Carbon Neutrality Policy in Asian Countries

Korea, China, Japan

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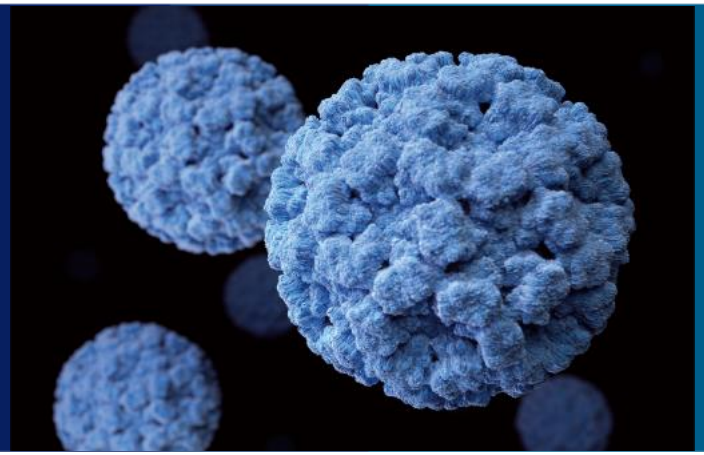
Introduction to Korea's 2050 Carbon Neutral Strategy



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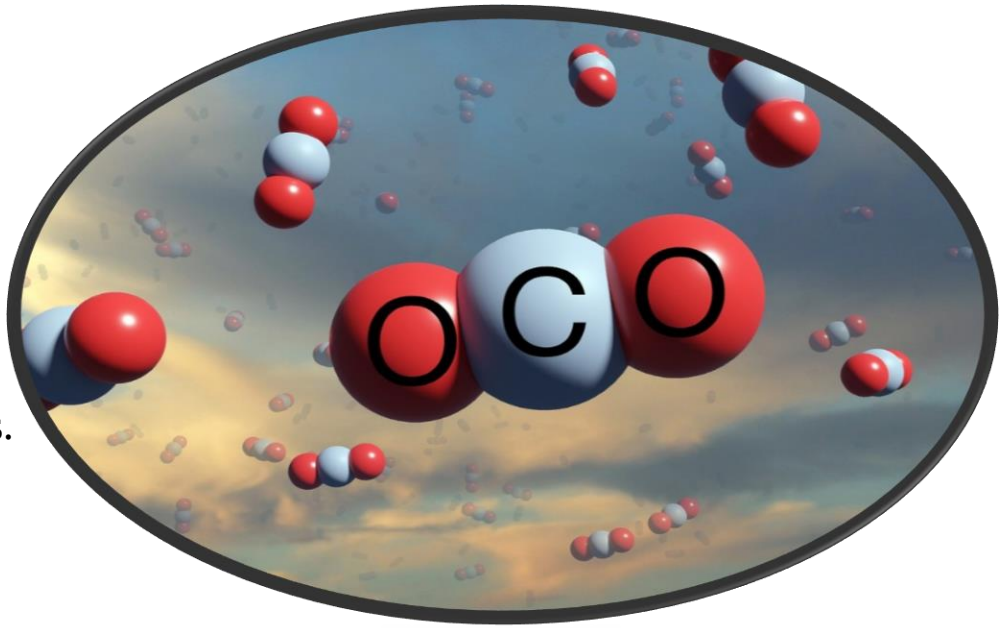
Republic of Korea's 2050 Carbon Neutral Strategy

1. **Commitment**:
   - **Carbon Neutrality Target**: By 2050.
2. **Key Policies**:
   - **Green New Deal**: Part of the broader Korean New Deal, it aims to invest in renewable energy, smart grids, and eco-friendly infrastructure.
   - **Renewable Energy**: Plans to increase the share of renewable energy in the power mix to 20% by 2030.
   - **Hydrogen Economy**: Ambitious plans to develop hydrogen as a major energy source, with a goal to become a global leader in hydrogen production and utilization.
   - **Carbon Tax**: Introduction of a carbon pricing system to incentivize emission reductions.
3. **Challenges**:
   - **Energy Mix**: Current heavy reliance on coal and nuclear energy.
   - **Industrial Base**: Need to transition key industries like steel and petrochemicals to low-carbon technologies.

Five Key Elements of the Strategy

1. **Clean Power and Hydrogen:**
   - Expand clean energy use across all sectors.
2. **Energy Efficiency:**
   - Improve energy efficiency significantly.
3. **Carbon Removal Technologies:**
   - Commercial deployment of carbon removal and future technologies.
4. **Circular Economy:**
   - Scale up circular economy for industrial sustainability.
5. **Carbon Sinks:**
   - Enhance carbon sinks through innovative forest management.



