# Forum Book

Engage Passionately, Keep the Earth Cool!

ZERC

빛을 품은 GwangMyeong City

# **Overview**



THE

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# Timetable

| Opening  | Time          | Program Details  |
|----------|---------------|--|
| Ceremony | 10:00 ~ 10:30 | Opening Performance<br>- Performance by Liaocheng Chinese Art Troupe<br>- Performance by Gwangmyeong Municipal Nongak Troupe   |
|          | 10:30 ~ 11:00 | Host's Greeting / Welcome Speech / Carbon Neutral Theme Video  |
|          | 11:00 ~ 11:10 | Signing an Agreement on Strengthening Cooperation in Climate Change Response   |
|          | 11:10 ~ 11:30 | [Keynote Speech 1] Global Carbon Neutrality<br>- Gino Van Begin,<br>Secretary-General of ICLEI – Local Governments for Sustainability  |
|          | 11:30 ~ 11:50 | [Keynote Speech 2] Domestic Carbon Neutrality<br>- Lee Yu-jin,<br>Director of Green Transition Research Institute,<br>Co-representative of National Network for local Energy Transition. |
| Luncheon | Time          | Program Details  |
|          | 11:50 ~ 14:00 | Luncheon and Networking  |
| Session  | Time          | Program Details  |

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|---|
| <b>eement)</b><br>nato(Japan)                                   |
|   |
| ples of<br>mate Crisis Response)                                |
| ition for   |
| y)<br>Local Governments<br>Ich Institute,<br>Energy Transition) |
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# **Keynote Speach 1**



# **Global Carbon Neutrality**

## Gino Van Begin

Secretary-General of ICLEI Local Governments for Sustainability







#### Cities and Carbon Neutrality: Global Trends

Gino Van Begin - Secretary General ICLEI Local Governments for Sustainability



#### Address:

Why are cities key to achieve carbon neutrality?

How are cities leading the way?

ICLEI's approach to support cities in achieving climate goals









#### The Urbanization Challenge



Urban areas are responsible for over 70% of global CO<sub>2</sub> emissions, highlighting cities' role in climate action.

Rapid urbanization increases energy demand, leading to challenges in sustainability.

Cities must transform to become arenas for decarbonization and innovation.

Investment in green infrastructure and public transport is essential for sustainable urban growth.







#### Opportunities for Achieving Net Zero Emissions

- **Technological Innovation and Renewable Energy**: Rapid advancements in solar, wind, and energy storage technologies offer significant potential for sustainable energy solutions.
- **Green Finance and Investment**: Growing interest in green bonds and sustainable financing is driving investments in low-carbon infrastructure and renewable energy projects.
- **Circular Economy Initiatives**: Transitioning towards a circular economy can lead to substantial reductions in carbon footprints across industries like manufacturing, construction, and agriculture.











#### **Capacity Building**

- Enhance the skills, knowledge, and resources of members
- Training programs and toolkits for member cities in areas such as sustainable urban planning, climate action and adaptation planning
- Expert guidance through peer-to-peer collaboration.



#### **Global Advocacy**

- Representing local governments at major international climate negotiations (UNFCCC, COP)
- ICLEI promotes the creation of national and international climate action plans that align with local efforts
- Help local governments set measurable targets and create clear pathways to carbon neutrality.



#### **Targets and Measurement**



- GHG inventories and setting standardized methodologies for emissions calculations
- Science based targets allow cities to align with global goals while considering their local needs
- Carbonn Climate Registry as a central repository for tracking and sharing climate commitments.







ICLEI Network of Local and Regional Governments Committed to Sustainability



#### Contact us

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Communications inquiries: media@iclei.org

Climate inquiries: carbon@iclei.org

Events inquiries: capacity.center@iclei.org

General inquiries: iclei.ws@iclei.org

ICLEI – Local Governments for Sustainability (WS) Kaiser-Friedrich-Str. 7 53113 Bonn Germany Website: www.iclei.org



# **Keynote Speach 2**



# **Domestic Carbon Neutrality**

# Lee Yu-jin

Director of Green Transition Research Institute, Co-representative of National Network for local Energy Transition.





# Global Net–Zero 2.0 Era Korea's Preparation

Director Yoo-jin Lee (yujin@igt.or.kr) Institute for Green Transformation







#### Climate disasters hit the vulnerable hardest, but anyone can be a victim



- In 2022, a family of three was found dead after being trapped in a semi-basement apartment in Sillim-dong, Gwanak-gu, Seoul
   599,000 people live in semi-basement apartments, including 355,000 in Seoul
- Many of these residents are elderly, live alone, or have disabilities



#### July 15, 2023

- In Cheongju, Chungcheongbuk-do, 14 people died when heavy rain flooded the Gungpyeong 2nd Underpass
- At the time, 17 vehicles were stranded inside

#### Carbon Neutrality - The Inevitable Future

Strengthening international oversight: 148 countries committed to net-zero emissions
 – UNFCCC biennial transparency reports and updated 2035 NDC targets due in 2025





Sources: EU Parliamentary Budget Office Economic Trends (Issue 36), Park So-hee, "China's 1+N Carbon Neutral Strategy" (2021), Korean New Deal, reconstructed based on the National Basic Plan for Carbon Neutrality and Green Growth

#### Global Carbon Neutrality 2.0 (2025 Onward)

Since the EU's 2019 climate neutrality declaration and the launch of the Green Deal, the Carbon Border Adjustment Mechanism (CBAM) has had a significant impact

- In 2024, leadership changes from global elections will shape policies for the Carbon Neutrality 2.0 era (the U.S. direction will become clearer after the November elections)
- In 2025, the submission of 2035 NDCs to the UNFCCC will provide insight into major countries' carbon neutrality targets and implementation plans

|   | EU  | China   | Japan  | U.S.   |
|---|---|---|--|--|
| Key Policies                              | Continuing the Green Deal<br>Clean Industry Agreement             | Dual Carbon Policy 1+N                                | Green Transformation (GX)                                | IRA  |
| Leadership                                | President Ursula von der Leyen                                    | President Xi Jinping                                  | Prime Minister Shigeru Ishiba                            | Trump vs. Harris<br>November U.S.<br>presidential election |
| Carbon Neutrality 2.0<br>policy direction | The future of EU<br>competitiveness                               | "New Quality" Productivity                            | Preparing to announce GX<br>2.02040 plans in development |  |
| 2040 reduction targets                    | 55% reduction by 2030 from<br>1990 levels90% reduction by<br>2040 | Peak emissions by 20302035<br>goals under development | 46% reduction by 20302040<br>targets under consideration | 50-52% reduction by 2030                                   |



