CGE and SDB: case of China

ERI AIM Project team

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CGE model application

Environmental and economic impact of SO2 policies: application of AIM/CGE for China case

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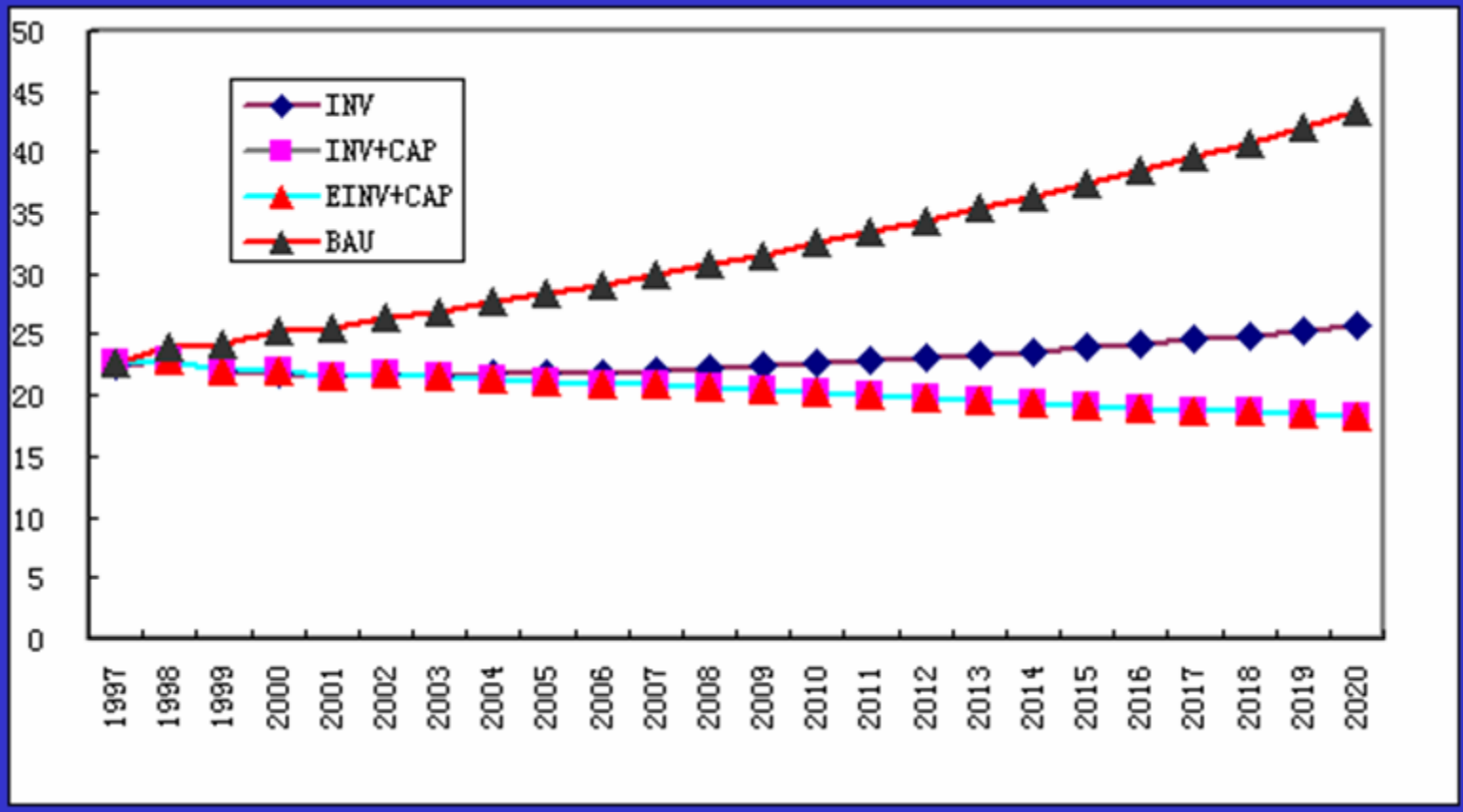
Scenarios

