Towards a Sustainable Energy Society:

Alternative Scenarios for the Future of Our Energy, Environment, and Economy

Citizens' Open Model Projects for Alternative and Sustainable Scenarios (COMPASS)

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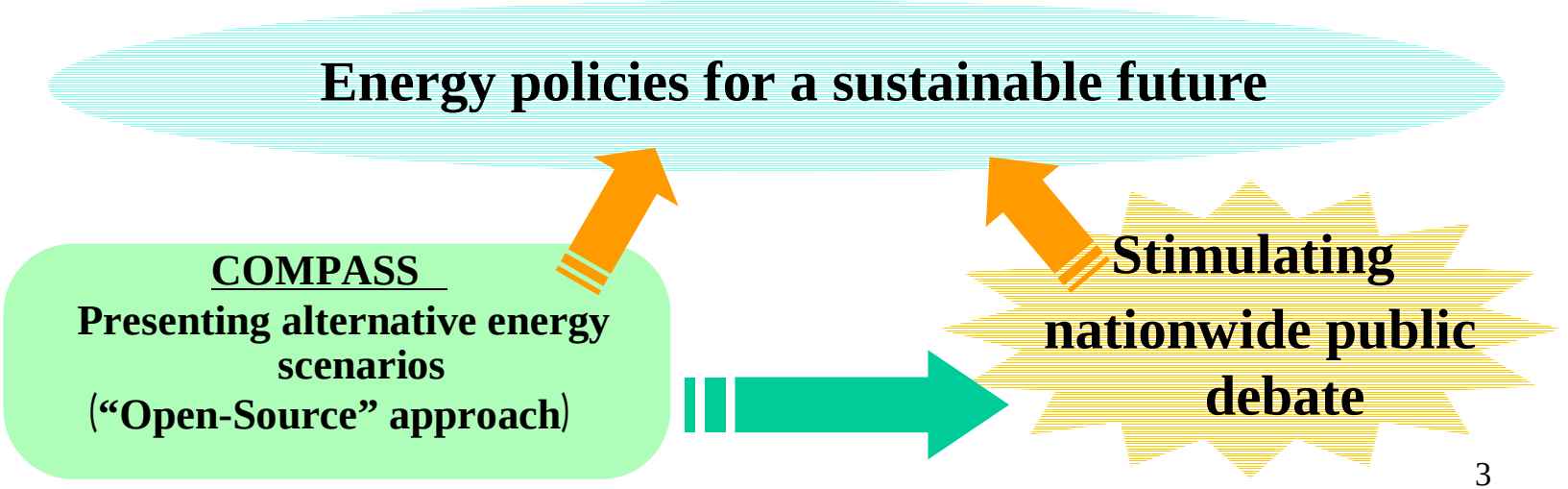
*METI : Ministry of Economy, Trade and Industry

COMPASS: “Open-Source” approach

COMPASS is an “open source” project with the participation of environmental NGOs and experts who have long engaged in advocacy work on energy or climate change issues. COMPASS aims to present more realistic energy scenarios than those of the government.



