

Challenges in Achieving a Low-Carbon Future: Japan's Perspective

Northeast Asia Economic Forum
March 22, 2010

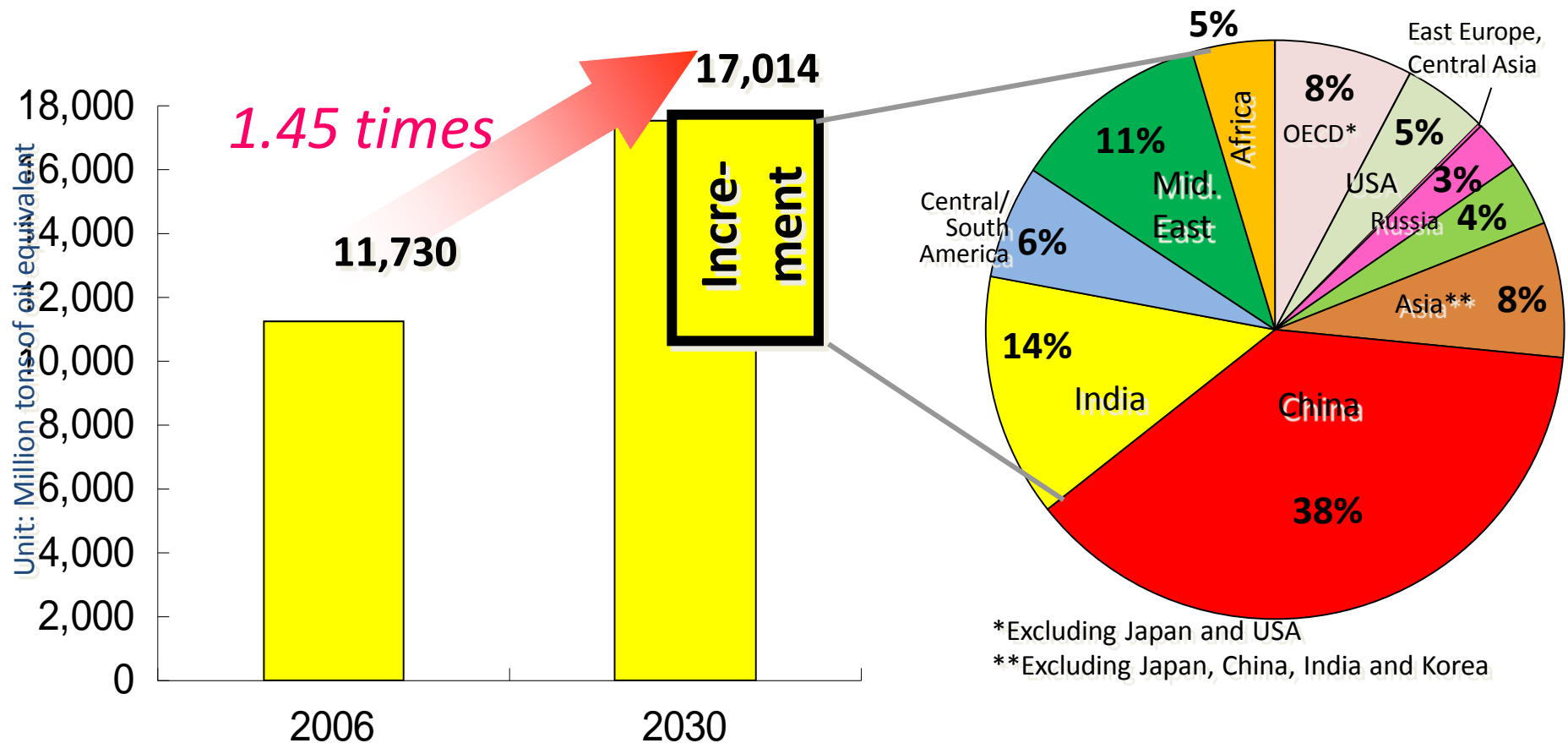
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(Views expressed here are the author's own and not necessarily represents the
GOJ's)