#### June 5, 2020 - Local Governments Declare a Climate Emergency



# Framework Act on Carbon Neutrality and Green Growth - National and Local Government Planning





#### 1st National Basic Plan for Carbon Neutrality and Green Growth



| 구분 부문   |                 | 2018    | 203           | 0 목표                       |
|---------|-----------------|---------|---------------|----------------------------|
|         | 구준              | 실적      | 기존 ('21.10)   | 수정 ('23.3)                 |
| 배       | 출 <b>량</b> (합계) | 727.6   | 436.6 (40.0%) | 436.6 (40.0%)              |
|         | 전환              | 269.6   | 149.9 (44.4%) | 145.9 (45.9%) <sup>1</sup> |
|         | 산업              | 260.5   | 222.6 (14.5%) | 230.7 (11.4%)              |
|         | 건물              | 52.1    | 35.0 (32.8%)  | 35.0 (32.8%)               |
| -       | 수송              | 98.1    | 61.0 (37.8%)  | 61.0 (37.8%)               |
| 메움      | 농축수산            | 24.7    | 18.0 (27.1%)  | 18.0 (27.1%)               |
|         | 폐기물             | 17.1    | 9.1 (46.8%)   | 9.1 (46.8%)                |
|         | 수소              | (-)     | 7.6           | 8.4 <sup>2)</sup>          |
|         | 탈루 등            | 5.6     | 3.9           | 3.9                        |
| 흡수      | 흡수원             | (-41.3) | -26.7         | -26.7                      |
| 및<br>제거 | CCUS            | (-)     | -10.3         | -11.2 <sup>3)</sup>        |
|         | 국제감축            | (-)     | -33.5         | -37.54)                    |

1) 태양광, 수소 등 청정에너지 확대로 400만톤 추가 감축

2) 수소수요 최산화(블루수소 +10.5만톤), 블루수소 관련 탄소포집량은 CCUS 부문에 반영(0.8백만톤) 3) 국내 CCS 잠재량 반영(0.8백만톤), CCU 실증경과 등을 고려한 확대(0.1백만톤) 4) 민관협력 사업 발굴 및 투자 확대 등을 통해 국제감축량 400만톤 확대

Source: Joint Ministries (April 2023), 1st National Basic Plan for Carbon Neutrality and Green Growth





#### Funding for Climate Crisis Response

The 2024 National Basic Plan originally aimed for a budget of KRW 17.2 trillion, but only KRW 14 trillion was allocated by the government. After further reductions by the National Assembly, the final budget was set at KRW 13.8 trillion, leaving a shortfall of KRW 3.4 trillion (19.8%)

|                    | 〈표 3-5〉 탄소중립  | 님 기본계획의 재정투 | 자 계획           |         |  |
|--------------------|---------------|-------------|----------------|---------|--|
| 구분                 | 100           | 재정투자 계획(억원) |                | 연평균     | [5개년('24~'28                                     |
| 8128               | Z3<br>133.455 | 765 729     | 274<br>900 103 | 5/15(%) |  |
| 바케<br>문법 중장기 강축 대책 | 79.480        | 466.283     | 545,763        | 11.48   |  |
| 기후변화 적응대책          | 29,856        | 164,213     | 194,068        | 9,43    | (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)          |
| 녹색산업 성장            | 10,459        | 54,453      | 64,912         | 7.34    | $\langle \rangle$                                |
| 정의로운 전환            | 2,366         | 19,837      | 22,203         | 37.57   |  |
| 지역 탄소중립·녹색성장       | 4,602         | 30,319      | 34,922         | 25.36   | W 11 F 21 H 2                                    |
| 인력양성 및 인식제고        | 5,999         | 26,881      | 32,881         | 2.11    | ※ 시·노 기본계<br>국가·지자체의                             |
| 국제협력               | 693           | 3,751       | 4,444          | 1.59    | <ul> <li>The National<br/>years (202)</li> </ul> |

자료: 관계부처 합동(2023.4.), 제1차 국가 탄소중립 녹색성장 기본계획, p.180.





#### Constitutional Violation in Climate Case - Asia's First Climate Lawsuit Victory





#### Korea's Plan: 40% Reduction by 2030

Is Korea achieving the targets set in the government's 1st National Basic Plan for Carbon Neutrality and Green Growth? What measures are in place to manage the impacts of implementation?



Source: Greenhouse Gas Inventory and Research Center, 2021 Provisional National Greenhouse Gas Emissions (2022), 1st National Basic Plan for Carbon Neutrality and Green Growth (2023), reconstructed based on the 2050 Carbon Neutrality Scenario (A).

What is the strategy for closing 18 coal-fired power plants by 2030? How will Korea achieve its goals of deploying 4.5 million electric vehicles, generating 72.7 GW of renewable energy, and completing 1.6 million areen remodeling projects?

