "agent" | Commitment,                  |
|        | Innovation                      |                                   | creativitly,<br>constructive |
|        | (1990~)                         | (1990~)                           |                              |