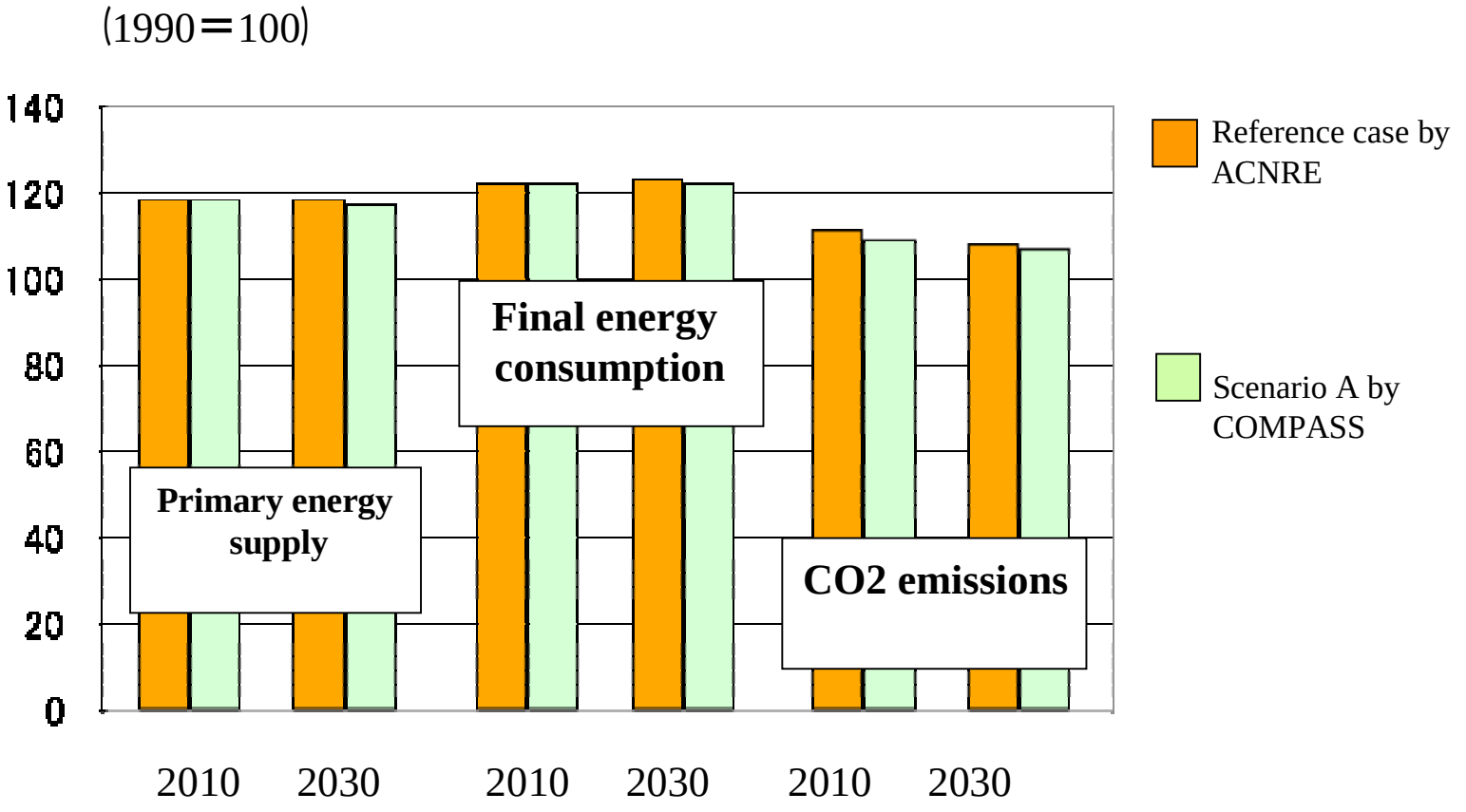
Section 1

The economy will collapse under BAU!

The government forecast does not tell the truth about our future course.

ACNRE V.S. COMPASS

Comparison of Energy Outlooks under BAUs



Both Projections Look Alike

Why the similar results?

- Same model structure and methodology
- Same approach to analyzing the future (i.e., mere extension of the status quo)
- Same assumptions on population and other conditions

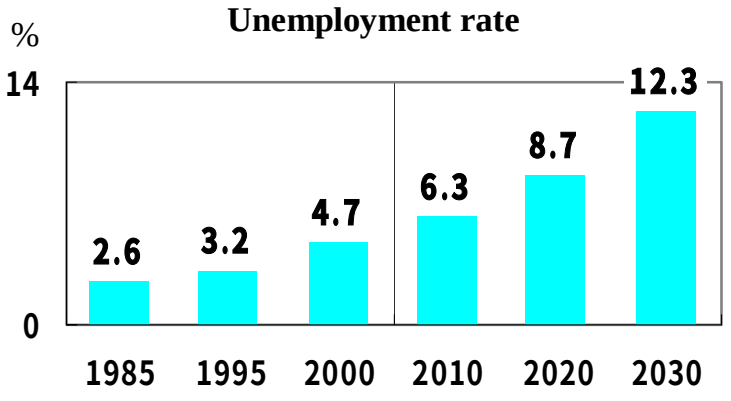
Therefore, the economic outlook must be similar···

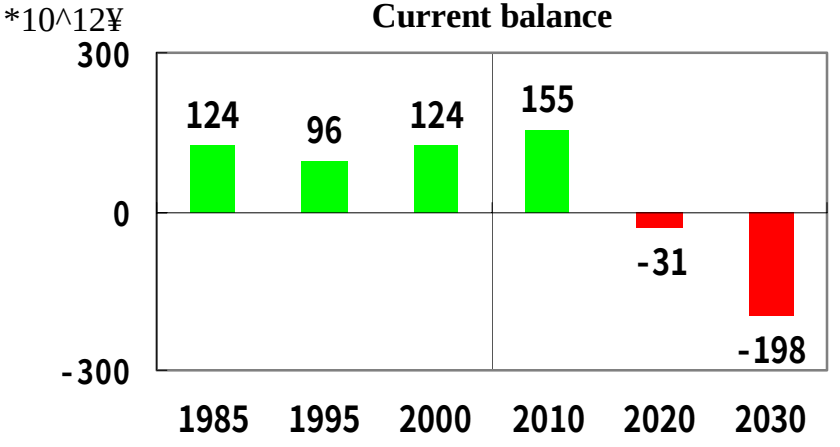
ACNRE Failed to Provide Sufficient Economic Data