Reduction Targets for 2025 and 2035

IPCC: By 2035, a reduction of 49% to 77% compared to 2019 levels (median: 60%)

EU: A 90% reduction by 2040, and a 75% reduction by 2035 Korea:

Korea: – A linear reduction of 53% by 2050, compared to 2018 levels – IPCC 2050 carbon neutrality reduction range: 51% to 78% – Plan 1.5: A global reduction path to limit warming to 1.5°C, based on principles of equity – A "weighted average" approach based on fairness suggests a

66 7% reduction



#### Strengthening the Economic Foundation for Citizens' Lives

Scale back overinvested industries and focus on renewable energy, green buildings, and public transportation that respect ecological limits Shift away from conspicuous consumption toward policies that enhance welfare, education, healthcare, and ecological services



#### Turning Climate Crisis Response into Livelihood Policy

- How can a country with carbon neutrality goals still rely on coal briquette heating?
- Instead of donating briquettes, we need to plase them out as a heating fuel and develop policies to improve housing
   Devide heaving that is offer the heating heating and fleed (the planet equip) is one heating and the planet equip).
- Provide housing that is safe from heatwaves, cold snaps, and floods (the climate crisis is even harsher on vulnerable populations)
   Affordable transportation options like Mugunghwa trains, intercity buses, and public buses at your doorstep
- (especially important as more seniors surrender their driver's licenses due to aging)



KBS https://news.kbs.co.kr/news/view.do?ncd=5559330



#### Gwangmyeong City's Path to Carbon Neutrality



#### Climate Policy White Paper 1: Safeguarding Lives

Gwangmyeong City Green Building Support Center, Building Energy Information Platform

- "Supporting home repairs to tackle the climate crisis in Gwangmyeong City"



| Key Details | In the urban regeneration area of Gwangmyeong3-dong, homes over<br>20 years old are eligible for up to 90% of construction costs (up to<br>KRW 9 million) for improvements such as external insulation, windows,<br>waterproofing, roofing, exterior walls, and fences<br>- Homes over 15 years old throughout the city can receive up to 50%<br>of construction costs (up to KRW 15 million) for upgrades like<br>insulation, windows, electrical systems, and heating. This project<br>combines the New Deal Home Repair and Green Home Repair<br>programs |
|-------------|--|
| Outcomes    | <ul> <li>Improved quality of life for residents of older homes</li> <li>Cost-effective green remodeling solutions provided through the<br/>Building Energy Information Platform and Green Building Support<br/>Center.</li> </ul>  |
| Policy      | In 2021, Gwangmyeong City revised the ordinance to increase the<br>maximum support for the Green Home Repair program from KRW 5<br>million to KRW 15 million   |
| Budget      |  |
|             |  |

#### Climate Policy White Paper 2: Protecting Lives

Seongdong-gu's "Zero Flood Risk for Semi-Basements" housing improvement project establishes standards for climate disaster-resistant housing and operates a care system for vulnerable households



사용 상동구가 1년지화 친수위험 체로 볼 위한 상동할 추가환경개선사업에 나섰다. (사전체공+상동구원

| Key          | (2022) Completed a full survey and grading of semi-basement  |
|--------------|--|
| Details      | apartments   |
|              | conditions   |
|              | (2024) Launched the "Zero Coal" initiative and introduced a roof<br>renovation program to help residents prepare for summer<br>heatwaves   |
| Outcom<br>es | <ul> <li>Supported 2,164 households with flood prevention, fire<br/>safety, and air quality improvements in semi-besement<br/>bomes</li> </ul>   |
|              | <ul> <li>Renovated one semi-basement home for an elderly recipient,<br/>provided relocation support for two households, and utilized<br/>public offices for temporary housing</li> </ul> |
| Policy       | <ul> <li>Enacted the Seongdong-gu Basic Housing Ordinance</li> <li>Passed an ordinance focused on improving and supporting<br/>hazardous housing conditions</li> </ul>                   |
| Budget       |  |

#### Climate Policy White Paper 3: Protecting Lives

Jeju Senior-Friendly Disaster Shelter Installation and Training:

"Learn disaster preparedness drills to protect yourself and your community."





#### Climate Policy White Paper 4: Protecting Lives

Yeoju City

"The Guyang-ri Haetbit Dure Solar Power Plant generates about KRW 10 million per month, which is used to support village welfare programs"



▲ 경기도 여주시 세종대왕면 구양리의 햇빛두레발전시설

Source: OhmyNews Climate Broadcast Recap | Episode 77: "Free Buses, Free Meals... The Secret Behind a Village Earning KRW 10 Million a Month" https://omn.kr/29kfx



#### Climate Policy White Paper 6: Protecting Lives

Bonghwa-gun Citizen Green Energy Cooperative



| Key<br>Details | - IEstablished in 2020 with 470 members, the cooperative leases<br>public land from Bonghwa-gun to install power generation<br>facilities, with an initial investment of KRW 1.4 billion<br>- "All costs are borne by the residents, with no external support.<br>The only help from Bonghwa-gun is the leasing of public land<br>and facilities   |
|----------------|--|
| Outcom<br>es   | Cooperative solar energy: Over 5% returns for participating members  |
| Policy         | <ul> <li>- IBonghwa-gun created an energy project fund totaling KRW 9<br/>billion (KRW 3 billion annually from 2020 to 2022)</li> <li>- ILoans and subsidies are available for residents interested in<br/>renewable energy, particularly for vulnerable groups. Loan terms:<br/>1% fixed interest rate, 1-year grace period, and 10-year<br/>renewable in equal installments</li> </ul> |

#### Climate Policy White Paper 6: Protecting Lives

RE100 Korean Liquor Production in Daedeok-gu, Supporting RE100 for Small and Medium Enterprises



#### Climate Policy White Paper 7: Protecting Lives

Nationwide Expansion of Public Bus Systems: Sinan-gun, Jeongseon-gun, Yanggu-gun, etc. Free bus services introduced in Cheongsong, Gyeongbuk (January 2023), Wando, Jeonnam (September 2023), and Yeongam, Jeonnam (September 2023)





#### How Do We Implement the Policies Our Communities Want?

Spaces and budgets for climate-conscious citizens to gather and take action: climate education, green purchasing, environmental education, social economy, lifelong learning, community movements, energy activism, libraries, local bookstores, cooperatives, and resource recycling Communities will propose, decide on, and create the local climate policies they need





Thank you.

#### The Institute for Green Transformation

is a private think tank focused on researching national and regional transitions, along with economic and lifestyle shifts, to limit global temperature rise to 1.5°C.



Website: igt.or.kr Support the Institute: bit.ly/녹색전환연구소후원하기 (https://online.mrm.or.kr/7xdqDo5)





# Gwangmyeong city's policy of carbon neutrality

# Park Seung-won

Mayor of Gwangmyeong
















With Gwangmyeong's unique perspective, we're paving the way toward a carbon-neutral future.







