

Advancing Carbon Neutrality in Metropolises Seoul & Beijing

A Comparative Study of Climate
Policies in Seoul and Beijing





BACKGROUND

	Seoul	Beijing
Average temperature	<ul style="list-style-type: none"> • Temperate climate with four distinct seasons • Annual average temperature: 12.8 °C • Average temperature in the hottest month: 26.1 °C in August • Average temperature in the coldest month: -1.9 °C in January • +1.8 °C summer average temperature (from the 1908-1917 level to the 2008-2017 level) 	<ul style="list-style-type: none"> • Template climate with four distinct seasons • Annual average temperature: 13.8 °C • Temperature in the hottest month: 26 °C in July • Temperature in the coldest month: -4 to -5 °C in January • +2.7 °C (from the 1979 level to the 2019 level)
Air quality	<ul style="list-style-type: none"> • PM_{2.5} concentration in 2021: 20 µg/m³ <p>Representative plans:</p> <ul style="list-style-type: none"> • Seoul Metropolitan Air Quality Control Basic Plan (2020-2024) 	<ul style="list-style-type: none"> • PM_{2.5} concentration in 2021: 33µg/m³ <p>Representative plans:</p> <ul style="list-style-type: none"> • The 14th Five-Year Plan for Ecological Environment Protection
National context	<ul style="list-style-type: none"> • GHG emissions: 727.6 Mt CO₂eq (in 2018) <p>Strategies:</p> <ul style="list-style-type: none"> • The Third Five-Year Plan for Green Growth • The Second Basic Plan for Climate Change Response • Green New Deal 	<ul style="list-style-type: none"> • GHG emissions: 12,301 Mt CO₂eq (in 2014) <p>Strategies:</p> <ul style="list-style-type: none"> • Working Guidance for Carbon Dioxide Peaking and Carbon Neutrality in Full and Faithful Implementation of the New Development Philosophy • The Action Plan for Carbon Dioxide Peaking Before 2030 • The 14th Five-Year Plan for Economic and Social Development and Long-Range Objectives through to the Year 2035

CLIMATE INSTITUTION AND KEY POLICIES

	Seoul	Beijing
Climate institutions	<ul style="list-style-type: none"> • Leading organization: Seoul Climate and Environment Headquarters • Affiliated think tank: Seoul Institute • Representative regulation & legislation group: Climate Crisis Taskforce, Climate Change Countermeasures Committee 	<ul style="list-style-type: none"> • Leading organization: Beijing Municipal Bureau of Ecology and Environment • Affiliated think tank: Beijing Climate Change Management Center • The top-level decision-making group: Comprehensive Air Pollution Control and Climate Change Response Group
Climate strategies	<ul style="list-style-type: none"> • The 2050 Seoul Climate Action Plan • The 2050 GHG Emission Reduction Strategic Plan • The Second Climate Action Master Plan (2022-2026) 	<ul style="list-style-type: none"> • The 13th Five-Year Plan for Energy Conservation and Climate Change • The 14th Five-Year Plan for Economic and Social Development and Long-Range Objectives through to the Year 2035 • The Carbon Neutrality Roadmap (<i>upcoming</i>)
Climate action timeline	<p>2008 SMG Ordinance on Tackling Climate Change</p> <p>2009 The Master Plan for Low Carbon Green Growth: Seoul</p> <p>2012 One Less Nuclear Power Plant: Phase 1</p> <p>2014 One Less Nuclear Power Plant: Phase 2</p> <p>2015 The Promise of Seoul (tackling climate change)</p> <p>2017 The Five-Year Climate Change Adaptation Action Plan (2017-2021)</p> <p>2020 The 2050 GHG Reduction Strategy through the Promotion of the Green New Deal</p> <p>2021 The 2050 GHG Emission Reduction Strategic Plan</p> <p>2021 2050 Seoul Climate Action Plan</p> <p>2022 The Second Comprehensive Plan for Climate Action (2022-2026)</p>	<p>2011 The 12th Five-Year Plan for Energy Conservation and Climate Change</p> <p>2013 Clean Air Action Plan (2013-2017)</p> <p>2013 Accelerating Coal Reduction and Clean Energy Development (2013-2017)</p> <p>2015 Implementation Opinions to Further Promote Clean, Efficient and Safe Energy</p> <p>2015 Promotion of Standardization on Energy Conservation, Low Carbon and Circular Economy (2015-2022)</p> <p>2016 The 13th Five-Year Plan for Energy Conservation and Climate Change</p> <p>2016 Energy Efficiency Leader (2016-2020)</p> <p>2019 Action Plan for Green and Low-Carbon Development of Beijing Economic and Technological Development Zone (2019-2025)</p> <p>2020 Further Support the Promotion and Application of Solar Power Generation Systems</p> <p>2021 The 14th Five-Year Plan</p>

