

Korea ESG



Regulations from 2023 on carbon emissions for new buildings to drive ESG adoption

TABLE 1: Nationally Determined Contributions (NDC) Targets for Selected Countries

COUNTRY	BENCHMARK YEAR AND EMISSION (MT CO ₂ EQ)					REDUCTION FROM PEAK GHG EMISSIONS
	1990	2005	2013	2018	2030 (NDC TARGET)	
Korea	292.1	561.5	697.3	727.6	436.6	-40% from 2018
UK	797.8	695.4	570.2	465.9	255.3	-68% from 1990
EU	5,648.0	5,240.0	4,477.1	4,224.4	2,541.6	-55% from 1990
US	6,437.0	7,391.8	6,769.6	6,676.6	3,622.0	50-52% from 2005
Japan	1,270.0	1,378.8	1,407.8	1,238.3	760.2	-46% from 2013

Source Ministry of Environment Greenhouse Gas Inventory & Research Center

TABLE 2: 2050 Carbon Neutrality Scenarios

VISION	"A safe and sustainable carbon-neutral society safeguarded from the adverse impacts of the climate crisis"		
TARGET	Reduce GHG emissions by 40% from 2018 levels in 2030, Achieve carbon neutrality (net zero) by 2050		
SECTOR	Future Image & Transition Details		
ENERGY TRANSFORMATION	Expand use of renewable energy	2020	2050
		6.6%	60.9-70.8%
TRANSPORTATION	Promote electrification and hydrogenation in the road sector	2020	2050
		3.4%	85-97%
INDUSTRY	Facilitate low-carbon industrial structure and reduction technologies	<ul style="list-style-type: none"> Iron & Steel: Replace carbon-based processes with 100% hydrogen-based steelmaking Cement: Complete replacement of solid fossil fuel (bituminous coal) Petrochemical/Oil Refining: 52% conversion of existing naphtha using bio and hydrogen raw materials 	
BUILDING	Zero energy building, green remodeling	<ul style="list-style-type: none"> New buildings: 100% compliance for Zero energy building 1st grade Existing buildings: green remodeling 100% for commercial 1+ 	
WASTE	Reduce waste by 25% and increase recycling rate to 90%, replace with bioplastics		

Source The Presidential Commission on Carbon Neutrality and Green Growth

TABLE 3: Zero Energy Building Certification Energy Independence Rate Standard

ZEB GRADE	Energy Independence Rate
GRADE 1	100% ≤ Energy Independence Rate
GRADE 2	80% ≤ Energy Independence Rate < 100%
GRADE 3	60% ≤ Energy Independence Rate < 80%
GRADE 4	40% ≤ Energy Independence Rate < 60%
GRADE 5	20% ≤ Energy Independence Rate < 40%

Source Seoul Metropolitan Government

BACKGROUND

According to the United Nations Environment Programme in 2020, global building operations accounted for about 31% of total energy consumption. As a result, measures have been taken worldwide to reduce total emissions via the implementation of policies on eco-friendly construction and energy efficiency of existing buildings, and Korea has also made efforts to keep pace with the global trend.

In the past, real estate policies have mostly focused on improving the environmental aspects of public buildings, but regulations will begin to impact the private sector (commercial real estate) starting in 2023. All buildings with a GFA greater than 100,000 sq m with permits to start construction after 2023 are legally obligated to receive a government-accepted rating for greenhouse gas emissions ("GHG").

KOREA REAL ESTATE ESG RELATED REGULATIONS

The Korean government has announced plans to enhance its Nationally Determined Contribution (NDC) to reduce total national GHG emissions by 40% from 2018 levels (727.6MtCO₂e) by 2030 and achieve the goal of carbon neutrality by 2050.

Seoul, which accounted for 68.7% of carbon emissions from buildings in 2019, has been implementing the Seoul Building GHG Reduction Project from 2020 in line with the Korean government's policy stance to encourage low-carbon buildings. This was included as a major task in the '2050 Greenhouse Gas Reduction Plan' and 'Seoul Vision 2030'. The policy direction is based on preemptive implementation in the public sector followed by expansion to the private sector. The Seoul Metropolitan Government set 2005 as the base year for peak greenhouse gas emissions and announced that it would promote 143 detailed projects with the goal of reducing emissions by 30% from 49.445 million tons in 2005 to 34.612 million tons in 2026.