# Redefining values to embrace the carbon-neutral era

Autonomy

Lifelong / Carbon / Resource / Social Learning / Neutrality / Circulation / Economy

Garden Cities





Engage Passionately, Keep the Earth Cool!



A Citizen-Led Carbon Neutrality Movement in Gwangmyeong

·C 7

- Empowering Community Initiatives
  Community-led projects in every neighborhood focused
  - community-led projects in every neighborhood focused on carbon neutrality
- The Autonomous University
  Operation the departments in Carbon Neutrality, Garden Cities, and Social Economy
- 1.5°C Climate Resilience Force (A community of Gwangmyeong citizens practicing carbon neutrality in daily life) Membership of 10,500 as of October 2024
- ✓ Carbon Neutral Action Points
  → Rewards provided as local currency

Establishing a virtuous cycle of carbon neutrality efforts and local economic revitalization.

# Advancing energy transition through expanded renewable energy

- Formation of an energy cooperative
  Gwangmyeong Citizen Energy Cooperative, Gwangmyeong Citizen Power Cooperative
  - 14 solar power stations (Reducing greenhouse gases by 748 tons annually)
- Gradual installation through a comprehensive survey of unused spaces

Across 50 locations, covering approximately 600,000 m

Establishing Resource Recovery Facilities Converting incineration heat into heating and electric energy, contributing to carbon neutrality

Solar Energy Support Programs

Installation support for buildings, residences, and mini solar systems







#### Institutional Framework & Policy Advancements

Inauguration of the Climate Energy Division (September 2018)

October 2023 Renaming and reorganization as the Carbon Neutrality Division/ Climate Response Fund

Establishing funding and systematic support for greenhouse gas reduction initiatives

Allocating 4.5 billion KRW over a five-year period from 2024 to 2028.

Implementation of Greenhouse Gas Reduction-Conscious Budgeting

(Analyzing the impact on greenhouse gas reduction and integrating results into fiscal management)

Advancing greenhouse gas reduction goals aligned with the 2050 carbon neutrality vision

## Creating a Sustainable City through ESG Principles.



#### Creating a Compact, Carbon-Neutral Smart City Selected as a Model Compact Smart City

- Securing a three-year budget of 16 billion KRW to build Gwangmyeong's unique carbon-neutral smart city
- Evolving into a smart city that utilizes advanced technology to tackle the climate crisis

### ENERGY MILE •---

N at Gwangmyeong Station Virtual Net Metering (VNM) for renewable energy trading

#### SAFETY MILE

AloT-Integrated System for

# MILE EASY Gwangmyeong

#### MOBILITY MILE

Eco-Friendly Delivery Culture Value Chain Electric Vehicle-Based Community Car-Sharing Electric Bus-Based Green DRT

#### DATA MILE Carbon Management Platform Data Integration Platform





# Session 1



# Overseas Cities Overseas Sister Cities' policy and examples of Climate Crisis Response

#### **Detlef Gerdts**

T.

(Osnabrük), Former Head of the Environment and Climate Protection Department























OSNABRUCK<sup>®</sup> Die | FRIEDENSSTADT Fachbereich Umwelt und Klimaschutz

#### Key Results of Potentials Analyses and Scenarios Greenhouse Gas (GHG) Emission Trends

- Maximizing potential reductions could decrease greenhouse gas (GHG) emissions by 91% by 2040.
- The remaining emissions by 2040 will be nearly equally distributed between natural gas and electricity (upstream supply chain).
  - Natural gas is still used, especially in the heating sector.
  - Upstream emissions cannot be completely avoided by 2040 due to the production of renewable energy plants in a country with long-term climate neutrality goals
- Despite increasing electricity demand, the absolute emission levels from the power sector have decreased due to a low GHGintensive electricity mix

October 29, 2024

























#### OSNABRUCK<sup>G</sup> E | FRIEDENSSTADT Fachbereich Umwelt und

Field of Action: Mobility Sector

<u>Background</u>: The mobility sector still needs to reduce emission levels significantly.

<u>Target Image</u>: Climate-friendly mobility through walking, cycling, or public transportation use is the hallmark of Osnabrück City, complemented by car-sharing services and electric vehicles

-> Actively transitioning routes to the environmental network by providing and limiting additional personal motorized transport options

Key Measures:

#### Moving and accessibility through walking

- Establish walking as a "true" mode of transportation
- Design main connecting routes and crosswalks

#### **Bicycle transportation**

- Expand the bicycle network (main routes connecting bicycle paths and the surrounding areas)

- Optimize bicycle parking in urban expansion areas
- Introduce shared services and enhancing the bike+ride potential
- Gradually increase human and financial support for bicycle transportation













# Session 1



# Overseas Cities Overseas Sister Cities' policy and examples of Climate Crisis Response

## Rohan Lilauwala

(Austin), Climate Project Manager, Office of Sustainability















#### The "Live Music Capital of the World"

- Home to South by Southwest (SXSW) and Austin City Limits (ACL) music festivals
- Over 250 live music venues





A modern tech hub...



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#### ...and attempting to address the historical legacy of racism



2020 Racial dot map (Census Data)



2020 Social Vulnerability Index

What is Equity? The City of Austin defines equity as the condition when race no longer predicts a person's quality of life outcomes in our





#### Extreme weather is part of life in Central Texas Climate change is making it worse



Heat

Flood

Cold / Ice

Wildfire

Drought



# AUSTIN CLIMATE EQUITY PLAN



#### One of the Nation's Most Ambitious Climate Action Plans

Goal: Net-Zero Community- Wide Greenhouse Gas Emissions by 2040

• One of only four major US cities with this goal

Equity at the center of the plan

• One of only six major US cities with this





# NET ZERO-



- 17 Goals
- 74 Strategies
- 4 overarching strategies
- Equity prioritized throughout the plan



#### **Building on Climate Action**

- Nation's first Green Building Program in 1991
- Over 2,800 mW of renewable energy capacity
- >70% carbon-free electricity today
- Over 2,000 EV charging ports today