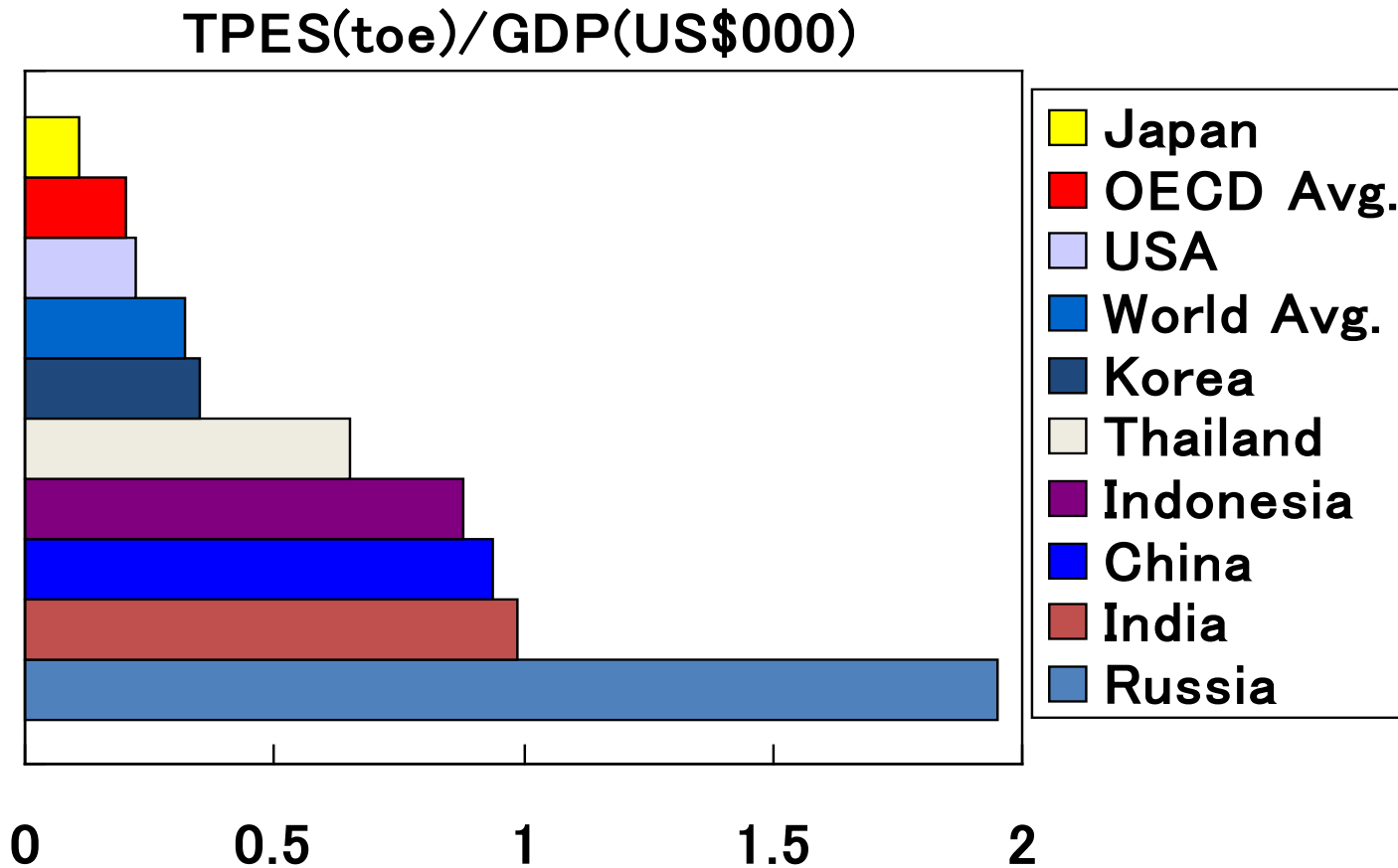
Outline

- 1 Basic view of Japan (mine)
- 2 Hatoyama government's position
- 3 Domestic measures toward low-carbon society
- 4 International cooperation toward low carbon society
- 5 How to build a global/regional climate change regime
- 6 Conclusion

Outlook of World Energy Demand



Emerging Asia is not so energy-efficient

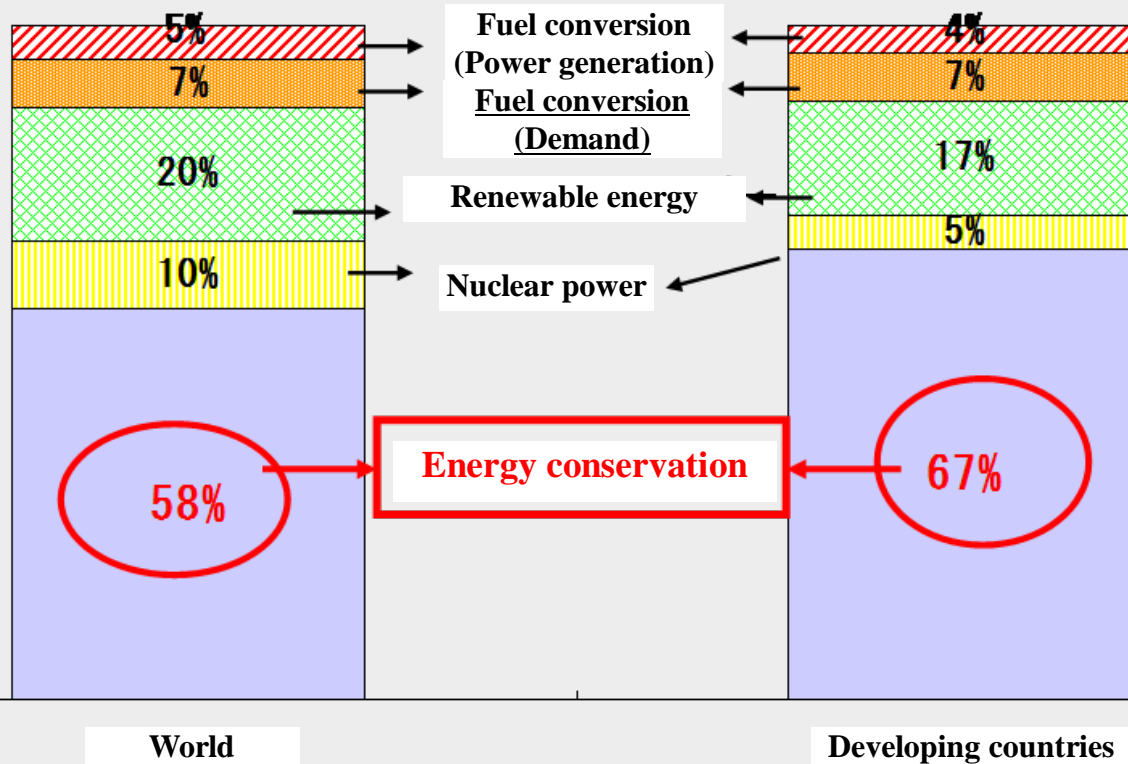


(Source:IEA)

CO₂ Reduction Potential

CO₂ reduction potential in 2030 (Analysis by IEA)

※削減ポテンシャル全体を100とした場合の割合

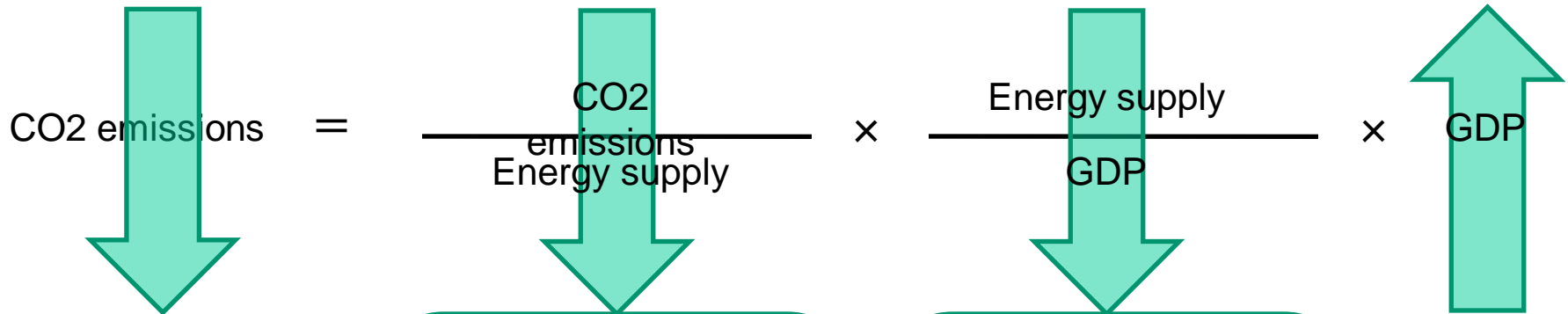


世界

開発途上国

How to achieve low-carbon Economy

“Low-carbon economy” = Non-fossilization of energy supply × Improvement of energy consumption efficiency × Economic growth



- ✓ Expansion of the introduction of renewable energy
- ✓ Promotion of nuclear energy
- ✓ Expanded utilization of biofuels