LOW EMISSION ACTIONS IN SEOUL

Sectors	Actions
Energy	<p>Renewable energy promotion</p> <ul style="list-style-type: none"> • Expansion of solar energy generation (<i>550 MW target by 2026</i>) • Advancement and demonstration of solar related technologies • Hydrogen fuel cells (<i>1 GW target by 2050</i>) • Energy sources diversification (e.g., <i>geothermal, hydrothermal, small hydro power, unused urban heat</i>) <p>Energy efficiency improvement</p> <ul style="list-style-type: none"> • Community energy • Transformation to smart energy cities (<i>establishment of an integrated energy information system</i>)
Building	<ul style="list-style-type: none"> • Low Carbon Building (LCB) Program (<i>energy efficiency improvement of ONE million old buildings by 2026</i>) • Green Remodeling Program (<i>1,532 old public buildings by 2050</i>) • Building Retrofit Project for old private buildings • Zero Energy Building transition • Building Integrated Photovoltaics (BIPVs) promotion • GHG emission cap scheme for buildings • GHG emissions disclosure (<i>324 high energy consuming buildings in 2020</i>) • Mandatory Building Program Certification (<i>401 municipally-owned buildings by 2022</i>)
Transport	<ul style="list-style-type: none"> • Seoul Transport Vision 2030 “Livable Seoul - without relying on cars” • No new registration of internal combustion energy vehicles (ICEVs) from 2035 • “Five-minute charging network” within residential areas (<i>220,000 charging stations by 2026</i>) • EV supply expansion (<i>400,000 EVs by 2026</i>) • Public bike sharing (“Ddareungi”) and bike lanes expansion (<i>40,000 public bikes by 2021</i>) • Green Transportation Zones • Urban freight electrification (<i>two- and three-wheelers and trucks</i>) • Multi-modal transportation system promotion (<i>as of 2019</i>) <ul style="list-style-type: none"> - Walking 17% - Bus 20% - Taxi 5% - Others 4% - Cycling 1% - Subway 34% - Private cars 20%

LOW EMISSION ACTIONS IN BEIJING

Sectors	Actions
Energy	<p>Renewable energy promotion</p> <ul style="list-style-type: none"> • Coal-to-clean energy transition to create a Coal-free city • Green power import (30,000 GWh by 2025) • The Six Sunshine Project (510 MW of solar energy as of 2020) • Biomass (370 MW as of 2020) • Wind energy (190 MW as of 2020) • Heat-pumps for heating and cooling (Cover 59.2 million m² building areas as of 2020) <p>Energy efficiency improvement</p> <ul style="list-style-type: none"> • Energy-efficient data centers
Building	<ul style="list-style-type: none"> • Old building renovation • Green Building (402 green building covering 45.9 million m² of areas as of 2019) • Prefabricated building promotion (up to 35% by 2022) • Ultra-low energy consumption buildings (5 million m² by 2025) • Energy consumption monitoring system for public buildings (avoided 1.97 billion kWh of electricity consumption between 2014 and 2018) • Building efficiency standards update
Transport	<ul style="list-style-type: none"> • Beijing Transport Development Plan 2004-2020 • Transit Oriented Development (TOD) • Low Emission Zones (LEZ) • The Carbon Credit Accounting and Trade system (reduced 46,000 tons of carbon emissions as of October 2021) • New Energy Vehicle (NEV) promotion (307,000 new energy buses, a 36.6% increase from 2018) • EV charging infrastructure (149 charging stations and 1,070 charging spots as of 2019) • Vehicle use control (over 1 million vehicles under control daily) • Public transport promotion (99.4% bus station coverage within 500-meter) • Green mobility (74.1% green mobility trips done in the city center) • Multi-modal transportation system promotion (as of 2018) <ul style="list-style-type: none"> - Cycling 16% - Subway 23% - Private cars 33% - Bus 23% - Taxi 4% - Others 2%

RECOMMENDATIONS

Policy recommendations

- Spatial planning in managing urban growth and climate-proof cities
- Integrated climate action for climate-proof cities
- Sustainable financing and market instrument
- Scale-up and integrate cross-sectoral actions

Potential areas for Seoul-Beijing collaboration

- Design integrated climate solutions
- Conduct joint research on MRV systems for climate strategies and projects
- Organize exchanges to promote coordination and collaboration with stakeholders
- Explore cooperation opportunities on climate finance-related and market-oriented actions, such as climate budget and carbon tax
- Conduct joint research on demand-side management
- Establish thematic working groups on technical innovation and promotion



English report

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Korean report

Seoul-Beijing Bilateral Research Report 2022