#### **Protecting Nature**

- 10,000 hectares protected for Balcones Canyonlands Wildlife Refuge
- 13,700 hectares protected to preserve water quality
- Approved by voters in 1992 and many times since
- Staff works to restore habitat, grassland savanna ecosystems and healthy riparian corridors

#### Protecting Our Tree Canopy

#### 41% tree canopy cover in 2022, Up from 36% in 2018





#### **Building the Next Generation Climate Workforce**

Austin Civilian Conservation Corps





#### "Levers" to Address Climate Change

#### What we can directly control

- Local electricity generation mix
- Building and energy code, green
- building standards
- Land development code
- Construction of transportation infrastructure
- Public EV charging
- Land purchases, ownership, management
- City purchasing
- City buildings and facilities








### What's Next?

- Comprehensive Climate Equity Plan implementation
- Bond proposals
- Regional climate planning
- Transit expansion
- Securing federal grant/tax credit funding and incentives







## Session 1



## Overseas Cities Overseas Sister Cities' policy and examples of Climate Crisis Response

Wang Gang (Liaocheng), Vice Mayor







### 非常高兴能够在韩国光明市向 与会的各位新老朋友推介聊城

I am very pleased to introduce Liaocheng to all the new and old friends attending this event in Gwangmyeong City, South Korea.

INSTANDAR D. P. P.









#### 聊城,位于山东省西部 总面积8628平方公里 总人口650万

Liaocheng (聊城) is located in the western part of Shandong Province. It has a total area of 8,628 square kilometers and a total population of 6.5 million.

### 奔腾不息的黄河与绵延流芳的京杭大运河在这里交汇交融 滋养孕育了聊城这颗镶嵌于两河之间的

### 璀璨明珠

The ever-flowing Yellow River (黄河) and the ancient Beijing-Hangzhou (京杭) Grand Canal converge and blend here, nourishing and giving life to Liaocheng, a brilliant pearl nested between the two rivers.





作为中华文明较早的发祥地之一 聊城拥有5000多年的文明史 2500多年的建城史 8处世界文化遗产 3000多处文物古迹星罗棋布,见证了这里的沧桑变迁。

As one of the earliest cradles of Chinese civilization,

Liaocheng boasts a history of over 5,000 years of civilization and more than 2,500 years of city establishment. With 8 World Cultural Heritage sites and over 3,000 cultural relics scattered throughout, it bears witness to the profound changes that have occurred here.





崔溥像





Liaocheng has a long history of friendly exchanges with South Korea. As early as the 15th century, Choi Boo (崔夫), a diplomatic envoy from Jeju's three eups, visited Liaocheng. His work, "Record of Floating on the Sea," documented the prosperous scene of Liaocheng, describing it as a place where "merchants gather and various industries thrive."







### 中国重要的"粮袋子""菜篮子"

聊城年产粮食超过550万吨、蔬菜超过 1300万吨,用全国不到1%的土地生产了全 中国1%的粮食和1.5%的蔬菜。

Liaocheng produces over 5.5 million tons of grain and 13 million tons of vegetables annually, utilizing less than 0.1% of the nation's land to contribute 1% of China's grain and 1.5% of its vegetables.

## 中国蔬菜第一市

China's No. 1 Vegetable City

# **NET ZERO**

### 中国先进制造业百强市

One of China's Top 100 Advanced Manufacturing Cities 拥有联合国产业分类中的32个工业大类,培育 了有色金属、绿色化工、装备制造等12大产业 集群,是中国重要的铅、铜、轴承、新能源汽车 生产基地。

Liaocheng has 32 major industrial categories classified by the United Nations and has fostered 12 industrial clusters, including nonferrous metals, green chemicals, and equipment manufacturing. It is an important production base for aluminum, copper, bearings, and new energy vehicles in China.

鲁西化工 信发铝业 Xinfa Aluminum Luxi Chemical 中诵客车 东阿阿根 Zhongtong Bus Dong-E-E-Jiao





我们抓住"一带一路"建设、RCEP生效等机遇,倾力打造了中国-太平洋岛国应对气候变化合作中心、中国跨境电商 综合试验区等多个高能级开放平台,建成投运1个国际陆港、2个海外展示中心、4个海外仓等外贸平台,将"出海口"



regions.

#### 12次获评中国外贸百强城市

Ranked among China's Top 100 Foreign Trade Cities 12 times

(RCEP) to vigorously develop multiple high-level open platforms, including the China-Pacific Island Countries Climate Action Cooperation Center and the China Cross-Border E-Commerce Comprehensive Pilot Zone. We have established and put into operation one international land port, two overseas exhibition centers, and four overseas warehouses as foreign trade platforms, effectively bringing the "outbound port" to our "doorstep."







目前,聊城"朋友圈"已覆盖4个大洲17个国家 的29座城市,与韩国宜宁郡、光明市缔结友好 城市,互访巡演、留学生互派、修学访问等往来 交流频繁,共同书写了友城、友人、友谊的佳话。

Currently, Liaocheng's "Friendship Circle" has covered 29 cities in 17 countries across 4 continents. It has established friendly city relationships with Uiryeong-gun County and Gwangmyeong City in South Korea. Frequent exchanges include mutual visits, student exchanges, and academic visits, jointly writing a beautiful story of friendly cities and camaraderie.

## 第四篇 生态的和谐乐章

聊城城水相融、蓝绿交织,是一座美富一方的宜居之城。

hapter 4: The Harmonious Movement of Ecology

Liaocheng, where the city and water are intertwined and blue and green blend together, is a rich and livable city.

Hatowala later

#### "水"是聊城独特魅力的代名词 境内1400多条河湖纵横交错 形成了河湖相连、城水相依、水绿共生的独特城市风篆

"Water (水)" is synonymous with Liaocheng (聊成)'s unique charm. With over ,400 rivers and lakes crisscrossing the area, it has formed a distinctive urban andscape where rivers and lakes are interconnected, the city and water are lependent on each other, and water and greenery coexist. Engage Passionately, Keep the Earth Cool!







