



Korea's Path to Carbon Neutrality and Digital Transformation



Case Study 2
Korea's Low-carbon Policy

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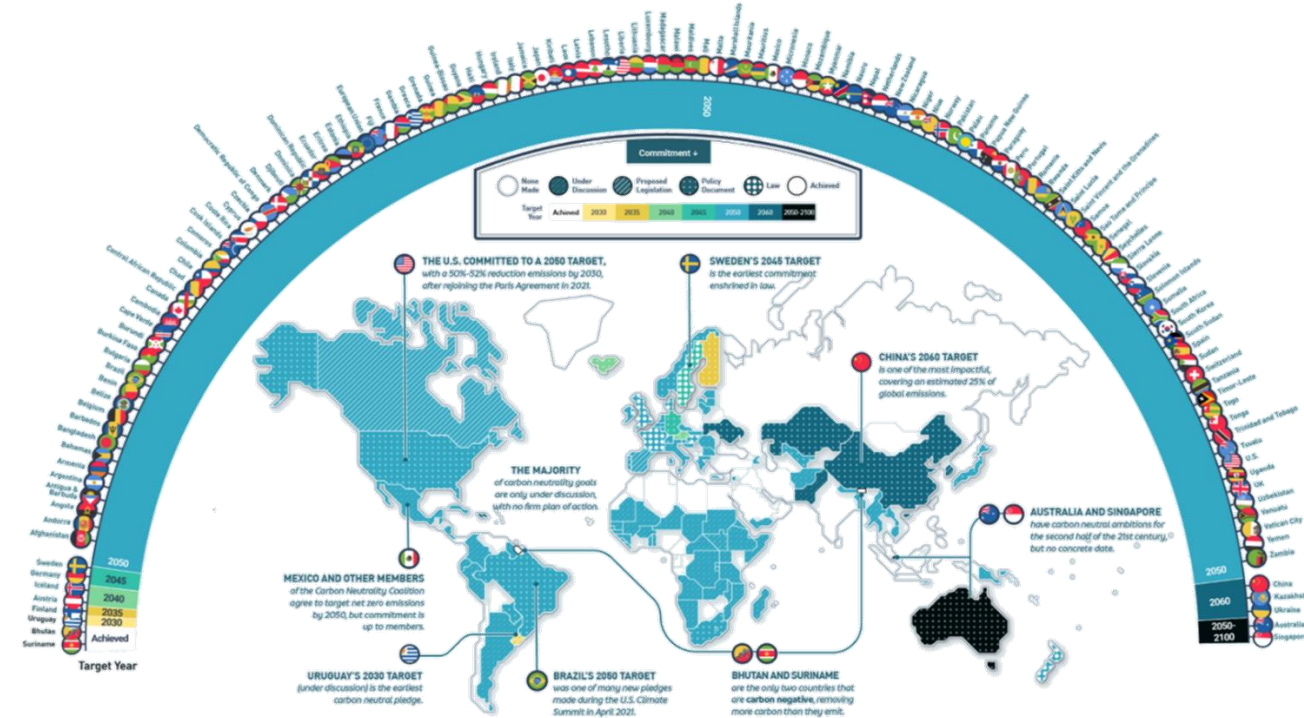
Global Efforts for Net-Zero Emissions



RACE TO NET ZERO

CARBON NEUTRAL GOALS BY COUNTRY

Which countries have made a carbon neutral pledge?
This map breaks down pledges by target year and level of commitment.



EU

committed to reduce its GHG emissions by 55% below 1990 levels by 2030

US

committed to invest USD2trn in building clean energy infrastructure

Korea

declared its carbon neutrality goal by 2050 and raised its 2030 NDC target to 40% below 2018 levels

UK

legislated a carbon neutrality law for the first time in the world and is committed to reduce emissions by 68% below 1990 levels by 2030

Japan

declared its 2050 carbon neutrality goal

The Untrodden Path We Must Walk; The Call of Our Times We Must Answer!



