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# Three Actions for LCSs

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**Tokyo Institute of Technology**

Hiroto Takayama  
Kazufumi Takashina  
Kou Morimoto  
Tasuku Hasegawa  
Chie Tanabe

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# Narrative Scenario

## Annual Growth rate :

→ Approximately 2% of GDP per capita growth rate

## Technology development rate :

→ High

**Market :** Reducing regulation

## Primary:

Decrease in Share

Increase in import dependency

## Secondary:

Tendency to heighten the added value

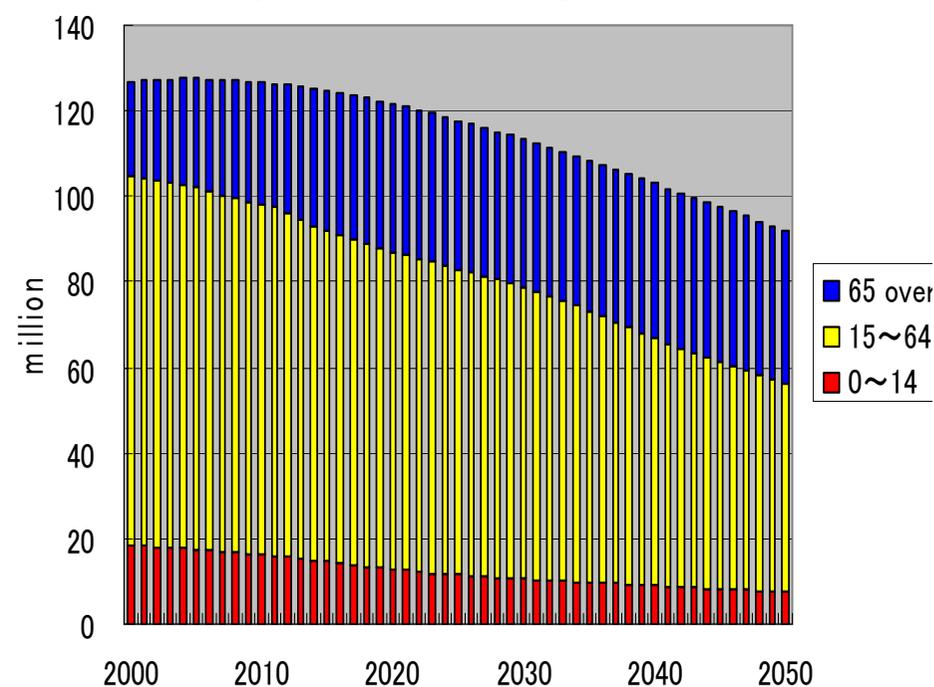
Globalization of production basis

## Service:

Increase in share

Increase in productivity

## Population Projection



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# Policy

- **Residential sector (HEMS and BEMS)**

HEMS and BEMS are the technology of improving energy efficiency in residential sector.

- **Freight transport sector (modal shift)**

Modal shift is a change in the proportion of trips by different types of freight transport .

- **Energy sector (natural energy)**

We assume that we introduce the technology of natural energy.

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# Residential Sector

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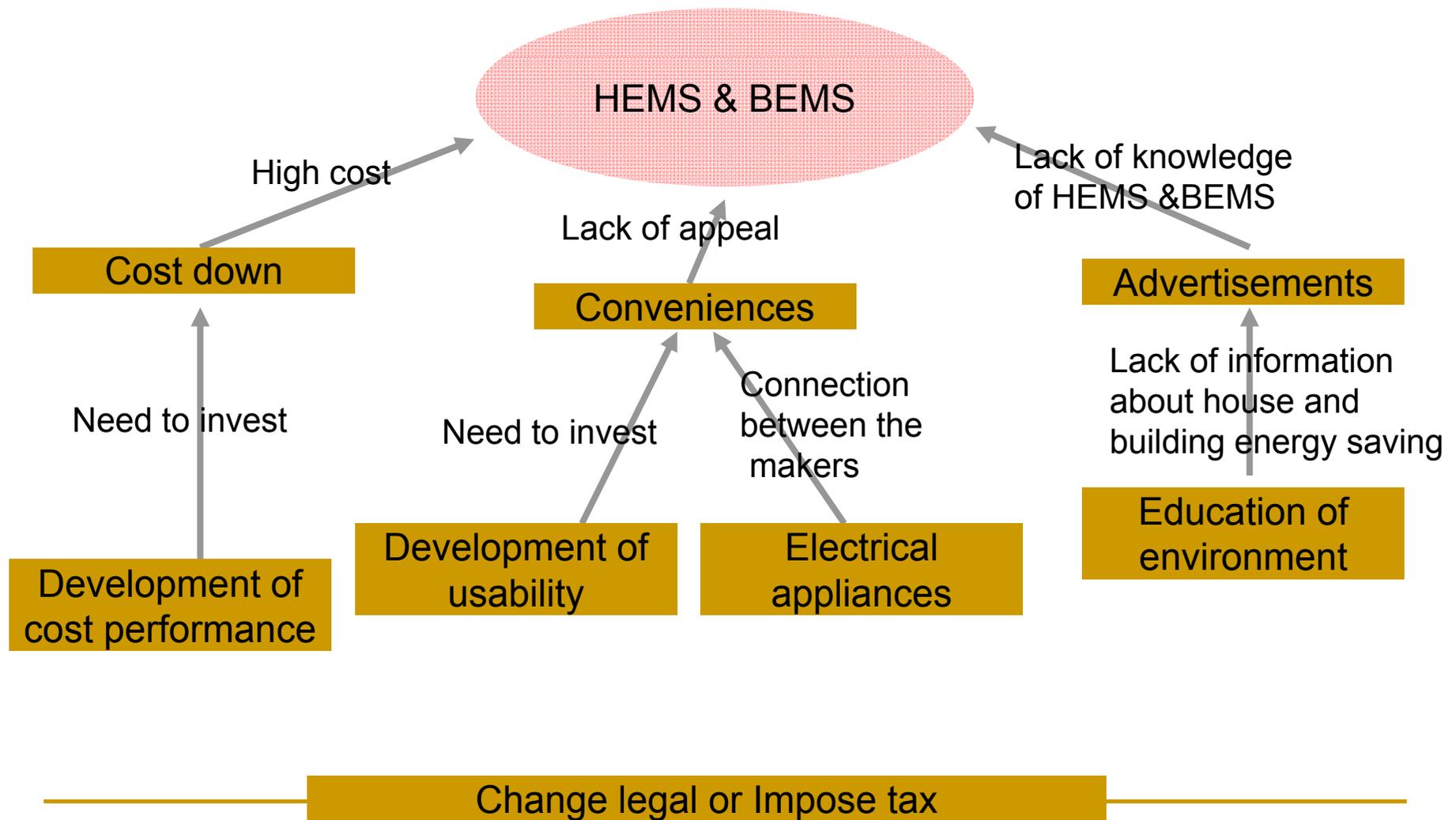
# HEMS & BEMS