2020年9月中国明确提出了2030年"碳达峰"与2060年"碳中和"目标之后,聊城市深入 贯彻碳达峰碳中和战略决策部署,制定了《聊城市碳达峰工作方案》,深入开展了碳达峰"

neutrality" by 2060. Following this, Liaocheng City has thoroughly implemented the strategic decisions and deployments for carbon peak and carbon neutrality, formulating the "Liaocheng

能源绿色低碳转型行动 工业领域碳达峰行动 节能降碳增效行动 城乡建设绿色低碳行动 绿色交通运输体系建设行动 循环经济助力行动 绿色低碳科技创新应用行动 节能降碳基础能力提升行动 碳汇能力巩固提升行动 绿色低碳全民行动

- innovation 8. The action for consolidating and enhancing carbon sink 9. The action for green and low-carbon society 10. The action for promoting all regions to peak carbon dioxide emissions hierarchically and orderly





随着十大行动的开展,聊城市双碳工作取得了瞩目成绩,荣获"国家循环经济示范城市" 称号。今后,聊城市将继续积极稳妥推动碳达峰碳中和,打造绿色低碳高质量发展高地。

With the implementation of the "Ten Actions," Liaocheng City has achieved remarkable results in its dual carbon efforts and has been awarded the title of "National Circular Economy Demonstration City." In the future, Liaocheng City will continue to actively and steadily promote carbon peak and carbon neutrality, establishing a hub for green, low-carbon, high-quality development.

## 肝胆每相照 冰壶映寒月

Facing each other, the jade jar holding ice reflects the cold moon.

我们愿同韩国各界一道,进一步深化在经贸、科技、文旅、教育、康养等领域的对 接合作,同赴时代之约,共创美好未来!

We are willing to work together with all sectors in South Korea to further deepen our cooperation in areas such as economy and trade, technology, culture and tourism, education, and health and wellness. Together, let us embrace the opportunities of the times and create a bright future!







## Session 1



## Overseas Cities Overseas Sister Cities' policy and examples of Climate Crisis Response

Hida Kumiko (Yamato), Vice Mayor





## Decarbonization Policies of Yamato City (Japan)

Yamato City (Japan)

 Greenhouse Gas Reduction (Compared to 2013) City zone -23.2% (2021) City hall -34.1% (2023)
 CDP Cities 2023: B Grade

October 29, 2024 Gwangmyeong Carbon Neutrality International Forum





### Japan and Yamato City's Emission Reduction Goals

Long-Term Goal: Achieving a carbon-neutral society by 2050

Medium-Term Goal: Carbon emission reduction by 2030, compared to the 2013 levels

Nationwide: 46% reduction Government: 50% Reduction

| Decarbonization Po | olicies of Yamato C | Dity |
|--------------------|---------------------|------|
|--------------------|---------------------|------|

| 1997:        | "Basic Ordinance for Protecting and Enhancing Yamato City's<br>Environment"                    |
|--------------|--|
| 2004 onward: | Calculation of greenhouse gas emissions  |
| 2009 onward: | Commencement of subsidies for residential solar power systems                                  |
| 2022:        | "Declaration of Yamato City's Climate Emergency"   |
|              | Comprehensive revision of "Yamato City's Plan for Implementing Global Warming Countermeasures" |
| 2023:        | Adoption of "Grants for Local Decarbonization and Renewable Energy Promotion" by Japan         |
|              | (2023–2028, Project Cost: JPY 1.2 billion, Grant: JPY 615 million)                             |

### Greenhouse Gas Emission Reduction Status of Yamato City









| Sewage<br>34.9%  | Garbage<br>29.7%   | Elementary<br>and<br>middle<br>schools<br>11.1 %   | municipal<br>hospitals<br>9.0 %   | City hall<br>4.7%   |
|--|--|--|---|---|
| Emission of N₂O gas due to<br>sewage sludge incineration<br>Utilization of electricity due to<br>sewage treatment<br>↓<br>Nonincineration of sewage<br>sludge<br>Biomass power generation<br>(2026–2030) | Reduction of plastic<br>containers<br>through total recycling<br>(–2012)<br>↓<br>Further reduction by<br>reutilizing plastic products<br>as a resource | Focus<br>(fluoresc<br>approxin<br>Rep<br>for the r | on electr<br>cent lamp:<br>nately 40 <sup>4</sup><br>↓<br>blacement<br>reduction<br>usage<br>(2024–20 | icity usage<br>s account for<br>% of lighting)<br>t to LED<br>in electricity<br>e<br>D27) |



## Decarbonizing Households:(2) Thermal Insulation Improvements

• Japanese houses are cold in the winter and hot in the summer.  $\rightarrow$  It has recently been revealed to have adverse health effects.

| Hot            | Heatstroke (most commonly occurs indoors)  |
|----------------|--|
| Cold           | Elderly person: hypertension, cardiovascular diseases<br>Women: cold hands and feet, premenstrual syndrome (PMS)<br>Children: colds, inflammation in the middle ear, allergic<br>rhinitis, decreased performance during remote work or<br>learning |
| Year-<br>round | Improving sleep  |



- Improving insulation in windows, ceilings, walls, floors, and doors, reduces both temperature extremes.
- It is effective in reducing carbon emissions and electricity bills from heating and cooling.



### Decarbonizing Households: ③ Garbage



Implemented charges for garbage bags, their collection from houses, and thorough resource recovery and recycling

➡ Greenhouse gas emission from waste incineration: reduced by 55.4%



#### Decarbonizing Households: Practical Actions in Daily Life

- Regularly turn off lights that are not in use.
- Do not open the refrigerator door unnecessarily and keep it open as little as possible.
- Carry a tumbler and avoid buying beverages in PET bottles.



A water dispenser for tumblers was installed in the city hall

Japanese Government's "Grants for Local Decarbonization and Renewable Energy Promotion" (project for accelerating major measures)

2023–2028: The total project cost is JPY 1.2 billion (with a national grant of JPY 615 million).

• Subsidies for residential solar power facilities and storage batteries installation:

|   | 486 cases     |
|---|---------------|
| <ul> <li>Thermal insulation improvement for houses:</li> </ul>                          | 51 cases      |
| <ul> <li>Solar power and storage battery installations in public facilities:</li> </ul> | 33 facilities |
| <ul> <li>LED lighting installations for public facilities:</li> </ul>                   | 15 facilities |

### Let's all join hands and work together.

Thank you!