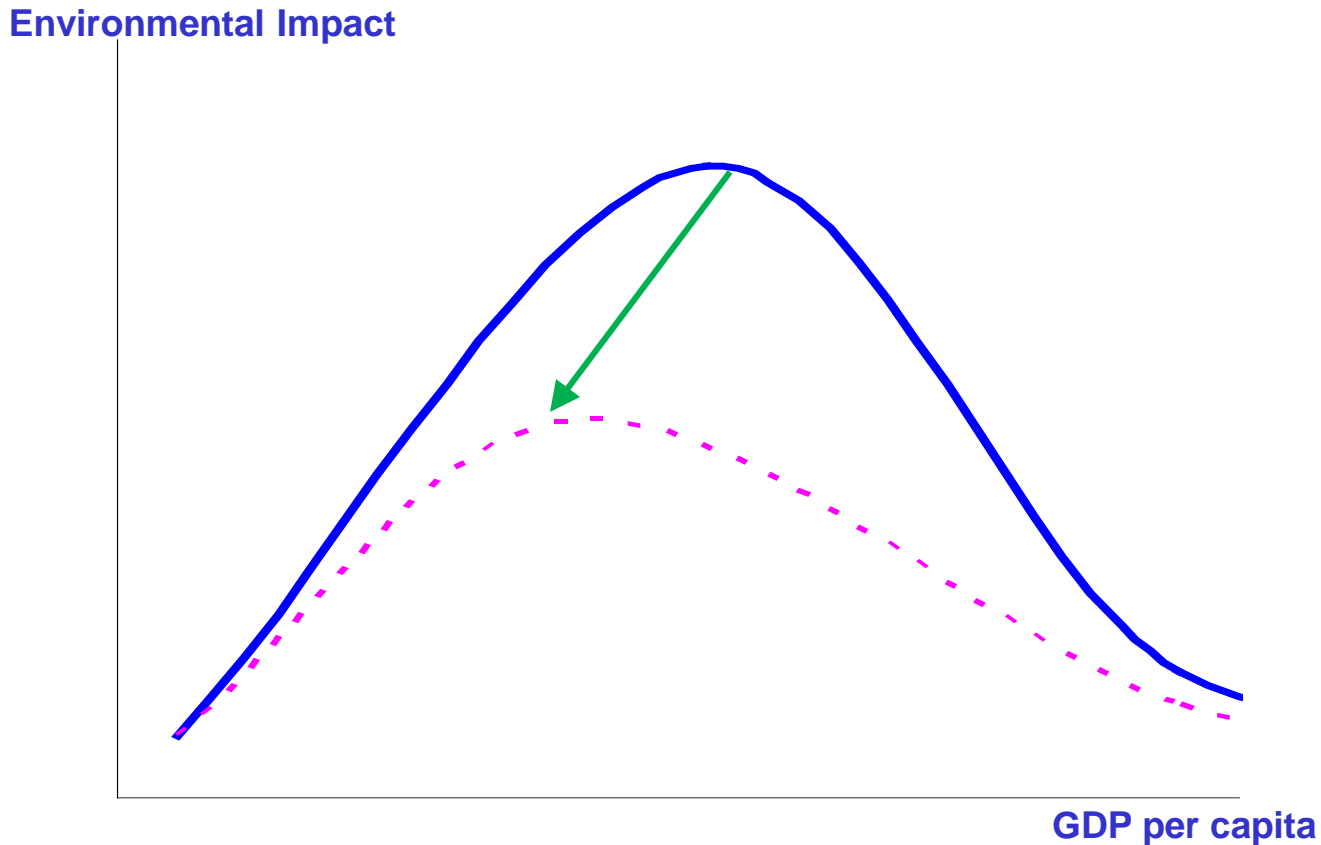
Others

- ✓ Promotion of energy conservation
- ✓ Improvement of energy utilization intensity
- ✓ Improvement of fuel efficiency performance

Others

Basic View: Asia should demonstrate its model, Japan should contribute to it: From “Cool Japan” to “Cool Asia”

Environment Kuznetz Curve Should Be Challenged



Source: Author

Hatoyama Gov't's Ambitious Target

PM Hatoyama @ UN
(Sep. 2009)