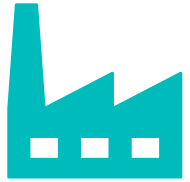
Technological Innovations and Industry Collaboration

Power Demand and Supply Forecasting:

Develop accurate forecasting systems.

Support for Future Technologies:

Enhanced support for Energy Storage Systems (ESS) and hydrogen fuel cells.



Industry Collaboration:

Scale up investments in low-carbon technologies.

Transition existing industrial processes to low-carbon alternatives.

Waste Management and Agricultural Strategies

Waste Sector Strategy:

- Convert waste into useful materials and energy.
- Eco-friendly disposal of unrecycled waste.

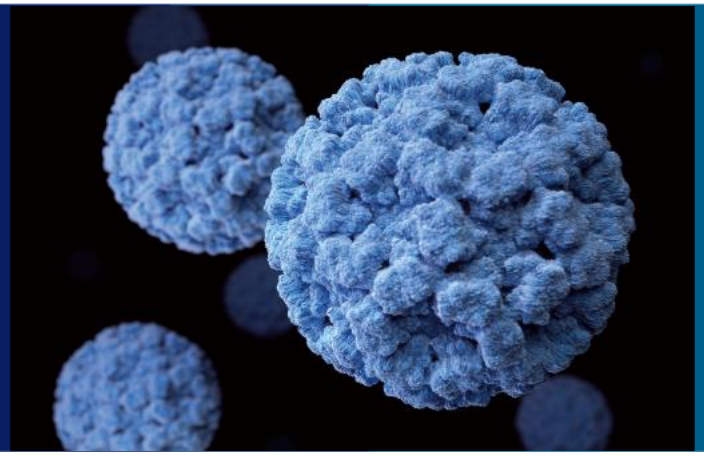
Farming Sector:

- Deploy smart technologies on farms.
- Develop and implement low-carbon farming practices.
- Replace fossil fuels with clean energy in agriculture.

Enhancing Carbon Sinks and Urban Green Spaces

- **Forest Management:**
  - Improve forest structure.
  - Promote use of wood products and increase carbon stocks.
- **Urban Green Spaces:**
  - Create green recreational areas.
  - Restore degraded forestlands.
  - Tree-planting in underutilized lands.

China's Carbon Neutrality Goals



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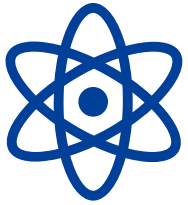
China's Carbon Neutrality Goals

1. **Commitment**:
   - **Carbon Neutrality Target**: By 2060.
   - **Peak Emissions**: By 2030.
2. **Key Policies**:
   - **Five-Year Plans**: The 14th Five-Year Plan (2021-2025) focuses on reducing carbon intensity and increasing renewable energy capacity.
   - **Renewable Energy**: China aims to have 25% of its energy consumption come from non-fossil fuels by 2030.
   - **Electric Vehicles**: Ambitious targets for electric vehicle production and sales, aiming for 20% of new car sales to be electric by 2025.
   - **Carbon Market**: Launched the world's largest carbon trading market in 2021 to help industries cut emissions.
3. **Challenges**:
   - **Coal Dependency**: Heavy reliance on coal for energy.
   - **Industrial Growth**: Balancing economic growth with emission reductions.

Current State of Emissions and Energy Use

China leads in global energy production and consumption



Energy-related CO2 emissions:

28% of global total in 2019 (International Energy Agency)

Dominance of coal in the energy mix:

Declined by 10% between 2012 and 2019

Still the dominant source of primary energy

Challenges in Transition

- Balancing economic growth with emission reductions
- Hard-to-abate sectors:
  - Iron and steel making
  - Cement
  - Petrochemicals
- Importance of these sectors to economic activity

Renewable Energy Growth

- China's significant role in global renewable energy growth:
  - 34-53% of global annual growth from 2013 to 2021
- Key renewable sources:
  - Solar, wind, hydro
- Progress in renewable energy deployment

Strategies for Carbon Neutrality

Maximizing deployment of renewables-based power generation

Electrification of end-use sectors:

Building, industry, transport

Supplement with:

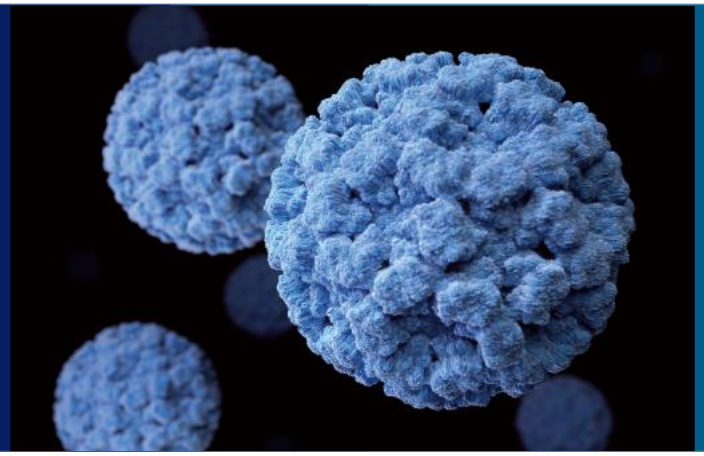
Sustainable bioenergy
Hydrogen
Synthetic fuels

Rethinking energy supply and security

Future Outlook and Innovation

- The need for a fundamental rethinking of traditional concepts of energy supply and security.
- Accelerating the pace of generating and disseminating systemic innovations needed for the energy transition.
- Importance of careful planning, substantial analysis, and coordinated efforts to shape the path to 2060.
- Importance of global collaboration and innovation

Japan’s Carbon Neutrality Introduction



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Japan’s Carbon Neutrality Introduction

1. **Commitment**:
    - **Carbon Neutrality Target**: By 2050.
2. **Key Policies**:
    - **Green Growth Strategy**: Focuses on 14 key sectors including hydrogen, offshore wind, and ammonia.
    - **Renewable Energy**: Aiming for renewables to account for 36-38% of the energy mix by 2030.
    - **Nuclear Energy**: Plans to restart nuclear reactors to reduce reliance on fossil fuels.
    - **Energy Efficiency**: Strong emphasis on improving energy efficiency across all sectors.
3. **Challenges**:
    - **Nuclear Controversy**: Public opposition to nuclear energy post-Fukushima.
    - **Natural Disasters**: Vulnerability to natural disasters impacts energy infrastructure

Japan's Commitment and Achievements

- **Emissions Reduction Targets**:
  - 46% reduction by 2030
  - Aim to cut emissions by 50%
  - Achieved 20% reduction to date
- **G7 Hiroshima Summit Affirmation**: Common goal of net-zero
- **Pathways**: Compatibility with economic growth and energy security
- **Current Status**: World not on 1.5°C pathway
- **Critical Action Until 2030**: Needed for course correction
- **Key Goals**:
  - Net-zero by 2050
  - Economy-wide absolute reduction target
  - Peak global greenhouse gas emissions by 2025

Strategic Initiatives and Carbon Pricing

Existing Carbon Tax

Japan introduced its carbon tax in 2012. Currently, it is set at JPY 289 (approximately USD 2.16) per ton of CO2. This tax applies to all fossil fuels used in the country, aiming to incentivize reductions in greenhouse gas emissions across various sectors (Carbon Pricing Dashboard) (ICAP Carbon Action).

Green Transformation (GX) Policy

In 2023, Japan's Cabinet approved the "GX: Green Transformation Policy," a ten-year roadmap for decarbonization. This policy includes multiple carbon pricing instruments:

1. **GX League**: A voluntary emissions trading system (ETS) started in April 2023, with mandatory compliance for participating companies. It will transition to a mandatory ETS from 2026 (ICAP Carbon Action) (ICAP Carbon Action).
2. **Carbon Levy**: Scheduled to begin in 2028, this levy will target fossil fuel importers. Specific details regarding its scope and rate are still being finalized (ICAP Carbon Action).

Emissions Trading System (ETS)