- Use IT technology to promote and facilitate a system that supports the energy demand management
- at home (HEMS)
- for business (BEMS)

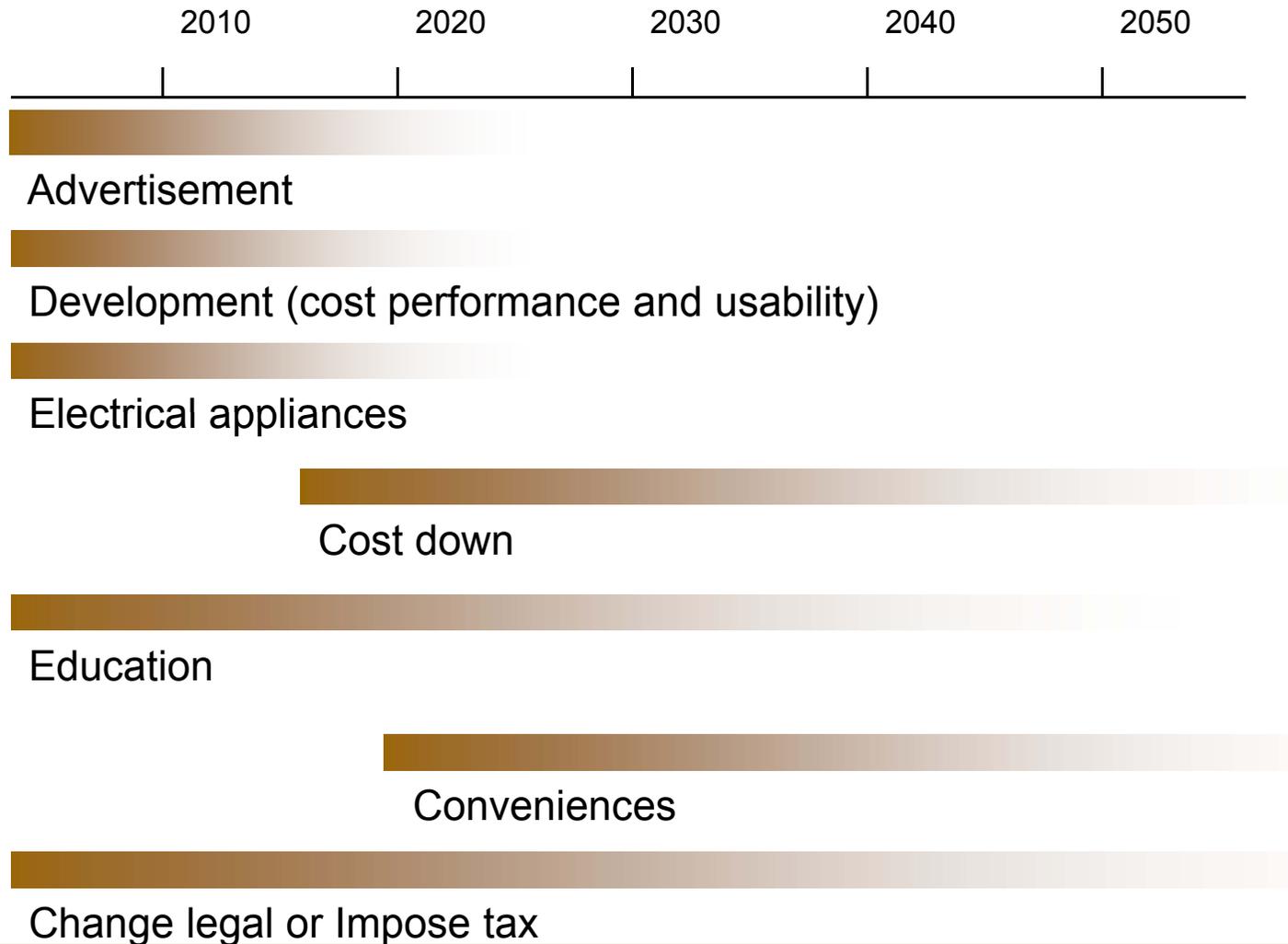


Source: Energate Inc

# Options



# When should we start the options





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# Transportation Sector (Freight)

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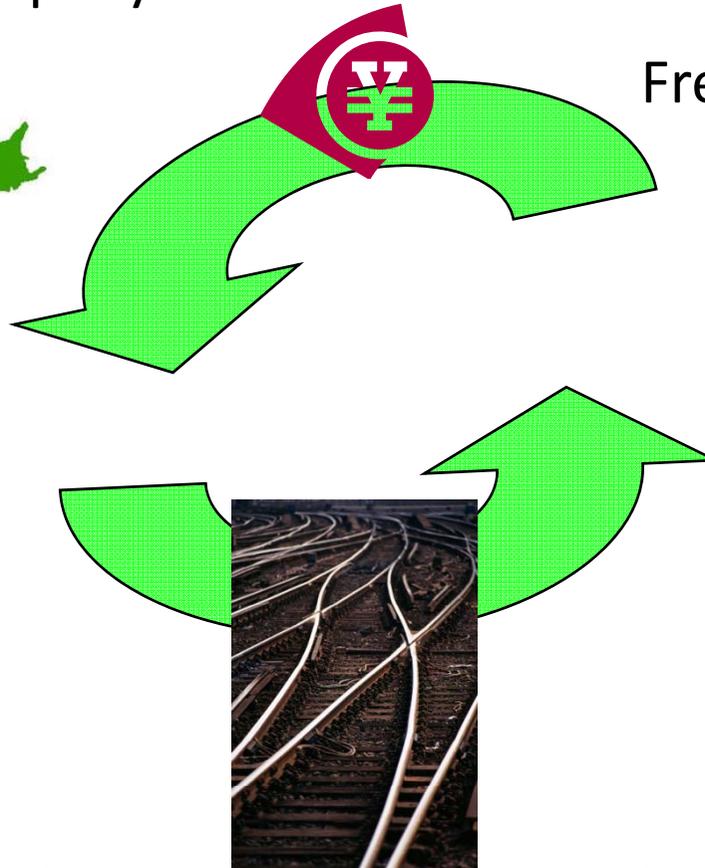
# Japanese Railway System