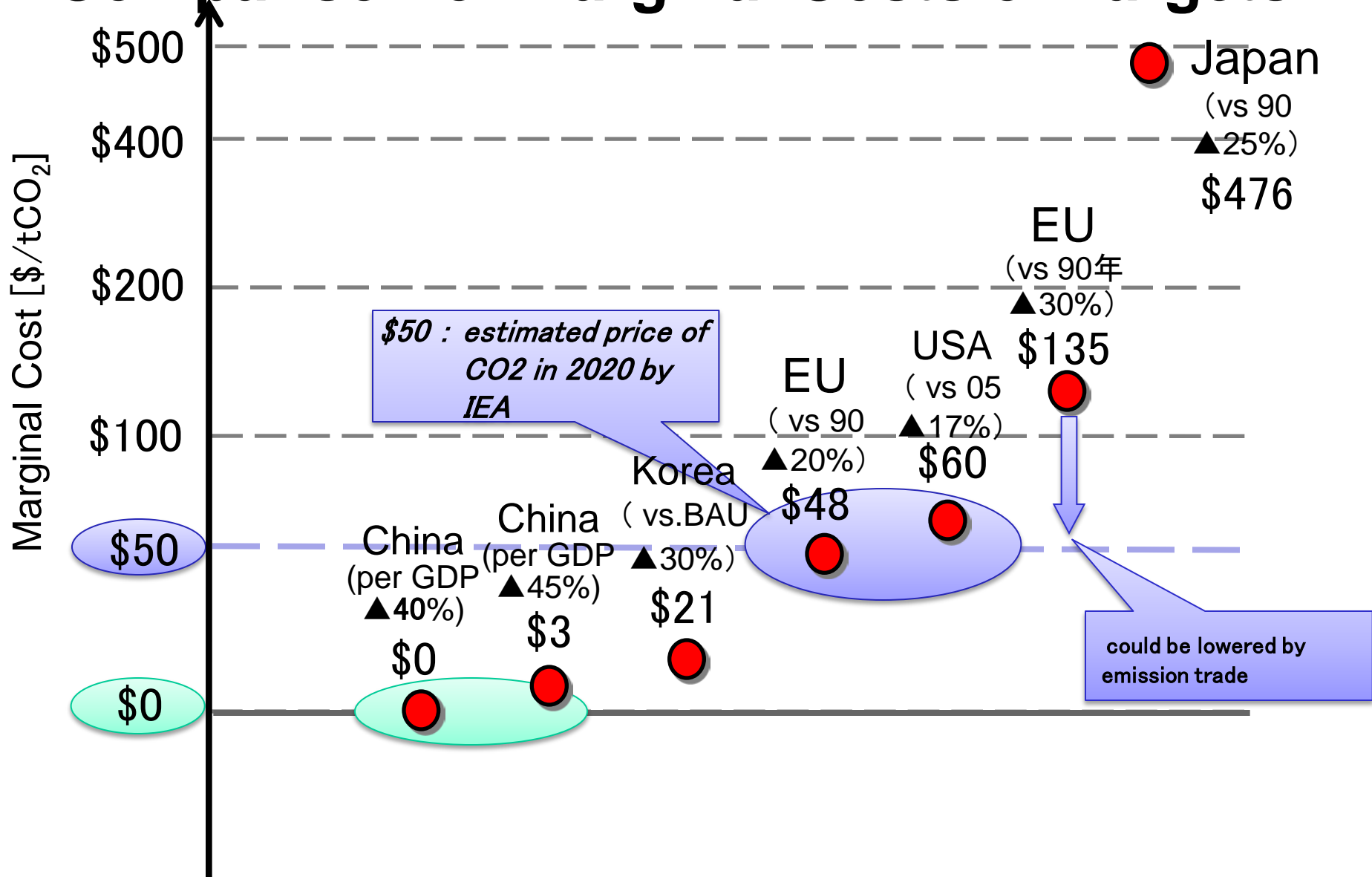


- “For its mid-term goal, Japan will aim to reduce its emissions by 25% by 2020, if compared to the 1990 level”
- “It is imperative to establish a fair and effective international framework in which all major economies participate. The commitment of Japan to the world is premised on agreement on ambitious targets by all the major economies”

How Ambitious Is Japanese Target ?

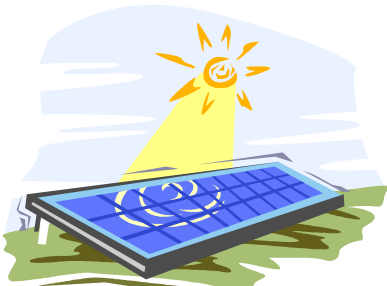
	Reduction from 1990 levels	Reduction from 2005 levels	Marginal Abatement Costs (Analysis from the RITE model)	Use of forest and other sinks, Emission credits purchases from other countries
Japan	▲ 25%	▲ 30%	\$476	To be determined
EU27	▲ 20% ~ ▲ 30%	▲ 13% ~ ▲ 24%	\$48 ~ \$135	Around 4% of reduction are from credit purchases
USA	▲ 3%	▲ 17%	\$60	Possibility that both forest sinks and credits will be included

Comparison of Marginal Costs of Targets



Source : RITE estimate, IEA 450ppm scenario

Domestic Measures toward a Low-Carbon Society



Solar Power Generation

Solar power panel diffusion:

- Feed in tariff
- Subsidy



Nuclear Power

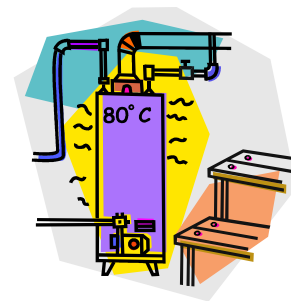
Construct new nuclear power plants and increase the utilized capacity (Presently there are 54 plants in operation)



Vehicles

Next-generation vehicles:

- Subsidy
- Tax reduction



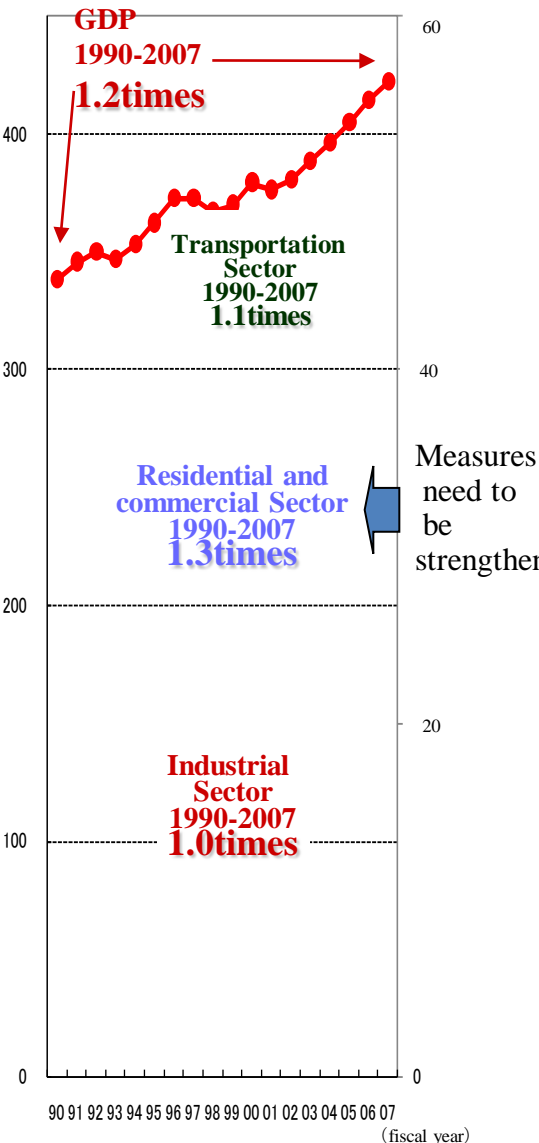
High-efficiency water heaters

Diffusion of high-efficiency water heaters:

- Subsidy, Financing facility
- Top-runner

Overview of Japan's energy efficiency policy

Energy consumption (million kl) GDP (billion yen)



Regulation

- Energy management obligation by Energy Conservation Law (Factories, Carrier, Consignor)
 - Factories : Introduce energy management by an unit of a company (in 2008)
- Enhancement of energy efficiency of buildings by Energy Conservation Law
 - Strengthen regulation (in 2008)
- Top Runner Program