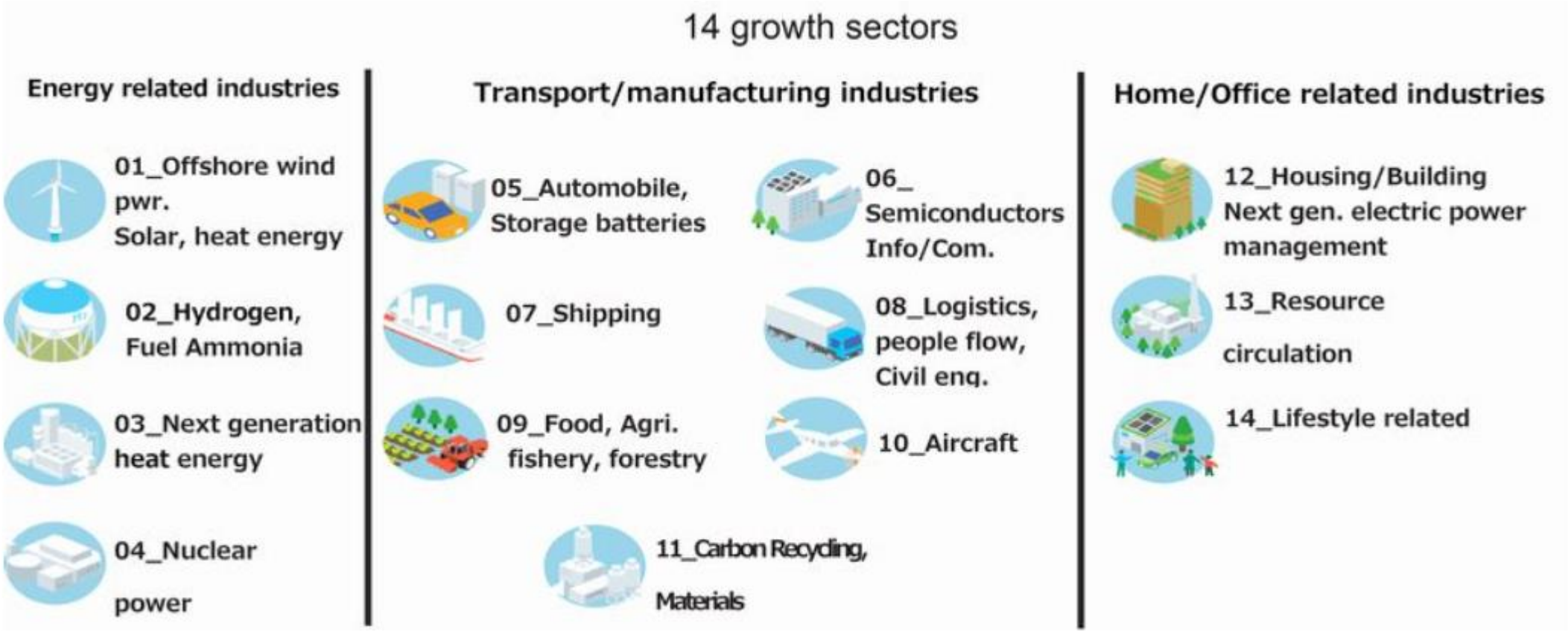
The GX League is designed to evolve into a full-fledged mandatory ETS by 2026. This system will set upper and lower price limits to stabilize the carbon market. By 2033, high-emitting entities, particularly in the power sector, will move from free allocations to an auction-based system (RIETI) (ICAP Carbon Action).

Joint Crediting Mechanism (JCM)

Japan's JCM is a bilateral scheme to promote decarbonizing technologies and projects in partner countries. Credits from this mechanism will be eligible for use in the GX-ETS, further integrating international efforts with domestic carbon pricing strategies (ICAP Carbon Action) (ICAP Carbon Action).

Key Sectors

The strategy specifies 14 promising fields that are expected to grow, and provides them with action plans from the viewpoints of both industrial and energy policies.



Renewable Energy and International Collaboration

Energy Conservation:

- Maximum deployment of clean energy
- Renewable energy as main power source
- Utilization of nuclear power

Global Renewable Energy Goals:

- Triple renewable energy capacity
- Double energy efficiency improvements

Unabated Coal Power Plants: National pathways to net-zero

Climate Finance:

- Mobilize up to $70 billion USD
- $9 billion USD credit enhancements to World Bank and ADB
- Contributions to African Development Bank

Japan's Commitment:

- Leading international community efforts
- Cooperation with other countries

China, Japan, South Korea, Comparative Analysis

- **Ambition Levels**: All three countries have set ambitious carbon neutrality targets, with China aiming for 2060, while Japan and South Korea target 2050.
- **Energy Policies**:
  - **China** focuses heavily on expanding its renewable capacity and leveraging its carbon market.
  - **Japan** relies on a mix of renewables and nuclear energy, coupled with energy efficiency measures.
  - **South Korea** emphasizes a shift to renewable energy and developing a hydrogen economy.
- **Economic and Social Challenges**: Each country faces unique challenges:
  - **China** needs to balance rapid industrial growth with emissions reduction.
  - **Japan** contends with public opposition to nuclear energy and disaster resilience.
  - **South Korea** has to manage its energy transition while maintaining industrial competitiveness.

Thank You!

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