National Basic Plan for Carbon Neutrality and Green Growth



Vision

“Transition to a carbon neutral society by 2050 and promotion of harmonious development of economy and environment



Strategy

- 1** Detailed, efficient and responsible transition
- 2** Private-led, innovation
- 3** Active public engagement
- 4** Proactive leadership in the international community for climate change adaptation

Target

Reduce GHG emissions by 40% by 2030 from 2018 levels
727.6mn tons in 2018 → 436.6mn tons in 2030

Sectoral Policies

 Transition <ul style="list-style-type: none"> Switching energy sources from coal power to nuclear power plants and renewable energy Increasing demand efficiency 	 Industry <ul style="list-style-type: none"> Securing core technology Supporting firms Improving emissions trading scheme 	 Buildings <ul style="list-style-type: none"> Enhancing building performance through zero-energy buildings and green remodeling 	 Transportation <ul style="list-style-type: none"> Increasing zero-emission vehicles Decarbonization in railways, shipping and aviation 	 Agriculture, Livestock and Fisheries <ul style="list-style-type: none"> Promoting smart farms and low-methane feed Low-carbon fisheries and fishing vessels
 Waste <ul style="list-style-type: none"> Sustainable production and consumption Circular use of resources 	H₂ Hydrogen <ul style="list-style-type: none"> Greater supply of green hydrogen Strengthening hydrogen ecosystems 	 Carbon Sinks <ul style="list-style-type: none"> Circular forest management Preserving and reclaiming inland/coastal wetlands 	 Carbon Capture, Utilization and Storage <ul style="list-style-type: none"> Legislation and infrastructure installation R&D for key technologies 	 Overseas Carbon Offset Projects <ul style="list-style-type: none"> Providing a platform for private-public projects Explore sectoral projects

Foundation for Implementation

Climate Change Adaptation

Green Growth

Just Transition

Local Leadership

Capacity Awareness

International Cooperation

Consultation using a pan-ministerial consultative body

Evaluation Using quantitative and qualitative indicators and statutory frameworks for assessment and evaluation

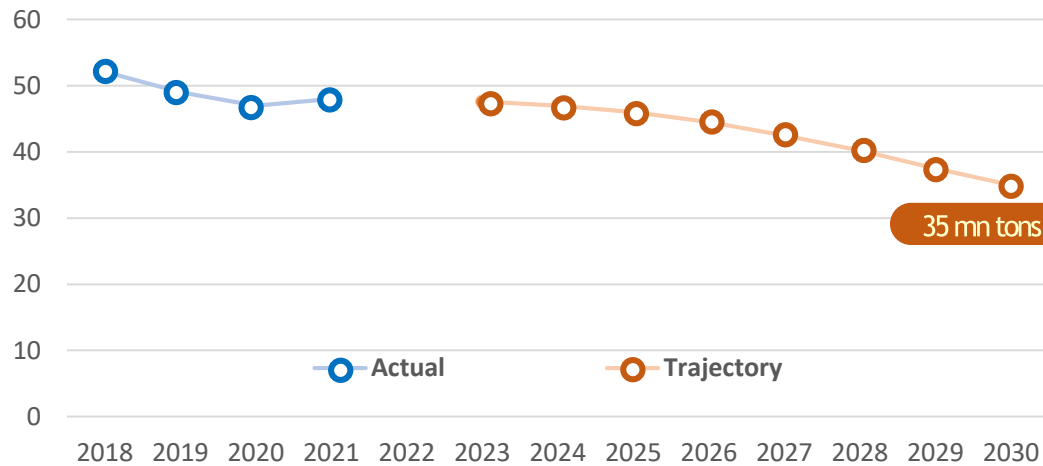


GHG Emission Reduction Targets

Buildings



52.1mn tons in 2018 → 35mn tons in 2030 (32.8% ↓)