To pass a sustainable world

to our future generations,

let's work together to realize a

carbon-neutral society.



Yamato City's climate emergency declaration symbol mark (produced by a fifth-grade student from a local elementary school)



# Session 2



## Domestic Cities Domestic Sister Cities' policy and examples of Climate Crisis Response

## Jeon Eui-chan

X.

(Jaecheon), Chairman of the Carbon Neutral Green Growth Committee















#### GHG Emissions of Chungcheongbuk-do Province and Jecheon City

(Emission Status per Cities in Chungbuk)

- (Direct Emission) Danyang(43.3%) > Cheongju(23.4%) > Jechon(14.4%) ranked 3rd place.
- (Indirect Emission) Cheongju(50.2%) > Eumseong(10.5%) > Chungju(9.6%), Jechon(5.5%) ranked 6<sup>th</sup> place.
- (Total Emission) Cheongjun(32.9%) > Danyang(30.1%) > Jechon(11.3%) ranked 3rd place.







#### ■ Jecheon City's 2050 Carbon Neutrality Vision







| Jecheon City's Carbon Neutrality Efforts and Progress |   |    |  |
|---|---|----|--|
| 2021.07   | Declaration of  |    |  |
| 2021.07. <b>®</b>                                     | '2050 Carbon Neutrality'  |    |  |
| 2022.03. ()   | Appointment of Carbon Neutrality Implementation Officer   |    |  |
| 2023.06. ®  | Implementation of the Jecheon City Basic Ordinance on Carbon Neutrality and Green Growth            |    |  |
| 2023.12. <b>®</b>                                     | Establishment of the Jecheon City 2050 Carbon Neutrality and Green Growth Committee                 |    |  |
| 2024.12. <b>®</b>                                     | Establishment of the First Jecheon City Basic Plan for Carbon Neutrality and Green Growth (Planned) |    |  |
| 2025.01. ®  | Designation and Operation of Jecheon City Carbon Neutrality Support Center (Planned)                |    |  |
|   |   | 10 |  |
|   |   |    |  |



#### Jecheon City Climate Crisis Clock

A clock indicating the time remaining until the global temperature rises by 1.5°C above preindustrial levels (1850–1900) due to GHG emissions

A global initiative involving scientists, artists, and climate activists that tracks the remaining time until the Earth's average temperature rises by  $1.5^{\circ}C$ 

—the ecological tipping point based on carbon dioxide (CO2) emissions worldwide

Installation Location: Samhan Green Road Installation Date: June 26, 2023



Unveiling Ceremony: June 2023



4 years and 281 days remaining

11

#### GHG Reduction Measures Reflecting Jecheon City's Characteristics Within Citv's Jurisdiction: 22% Outside Jurisdiction (Industry): 78% C: 충청매일 (Local Government Jurisdiction: Infrastructure, Transportation, Agriculture / Outside Jurisdiction [National]: Industry) 제천시, 탄소중립 달성 위한 시멘트산업 CCU 충북 제천시, CCU 기술 개발 업무 협약체결 Local governments must take the lead in implementing carbon 기술 개발 업무협약 체결 neutrality to achieve this goal. MOU for Research and Development of CCU Technology for the Cement | 민관 협력 네트워크 구축을 통한 온실가스 포집 활용 기술 개발 연구에 나서 Industry (March 14, 2024) · 산업현장 대규오 탄소 경감 위한 빈관협력 탄소 포집·활용(CCU) 가술 개달 추진 MAR 모집 48 Agreement (2024.3.14.) ٠ 시멘트산업 CCU기술 개발 연구 업무 협약 체결 LOTTE Chemical: Development and support of research facilities (pilot) ...... (KRW 3 billion/year) Asia Cement: Support for the necessary research facilities and operations лĥ, (Operating expenses: KRW 8 million/month) hit: 100 Expected Benefits of CCU Technology Development ٠ [충청매일 양승태 기자] 중복 제원시가 시앤트 분야 온실가스를 포질 활용하는 기술 개발 연구에 Installation of CO2 capture facilities with annual capacity of 100kt, GOGLIKJENEW 14월 시에 따르던 시는 (Roi 베아시앤트 및 제문에게이킬과 아산파란소 포짐 활용 지장(ICCUS) 사업의 백성 기술인 이산화란소 포집 활용(ICCU) 기술 개발 연구 업무 혐락을 체결했다. capable of achieving over 70% capture rate 탄소 포집 물용 재장 기술(CCUS)은 회석연료 사용 가장에서 배출되는 탄소를 포집에 저장에거나 물용하 는 기술로 특석연료로부터 나갔는 탄소를 요약 저장하는 CCS(Carbon Capture & Storage, 탄소 포잡 제장)에 포집한 탄소를 유용하게 물용하는 CCU(Carbon Capture & Unization, 탄소 포집 물용)를 달한 Potential for new business ventures through the utilization of (비한+국제뉴스) 끝남던 거자 + 충북 체탄시는 최근 ED 탄소국권조정제도의 시행과 탄소 배출권 거 의 상승 등으로 운동가스 배출 규제가 강화되어 따라 단관 업적 내도워고를 구속해 시면도 분여 운 captured CO2 (Dry ice, liquid CO2 production, etc.) 실거스를 유집했음하는 기술 개발 연구에 나선다. Potential purification and commercialization of nitrogen byproduct from 각 사는 만소 포질 백십기술과 노하우를 활용해 시앤트 제조 공정 상 배출되는 온실가스에 대한 포질 및 활용 기술 개발 등에 협력하여 시는 그에 따른 인하가 등 각종 행정 서비스를 적극 지원하다. 바람이다. 시는 14일 해진시원 3은 박달려날에서 집장구 체진시원 다세계시면도의 당승조 경영지원 본부원. 롯데케이철마 환전제 음합기술원장 등 15의 명이 참석한 가운데, 이산회판소 포질물용처럼(COA) membrane-based CO2 capture 못데케이칼 관계자는 '못데케이칼은 지금까지 다양한 연구를 통해 탄소로집 기술력을 축적해 없으 사업의 핵심 기술인 이산파란스 포칭 활용KOU 기술 개발 연구 업무 협약을 체질했다.
Thank you for your efforts in preserving our hometown <u>ecjeon@sejong.ac.kr</u> (MP: 010-3644-5558)