Passenger railway company

-  Hokkaido
-  East
-  Central
-  West
-  Shikoku
-  Kyushu



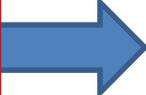
Freight Railway company



“Japanese Freight Railway Company” hire railway track from “Passenger Railway Company”.

# barriers

- Freight railway company can't make flexibility

 Now, they lag increasing demand

- When disaster happen ,recovery of freight rail diagram is very slow

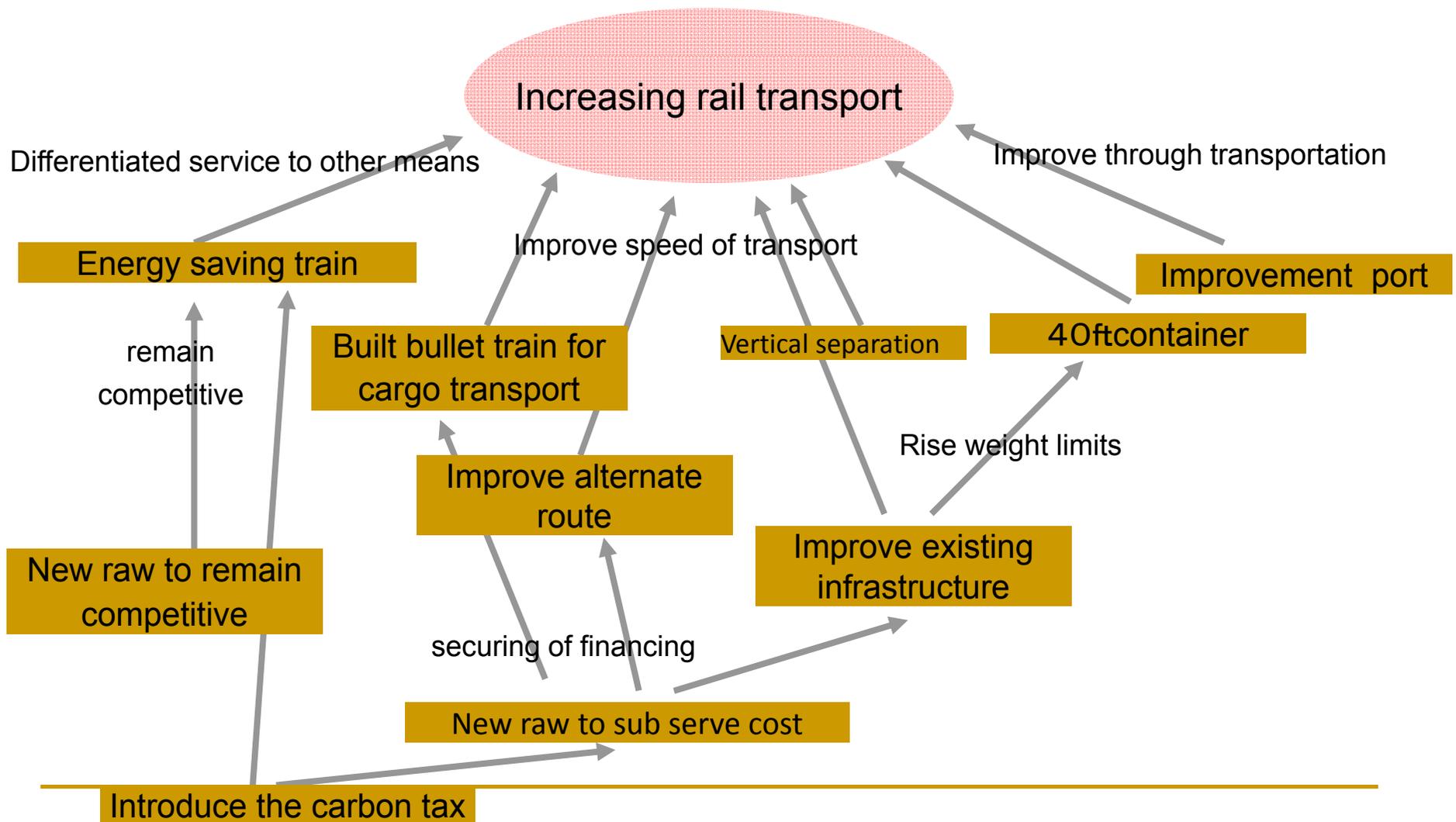
- Limit of burden is strict

