



13th International Greenhouse Gas Conference

: Key Policy Instruments toward Carbon Neutrality

PROGRAM BOOK



Ministry of Environment
Greenhouse Gas Inventory
and Research Center



PROGRAM

TIME	PROGRAM
10:00 – 11:30	Side Event: Challenges and Opportunities with a focus on National GHG Inventories
10:00 – 11:30	Country Experiences and Panel Discussion <ul style="list-style-type: none"> • (Moderator) Jigme, Transparency Manager, United Nations Framework Convention on Climate Change • Colombia : Cristian Grisales, Climate Change Main Executive, Development Bank of Latin America • Indonesia : Lini Ariva, Environmental Scientist, Mycotech Lab • Kenya : Anne Monyenye Omwoyo, Director, Country Government of KISII • Panama : Yoisy Belen Castillo, Climate Change Analyst, Ministry of Environment • Saint Kitts and Nevis : Sybastian Manners, Physical Planning Officer, Department of Physical Planning and Environment • Vietnam : Nguyen Thi Minh Hue, GHG Inventory and Mitigation Team Leader, Ministry of Natural Resources and Environment
11:30 – 13:00	Luncheon
13:00 – 13:10	Opening
13:00 – 13:05	Opening Remarks <ul style="list-style-type: none"> • Heung-Won Seo, President, Greenhouse Gas Inventory and Research Center of Korea
13:05 – 13:10	Welcoming Remarks <ul style="list-style-type: none"> • Wha-Jin Han, Minister, Minister of Environment of Korea
13:10 – 13:20	Group Photo and Break
13:20 – 15:20	Main Session: Key Policy Instruments toward Carbon Neutrality
13:20 – 13:40	The EU ETS and its Role in Achieving Carbon Neutrality in the EU <ul style="list-style-type: none"> • Alistair Ritchie, Director of Asia-Pacific Sustainability, Asia Society Policy Institute
13:40 – 14:00	Mitigating the risk of carbon leakage <ul style="list-style-type: none"> • Jonathan Woodland, Head of Climate Diplomacy, British Embassy Seoul
14:00 – 14:20	The Evolution of Sustainability Disclosure <ul style="list-style-type: none"> • Mark Watson, Country Managing Partner, ERM Korea
14:20 – 15:20	Discussion <ul style="list-style-type: none"> • (Moderator) Jong-Ho Hong, Professor, Graduate School of Environmental Studies, Seoul National University • (Discussant) Ji-Young Park, Deputy Director of Climate Economy Division, Ministry of Environment of Korea • (Discussant) Dae-Woong Lim, CEO, BNZ PARTNERS (Country Coordinator of Korea, United Nations Environment Program Finance Initiative) • (Discussant) So-Young Lim, Research Fellow at Center for International Industry & Trade, Korea Institute for Industrial Economics & Trade
15:20 – 15:25	Closing



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So-Young Lim,
Research Fellow of Center for international Industry & Trade, Korea Institute for Industrial Economics & Trade



MAIN SESSION

The EU ETS and its Role in Achieving Carbon Neutrality in the EU



Alistair Ritchie

Director of Asia-Pacific Sustainability, Asia Society Policy Institute



Career History

Alistair Ritchie leads and oversees activities on Asian carbon market development and net zero GHG emission goals. Alistair is an international expert in greenhouse gas emissions trading systems (ETSs), and a known leader in their development. He is currently leading a major project to contribute to resolving design challenges of China's national ETS and building regional connections across Asia to support ETS development. He is also leading a project to share international experience and best practice in developing strategies to achieve net zero GHG emission goals with climate and energy policy specialists from Korea. Previously, he was leader of the European Commission project to support the Korean government's implementation and upgrade of the K-ETS. He was also the technical lead for the European Commission project to support the development of China's national ETS. In Europe, Alistair played a key role in improving the EU ETS through managing and directing several projects to support Phase 3 and 4 policy design and implementation, and is closely following the latest developments of the EU ETS and the proposed EU Carbon Border Adjustment Mechanism (CBAM). Alistair holds a degree in Chemical Engineering from Nottingham University in UK and an MBA from the Open University.