Voluntary action

- Promotion of Nippon Keidanren's Voluntary Action Plan

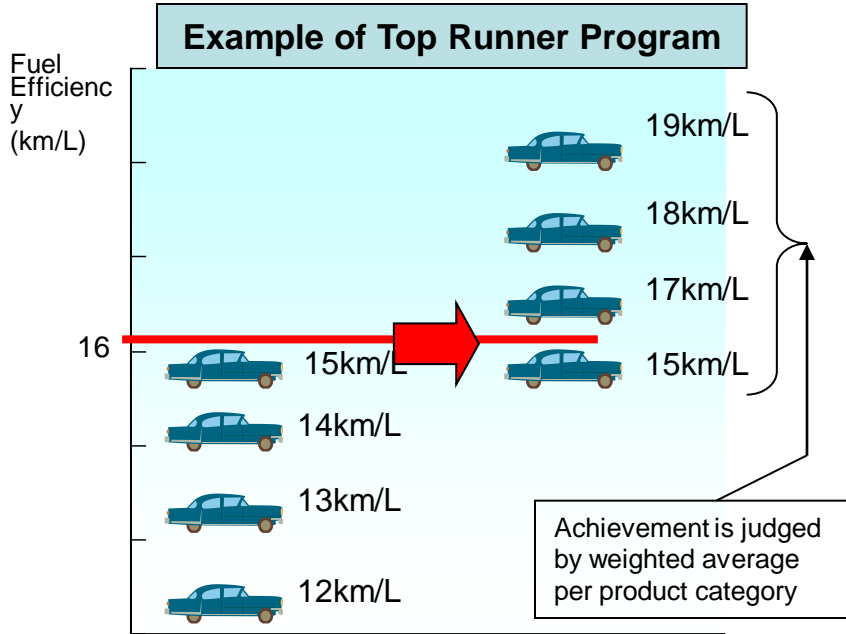
Incentive

- Promotion of high fuel economy vehicles(clean energy vehicles)
- Subsidies for promoting energy efficient facilities (high-efficient building , high-performance industrial furnace etc.)
- Energy-saving labeling, Forum for Promoting energy efficient home electric appliances, etc.
- Tax incentive for energy efficient reform of residence , Low-interest loan

Cross Sectoral approach

- Providing information and promotion of national movement
- Promotion of energy efficiency technological development
- Promoting international cooperation

Top Runner Program



At the time of standard setting

Target Fiscal Year

Energy conservation standards according to Top Runner method

Target products (23 products)

- | | |
|-----------------------------|----------------------------|
| 1. Passenger vehicles | 12. Space heaters |
| 2. Freight vehicles | 13. Gas cooking appliances |
| 3. Air-conditioners | 14. Gas water heaters |
| 4. TV sets | 15. Oil water heaters |
| 5. Video-cassette recorders | 16. Electric toilet seats |
| 6. Fluorescent lights | 17. Vending machines |
| 7. Copiers | 18. Transformers |
| 8. Computers | 19. Electric rice cookers |
| 9. Magnetic disc units | 20. Microwaves |
| 10. Electric refrigerators | 21. DVD recorders |
| 11. Electric freezers | 22. Residential router |
| | 23. Layer 2 switch |

Top Runner Program:

The concept of the program is that fuel economy standards for vehicles and energy conservation standards for electric appliances, etc. shall be set exactly the same as or higher than the best standard value of each product item currently available in the market.

Outline of Amended Energy Conservation Law

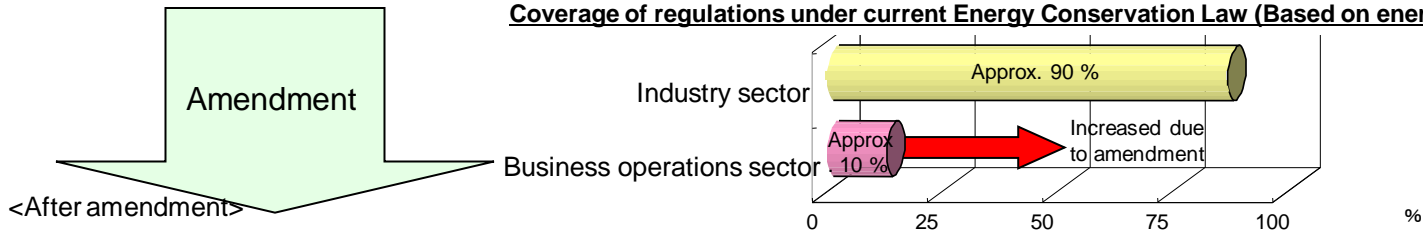
Strategy 1: Enhancement of energy conservation strategies pertaining to business operations sector

Implementation of regulatory system for individual business operators

<Current situation>

Obligation to manage energy in units of individual manufacturing plants imposed on large scale manufacturing plants that are over a certain size.

Coverage of regulations under current Energy Conservation Law (Based on energy consumption)



<After amendment>

- (1) Obligation to manage energy in units of individual business operators (individual business enterprises) implemented.
- (2) Franchise chains are also considered to be a single business operator and regulations that are similar to those imposed on individual business operators are implemented.

Other provisions

<After amendment>

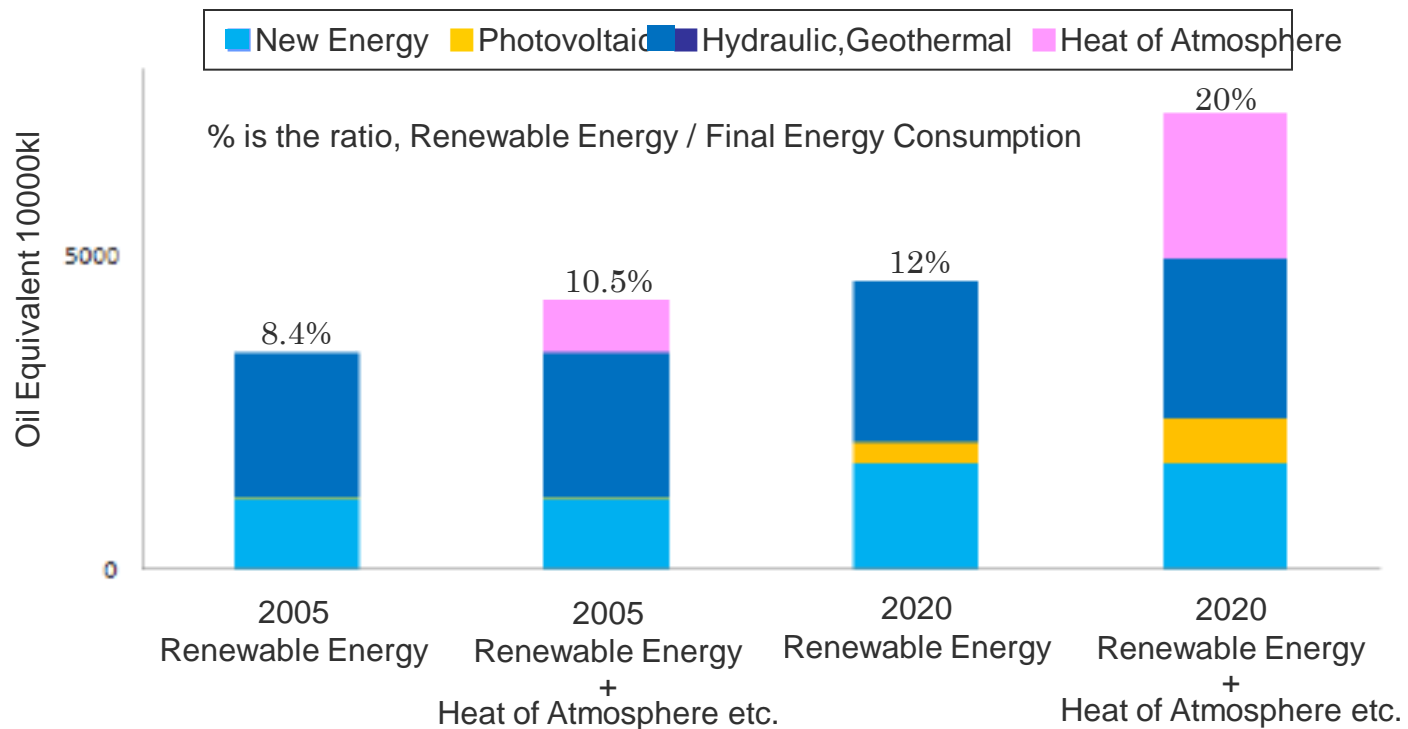
Regulations call for comprehensive evaluation of energy conservation activities implemented by individual business enterprises with considerations for following conditions:

- Status of energy conservation in individual business line (benchmark for individual industrial sectors formulated).
- Activities undertaken cooperatively by multiple business operators (joint energy conservation projects).

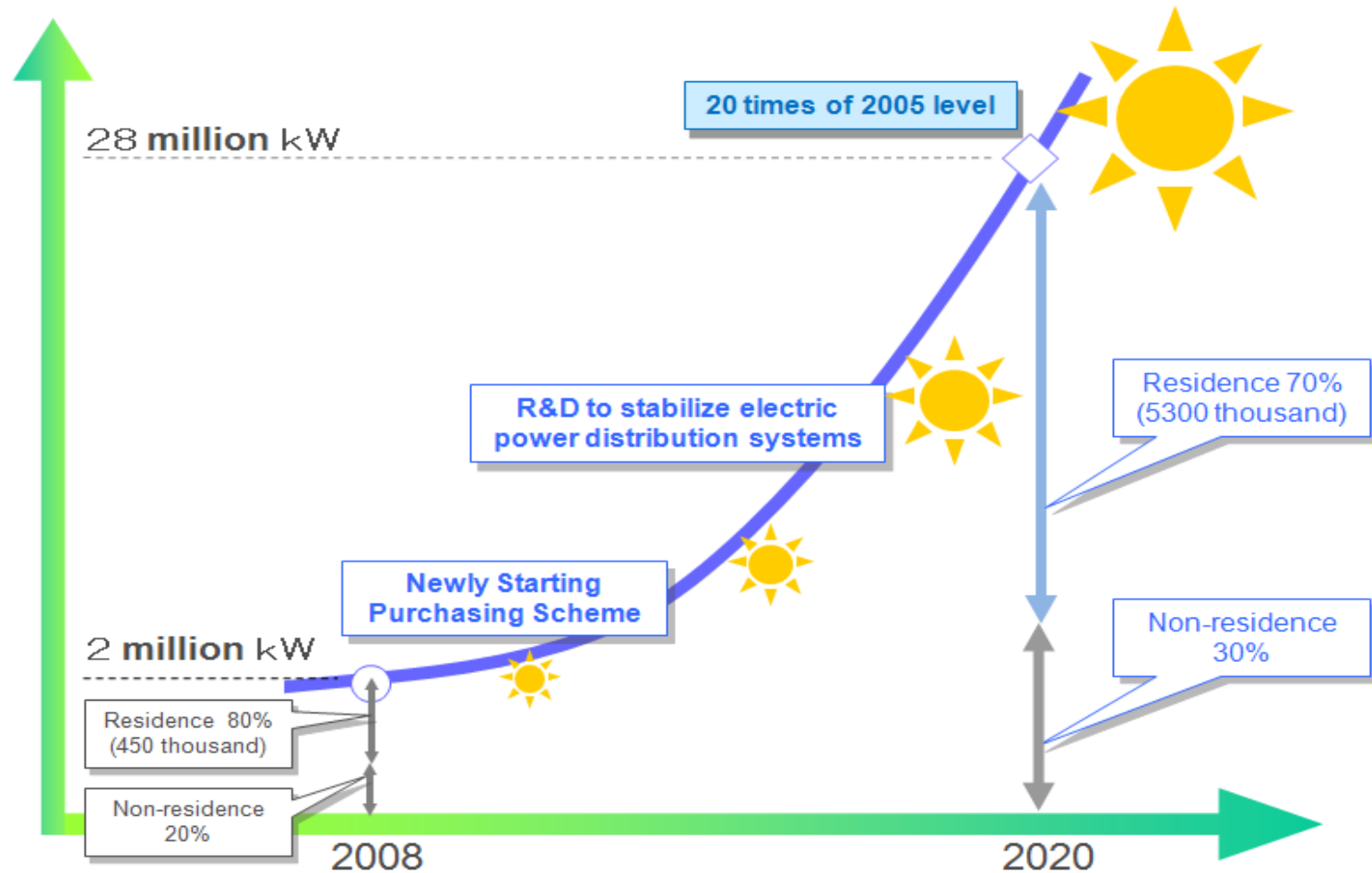
Domestic Measures: Renewable Energy

- increase “Renewable Energy / Final Energy Consumption” to about 20% by 2020
- enlarge the cumulative installation of photovoltaic to about 20 times of current level by 2020

