

Outline of Long-term Low-carbon Vision

Long-term low-carbon vision (whole picture①)

Current Situation	Climate change Scientific evidence of climate change is unequivocal. It was agreed in Paris Agreement to achieve a balance between anthropogenic emissions by sources and removals by sinks of GHG in the second half of this century. Japan takes steady steps to achieve the mid-term target of 26.0% reduction by FY2030 compared to FY2013, and aims to reduce greenhouse gas emissions by 80% by 2050 as its long-term goal	Economic and social challenges Respond to various problems including depopulation, aging, requirement for economic revival, local/global issues.
	Need action based on principles	

Basic concept	Japan's Role	Japan's future vision
	To inherit our environment as a foundation for human beings to our future generation and contribute to global sustainable development through climate change policy and to be a expected and trust worthy country in the international society.	Forerunner of Finding Answers for Emerging Issues to achieve both tremendous GHG reduction & prosperity, tackling with simultaneous solution for climate change and economic/ social challenges
	"Simultaneous solution" of economic and social problems, driven by climate change	
	Contribution to global reduction as well as domestic reduction	Innovation (on technology, socioeconomic system and lifestyle) is a key
	"Now" is the time to act	

Goal

Vision	Aim to reduce GHG by 80% by 2050, in light of Paris Agreement ①Energy efficiency, ②Low-carbon energy supply, ③Switch to low-carbon energies in end-use			
	Life style(Home, automobiles) CO2 emission is almost zero	Industry & Business Investment for decarbonization, market gain by low-carbon products/service	Energy supply·demand low-carbon power source is >90%	Region and City Compact city, distributed energy
	Policy and measures to realize			

Policy Direction	① Full usage of existing technologies, know-how and findings ② Development and deployment of new innovation			③ Full mobilization of all effective policies and measures (PaMs)		
	Policy Direction	Carbon pricing Make best use of market dynamism. Enhance market competitiveness of low-carbon technologies, products and services. Improve an environment for innovation. Disclose environmental information, Regulation, Promote and diffuse innovative technology, land use, Contribute to global GHG reduction.			Making progress for long-term significant reduction Review progress incl. cumulative GHG emission.	
	※There exist different opinion on several policy directions, incl. carbon pricing.					

Long-term low-carbon vision (whole picture②)

Climate change policy for green growth

Actions based on science is fundamental

Climate change is a scientific fact. It was agreed in Paris Agreement to achieve a balance between anthropogenic emissions by sources and removals by sinks of GHG in the second half of this century. Japan aims to reduce greenhouse gas emissions by 80% by 2050 as its long-term goal.

Climate change policy can take central role for growth strategy

Future market is huge for technologies, products and services for tremendous GHG reduction. This is a so-called "promised market", and forerunner country which can provide low carbon solutions can take an initiative in the world.

Contribution to global GHG reduction as well as domestic reduction

Domestically, residential sector and transportation sector have huge potential for GHG reduction. Achieve great reduction in a long term, producing a big low carbon market and promoting investment through innovation of consumption pattern. It enhances Japan's global competitiveness to increase the productivity on each domestic sector continuously.

Contribute to global GHG reduction, utilizing Japan's technologies and know-how. Technologies and know-how are fostered by innovation for massive GHG reduction.

Key to long-term significant reduction is innovation

Great social transformation is essential to achieve massive GHG reduction in a long term. Innovation beyond the extension of existing measures so far is necessary.

Innovation of economic and social system

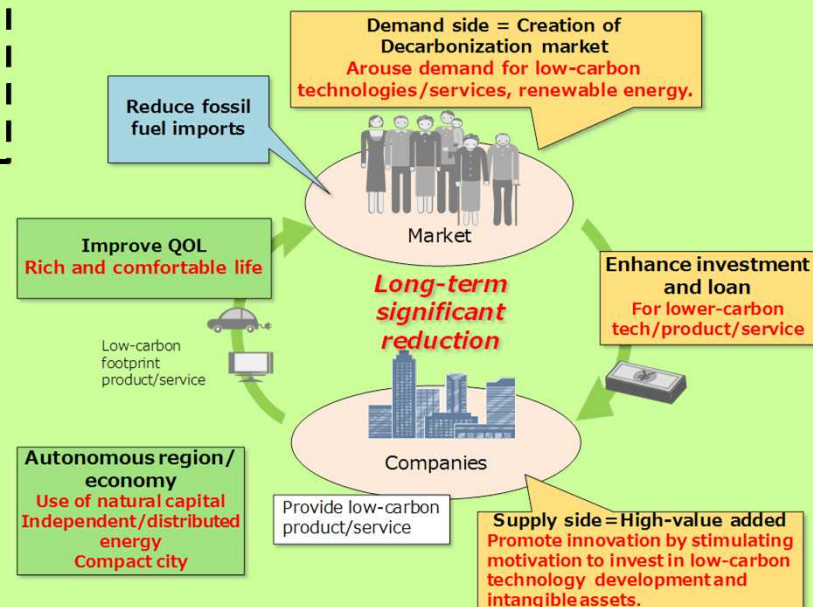
Create mechanism to produce incentives for enhancing needs of new technology

