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GBA DEEP DECARBONISATION ROADMAP AND TRANSITION FINANCE OPPORTUNITIES

粵港澳大湾区深度减排路径和转型金融机遇

Preliminary Findings

初步研究成果

Hong Kong, September 22, 2022

2022年9月22日 香港

RESEARCH SCOPE AND PROGRESS

研究范围与进展

Research scope

研究范围和目的

9+2 Cities in the GBA
粤港澳大湾区9+2个城市



Key carbon emitting sectors
关键碳排放行业

- Sectoral deep-dive transition
总体和分行业脱碳转型路径
 - Industries (especially petrochemicals & chemicals and electronics & electricals)
工业（关注石化化工和电子电气）
 - Road transport 道路交通
 - Buildings 建筑
- Exploration of financial solutions for transition
探索金融支持转型的解决方案
- Identification of policy options
总体和分行业脱碳路径



Project Progress

研究进展

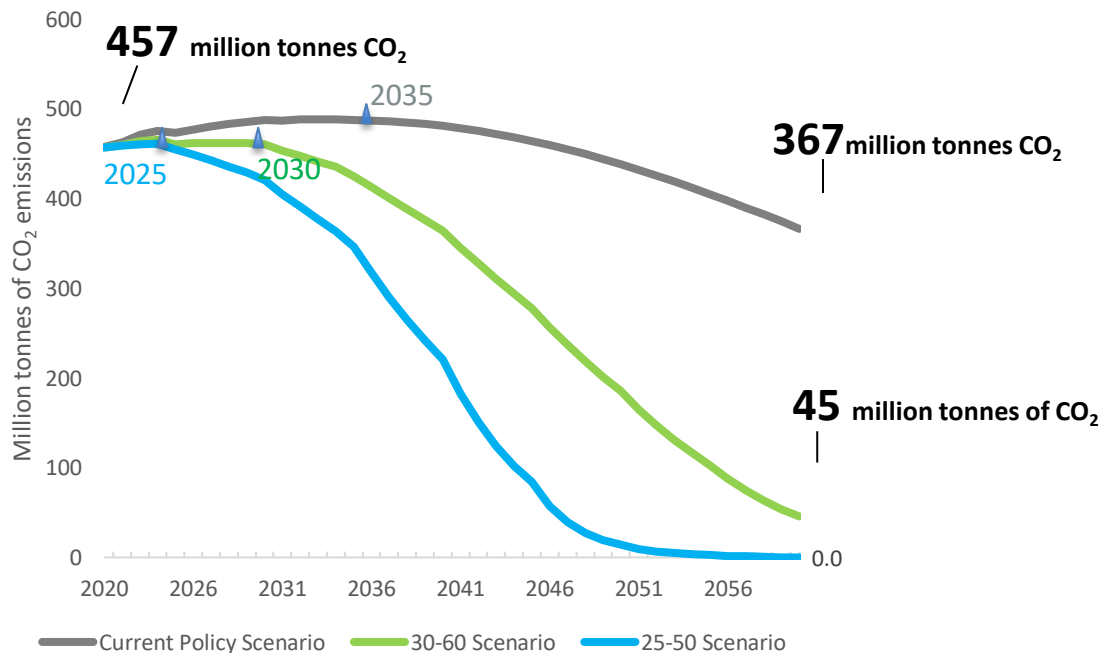
初稿完成

First Draft Completed

- 1 粤港澳大湾区排放差距
Emission Gap for Carbon Neutrality in the GBA ✓
- 2 粤港澳大湾区工业碳中和路径
Carbon Neutrality Roadmap for Industries in the GBA ✓
- 3 粤港澳大湾区道路交通碳中和路径
Carbon Neutrality Roadmap for Road Transportation in the GBA ✓
- 4 粤港澳大湾区建筑碳中和路径
Carbon Neutrality Roadmap for Building in the GBA ✓
- 5 转型金融实践
Transition Finance Practices and Potential in the GBA ✓
- 6 粤港澳大湾区转型金融机遇
Transition Finance Opportunities in the GBA ✓
- 7 建议
Recommendations ✓

OVERALL EMISSION GAP AND INVESTMENT NEED

粤港澳大湾区排放差距与投资需求



Note:

- In the 30-60 Scenario, emissions will peak by 2030 and achieve carbon neutrality by 2060 with remaining 45 million tonnes of CO₂ emissions, equivalent to about 10% of current emissions.
- In the 25-50 Scenario, emissions will peak around 2025 and achieve carbon neutrality by 2050

30/60 Investment Opportunities

Unit: billion USD	All industries	Road transport	Building and Real Estate
Nation	27,000	N/A	6,041
GBA 9 cities	2,367	820	530

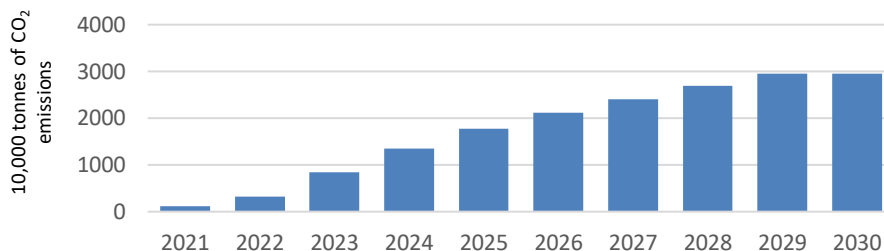
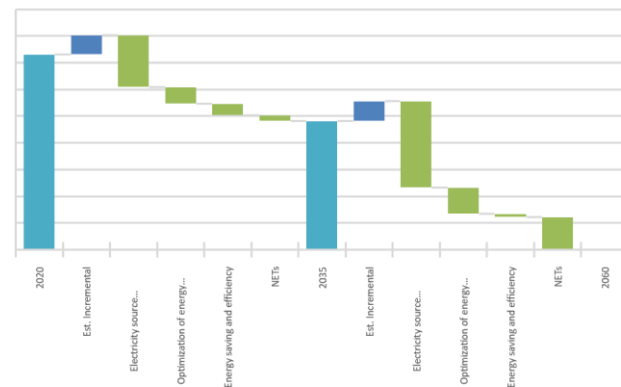
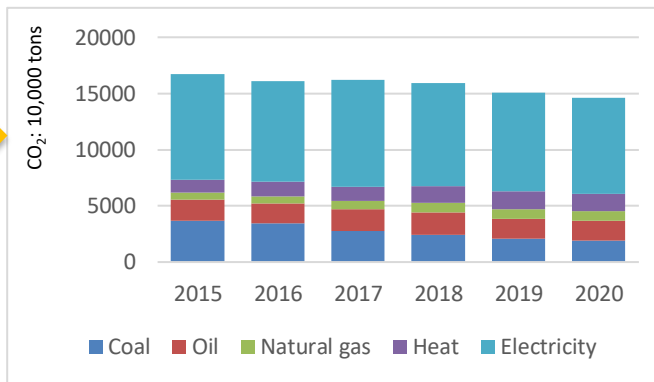


GBA EMISSION REDUCTION POTENTIALS FROM INDUSTRIES SECTORS

聚焦工业减排潜力

• Industry

- Carbon emissions reduced from 167 to 146 million tonnes from 2015-2020.
 - 58% from indirect emission (electricity)
 - 13% from coal combustion
 - 12% from oil and
 - 8% from natural gas
- Estimated Incremental (2020-2030): **18.53 million** tonnes of coal equivalent; **29.40 million** tonnes CO₂
- Decarbonization pathways towards 2060
 - Electricity source decarbonization (58%);
 - Optimization of energy structure (18%)
 - Energy saving and efficiency (6%)
 - Negative emission technologies (16%)

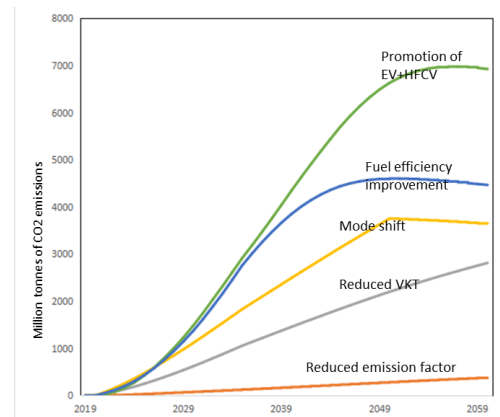
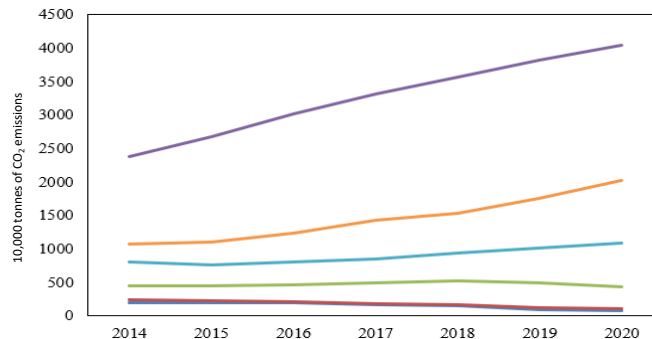