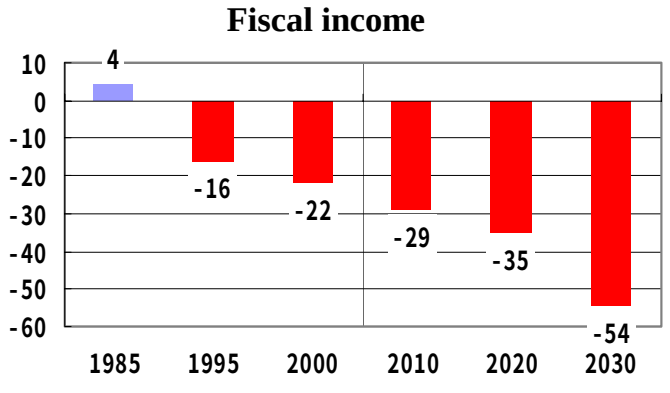
	COMPASS	Advisory Committee for Natural Resources and Energy	Note: (According to ACNRE material dated May 17th)
GDP	○: Released to public	△：Partly released	Only average annual growth rate is open
Unemployment rate	○: Released	×：Not released	
Government balance of payment	○: Released	×：Not released	
Current balance	○: Released	×：Not released	
Production of raw materials	○: Released	△：Partly released	Only 2010's value is open
Input-output analysis	**Included**	**Not included**	Input-output model is not used by ACNRE

→ ACNRE failed to show adequate economic indices!

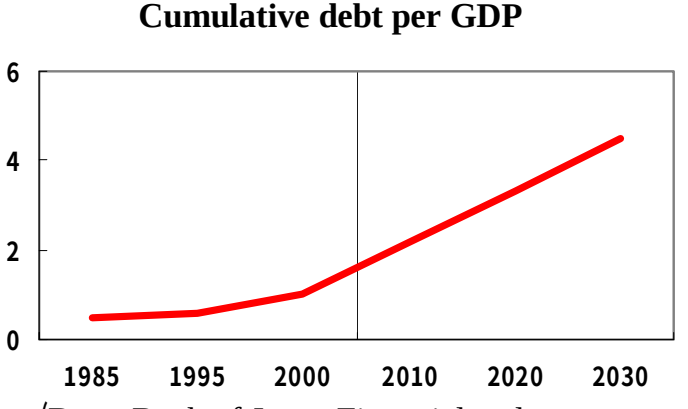
COMPASS predicts economic collapse







(Based on national income)



(Data: Bank of Japan Financial and Economic Statistics Monthly)

Economic failure will come unless changes are made.

Boiled frog!

CO2 in 2010 (against 1990 level)
9 % increase (Scenario A by COMPASS)
11 % (ACNRE reference case)

~~Kyoto Protocol~~

Economy will crumble due to current balance,negative balance of payment, and high unemployment (COMPASS scenario A)

~~Economy~~

→ The government should be honest with the public about the economic outlook!

Section 2
Two alternative scenarios for staving off economic collapse

Proposals by COMPASS for

a sustainable energy society

Why do we need alternative scenarios?

No scenarios
There is only a sensitivity analysis.

Lacks transparency
It is just a "product of compromise" by bureaucrats and the energy industry.

The ACNRE Outlook (METI)

Lacks Validity
ACRNRE unrealistically assumes that only one nuclear plant will shut down by 2030.

Our future is at risk
Under the BAU, both the environment and the economy will collapse.

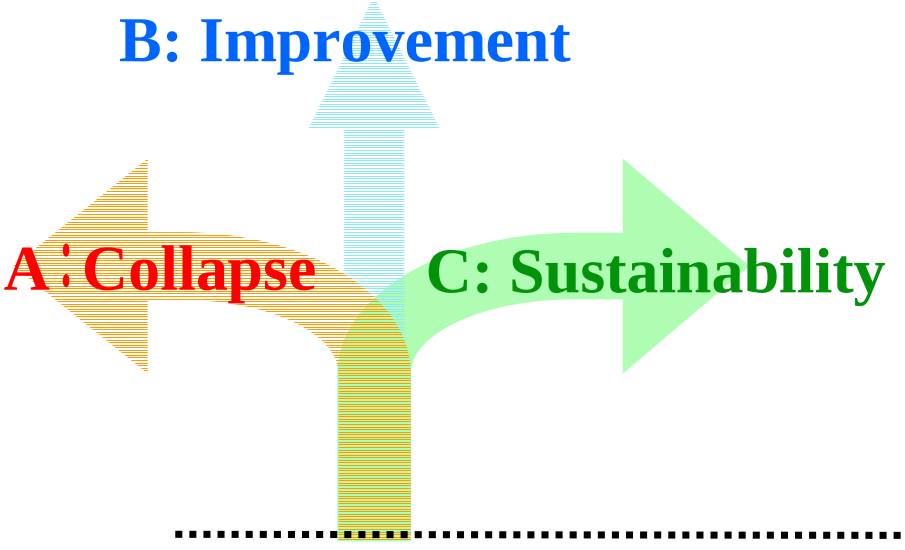
Someone has to raise these issues and propose alternative scenarios