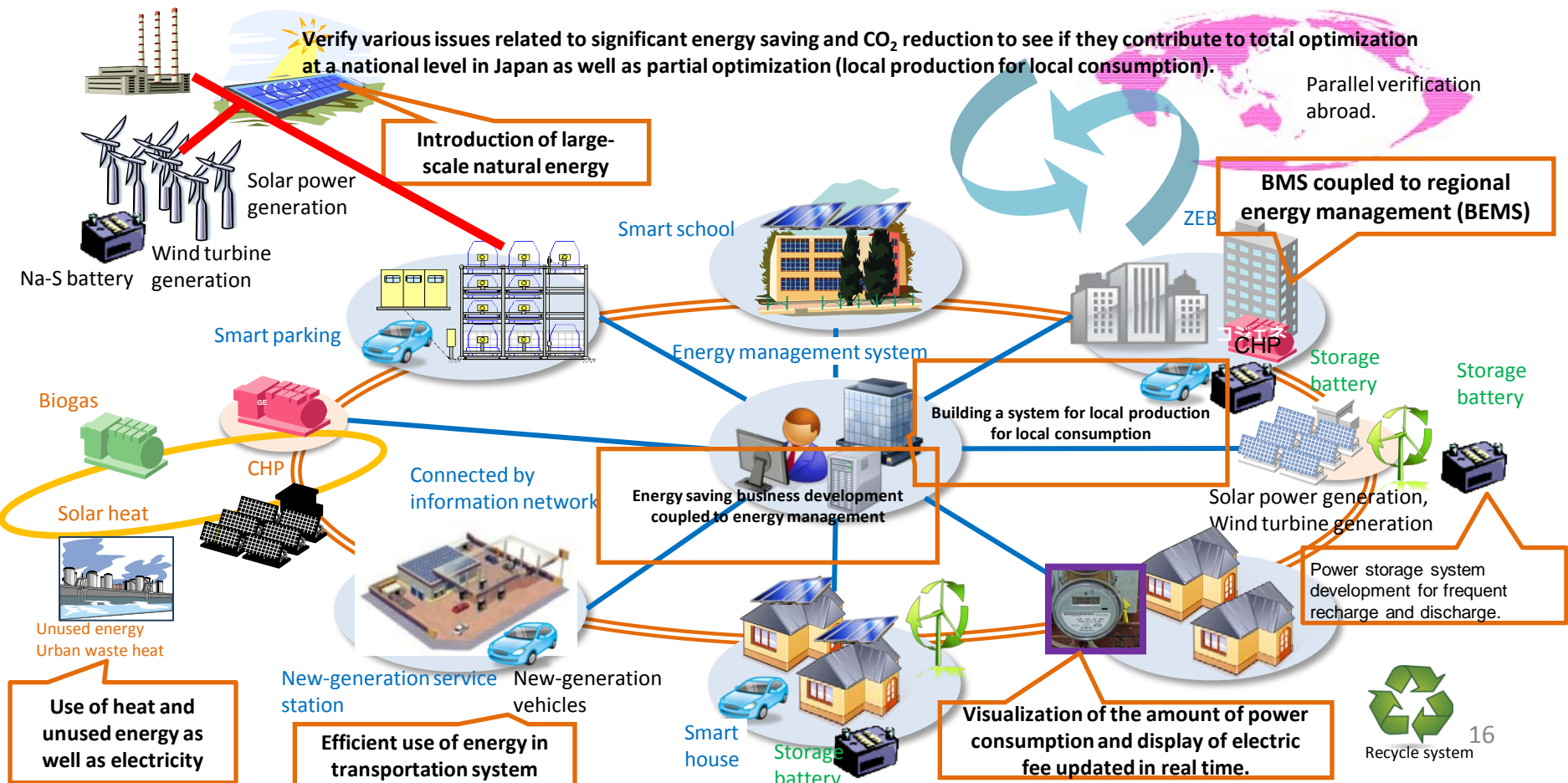
Goal of Renewable Energy Deployment in Japan



Domestic Measures: Renewable Energy: Photovoltaic Goal



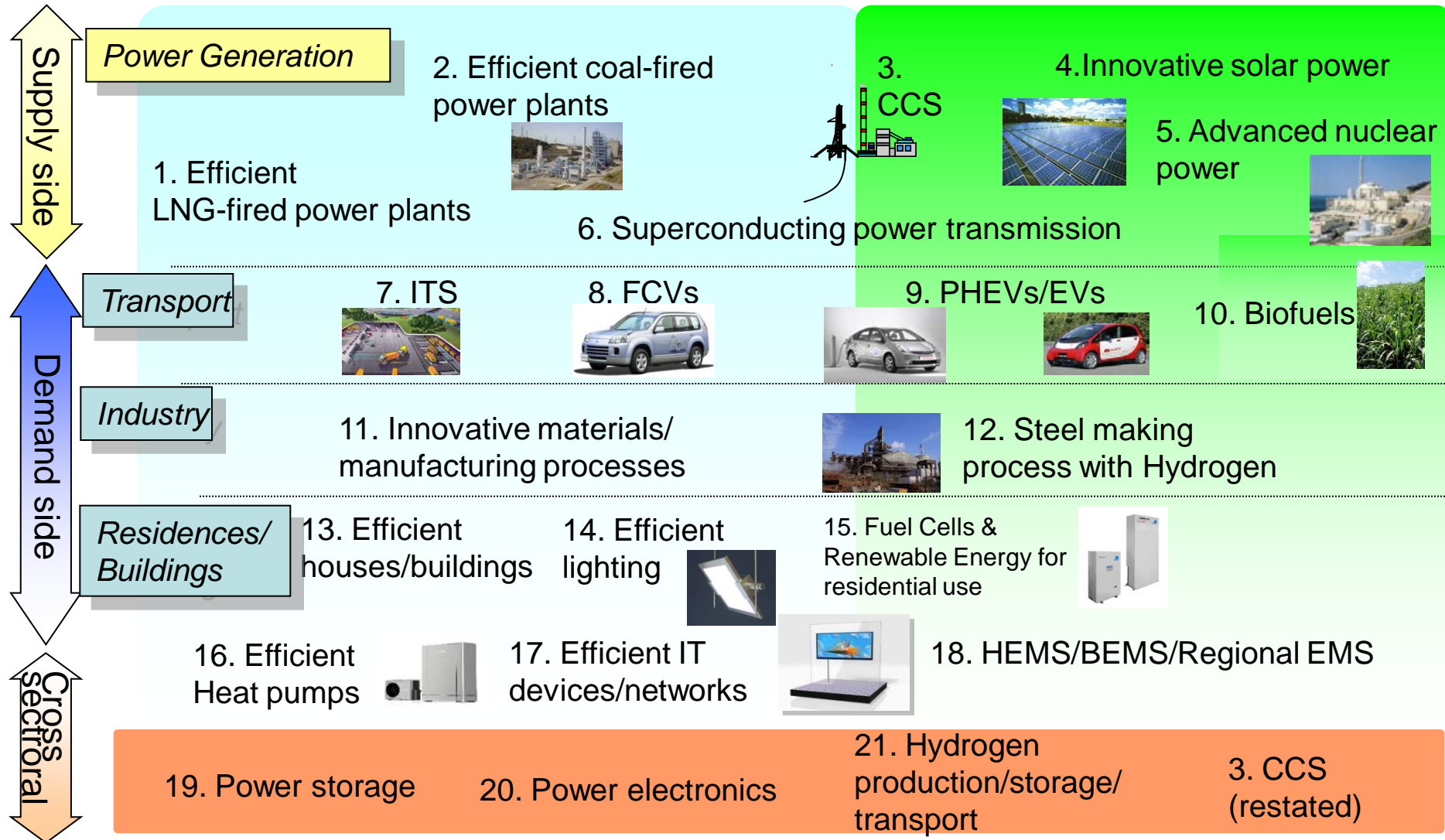
Domestic Measures: Smart Grid



Domestic Measures: Technology Innovation

Efficiency improvement

Low carbonization



International Cooperation

Support to Develop Energy Conservation and Renewable Energy Policy Framework

- **Acceptance of trainees (ECCJ, IEEJ)**
 - Creation of legal framework and systems (tax systems, subsidy programs and others) to promote energy conservation
 - Introduction of technologies, and methods for energy management
- **Dispatch of experts (ECCJ)**
 - Long-term dispatch of experts to assist in preparation of energy conservation plans (formulation of energy-conservation targets, action plans and others) and develop energy conservation institutions
 - Short-term dispatch of experts for energy conservation diagnoses of factories