# Session 2



# Domestic Cities Domestic Sister Cities' policy and examples of Climate Crisis Response

**Gwon Ik-hyun** (Buan), Mayor of Buan

























| Strategy 1 Transforming the Regional Industrial Landscape through   | h Hydrogen Econor  | my Activati   | on 😞 봐안군   |
|---|--|---|--|
| "Daily Production of 1 t of Clea  | n Hydrogen   | "   |  |
| Contraction of the second s | Project Name   | Project<br>Period   | Project Cost   |
|   | Construction of a<br>hydrogen production<br>base   | '22. ~ '25.   | KRW 11.9 billion<br>(County (gun) 54,<br>Province (do) 10,<br>County (gun) 20,<br>Civilian 35) |
|   | High-Pressure Carbon<br>Composite<br>Detachable Hydrogen<br>Container System<br>Demonstration<br>Project   | '24. ~ '25.   | KRW 8.6 billion<br>(County (gun) 53,<br>Province (do) 11,<br>County (gun) 11,<br>Civil 11)     |
|   | Hydrogen City<br>Development Project   | '24. ~ '27.   | KRW 40 billion<br>(National 200,<br>County (gun) 200)  |
|   | <ul> <li>Winner of the 20th Korea Loc<br/>Land, Infrastructure and Transport</li> <li>Regional Specialization Supp<br/>Landscape through Hydrogen Ecc</li> </ul> | al Autonomy Manag<br>: Award<br>port Development: "I<br>pnomy Activation" | ement Exhibition. Minister of<br>fransforming Local Industry<br>9                              |

| "La | unching | Buan-gun's Basic I   | ncome Er                                    | a by  | / 2030  | through Wi<br>Funding Sources: Ba<br>Special Fund  | nd and Solar Powe   | er"  |
|-----|---------|--|---|---|---|--|---|------|
|     |         |  | Classification                              | Su  | ipport System   | Expected Support Amount  | Beneficiary of Support<br>Standard  | Note |
|     |         |  |   | Bidding Law<br>Support Fund                                       | Basic Support<br>(Project Cost)                                 | Electricity Generation Amount of the Previous<br>Year (kWh)<br>× KRW 0.1 (KRW/kWh)<br>Payment Rate by Distance | Within 5 km of the nearest coastal point and within 2 km vertically<br>(reference area), towns and villages (eup, myeon, dong) (surrounding<br>area)     ③ Distance to the nearest coastal point<br>Towns and districts to which the island belongs   |      |
|     | -       |  |   |   | Special Support<br>(Project Cost)                               | Power Plant Construction Cost × 0.015<br>× Payment Rate by Distance  | Local government to which the surrounding area belongs  |      |
|     | 1       | and a second sec | Power Plant<br>Construction                 |   | Complex<br>(project cost)                                       | Up to 0.1 REC/year   | Implementing Agency (Jeonbuk State) $\rightarrow$ Gochang, Buan, Jeongeup   |      |
| X   |         |  | 2.4 GW                                      | REC O Community<br>Participation<br>(Personally issued)           |   | 0.075-0.3 REC/year   | <ul> <li>Coastline and inhabited islands within a 10 km radius of the Power<br/>Plant</li> <li>Priority Given to Transmission Line Interconnection Points</li> <li>-Fishermen &gt; Adjacent Residence &gt; Residents of the County (gun)<br/>(including those near Transmission lines)</li> </ul> |      |
|     |         | Real and a second se  |   |   |   |  | ③ Surrounding Area of shared access facilities  |      |
| 1 5 | िपान    | - annun  |   | Compen  | sation for Fishery Losses                                       | Assessment of Fishing Damage<br>(Research Service)   | Fishermen (Buan, Gochang, Yeonggwang)   |      |
|     | NW.     | MILAN  |   | () Elec   | ctricity Business Act   | Appraised value of land<br>Approximately 25%-35%   | Up to 3 m outside the Transmission line   |      |
|     |         | Contract View  |   |   |   | (Financial Compensation)<br>Appraised value of land<br>Approximately 25%–35%                                   | Up to 13 m outside the Transmission line  |      |
|     |         |  | Construction of 345<br>KV Transmission Line | Law on the vicinity of transmission and transformation facilities | (Home Purchase)<br>House Appraisal Price + Transfer Costs, etc. | Up to 60 m from the outer edge of the Transmission line  | Processing<br>only applicable<br>Transmission lin   |      |
|     |         |  |   |   |   | Regional Support Program<br>(KRW 300,000 per household annually)   | Outside of the Transmission and Substation Facilities<br>Transmission up to 700 m / Substation up to 600 m  |      |
|     |         |  |   | 0.  | EBCO regulations  | The village and KEPCO  | (Transmission) Center → Within 700 m  |      |























# Session 2



# Domestic Cities Domestic Sister Cities' policy and examples of Climate Crisis Response

#### Kim Mi-kyeong

(Eunpyeong), Mayor of Eunpyeong District





Ф ß

Where People and Nature Coexist **Eunpyeong:** The **District** of Forests

Eunpyeong-gu District Mayor Kim Mi-kyeong





























# Engage Passionately, Keep the Earth Cool!



- ✓ From 1 district with 10 hubs in 2019 → expanded to 168 hubs across all d
- ✓ Total collected: 1,633 t, Participants: 870,000
- ✓ 380 resource managers active in Moa Moa on-site support public jobs

✔ Agreement with Shinhan Bank to award "My Shinhan Points"

participar

✓ 4,100 members, 50 t collected, 65 million points awarded (As of October 2024)















## A Forest District where People and Nature Coexist

The organic connection between nature, systems, and people

Realizing the value of coexistence and mutual prosperity

A model sustainable district





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