Proposal of scenarios by COMPASS

Proposing Scenarios useful for Decision Making

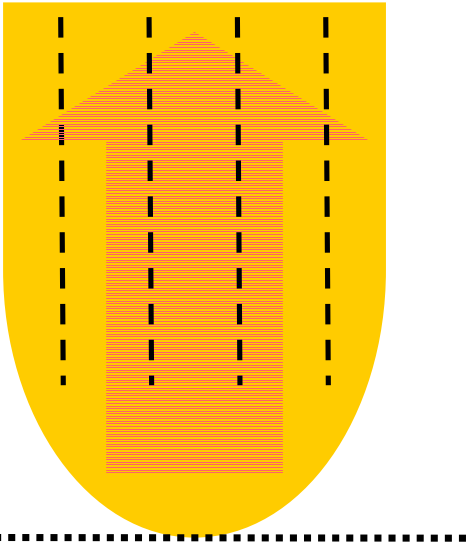
COMPASS

Presenting 3 scenarios



ACNRE (METI)

Only one way, and only a few cases with sensitivity analysis are presented.



Sustainable Energy Policy : Four strategies

1. Reducing environmental risks
Climate change and nuclear waste issues

2. Renewable Energy and Energy Saving:
Decentralized and fair energy system

3. Economic recovery by industries with environmental strategies, and creating true affluence unmeasurable by GDP

4. Aim to lead the world with environmental technologies and policies

Alternative Policies for Avoiding Collapse

B. Revival Scenario

Environmentally friendly Japan

Achieve both environmental and economic goals under the present socioeconomic system.

Improvement

C. Switchover Scenario

Slow Life Japan

Switch the socioeconomic system to a “slow” society that anticipates the new paradigm.

Breakdown

Sustainability

A. Boiled Frog Scenario

Environmental and economic collapse under the status quo.

Present

Becoming an “Environmental Superpower”

B. Revival Scenario

Theoretical background ① Porter Hypothesis ② Learning Curve

Japan has advanced technologies and environmental industries

Photovoltaics
(40% of world share)

Hybrid vehicles
(Most of the world supply)

Energy-efficient refrigerators

Strongly promote these as strategic industries

∗Prioritizing viable existing technologies

Contribution to enhancing the global environment

Creating jobs and reviving the economy

Reducing CO2 emissions

Toward Slow Life Japan

C. Switch Scenario

- Dead end for the energy- and resource-wasting “GDP-based economy”
- Climate change and other emerging environmental restraints

Diversified work-styles and lifestyles

Manufacturing industry becomes service-based

Efficient use of energy and resources

Free oneself from mass consumption encouraged by advertising

Paradigm shift that GDP cannot measure

Focus on “using” instead of “owning”

Life with more leisure time

Using the IT revolution

Actively address environmental issues

A Simulation System for Transparent Policy Discussions

Model

Econometrics, Simulation, Top-Down Model

Macro economic model, energy model, and I-O table model are used. Top-bottom integration (**Economate is used for top-down model, LEAP is used for bottom-up model.**)