EG Japan; Maximum loading weight is 1300t

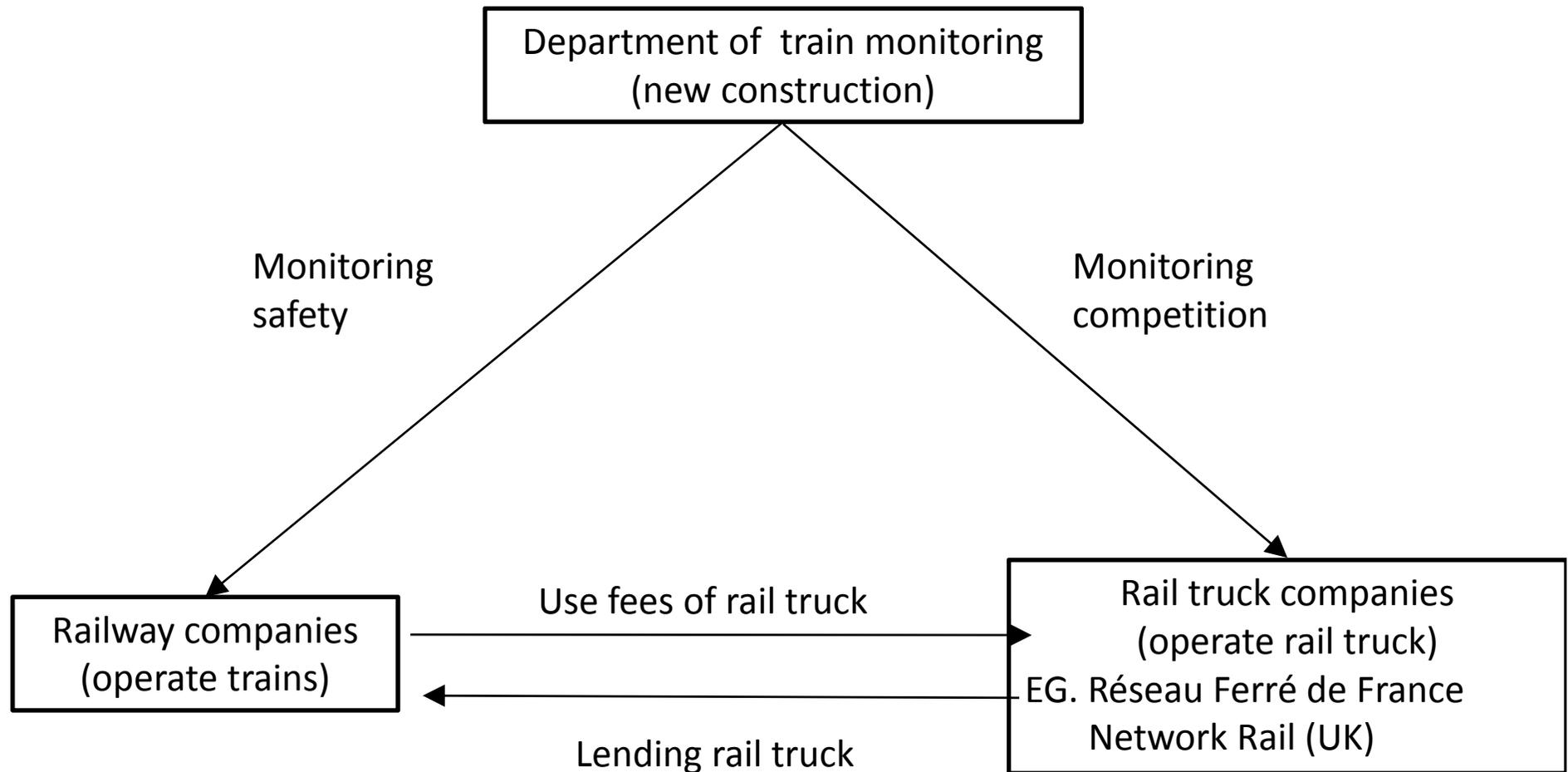
Korea; Maximum loading weight is more than 2000t

- Equipment of freight train get older
- Government place more emphasis on road and less on rail.

# Options



# What is vertical Separation?



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# What is Tokaido Freight Shinkansen

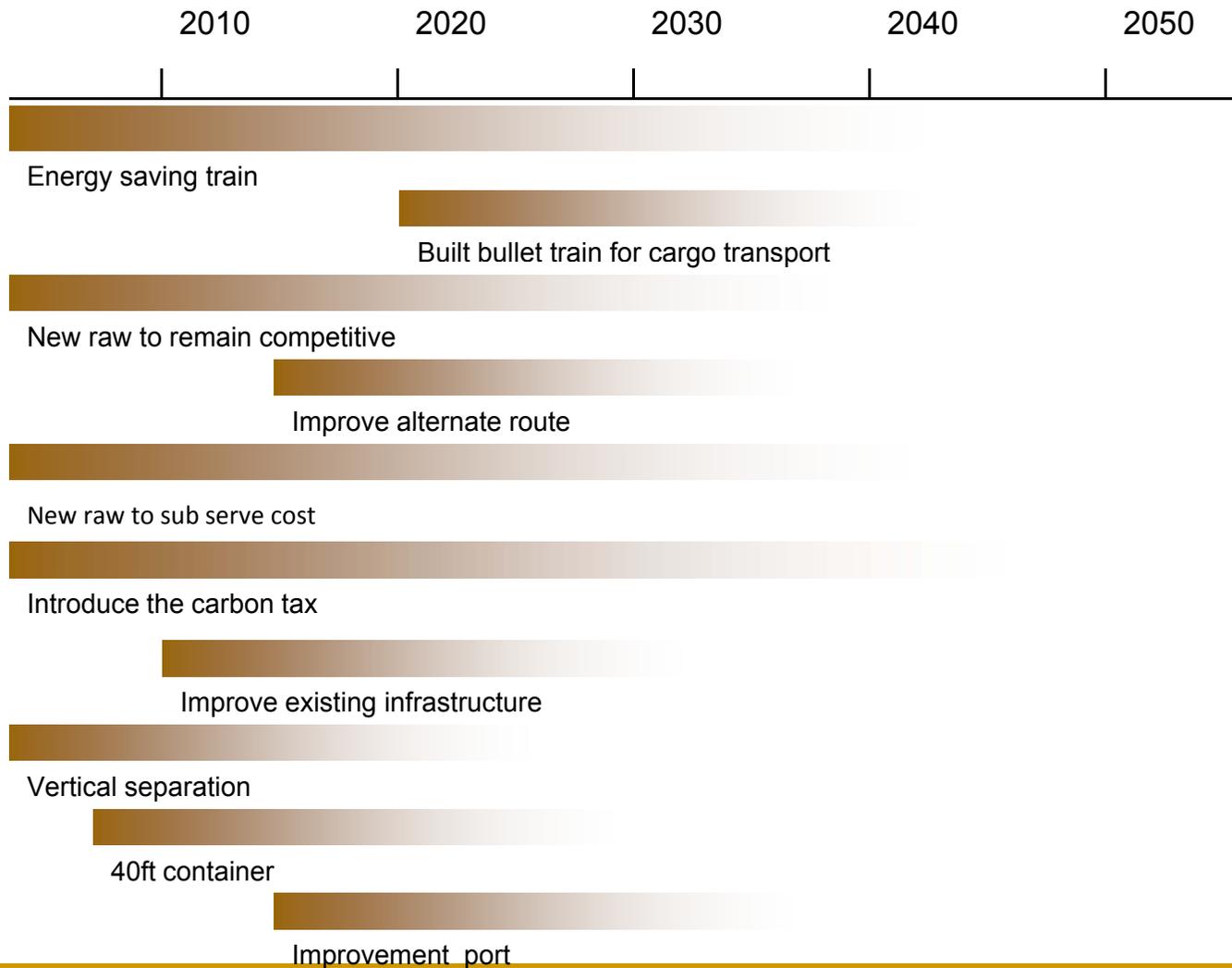
Now, line capacity between Tokyo and Osaka is full