✓ Projection

Emission 35mn tons in 2030

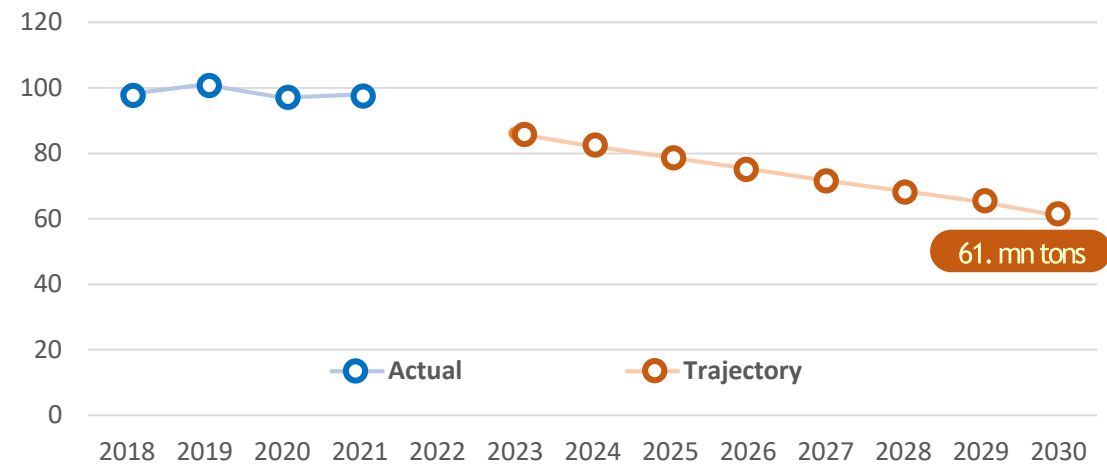
Reduction 17.1mn tons below 2018 levels (32.8% ↓)

Action Increasing zero-energy buildings and green remodeling; Improving energy efficiency based on the disclosure of information on building energy performance

Transportation



98.1mn tons in 2018 → 61mn tons in 2030 (37.8% ↓)



✓ Projection

Emission 61mn tons in 2030

Reduction 9.6mn tons below 2018 levels (37.8% ↓)

Action Increasing electric/hydrogen-powered vehicles and charging infrastructure; Focusing on railways; Utilizing SAF; Promoting public transport via incentives and demand-responsive transport



Vision and Strategy for Buildings and Transportation

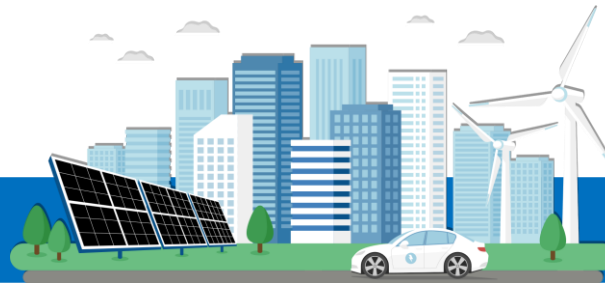
Vision

Making all buildings and modes of transportation carbon neutral



Buildings

- ✔ Improving energy performance of new buildings
- ✔ Green remodeling of existing buildings
- ✔ Enhancing energy efficiency of buildings
- ✔ Incorporating carbon neutrality elements from the planning and spatial design stages



Transportation

- ✔ Promoting the deployment of eco-friendly cars including EVs and hydrogen-powered cars
- ✔ Promoting public transport; Managing demand for internal combustion passenger vehicles
- ✔ Decarbonization of combustion engine vehicles
- ✔ Focusing on railway systems



Digital Transformation



Legal/
Institutional
Foundation

Infrastructure
Installation

Proactive
Investment

Support for
Demonstration





Smart Cities

Demonstration complete in Daegu and Siheung (2022) Adoption for All Metropolitan Governments (2023~)