Reasons for using these models

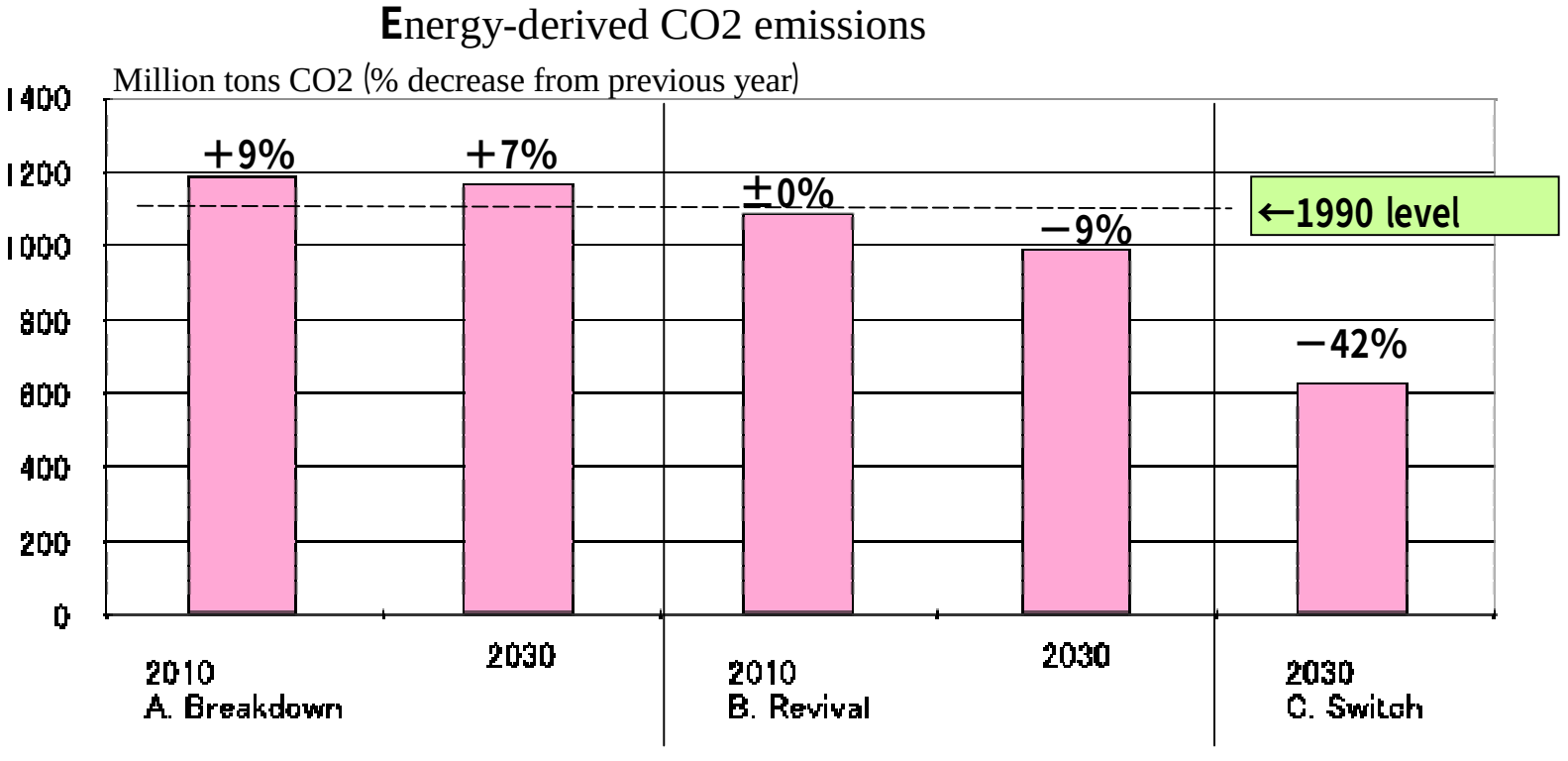
1. To ensure transparency for policy discussion by various stakeholders
2. These models can adjust the energy supply and demand structure
3. These models can calculate absolute values (e.g., CO2 emmisions for 2010)

＊targeted years: 2010 and 2030
Note: It is unreasonable to create a scenario past 2030 because of macro model characteristics.