➔ We can not increase Freight train.

➔ There is a plan to built freight line median strip on the new high way

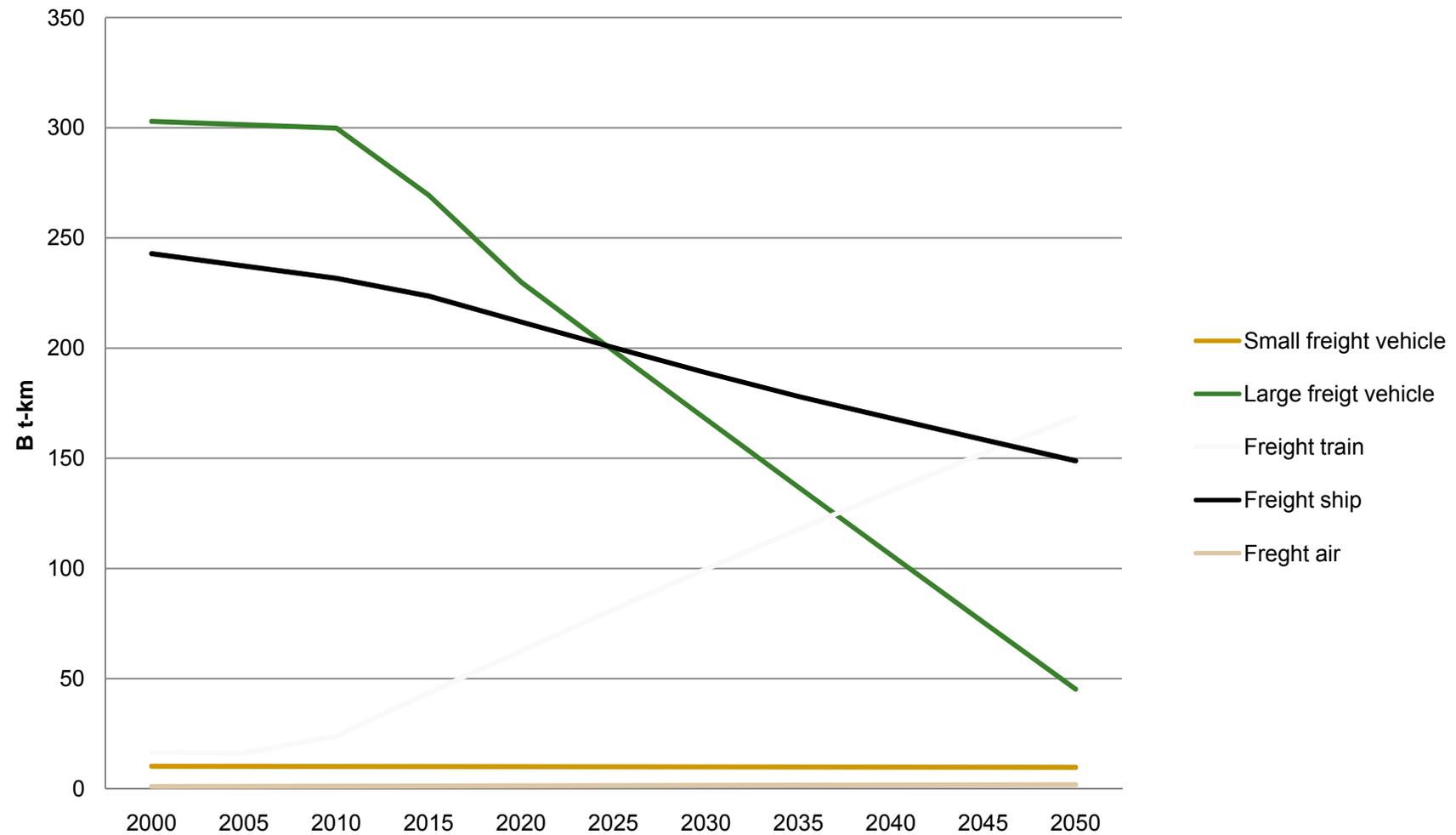