Innovation of technology

Promotion of advanced technology and combination of existing technologies

Innovation of lifestyle

Transformation of life style, work style, choice of services toward decarbonization

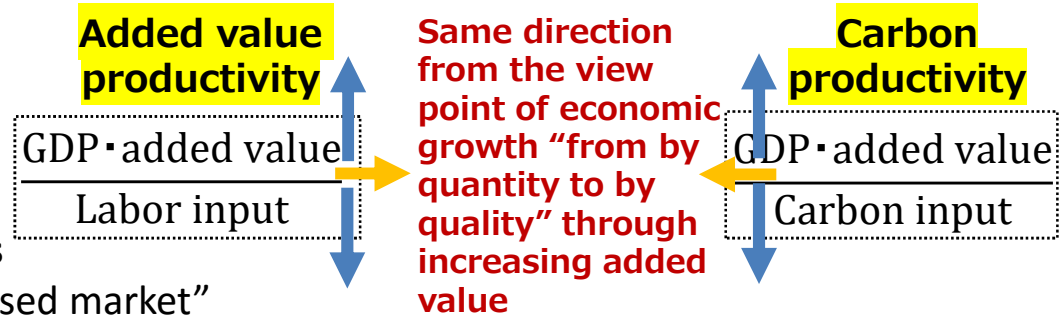


Basic concept towards long-term significant reduction & decarbonization ①

Simultaneous solution of economic and social problems, driven by climate change policy

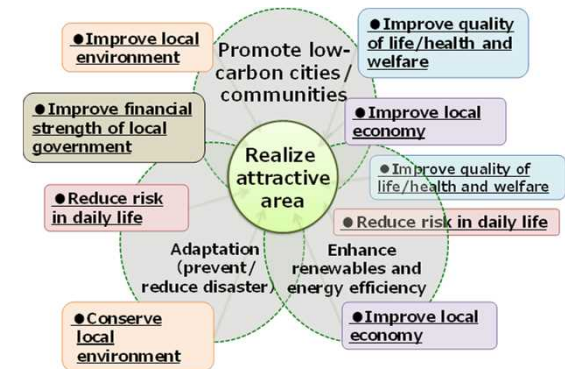
Economic growth

- Key is “carbon productivity increase”
- “from quantity to quality”
 - Same direction as increase of productivity of added value
- Potential needs and foreign demands
 - Climate change is a so-called “promised market”



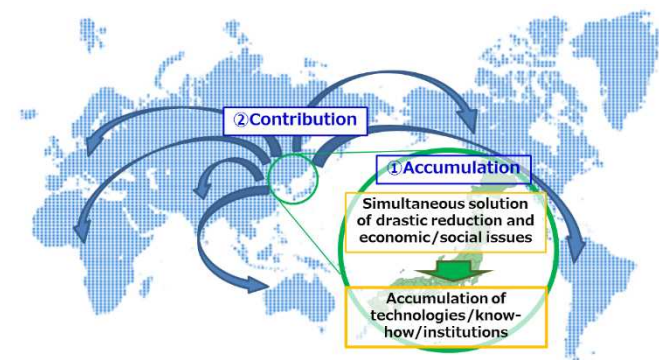
Regional revitalization
Land resilience

- **Utilize local energy**
 - Creation of business/jobs relating to renewable energy, realization of land resilience, etc.
- **Compact urban area**
 - Increase of labor productivity by improving population density, revitalization of urban area, etc.
- **Maintain and enhance natural capital**
 - Source of value-added goods and service based on regional originality



Security of climate and energy

- **Contribution including security of climate**
 - Protect not only current but also future generation from a threat of climate change
 - Global improvement by deployment and diffusion of technology and knowhow
- **Energy Security**
 - Increase of energy self-sufficiency by utilizing local energy