Energy conservation and Renewable energy model projects (NEDO)

- Demonstrate the effectiveness of Japan's energy efficient technologies
- Disseminate proven energy-saving and alternative-energy technologies on a business basis

Support of business deployment

- Hold public-private forums to support interaction between businesses
- Support activities of “Japanese Business Alliance for Smart Energy Worldwide”

Coke dry quenching
equipment (CDQ)



Multilateral Cooperation

- Cooperation in multilateral fora such as IEA, APP, IPEEC and IRENA

International Cooperation: Asia-Pacific Partnership on Clean Development and Climate (APP)

- APP identifies and solves barriers for diffusion and transfer of Asia-Pacific Partnership promotes sector-specific cooperation among 7 countries with public-private sector effort.
- technologies in each sector.

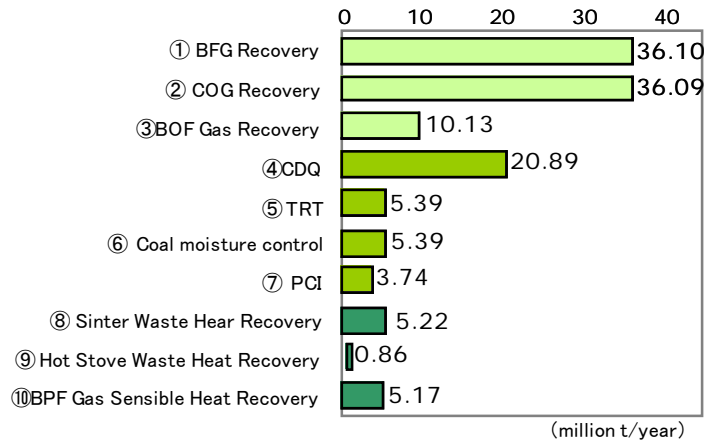
<E.g. Projects under the steel sector>

Compile the State-of-the-Art Clean technologies into a handbook.

Estimate CO2 reduction potential if BAT are all installed.

Dispatch experts to steel plants for appropriate advice.

Determine the priority of diffusion and transfer of technologies.



CO2:129 M ton/year*

*Theoretical CO2 reduction potential



Performance diagnoses in FY2007&2008
- 3 plants in China
- 3 plants in India



A Chinese steel plant is installing technology based on the performance diagnosis' advice.

International Cooperation: Japan-China Energy Conservation and Environment: Model Projects

①民生(ビル)省エネモデル事業

日本側: 日本ファシリティソリューション
中国側: 花園飯店(上海)

②水処理膜製造合弁会社の設立

日本側: 東レ株式会社
中国側: 中国藍星(集団)股份有限公司

③日本最先端オゾン技術による中国の湖沼等 水質改善

日本側: 日揮株式会社、丸紅株式会社
中国側: 中国節能投資公司

④大連市における工業ボイラの省エネ推進事業

日本側: 三浦工業株式会社
中国側: 大連市ボイラ圧力容器検閲研究所

⑤中国工業ボイラの省エネ・環境保護の推進に 関する技術協力事業

日本側: 三浦工業株式会社
中国側: 中国特種設備検測研究院

⑥寧波中小企業向け省エネ・排出削減モデル プロジェクト

日本側: 日立製作所、日立(中国)有限公司
中国側: 中小企業対外合作協調中心、寧波市人民政府

⑦紡織業界省エネ推進プロジェクト

日本側: 九州電力株式会社
中国側: 中国紡織工業協会、綠章(北京)新能源技術有限

公司

⑧省エネトータルビルシステムの導入

日本側: 三井物産、パナソニック電工
中国側: 北京泰豪智能科技有限公司

⑨省エネ等環境配慮事業を推進する合弁会社設立 に向けた協議の開始

日本側: 住友信託銀行株式会社
中国側: 中誠信託有限責任公司

⑩石炭火力発電所の省エネ・環境診断及び設備改善 事業～日中共同委員会の設置～

日本側: 石炭エネルギーセンター
日本政策金融公庫・国際協力銀行
中国側: 中国電力企業連合会

⑪JFE直接合成法による石炭からのDME製造の 事業性検討

日本側: JFEホールディングス株式会社、豊田通商株式会社
中国側: 平頂山煤業(集団)有限責任公司
煤藍天化工股份有限公司

⑫セメント工場向け省エネ・高効率化設備・設計等の 共同事業実施

日本側: 三菱商事株式会社
中国側: 中国建材国際工程有限公司

⑬流動層式石炭調湿設備モデル事業

日本側: 新日鉄エンジニアリング(株)
中国側: 馬鞍山鋼鉄股份有限公司

International Cooperation : Cool Earth Partnership Program Loan

- **Japan and Indonesia agreed the first Climate Change-related ODA loan to the total amount of 300 million U.S. dollars with special preferential interest rate based on the “Cool Earth Partnership”.**
- **Scope of the partnership is as follows:**
 - Increase of geothermal capacity to 9,500MW in 2025 (reduction of CO2 emission is estimated about 60 million ton per year)
 - Development of relevant laws and regulations, and improvement of investment climate to facilitate private sector's investment in order to increase the share of renewable energy (including bio fuel but except for geothermal) to at least 10% of total energy supply in 2025.
 - Reduction of CO2 emission in power plant as much as 17% per year from Business as usual in 2025 by renewable energy development and energy conservation

How to build a global/regional climate change regime

- Lessons from Copenhagen COP15
 - Difficult to reach consensus (in particular between developed and developing)
 - Coverage vs. legally-binding
 - Idealism vs. realism
- Asia, in particular Japan/China/Korea, should demonstrate a sustainable model by robust cooperation with sense of mission
- Bottom-up, pragmatic, sectoral , technology transfer(such as APP)

Conclusion

- 1 Japan's new government is strengthening initiatives toward a low-carbon society and committed to an East Asia Community
- 2 China and Korea has also committed to a low-carbon society
- 3 Difficulty in creating a new global framework provides an opportunity and mission for Asia, in particular Japan, China and Korea
- 4 Asia should demonstrate effectiveness of an Asian way of pragmatism and lead the world