# When should we start the options



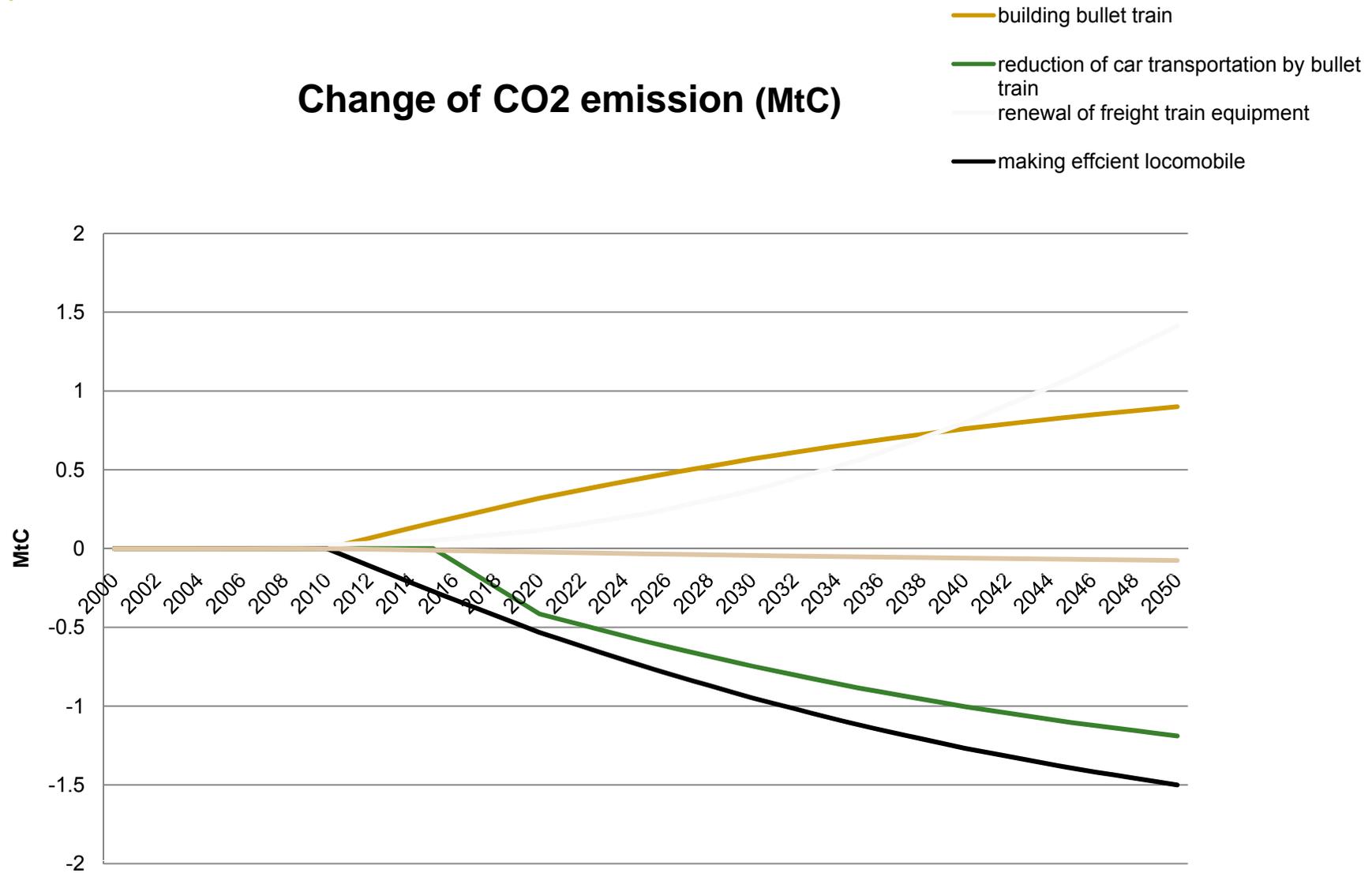
# Result ~ Transportation mode ~

## process of transportation mode



# Change of CO2 emission

**Change of CO2 