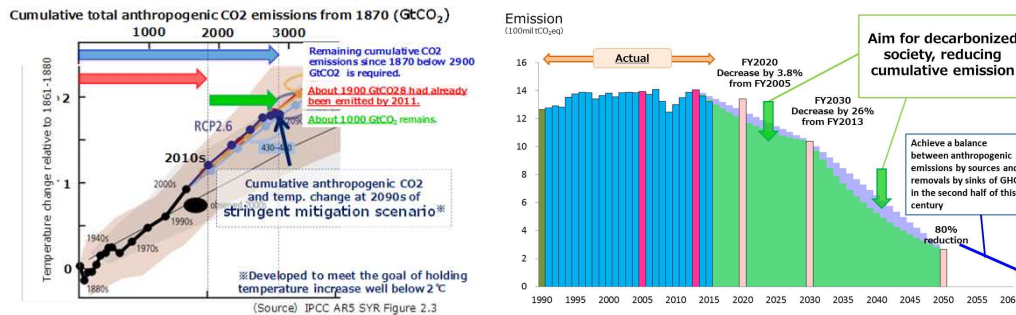


Basic concept towards long-term significant reduction & decarbonization ②

“Now” is the time to act

Carbon budget

- “Carbon budget” is one of the most important concepts in climate change action.
- For significant reduction of cumulative emissions as much as possible, continuous and serious actions, with a sense of crisis, is necessary.

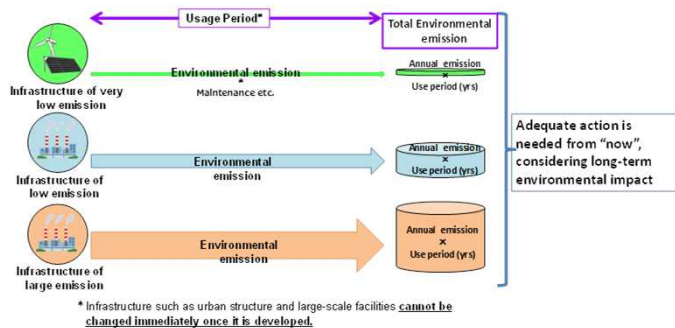


Principle of environmental policy

- Prevention approaches, Precautionary principle and polluter pays principle are principles of environmental policy, established in the development of several international laws and in the history to overcome the environmental pollution.
- Now is the time to act to avoid/ decrease damages from climate change, though damage is already visible.

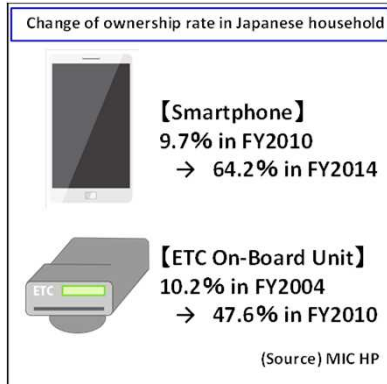
Avoidance of “lock-in”

- Once city structure and large-scale facilities are introduced, CO₂ emissions could be remained high (lock-in effect) over time.
- Need response considering long-term environmental impact.
- Need perspective of what to do “now” looking to the future.



Technology diffusion

- Together with R&D and demos of new technologies, gradual diffusion should be promoted as it takes time.