Smart City Data Hub



Platform

Environmental
Data

Energy
Data



Platform



Platform

Transport
Data

Source Data

Converged Data

Analysis/Projection
Data

...
Data



Source/Convergence/Analysis/Anticipation Data

Service
Convergence

Energy
+
Transportation



Environment
+
Transportation





National Smart City Pilot Projects

Sejong

5-1 District



Planned Population
24,000



Area
2.74km²

Spatial Plan

Increasing proximity of jobs and housing based on mixed land use

Primary Service

Level 4 autonomous driving and integrated mobility



Busan

Eco Delta City



Planned Population
8,500



Area
2.8km²

Spatial Plan

Eco-friendly, innovative cluster, land use to make jobs and housing close

Primary Service

Robot-based security/delivery, zero-energy city





▶ (1) Autonomous Driving



The industry is projected to grow to W2.6trn (EUR1.8bn) in Korea and W133.4trn (EUR93.5bn) worldwide by 2035

Annual Average Growth of 40%

Infra-structure

C-ITS and high definition mapping for national roads (~2030)

Institutional framework

Level 4 safety standards and insurance systems (~2024)
* Releasing and operating Level 3 vehicles is already possible

Demonstration

Expansion of pilot operation zones nationwide
* 15 cities/provinces in 2023 → 17 in 2025



▶ (2) UAM

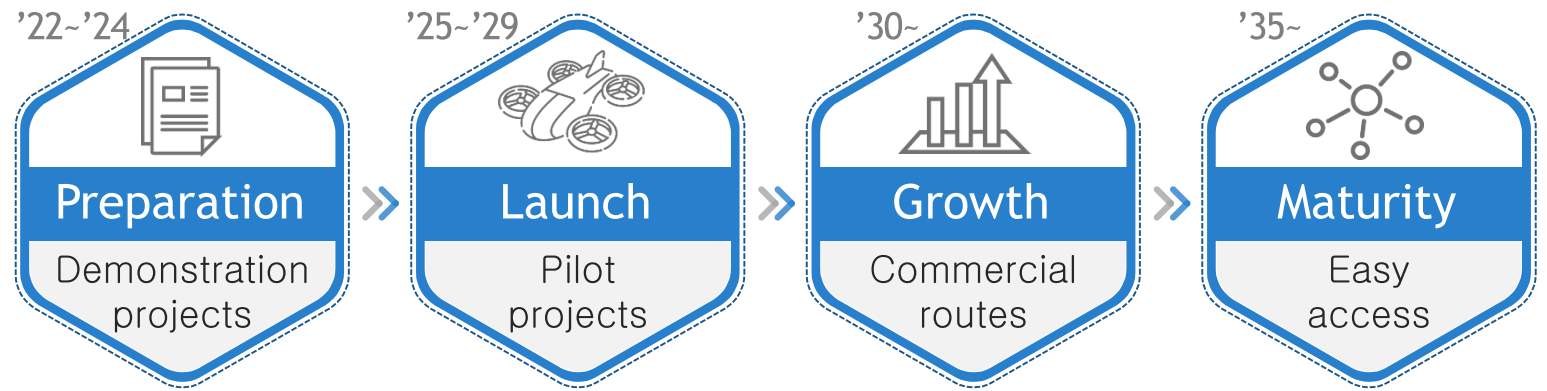
UAM Industry outlook

By 2040

W730trn (EUR510bn) worldwide

W13trn (EUR9.1bn) in Korea

K-UAM Roadmap with Commercialization Planned in 2025



Demonstration	Phase 1 (rural area, Aug. 2023–Dec. 2024); Phase 2 (metropolitan urban area, Aug. 2024–2025); Participation of domestic and overseas promising companies
Institutional Framework	UAM law enactment with regulatory exemptions (Oct. 2023); Customized system based on demonstration projects
Ecosystem	UAM Team Korea (about 100 stakeholders, 14 working groups); Close cooperation with international organizations (US FAA· NASA, EU EASA etc.)

THANK YOU

