Planning for Green Growth: First Exercise with Vietnam Calculator 2050

Presenter: **Hoang Van Tam**

Head of Climate Change Division

Industrial Safety Techniques and Environment Agency

- Ministry of Industry and Trade

Content

- Overview of Vietnam Green Growth Strategy and its GHG reduction targets
- First application of Vietnam Calculator 2050 for developing a GG Plan
- Follow-up steps

Country features

- Total land area: 331 thousand sqr km
- Population in 2010: 86.9 million 70% live in rural areas
- GDP per capita (current US$): 2010: 1191$
- 21,542 MW power generating capacity, 100 billion kWh electricity in 2010.
- A net energy exporter of crude oil and coal but is an importer of petroleum products
- Total final energy consumption in 2010: 50.5 MTOE

Drivers for Green Growth Strategy

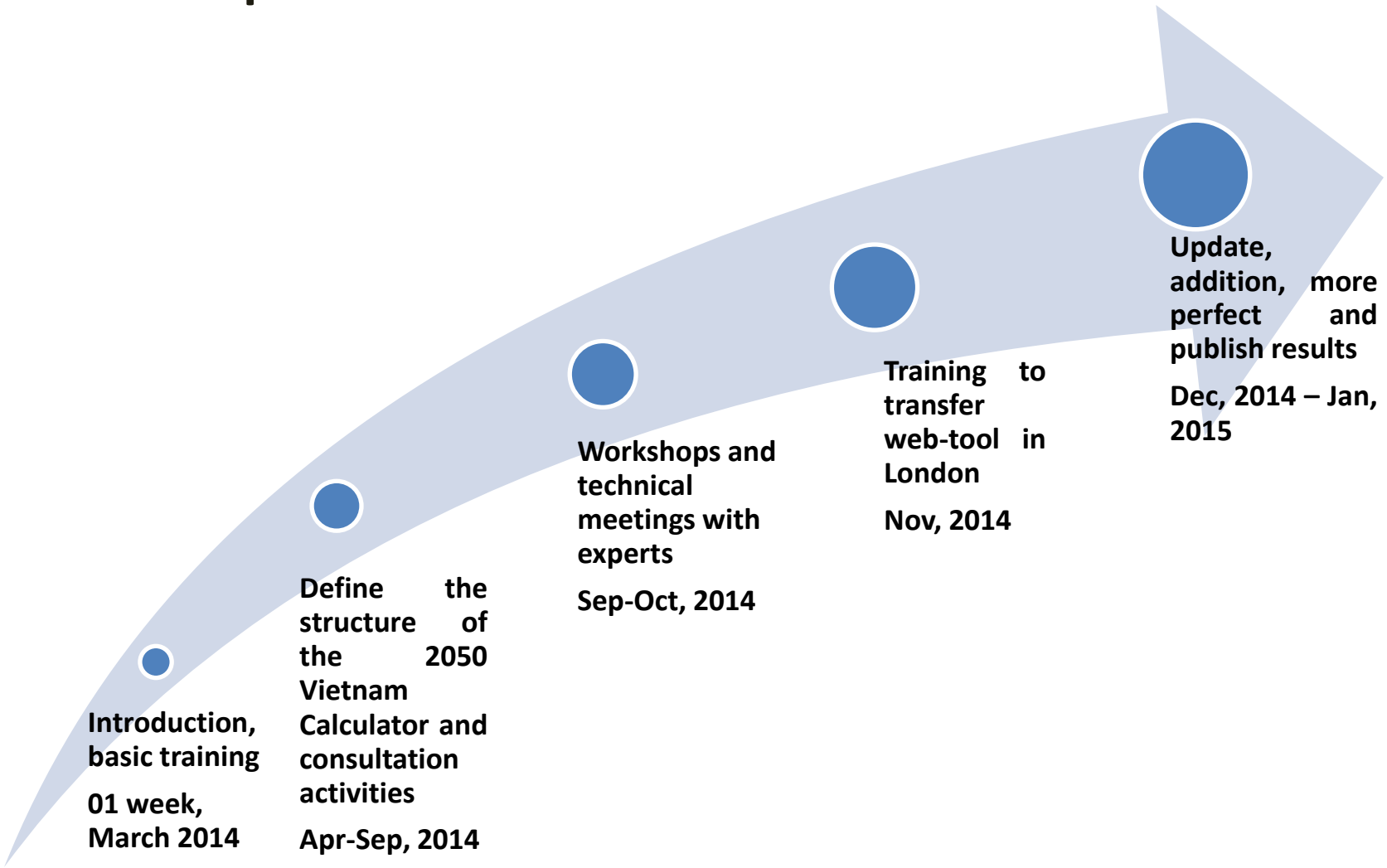
- In 2004, Vietnam approved the Viet Nam agenda 21 and established the National Sustainable Development Council
- In 2008, Viet Nam initiated its climate change response