Global trend

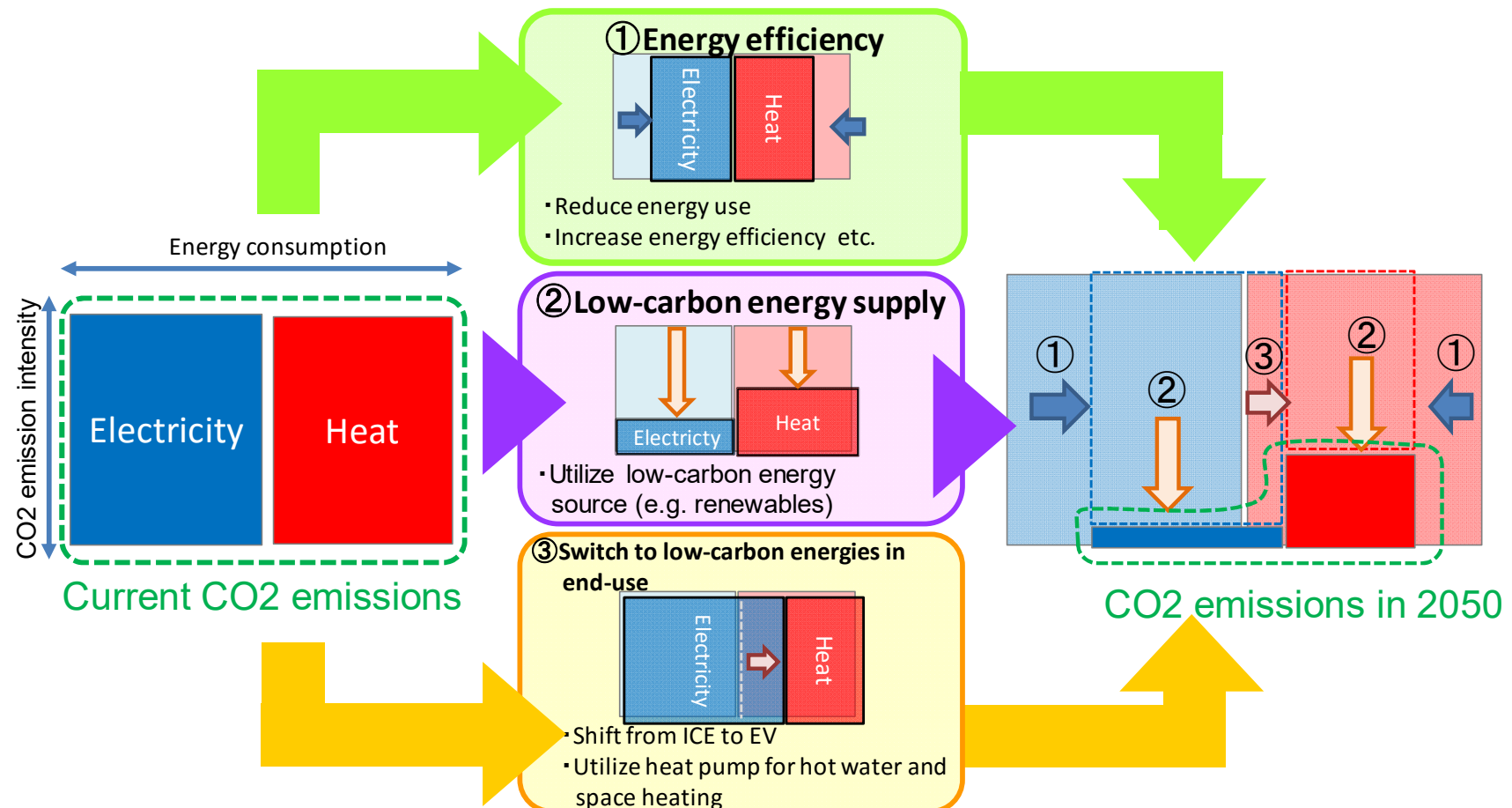
- Actions of countries around the world, local governments and various actors such as business, finance industry, civil society are accelerated.
- Failure of following this trend will possibly harm Japan’s interests.



Images of significant reduction in various sectors ①

Basic direction of significant reduction

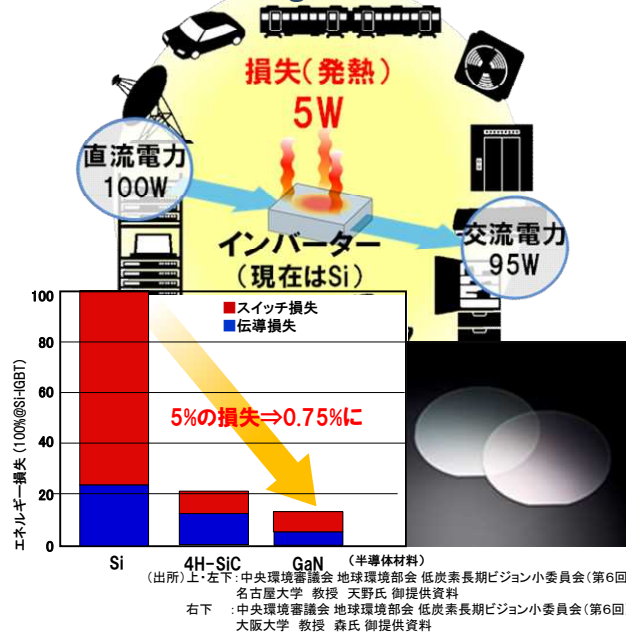
- Drastic social transformation is indispensable for realization of low-carbon society achieving 80% reduction by 2050.
- ①Energy efficiency, ②Low-carbon energy supply, ③Switch to low-carbon energies in end-use, should be promoted comprehensively as three pillars.