- Reference scenario (RS)
- Scenario 2 – investment + sulfur tax scenario (INV)
- Scenario 3 – Investment and emission cap scenario (INV+CAP)
- Scenario 4 - enhanced investment and emission cap scenario (EINV+CAP)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Environmental options in transportation sector

Technology options in transportation sector

Natural gas vehicles (NGVs)
Liquefied petrol gas vehicles
Methanol-powered vehicles (M85)
Ethanol-powered vehicles (E10)
Electric Hybrid
Electric vehicles
Direct-injection diesel vehicles
Bio-diesel vehicles
Fuel cell vehicles
Solar vehicle
Miniaturization of vehicle (weight reduction, “ultra lightweight steel”)
Vehicles with variable valve control
(Existing gasoline vehicle)
(Existing diesel vehicle)

Environmental options in transportation sector

Institution, management and planning options

- **Compact city and smart growth**
- **Regional system of cities**
- **Information technology based communication (to reduce travel demand)**
- **Promotion of mass rapid transit (MRT)**
- **Promotion of non-motorized transport (NMT)**
- **Promotion of community vehicle**
- **Car free zones**
- **Number plate bidding system**
- **Car sharing**

Environmental options in transportation sector

Institution, management and planning options

- **Road pricing**
- **Travel awareness initiatives for wise use of automobiles (to reduce car ownership)**
- **Vehicle emission standard**
- **Inspection/maintenance**
- **Vehicle fuel standard**
- **Green fuel tax**
- **Intelligent travel system (ITS)**
- **Public awareness rising on environmentally friendly driving (engine off, etc.).**
- **Fuel economy standard**

Strategic Policy Options for Renewable Energy Sector

Technology options in renewable energy sector

Wind power
Small Hydro Power
Micro-hydro power
Household methane technology
Birdhouse and barn methane(Mid and large scale methane technology)
Straw burning electricity generation technology
Biomass gasification cycling electricity generation technology
Centralized gas supply through biomass gasification
Biomass producing liquid biofuels technology
Biomass molding carbonization technology
Directly using of geothermal and geothermal power generation
Tidal power generation
Solar Water Heater
Solar house and greenhouse
Solar drying
Solar cooking range

Strategic Policy Options for Renewable Energy Sector

Technology options in renewable energy sector

Solar heating power generation
Solar photovoltaics (PV) power generation
Integration of solar energy in architecture
Highzones technology
Biomass IGCC technology
Biomass liquefaction to make liquid fuels
Clean and low-cost production of fuel ethanol through cellulose zymolysis
Large off-shore wind farm based on MW level wind turbine
Integration of large-scale wind farm with energy storage device
Separated ocean power generation and freshwater production system
Membrane solar cell
Low- and medium-temperature geothermal energy usage technology
High-efficiency ground source heat pump
Making hydrogen from biomass