According to the Seoul Metropolitan Government, obsolete buildings at least 30 years old account for 47% (280,000 out of 600,000 buildings), and new buildings have increased 25%, from 479 million sq m in 2005 to 600 million sq m in 2020. Accordingly, the Seoul Metropolitan Government will focus on improving the energy efficiency of old buildings and pushing new buildings to be built as Zero Energy Buildings ("ZEB").

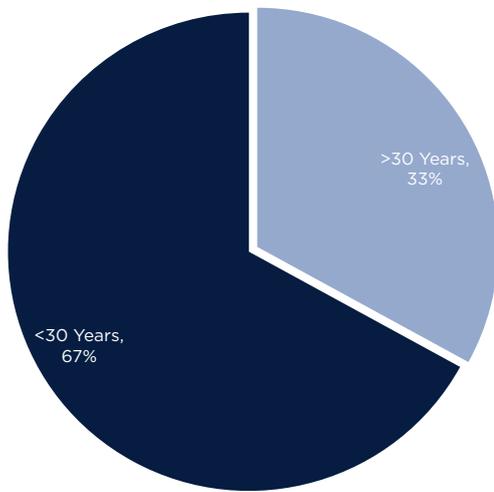
Seoul Metropolitan Government aims to rapidly change 800,000 buildings to greater energy efficiency through high-efficiency boiler replacement, LED lighting replacement, and interest-free loans among other things. Mandatory ZEB requirements,

which have been previously applied to buildings with a GFA of 1,000 sq m+ in 2021 will expand to buildings with a GFA of 500 sq m+ in 2022, until being applicable to all public buildings starting in 2024. For private buildings, ZEB certification will be mandated for building permits with a GFA of over 100,000 sq m from 2023. After 2025, zero-energy construction for private buildings will be expanded to GFAs over 1,000 sq m.

The goal of the policy is to convert all public sector buildings to ZEB grade 3 (an energy independence rate of 60% - 80%), and

The mandatory ZEB certification policy for commercial properties in Seoul from 2023 is phasing in reaching net-zero by 2050.

GRAPH 4: Seoul Office Stock by Age, November 2022



Source Savills Korea Research & Consultancy

all private buildings to ZEB grade 5 (an energy independence rate of 20% - 40%) by 2030. In addition, a plan to ban the use of fossil fuels for new buildings is being reviewed and will be implemented. It aims to switch to electricity and renewable energy (solar heat, geothermal heat, water heat, etc.) for air conditioning and heating. Also being reviewed is the use of hydrothermal energy for urban development projects such as the Banpo Apartment Reconstruction Project expected in 2025 of approximately 7,500 units. Expanding electricity and heat production infrastructure, such as converting gas stations into Total Energy Stations (“TES”) by utilizing public and private infrastructure sites is currently being executed.

KOREA MARKET OVERVIEW

According to the Seoul Metropolitan Government, buildings are classified as old once aged over 30 years. As of November 2022, Seoul office stock greater GFA 2,000 pyeong (c. 6,600 sq m) according to Savills