- Recent macro-economic development have led to the need to restructure the economy
- Viet Nam awareness to contribute to international efforts to combat climate change

GHG reduction targets by VGGS

- Target for 2020: Reduce GHG emissions from energy activities by 10 percent to 20 percent compared to the BAU case. 10% voluntary, an additional 10% reduction with international support
- Target for 2030: 20 percent to 30 percent. 20% voluntary, 10% with international support

Context of Vietnam Calculator 2050 development



First exercise with Vietnam Calculator 2050

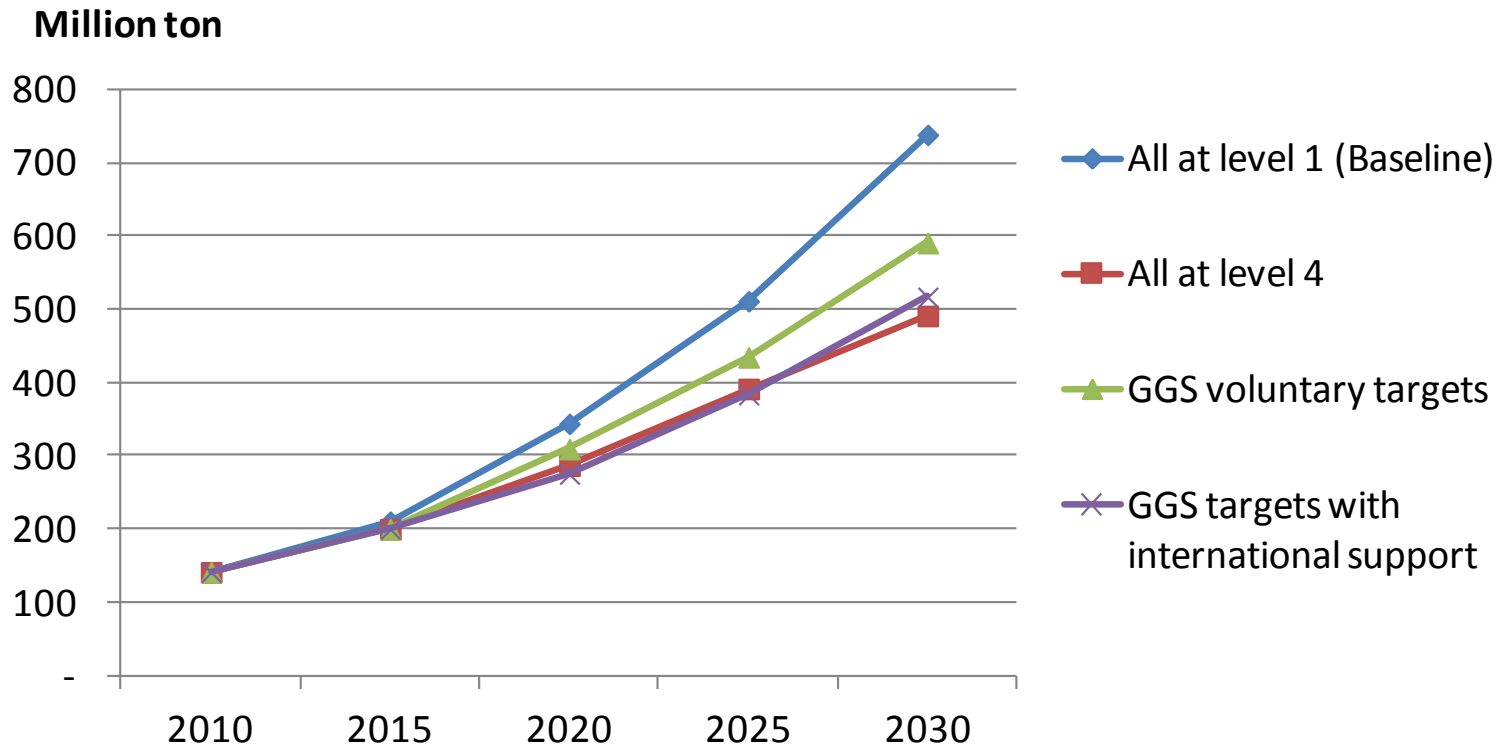
Main question:

- How the GHG emission targets by GGS can be achieved?

Other questions:

- How about the exploitability of energy resources, in particular renewable energies?
- How about energy demand by sectors, how to change (optimize) these demands?
- How are the costs of these pathways
- Impacts of the pathways (energy security)

GHG emission reduction potential and targets

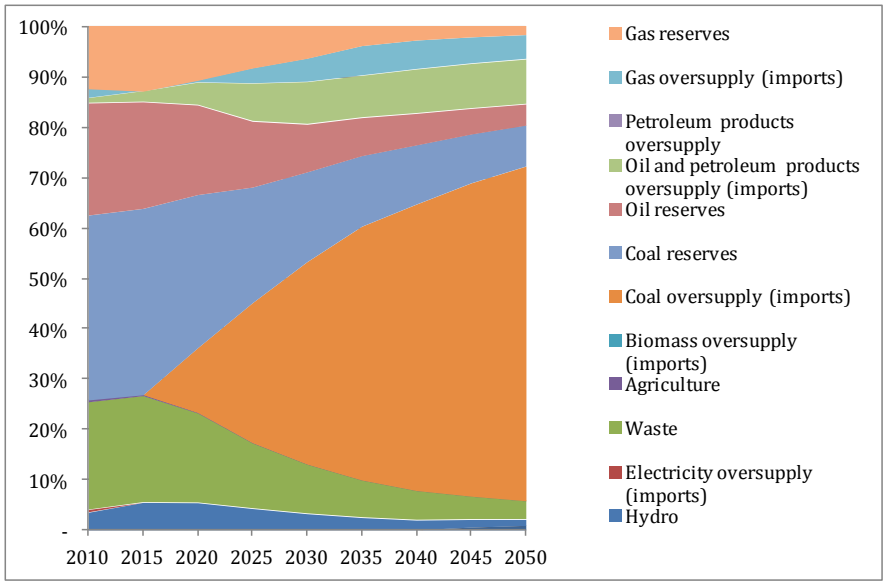


- How GHG reduction targets can be achieved?