Images of significant reduction in various sectors ③

Industry・Business

- Low-carbon investment and market gain by low-carbon products service all over the world
【Embed ultra-high efficient devices】



【MOE NCV project】

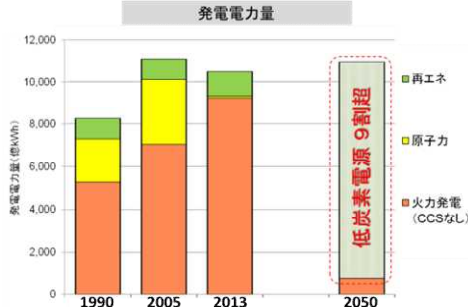
2020年までにCNF強化樹脂を導入することが可能で、かつ、エネルギー起源CO₂削減が期待され、CNFの特徴を活かすことができる自動車部位を検討する。



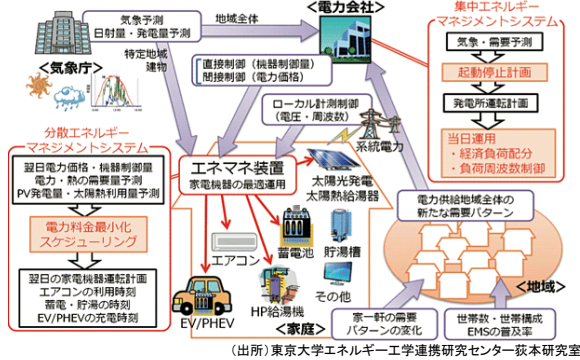
Energy demand and supply

- More than 90% of electricity comes from low-carbon power source

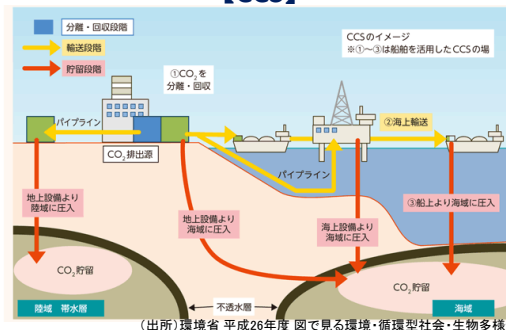
【Image of 80% reduction by 2050】



【Centralized/distributed energy management】



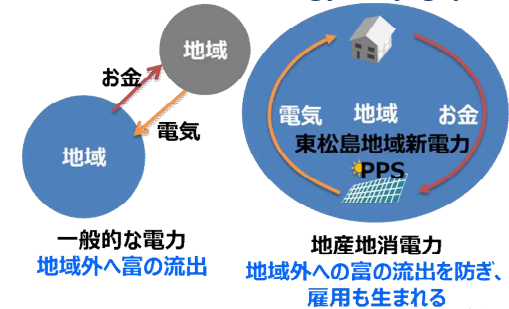
【ccs】



Region・City

- Compactness, and independent & decentralized energy

【Use of renewable energy: Miyagi pref.】

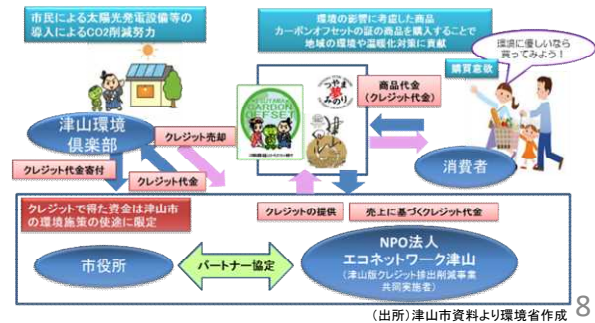


【Maniwa city, Okayama】

【4つのプロジェクト】



【Tsuyama city, Okayama】



Policy direction towards long-term significant reduction

Three basic directions

① Full utilization of existing technologies, knowhow and findings

- Diffusion of Japanese technologies and knowhow inside and outside the country is important, considering the importance of “carbon budget” and international contribution.
- The experience of “Diagnosis of CO2 reduction potential” shows room for diffusion of existing technologies and knowhow is still large even inside Japan.

② Create innovation of technology, socioeconomic system and lifestyle

- Every kind of innovation is necessary without being caught up by industry structure and traditions.
- Increase of productivity through innovation is indispensable for economic growth.
- Government’s role is to show consistent direction looking at future decarbonized society and to develop policies along the direction.

③ Mobilize all policies

- Realize ① and ② by implementing various combinations of PaMs.
- Need to incorporate climate change perspective into policies of all areas including energy and spatial planning appropriately.

Direction of main PaMs

- Long-term goal lies ahead the mid-term goal of 2030. Steady actions based on the current “Climate Action Plan” are the first step.
- Need implementation of PaMs to accelerate reduction, promoting actions based on the “Climate Action Plan”.

- ① Utilize market dynamism through carbon pricing. Enhance market competitiveness of low-carbon technologies, products and services. Develop a market environment for innovation acceleration.
- ② Other PaMs for significant GHG reduction:
Disclose environmental information, Regulation, Promote and diffuse innovative technology , land use, Contribute to global GHG reduction.

Make progress for long-term significant reduction

Check progress including accumulated emission.