TABLE 4: Notable LEED-certified Buildings in Korea

BUILDING NAME	DATE	GRADE	FEATURES & ASSESSED CONTENTS
Signature Tower	31 Oct 2022	Platinum	<ul style="list-style-type: none"> • Large green, natural outdoor environment • Indoor water use reduction and optimize energy performance • Optimize energy efficiency
Autoway Tower	18 Aug 2022	Platinum	<ul style="list-style-type: none"> • Received 5-star in the GRESB evaluation for 5 consecutive years • Energy-saving curtain wall & eco-friendly insulation materials • Maximizing natural light with open structure from roof glass to second basement floor • Renewable energy production via Solar panels
Sewoo Building (13th floor of the building partially certified)	28 Feb 2022	Gold	<ul style="list-style-type: none"> • LEED Rating Gold for Interior Design and Construction (LEED ID+C) • Indoor water use reduction • Optimize water performance
Centerfield	5 Jul 2021	Gold	<ul style="list-style-type: none"> • Large green, natural outdoor area over 9,900 sqm (3,000 pyeong) • Materials reuse - 75% of demolition and construction waste • Application of advanced energy saving technologies including ice thermal storage, geothermal, heat recovery systems
Pulmuone Technology Institute (R&D center)	22 May 2020	Gold	<ul style="list-style-type: none"> • Korea's first food research institute and highest-rated R&D center nationally • Rainwater recycling system - 73% reduction in water consumption vs. US legal standards • Reduction in energy consumption - 20% lower than LEED standards
Lotte World Tower	22 Dec 2016	Gold	<ul style="list-style-type: none"> • World's first high-rise building to receive LEED Gold rating at completion • 15% of total energy consumption used as eco-friendly energy • Renewable energy production including hydrothermal, geothermal, and solar heat • Large green, natural outdoor area over 25,800 sqm (7,800 pyeong)

Source Savills Korea Research & Consultancy

analysis shows that buildings of a 30-year vintage or older represent 37% of total inventory. There is a potential concern that more than one third of all offices could be categorized as obsolete, which would be associated with a “brown discount” which refers to the risks associate with assets which do not meet eco-friendly standards.

The majority of investments into green assets are mainly focused on the “brown discount” risk management aspect rather than “green premium” in the current Korean commercial real estate market. Acquiring LEED certification is currently popular among eco-friendly property management companies. From this year, primary domestic asset managers are actively launching eco-friendly asset management policies and accelerating achieving green building certificates. Signature Tower and Autoway Tower have achieved ‘Platinum’ LEED and Centerfield attained a ‘Gold’ rating, and all are managed by domestic AMCs. Corporate-owned properties such as Pulmuone Technology Institute (R&D center) and Lotte World Tower are also active in green building conversion efforts.

The overall market consideration of a “brown discount” is expected to become increasingly prominent for new buildings at the stage of construction permission from 2023 when actual regulations for private sector buildings

(mandatory ZEB certification for buildings with GFAs greater than 100,000 sq m) are applied to Seoul commercial real estate. ZEB certification will be mandatory for all privately-owned buildings with a GFA greater than 100,000 sq m from 2023, with plans to be eventually applied to any buildings with a GFA greater than 1,000 sq m.

These regulations will be applied to virtually all new prime office buildings from the construction permission stage. A total of four prime office buildings are scheduled to be newly supplied in 2023, among them, large-scale projects such as TP Tower (Reconstruction of Teacher’s Pension HQ) with a GFA of 123,402 sq m scheduled to be delivered in 2H/2023 is not subject to ZEB certification regulations. However, in accordance with the mandatory ZEB and energy efficiency rating certification for all new buildings, there will ultimately be significant awareness and capital devoted to optimizing energy performance in the long-term.

OUTLOOK

The mandatory ZEB standard for new building permits with GFAs greater than 100,000 sq m, which will be applied from next year (2023), is expected to be an inflection point in the transition from selectively obtaining eco-friendly certifications such as LEED and BREEAM

to meeting compulsory legal requirements. Upcoming offices in the pipeline are expected to adopt design and construction methods to minimize the risk of a “brown discount”.

There is no supply of prime offices scheduled until 2026 based on recently announced construction permits. In the case of new offices which are to be completed (including extensions and remodeling or renovations) within two to three years after obtaining a construction permit in 2023, the market sees the first mandatory ZEB cases around 2026-2027. In 2030, targeting virtually all buildings attaining ZEB certification, with the sequential supply of such zero-energy buildings, market participants’ views on buildings which reflect ESG factors such as ZEB certification and those which do not are expected to diverge.

Accordingly, global funds invested in Korean commercial real estate are already taking proactive steps towards ESG adoption, while domestic investors, led by the National Pension Service, are expected to follow in preparation for the ESG-related real estate investment guidelines. As a result, investors are expected to become more conscientious and adopt more ESG-related goals over the next 30 years.



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