Section 3

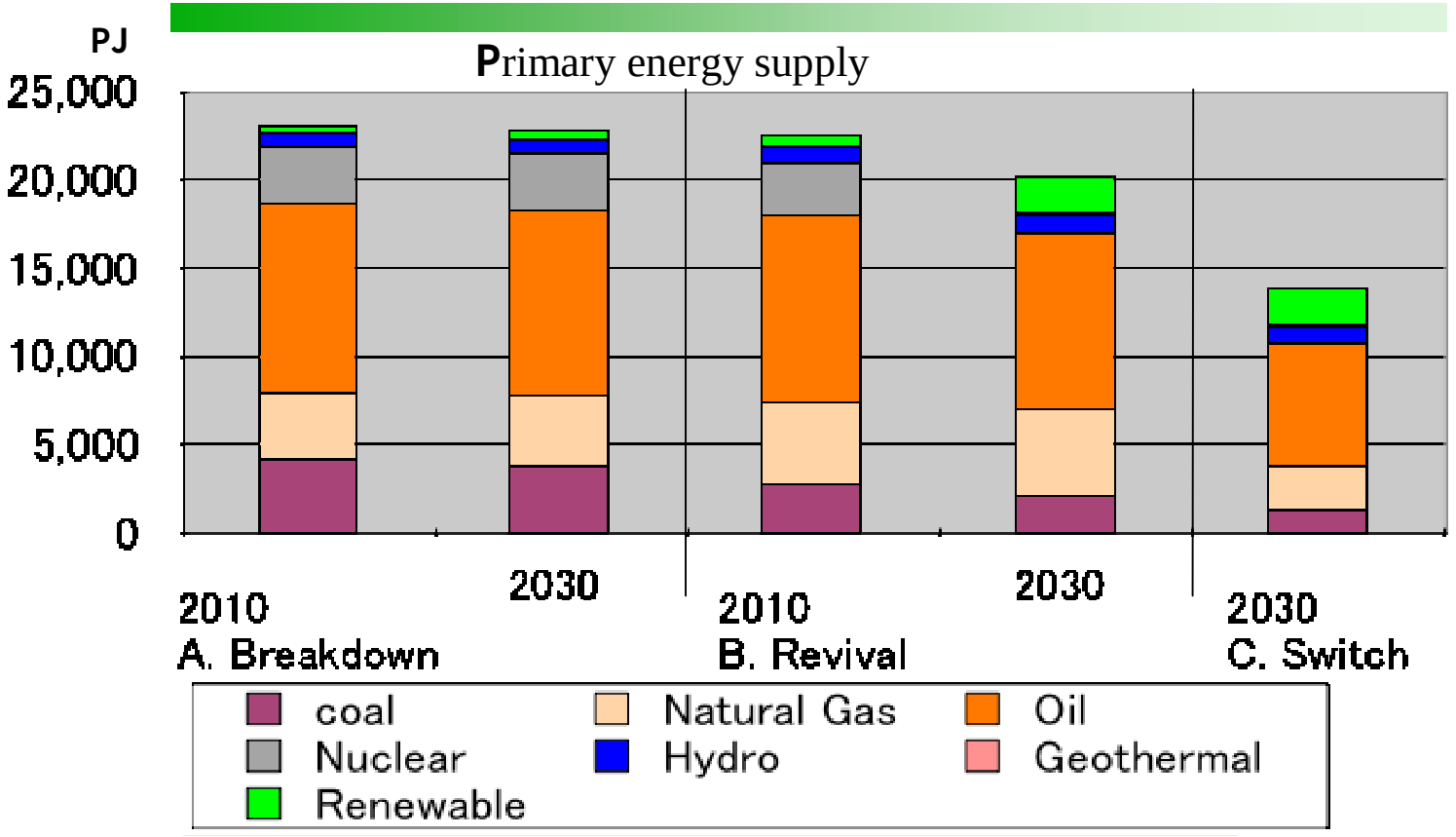
Results of Scenario Calculations

Complying with the Kyoto Protocol, and Making Further Substantial CO2 Cuts



Due to the large increase in the number of coal-fired power plants, it will be difficult to attain the 1990 CO2 level by 2010, but still possible with aggressive policies.

Reducing Fossil Fuel Use, Phasing out Nuclear Power, and Increasing Renewable Energy