emission (MtC)**

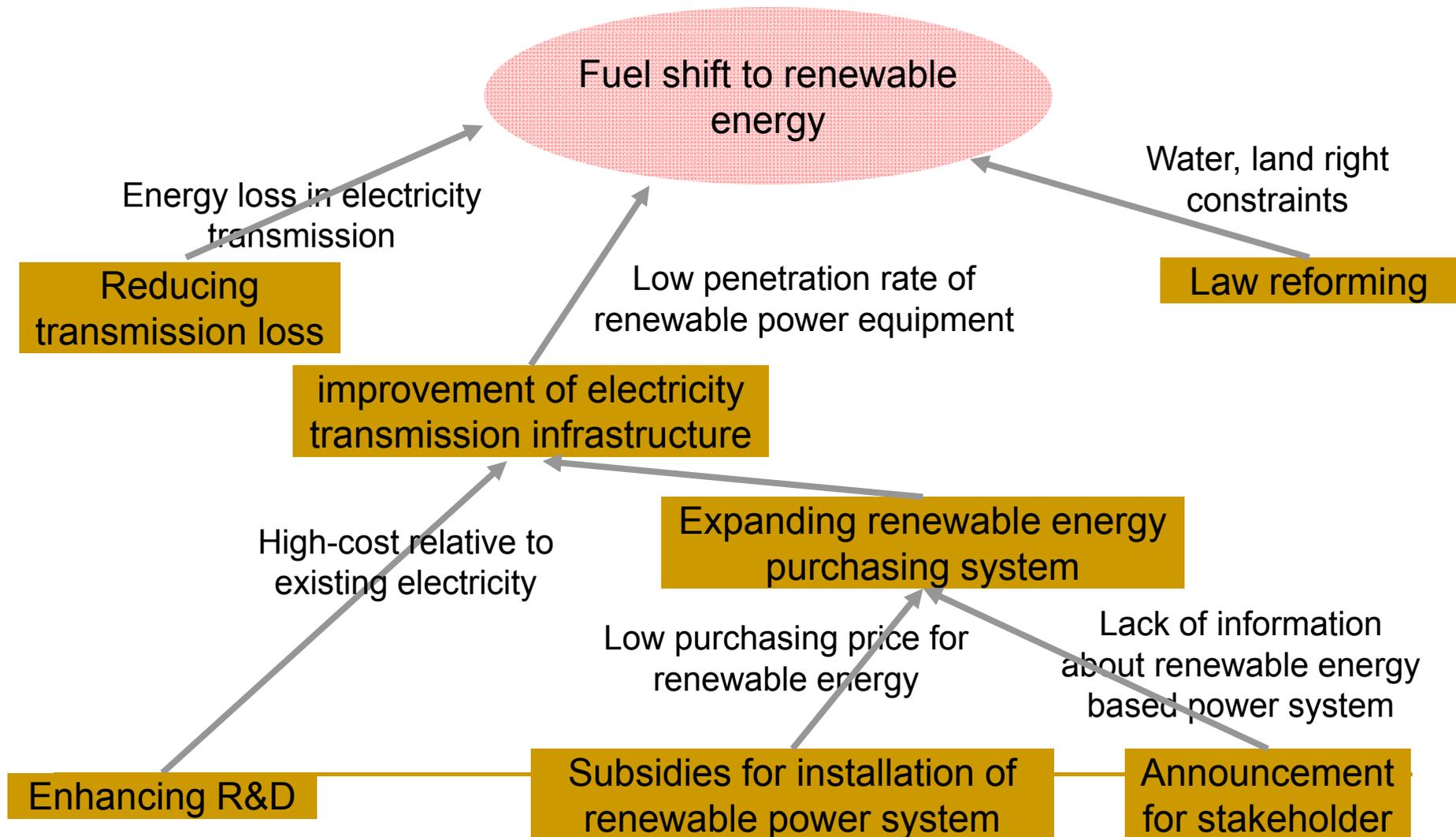


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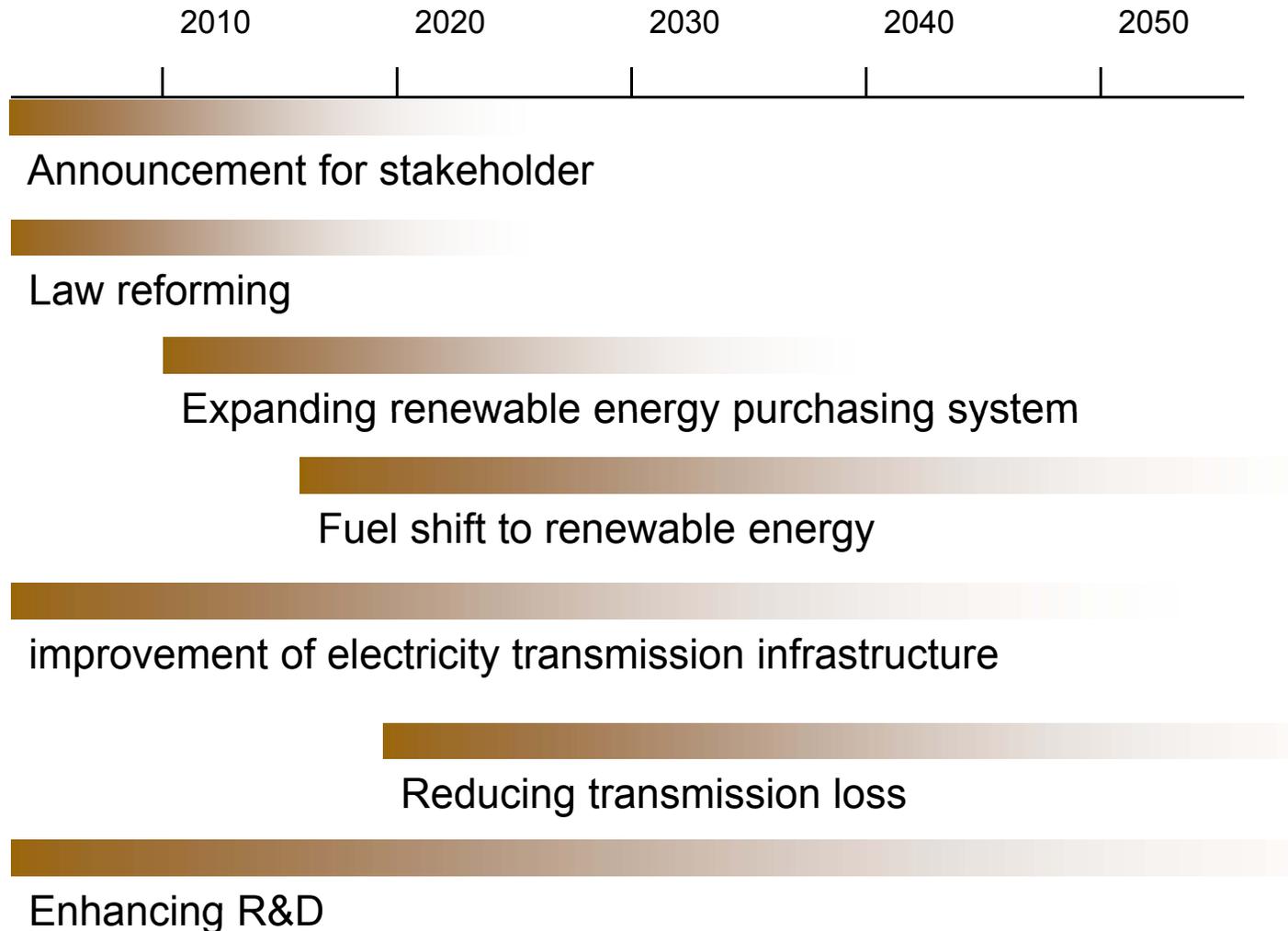
# Energy Supply Sector