GBA EMISSION REDUCTION POTENTIALS FROM ROAD TRANSPORT

聚焦交通减排潜力

• Road Transport

- The carbon emissions in 2020 was around 80 million tonnes.
 - 50% from Private vehicles
 - 18% from heavy duty vehicles
 - 11% from light duty vehicles
- Decarbonization pathways towards 2060
 - Penetration rate of clean energy vehicles (**53%**) most effective in long term
 - Improving fuel economy (**28.3%**), most effective in short and medium term
 - Transport structure adjustment (**15%**)
- The cost of decarbonization is estimated **US\$820 billion**
 - The margin abatement cost of clean energy vehicles will decrease from 1030-1100 \$/ton in short-term to **200-215 \$/ton** in long-term.
 - The margin abatement cost of transport structure adjustment will be **over 2000 \$/ton** in short-term, but will be decreased to **385-523 \$/ton**.

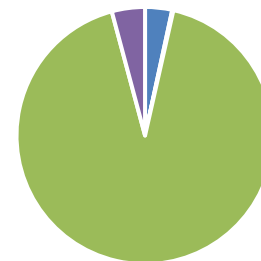
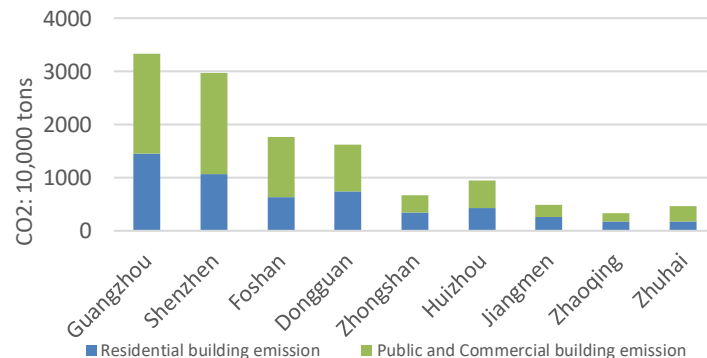
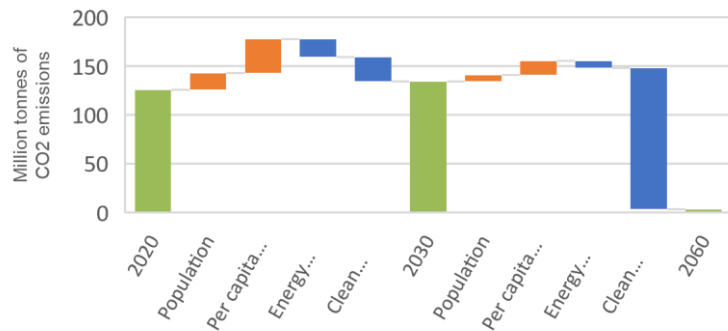


GBA EMISSION REDUCTION POTENTIALS BUILDING SECTOR

聚焦建筑的减排潜力

• Building

- Carbon emissions is over **125 million tonnes** in 2020, 58% from public & commercial buildings
- The growth of population and per capita building area in the GBA will generate incremental 75 million tonnes carbon emissions
- Decarbonization pathways towards 2060:
 - Taking ambitious energy efficiency targets between before 2030 will be most effective and contributes to **14%** for emission reduction
 - The electrification rate of buildings in the GBA is already very high (60%-80%)
 - The clean electricity will be the most important contributor to decarbonization (**85%**)
- Top-down investment gap is estimated **\$530 billion**
 - Retrofit of existing buildings accounting for over 90%



- Application of renewable energy
- Ultra-low and near zero buildings
- Retrofit of existing building
- New built green buildings

TRANSITION FINANCE CHALLENGES AND OPPORTUNITIES IN THE GBA

粤港澳大湾区转型金融的挑战与机遇



NEXT STEP

下一步工作