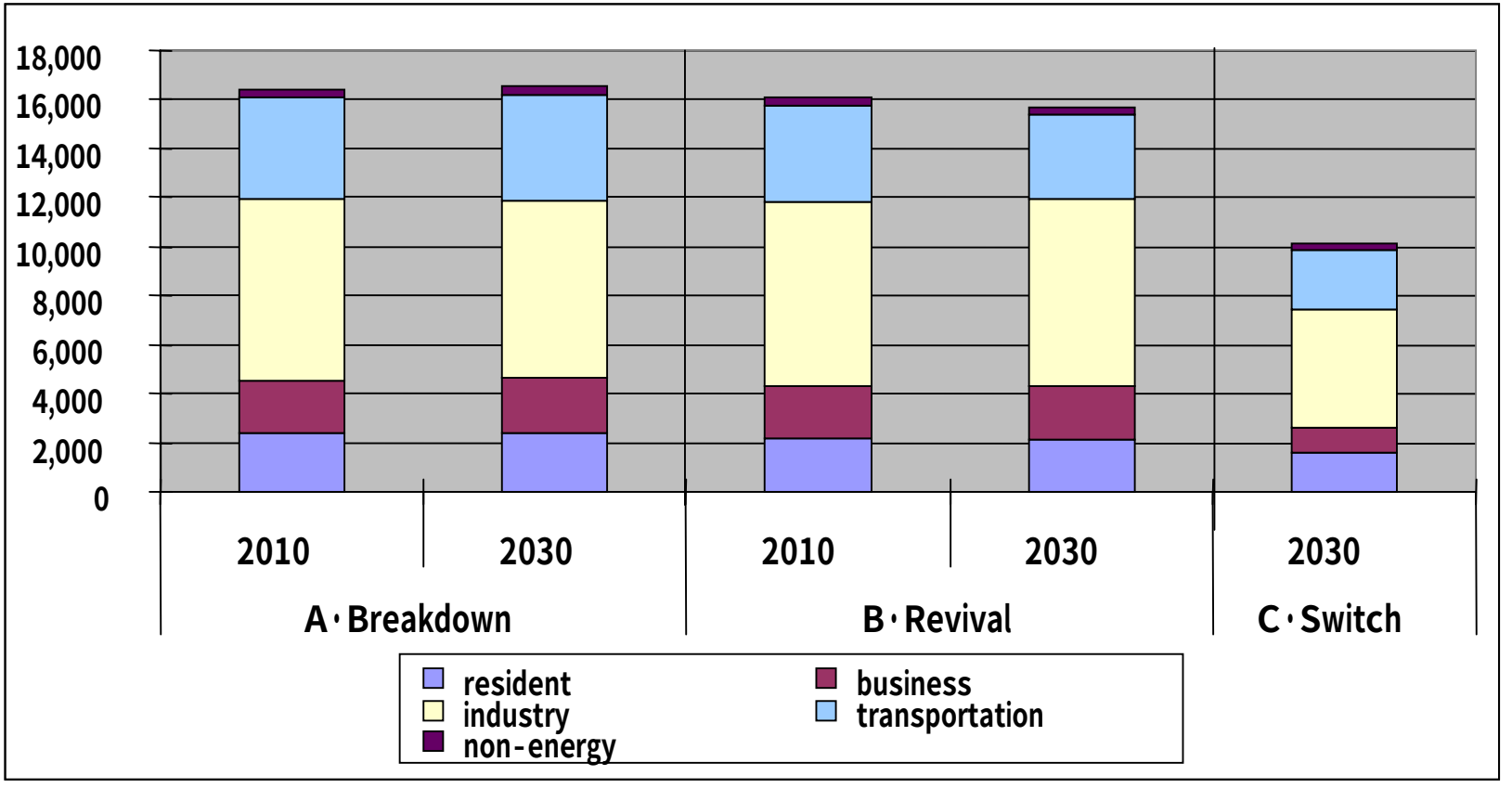


Further CO2 reduction is possible with scenario C.

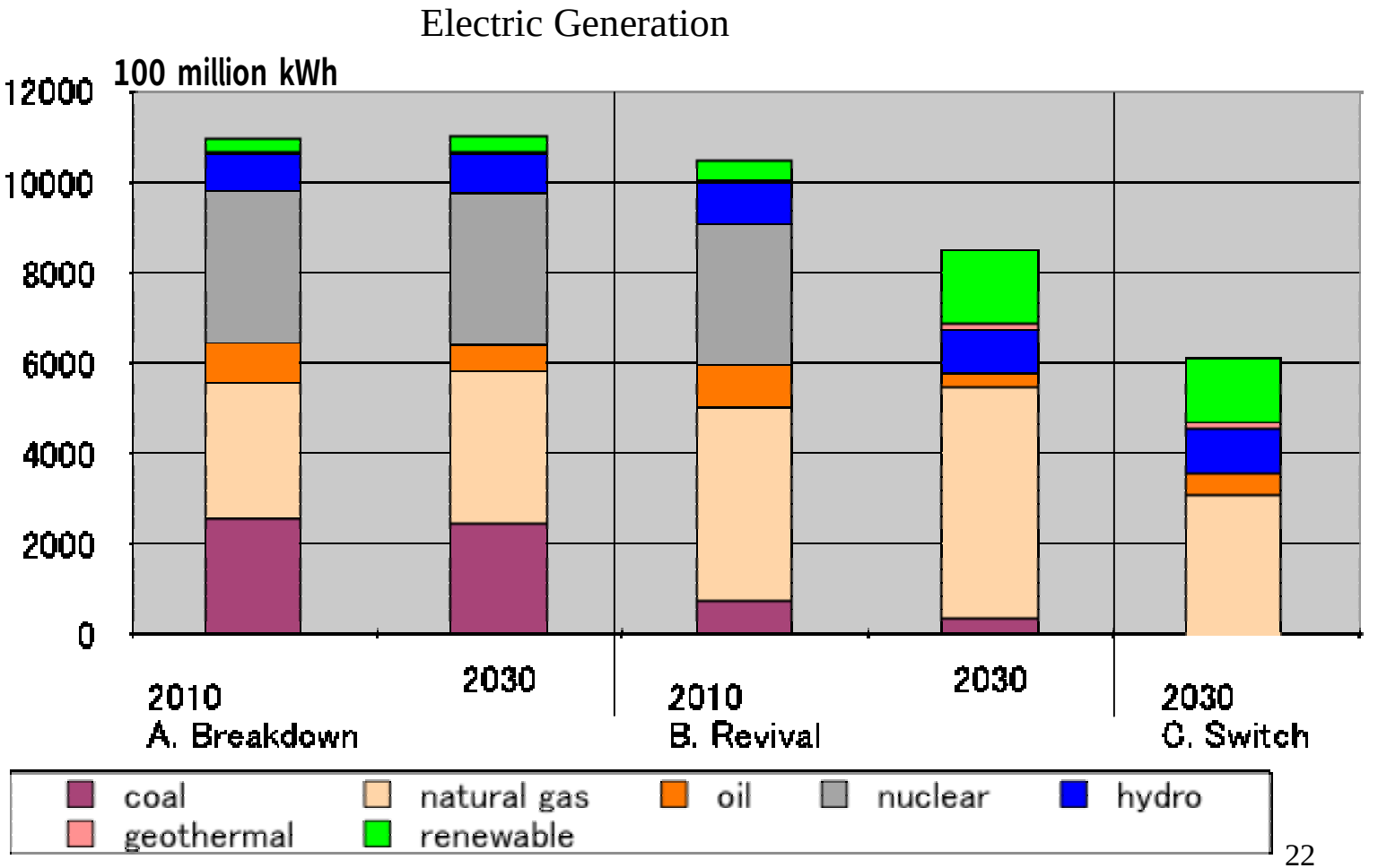
Scenario C can greatly reduce fossil fuel use.