Strategic Policy Options for Renewable Energy Sector

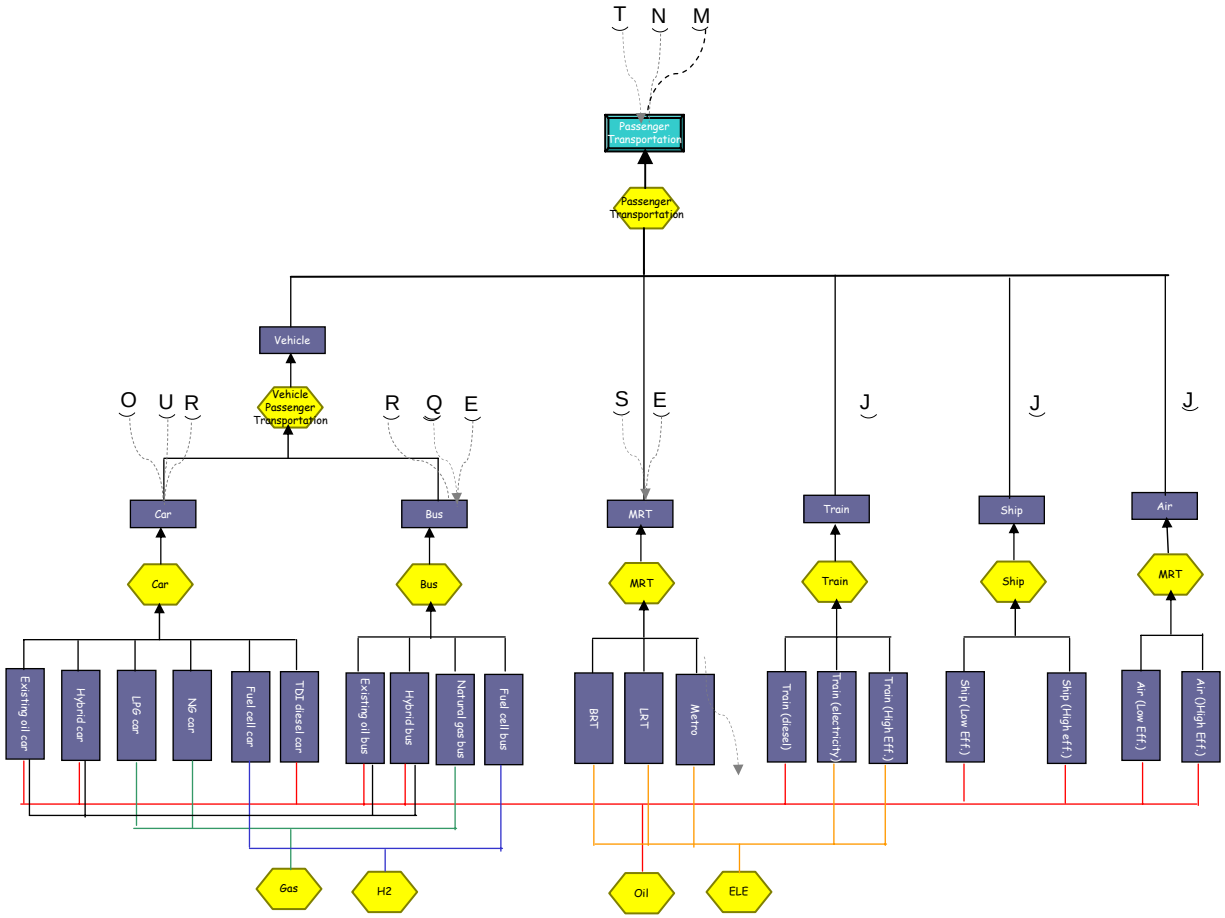
Institution, management and planning

Legislation (the Law on Renewable Sources)
Make the goal of the development of renewable resources
Establish harmonious management mechanism
Mandatory Market Share (MMS)
Trade of Renewable Energy Certificate
Competitive biding for minimum subsidy
Combining subsidy with loan ownership model
Renewable energy promotion fund
Market-based institutional finance
Renewable energy feed-in-tariff

Strategic Policy Options for Renewable Energy Sector

Institution, management and planning

RESCO approach to financing
Seed finance for energy enterprise development
Renewable Portfolio Standards
CDM and other clean climate initiatives
Micro-credit and self-help group finance
Community-based green power purchasing
Subsidy policy:
Taxation policy
Pricing policy
Voluntary Policy
International mechanism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MRT
Existing oil car
Hybrid car
LPG car
NG car
Fuel cell car
TDI diesel car
Existing oil bus
Hybrid bus
Natural gas bus
Fuel cell bus
BRT
LRT
Metro
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Train (electricity)
Train (High Eff.)
Ship (Low Eff.)
Ship (High eff.)
Air (Low Eff.)
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