

# Low carbon cities in Vietnam

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# LCS in Vietnam cities

- Vietnam NDC
- Low carbon development related policies
- Cities with LCS scenarios
- Current training courses on LCS with cities
- Next Plan

# CURRENT CC RELATED POLICIES

Law on Hydrology, Meteorology (2015)

Law on Natural Disaster Prevention and Control (2013)

Resolution 24/NQ/TW on responding to CC (2013)

Environment Protection Law 2014

Law on Economical and Efficient Use of Energy (2010)

National Climate Change Strategy (2011)

Green Growth Strategy (2012)

Renewable Energy Development Strategy (2015)

National and Provincial Action Plans to implement CCS and GGS

Support Program to Respond to Climate Change (2009-2015 and 2016-2020)

Plan for GHG emission management and carbon market development (2012)

National GHG Inventory System (2015)

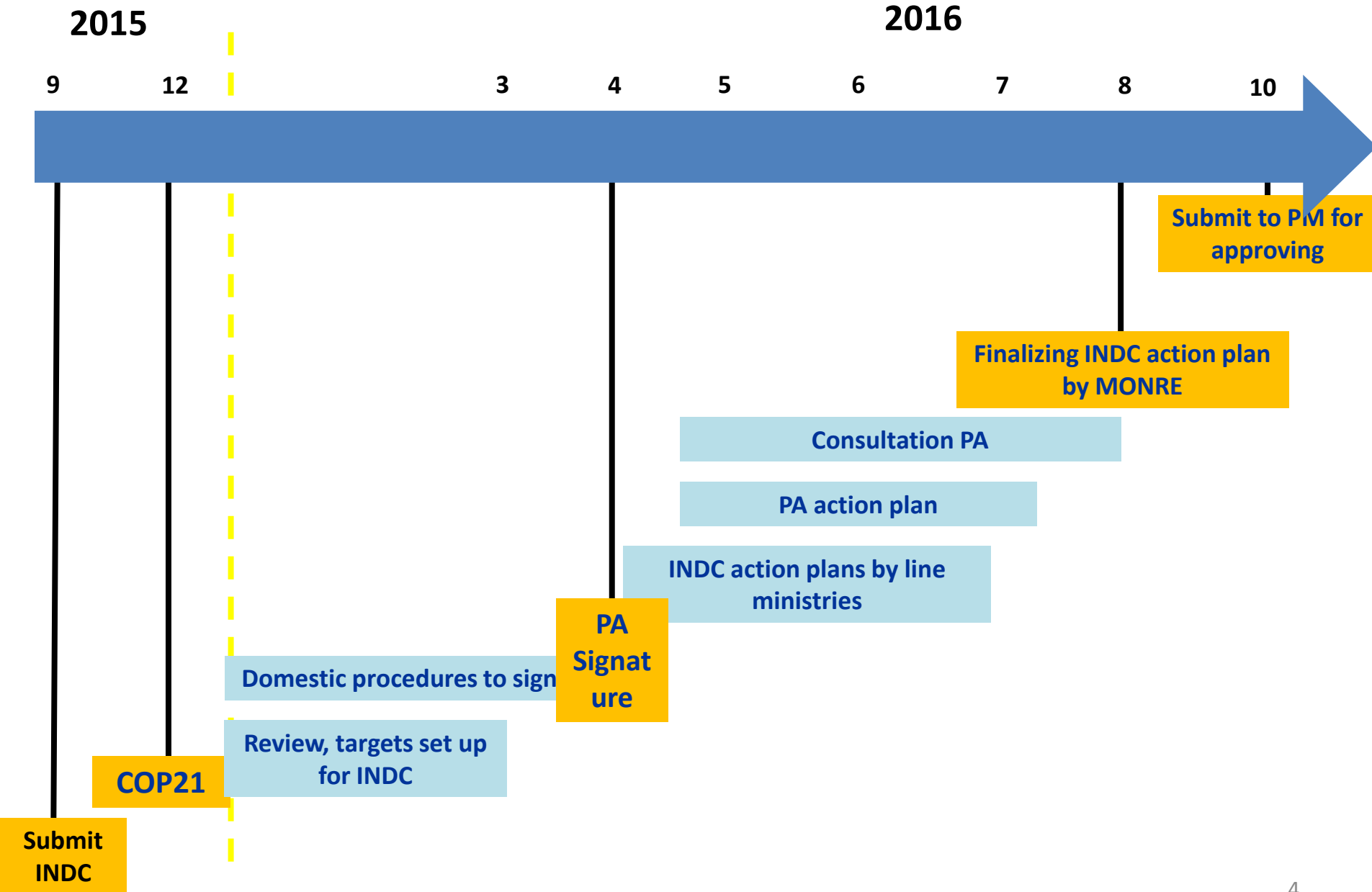
Priority Adaptation Projects and Programs