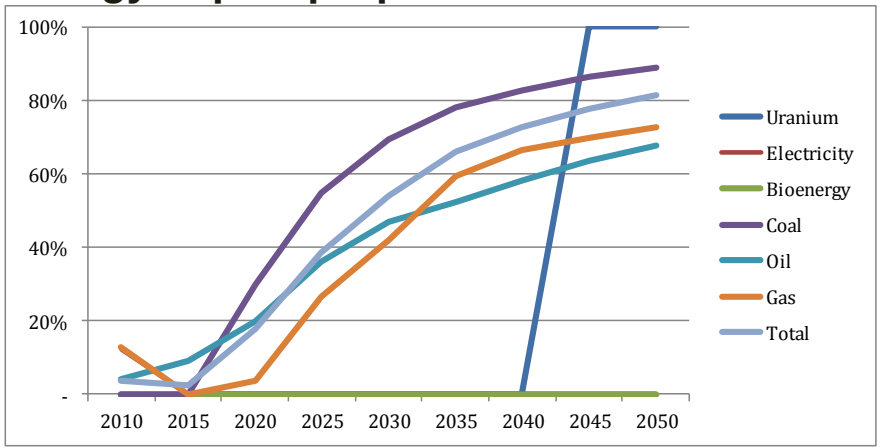
Other considerations

Level 1

Energy diversity

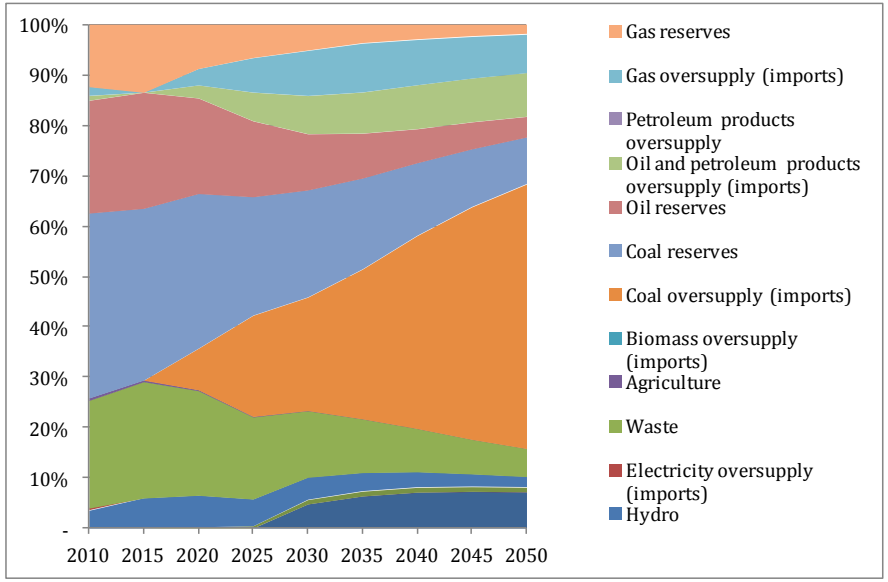


Energy import proportions



Level 4

Energy diversity



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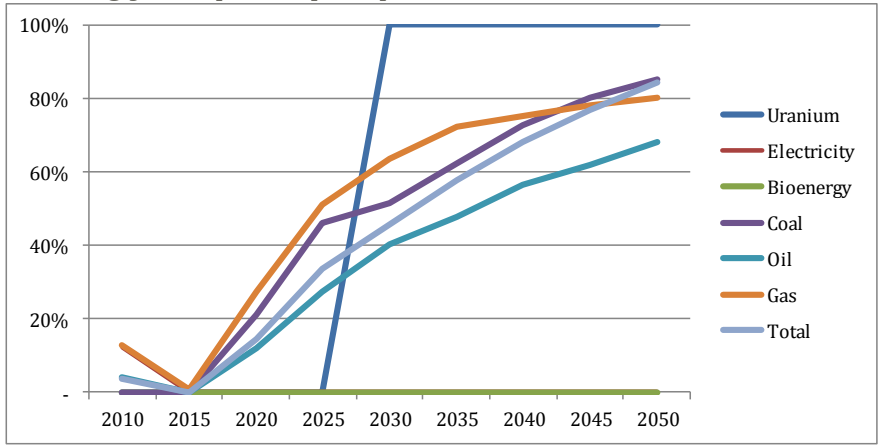
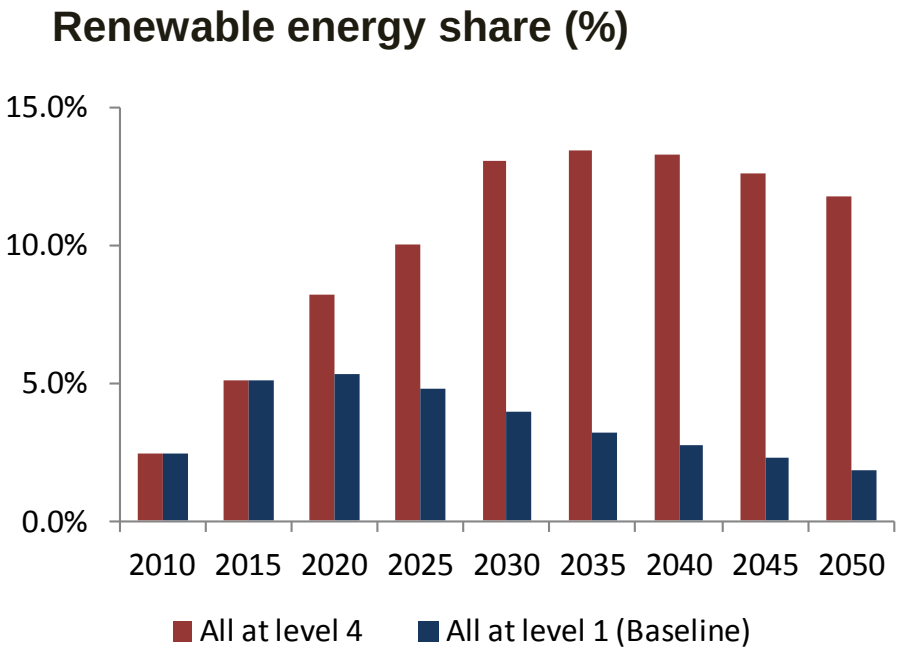