Reduced Energy Consumption is Compatible with Economic revitalization

Final Energy Consumption



Make up for Nuclear and Coal Reduction with Better Efficiency and Renewable Energy



Revival Scenario is Achievable with Policy

Methods	Policy Measures: Future Discussion Topics
Efficiency Standards	New business buildings, energy efficiency,(insulation),strict standards
	Home appliances (e.g., refrigerators), better energy efficiency for vehicles
	CO2 emission standards for coal-fired power plants
	Mandatory alternative emission plans for newly built power plants
	Restrict construction of new nuclear plants. Phase out current nuclear plants.
Market-Based Solutions	Energy-efficient refrigerators, co-generation, incentives for fuel-efficient car owners
	Incentives for solar and biomass generation (e.g., zero interest rates)
	Purchase of renewable energy at fixed rates (support for solar and wind)
	Support for fuel switch externalities, coal taxes
	Carbon taxes (Scenario B, supplemental material)
Guided Solutions	Mandatory fuel efficiency labels for machinery and cars, labeling for buildings and housing
	Eco-friendly towns, organized transportation, policy implementation (increased authority to municipalities)
Government	Construct renewable energy infrastructure on public land, take initiative on ESCO, make use of public utilities

Wrap-Up

Message from COMPASS

B. Shift from Collapse to Revival, with Appropriate Policy Measures

Compliance with the Kyoto Protocol

Reduce energy-derived CO2 to 1990 levels by 2010 and reduce CFC substitutes

Phase out nuclear power. Increase renewable energy and efficiency

Economic revitalization and job creation

Expand environmental industry with hybrid cars, solar panels, and other environmental products.

Contribute to global environmental improvement by exporting industries with high environmental value.

Much improvement over Scenario A can be achieved by introducing and reinforcing policies that regard environmental restraints as opportunities for technological innovation.

A slow society is possible by switching away from the current socioeconomic paradigm

Postmaterialism and an overhaul of the socioeconomic system

- Citizens extricate themselves from advertising-induced mass consumption.
- **Switch to** economy that does not excessively consume natural resources.
  →70% less metal, 50% less cement production than under scenario B (2030)
- IT impact (information society): from “owning” to “using”
- Local revitalization made possible by decentralized society.

Solutions to environmental problems

- Prevent dangerous climate change (cut CO_2, attain -42% reduction from 1990 level by 2030)
- Phase out nuclear plants

Points Made by COMPASS

1. Government's predictions are unrealistic,
and furthermore, they are not scenarios for decision-making.

2. Economy will collapse under the BAU.
A shift in energy policy must be made.

3. A policy change can rejuvenate both the economy and the environment. This is the decisive moment.

4. Energy policies need to be reviewed and assessed in open and transparent discussions.

“The future is not what you estimate, but is what you create.”

Jorgen Norgard

6/8/2004

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