Priority Mitigation Projects/Programs

CDM Projects

JCM Projects

# INDC ROADMAP IN VIETNAM



# NDC action plan up to 2020

1. Review legal frameworks related to low carbon, green growth;
2. Develop a Decree on roadmap and approach of GHG mitigation for Vietnam;
3. GHG inventory for 2018;
4. Develop MRV systems at national and sector level
5. Develop domestic carbon market
6. Develop instruction on the implementation of “Cooperation mechanism and contribution on GHG mitigation, toward sustainable development” according to Paris Agreement, Article 6;
7. Update NDC and evaluation of Vietnam efforts in global GHG mitigation to 2018.

# NDC action plan period 2021-2030

1. Evaluation of Vietnam efforts in global GHG mitigation for update country NDC
2. Develop GHG mitigation and green growth action plans in accordance with priorities in sector, national and local level; to evaluate global mitigation efforts on 2023, 2028;
3. Review and update legal frame works on GHG mitigation, green growth to meet international committments and achievements in period of 2016-2020;
4. Disseminate widely mitigation actions and green growth.

# Cities with LCS scenarios

- HCMC
- Da Nang
- Hai Phong



Based on the following strategies and plans: National Green Growth Strategy (2012/CO2-TT) approved by the Prime Minister in September 2012, Green Growth Action Plan (KOU20-TT) approved by the Prime Minister in March 2014, and the Green Park City strategy (T14/TT) of the Communist Party of Vietnam, Hai Phong formulated the Green Growth Strategy Action Plan of the City of Hai Phong (HAI/CO2-2015) in July 2015. With the target of the Intended Nationally Determined Contributions (INDCs) in the United Nations Framework Convention on Climate Change (UNFCCC), which aims to reduce 8.23% of total emissions in 2025 compared to Business as Usual (BaU), major cities in Vietnam are required to develop Climate Change Action Plans (CCAP). The CCAP is necessary and should be integrated with the middle- and long-term master plan of socio-economic development, specific sectoral development plans.

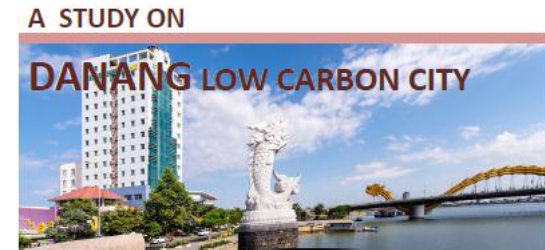
This study is one of the results of the research collaboration between Asian-Pacific Integrated Model (AIM) team in Japan including Kyoto University, Maumara University, Fukuoka, National Institute for Environmental Studies (NIES), Mizuho Information and Research Institute (MIRI), Institute for Global Environmental Strategy (IGES), and Institute of Strategy and Policy on natural resources Environment (ISPEAN), Department of Natural Resource and Environment of Hai Phong. We expect this brochure to be useful for researchers and policy-makers who are interested in identifying or updating their own CCAP.

We developed two scenarios with the projection of energy consumption and CO<sub>2</sub> emission in energy-related categories such as Residential, Commercial, Transportation, and Industry. They are 2030BaU (Business as Usual) and 2030CM (Counterfactual). The 2030BaU scenario, where countermeasures for GHG emissions reduction are not introduced, reflects the situation in which both the levels of contributions to climate-friendly energy production and technological breakthroughs are relatively low. Specifically, countermeasures are assumed the same level as in 2013. On the other hand, the 2030CM scenario, which additional low carbon countermeasures are introduced in order to assess the reduction effect of GHG emissions. The socioeconomic assumptions about population, industrial structure, and economic growth are common to both scenarios. Information from many domestic sources is used to calibrate the parameters for base year 2013. In target year 2033, Extended Snapshot Tool (EST) is a useful for the projection of future energy consumption and CO<sub>2</sub> emission in energy-related categories.