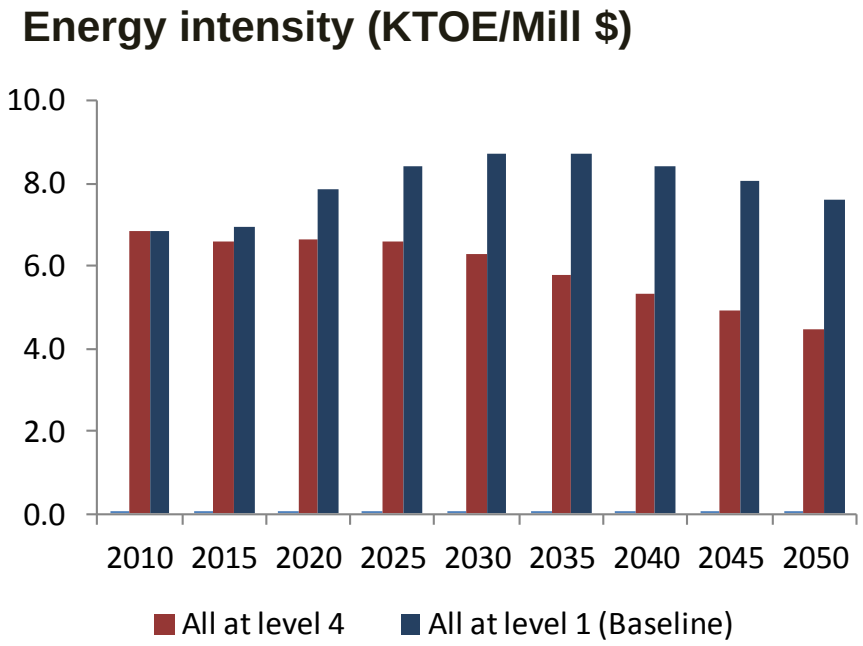


Other considerations





Policy guiding principals

To synchronously and rationally develop the system of electricity, petroleum, coal, and new and renewable energies, paying attention to the development of clean energies and prioritizing the development of new and renewable energies...