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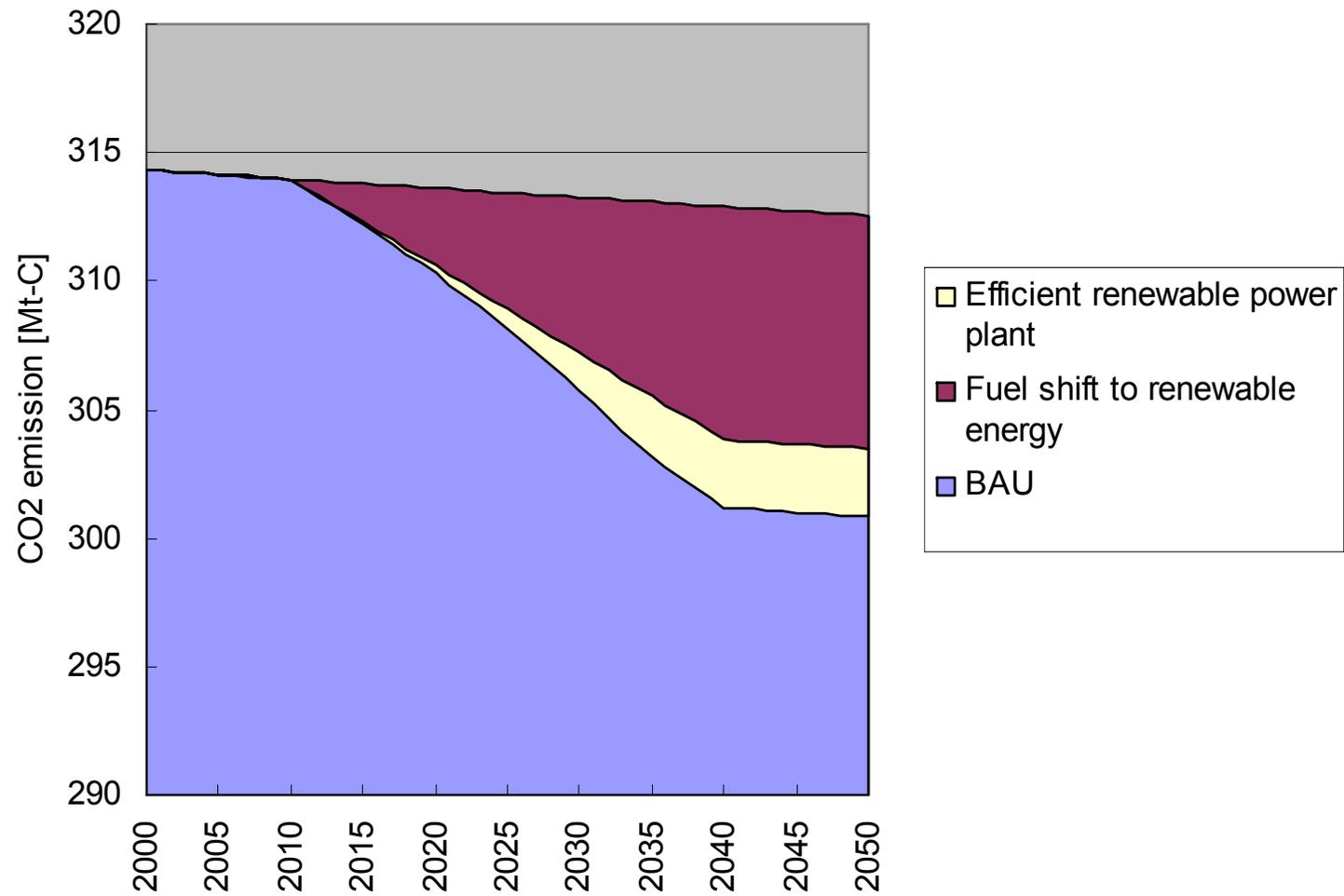
# Power production for local consumption by local renewable resource



# When should we start the options



# Result



# All Actions

## Residential and Commercial sector

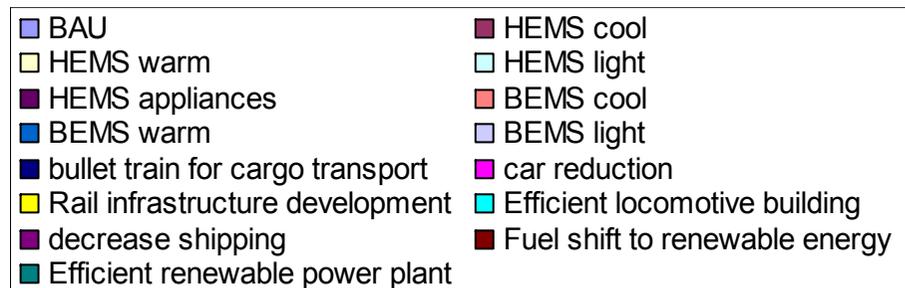
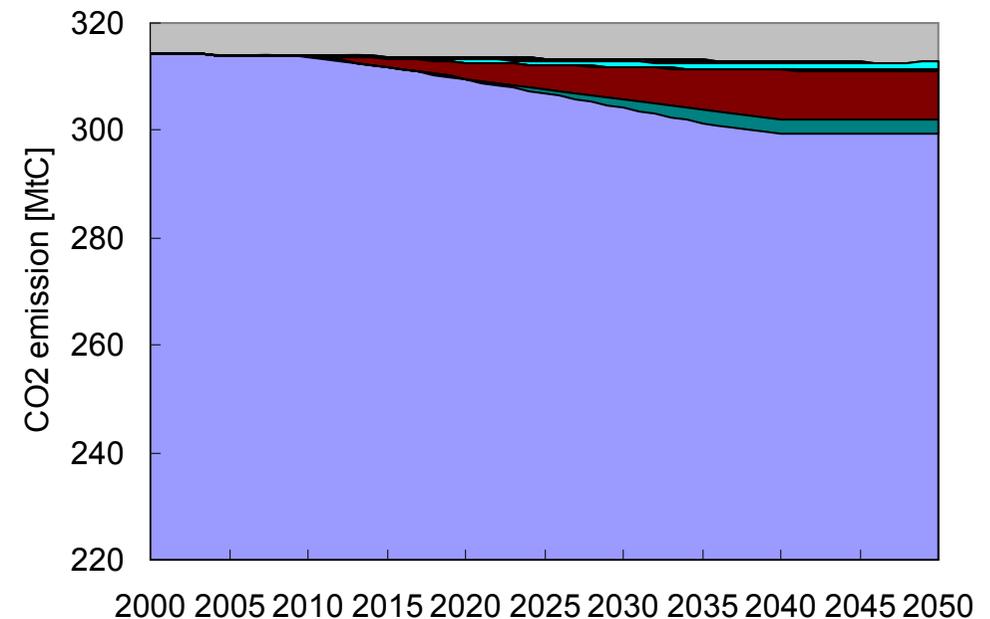
- HEMS, BEMS → diffuse

## Freight transportation sector

- The Tokaido Shinkansen for commodity distribution begin service (2020~)
- Spread railway networks
- Improve the efficiency of trains

## Energy supply sector

- Energy shift (2015~)  
→ renewable energy



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# Discussion

- **Uncertainties**
    - Is there other options or barriers?
      - Mindset, incentives
    - Our inputs for BCM is correct?
  
  - To stimulate stakeholders' participation in actions, more effective options are needed.
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ご清聴ありがとうございました

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