Hai Phong is expected under the rapid growth of driving forces such as population, transport demand, and especially industrial activities (the total GHG emissions increases 4.5% since, from 6,676 MtCO<sub>2</sub>e in 2013 to 69,686 MtCO<sub>2</sub>e). The total GHG emissions reduction is 14%, accounting for 8,000 MtCO<sub>2</sub>e. Hai Phong can reduce such emissions reduction by implementing 51 projects grouped in the sections: Smart Building, Energy Efficiency, Clean Transport and Green Energy. Since the national reduction target has been chosen in the Green Growth Strategy (2012/CO2-TT) and in the Vietnam's INDC (B-23%), Hai Phong is expected to achieve such target by 2032 (GHG reduction by 20%CM compared to 2013BaU).

Table 1 GHG emissions by sector (MtCO<sub>2</sub>e) in Hai Phong city

	2013		BaU		2030		CM	2030	
	MtCO <sub>2</sub> e	%	MtCO <sub>2</sub> e	%	MtCO <sub>2</sub> e	%		MtCO <sub>2</sub> e	%
<b>GHG emissions</b>									
Agricultural energy-related	0	0.0	0	0.0	0	0.0	0	0.0	0.00
Industry	2,488	37.3	18,821	27.9	34,823	50.0	8,416	12.1	12.06
Commercial	221	3.3	2,472	3.7	3,173	4.6	8,808	12.6	12.66
Residential	1,261	18.9	2,472	3.7	2,261	3.3	7,127	10.2	10.24
Passenger transport	404	6.1	1,834	2.8	1,880	2.7	1,770	2.5	2.57
Freight transport	2,078	31.1	11,767	17.6	8,624	12.4	8,888	12.7	12.78
<b>Total GHG emissions</b>	<b>6,676</b>	<b>100.0</b>	<b>36,436</b>	<b>546.0</b>	<b>38,261</b>	<b>572.0</b>	<b>19,641</b>	<b>286.7</b>	<b>286.7</b>
<b>GHG emissions per GDP (MtCO<sub>2</sub>e/Bt.Dong)</b>	<b>85.2</b>		<b>56.9</b>		<b>48.0</b>		<b>33.2</b>		<b>33.2</b>
<b>GHG emissions per capita (MtCO<sub>2</sub>e/person)</b>	<b>9.8</b>		<b>11.2</b>		<b>8.8</b>		<b>5.22</b>		<b>5.22</b>



Recently, major cities in Vietnam are required to localize the Intended Nationally Determined Contributions (INDCs) to the United Nations Framework Convention on Climate Change (UNFCCC). The aim of INDC is to reduce 8-25% of total emissions in 2030 compared to Business as Usual (BaU). In line with the target, the Vietnam Green Growth Strategy (Decision 1239/CO2-TT) aims to ensure efficient and sustainable economic growth in Vietnam while making significant contributions towards implementing the national climate change strategy. Moreover, the National Target Program for Climate Change Response (Decision 158/CO2-TT) requires local governments to develop Climate Change Action Plans (CCAP). The CCAP is necessary and should be integrated with the middle- and long-term master plan of socio-economic development, specific sectoral development plans (such as transportation, industry, power, agriculture, etc.) as well as water and waste management.

This study is one of the results of the research collaboration between Asian-Pacific Integrated Model (AIM) team in Japan including Kyoto University, National Institute for Environmental Studies (NIES), Mizuho Information and Research Institute (MIRI), Institute for Global Environmental Strategy (IGES), and Institute of Strategy and Policy on natural resources Environment (ISPEAN), Danang Climate Change Coordination Office (DCCO) in Vietnam. We expect this brochure to be useful for researchers and policy-makers who are interested in developing the CCAP and can support the vision of building green growth for Danang city.