(Article 1. of the Decision No. 1855/QD-TTg dated December 27, 2007 of Prime Minster on approval of "Vietnam's National Energy Development Strategy up to 2020, with 2050 vision").

To strive to increase the proportion of new and renewable energies to about 5% of the total amount of commercial primary energy by 2020; and about 11% by 2050.

(Article 1.2.b. of the Decision No. 1855/QD-TTg dated December 27, 2007 of Prime Minster on approval of "Vietnam's National Energy Development Strategy up to 2020, with 2050 vision").

Policy guiding principals

Promote effective exploitation and increase the proportion of new and RE sources in the Nation's energy production and consumption

(Article 1.II.4. of the Decision No. 1393/QD-TTg dated September 25, 2007 of Prime Minster on approval of "National Green Growth Strategy").

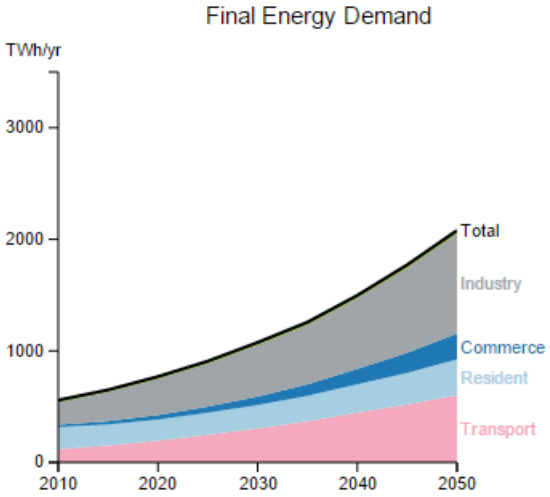
The economy of low-carbon, green growth become mainstream in sustainable development; mitigate greenhouse gas emissions and increase the ability to absorb greenhouse gases gradually become mandatory targets for economic – social development

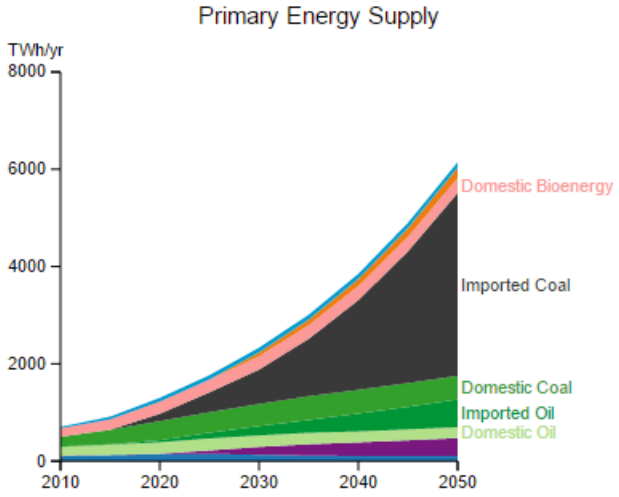
(Article 1.III.2. of the Decision No. 2139/QD-TTg dated November 05, 2011 of Prime Minster on approval of "National Strategy on Climate Change").

Main findings

- High dependence on coal for industry and power generation
- High import of coal is expected
- Development of advanced technologies (advanced coal technologies, renewable energies, energy efficiency) is key to reduce GHG emission, reduce reliance on coal, and thus increase energy security
- Demand side measures have less GHG reduction potential than those from supply side

Main findings – more on voluntary GHG targets



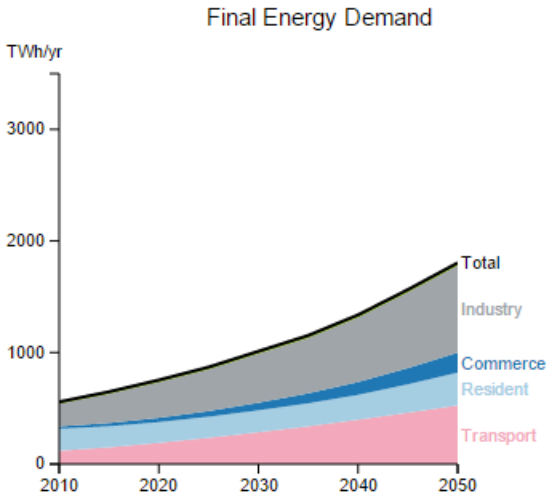


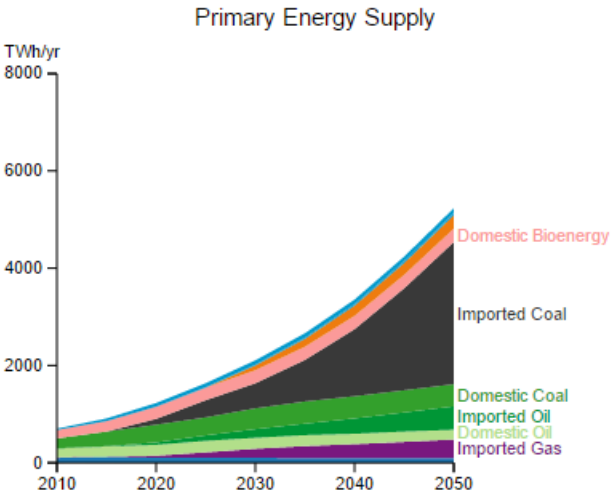
Passenger transport demand	?	1	2	3	4
Shift to low emission passenger transport	?	1	2	3	4
Freight transport demand	?	1	2	3	4
Shift to low emission freight transport	?	1	2	3	4
Domestic hot water	?	1	2	3	4
Domestic lighting	?	1	2	3	4
Cooking technology	?	1	2	3	4
Mix of Electric stoves	?	1	2	3	4
Mix of Biomass stoves	?	1	2	3	4
Domestic appliances and others	?	1	2	3	4
Growth in industry	?	1	2	3	
Energy intensity of industry	?	1	2	3	4
Commercial cooling	?	1	2	3	4
Commercial lighting	?	1	2	3	4
Public lighting	?	1	2	3	4
Commercial appliances, catering and others	?	1	2	3	4
Fishing	?	1	2	3	4
Irrigation and others	?	1	2	3	4

Coal installed capacity	?	1	2	3	4
Coal technology	?	1	1.8	3	4
Carbon Capture Storage (CCS)	?	1	2	3	
Nuclear power	?	1	2	3	4
Onshore wind	?	1	2	3	4
Offshore wind	?	1	2	3	
Nearshore wind	?	1	2	3	4
Small hydro	?	1	2	3	4
Solar CSP	?	1	2	3	
Geothermal electricity	?	1	2	3	4
Tidal electricity	?	1	2	3	
Biomass	?	1	2	3	4
Biogas	?	1	2	3	4
Waste to energy	?	1	2	3	4
Solar PV	?	1	2	3	4
Electricity imports	?	1	2	3	4

- Can be achieved with demand side measures, *and*
- On-shore wind and bioenergy power
- These measures are currently focused by the current policies

Main findings – more on GHG targets with international support





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- Very ambitious targets
- can only be reached with most options at level 4

Policy implications

- Coal supply
  - Sustainable coal supply sources
- Energy efficiency
  - Detailed potential analysis
  - EE plan and regulation
  - Implementation supporting mechanism
- Renewable energy
  - Detailed resource assessment
  - Grid code
  - Implementation supporting mechanism: financial incentives, feed-in tariffs
  - Institution and transaction arrangement e.g., PPA

Vietnam Calculator 2050: next steps

- Improvement of costing: Present model uses payback time as approach to estimate investment cost
- Further disaggregation of key demand sectors e.g., Industry
- Further elaboration of agriculture and land use
- Pilot adaptation of the tool to a sub-national level application

Thank you

Hoang Van Tam (tamisea2011@gmail.com)