Two scenarios are developed for the socio-economic vision of Danang by 2030, with the projection of energy consumption and CO<sub>2</sub> emission

in energy-related categories such as Residential, Commercial, Transportation, and Industry. They are 2030BaU (Business as Usual) and 2030CM (Counterfactual). The 2030BaU scenario, where countermeasures for GHG emissions reduction are not introduced, reflects the situation in which both the levels of commitments to climate-friendly energy production and technological breakthroughs are relatively low. Specifically, countermeasures are assumed the same level as in 2013. On the other hand, the 2030CM scenario, which additional low carbon countermeasures are introduced in order to assess the reduction effect of GHG emissions. The socioeconomic assumptions about population, industrial structure, and economic growth are common to both scenarios. Information from many domestic sources is used to calibrate the parameters for base year 2013. In target year 2033, Extended Snapshot Tool (EST) is applied for the projection of future energy consumption and CO<sub>2</sub> emission in energy-related categories.

In 2030BaU, Danang is expected under the rapid growth of driving forces such as population, transport demand, and industrial activities (the total GHG emissions increases 4.03 times, from 2,665 MtCO<sub>2</sub>e in 2013 to 10,817 MtCO<sub>2</sub>e).

In 2030CM, the total GHG emissions reduction is 19%, accounting for 2,078 MtCO<sub>2</sub>e. Danang can reduce such emissions reductions by implementing 35 projects grouped in the sections:

By implementing the climate change actions, namely: Smart Building, Smart Industry, Energy Efficiency, Smart Transport and Green Energy, Danang can reduce 19% total GHG emissions in 2030CM (between the 20-20% national reduction target as declared in the Green Growth Strategy and within 8-25% mentioned in the Vietnam's INDC).

Table 1 GHG emissions by sector (MtCO<sub>2</sub>e) in Danang city

	2013		BaU		2030		CM	2030	
	MtCO <sub>2</sub> e	%	MtCO <sub>2</sub> e	%	MtCO <sub>2</sub> e	%		MtCO <sub>2</sub> e	%
<b>GHG emissions</b>									
Agricultural energy-related	2	0.1	10	0.1	10	0.1	4.83	0.04	0.04
Industry	800	30.0	4,924	45.1	4,247	48.2	5,559	50.8	50.8
Commercial	151	5.7	966	8.9	823	9.6	6,539	60.3	60.3
Residential	459	17.2	801	7.5	624	7.2	1,775	17.6	17.6
Passenger transport	546	20.5	1,192	11.2	997	11.6	218	2.0	2.0
Freight transport	616	23.1	2,764	25.9	2,688	23.3	441	4.1	4.1
<b>Total GHG emissions</b>	<b>2,665</b>	<b>100.0</b>	<b>10,817</b>	<b>100.0</b>	<b>8,606</b>	<b>100.0</b>	<b>4,011</b>	<b>46.7</b>	<b>46.7</b>
<b>GHG emissions per GDP (MtCO<sub>2</sub>e/Bt.Dong)</b>	<b>51.6</b>		<b>42.2</b>		<b>34.0</b>		<b>24.2</b>		<b>24.2</b>
<b>GHG emissions per capita (MtCO<sub>2</sub>e/person)</b>	<b>2.7</b>		<b>6.5</b>		<b>5.2</b>		<b>2.42</b>		<b>2.42</b>

# Current training courses on LCS with cities

- Ministry of Construction: Urban Development Agency, Academy of Construction Management
- UN-Habitat
- Targeted cities:
  - North: Quang Ninh, Hai Duong, Northern West cities (Yen Bai, Tuyen Quang, Cao Bang)
  - Central: Phu Yen
  - South: Mekong Delta region (Can Tho, An Giang, Tra Vinh, Tien Giang, Tien Giang)



# Main contents

- International and region context of low carbon development
- LCS scenarios development
- Integration of low carbon development in provincial climate change planning process

# Next Plan

- Extend to other cities
- Capacity building: planning, monitoring
- Assist in LCS scenarios development, monitoring
- Collaborate with other training centers in the region (TGO-CITC, AIT-RCC)