The EU ETS and its Role in Achieving Carbon Neutrality in the EU

13th International Greenhouse
Gas Conference:
Key Policy Instruments toward
Carbon Neutrality

11 August 2022

Alistair Ritchie
Director of Asia-Pacific Sustainability,
Asia Society Policy Institute

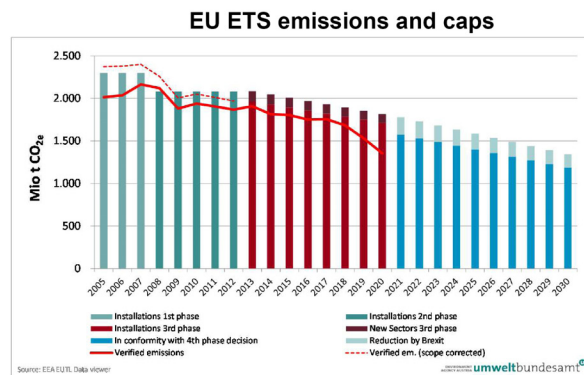
Agenda



- **EU ETS impacts**
 - GHG emission reductions and carbon prices
 - Power sector
 - Industry sector
- **Revision of the EU ETS**
 - Cap-setting
 - Allocation
 - Scope
 - Auction revenue recycling
 - Innovation Fund
- **Lessons for an ETS to support Carbon Neutrality**

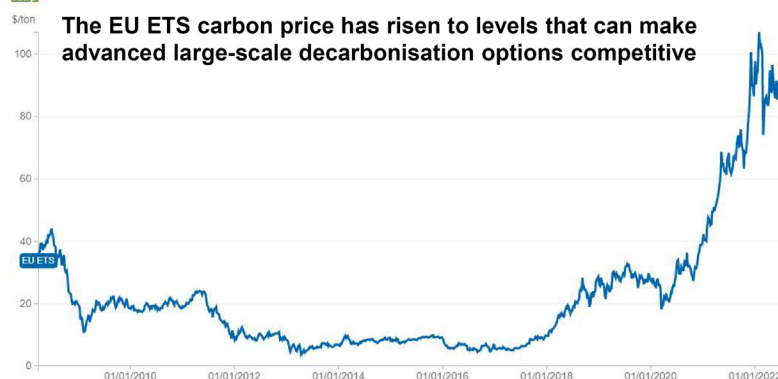
EU ETS impacts: GHG emission reductions

- EU ETS is effective in driving GHG emissions reductions cost-effectively
- 35% reduction in emissions between 2005 and 2019 for installations covered by the EU ETS
- 9% reduction in 2019 (15% reduction in power sector, 2% reduction in industry sector) – Market Stability Reserve introduced in 2019 led to higher and more robust carbon prices
- 13% reduction in 2020 (15% reduction in power sector, 7% reduction in industry sector)



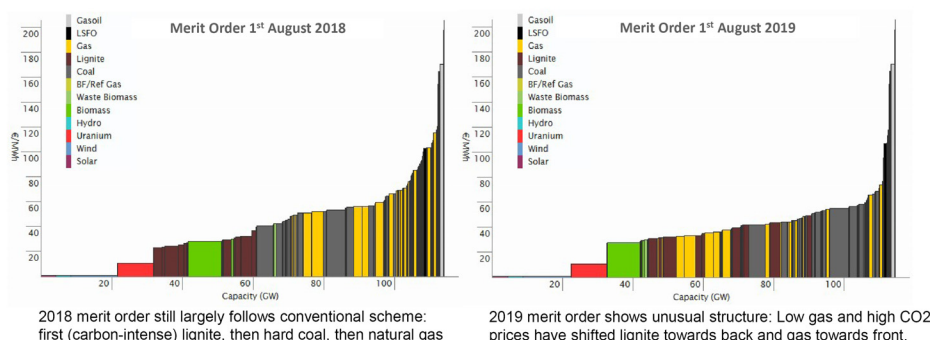
EU ETS impacts: Carbon prices

ICAP Allowance Price Explorer



EU ETS impacts: Power sector

- Power sector CO₂ emissions decreased significantly under EU ETS
- Carbon price has massively reduced carbon-intensive generation pushing it up the merit order



Source: Uniper 'Experiences and lessons from power company covered by EU ETS', presentation at ASPI Dialogue Meeting in October 2021

EU ETS impacts: Industry sector

- Visibility of EU ETS cap to 2030 & EU's 2050 net-zero GHG emissions target created clear drive for industry to develop and implement net-zero strategies
- Steel industry
 - 30% of EU primary steel production expected to be decarbonized using green hydrogen by 2030
 - Salzgitter: 1st hydrogen-based DRI using EAF (& de-commission blast furnace) by 2025 (30% CO₂ reduction), 2nd by 2030 (50% reduction), rest by 2035 (95% reduction)
 - Thyssenkrupp: injecting hydrogen to blast furnace from 2019, DRI plant by 2025, 30% reduction in CO₂ by 2030
- Chemicals industry
 - Cracker furnace redesign, electrification of crackers using renewables, hydrogen furnaces, biomass, CCS & alternative routes to make chemicals (waste material, CO₂ & H₂ chemistry)
 - BASF: electrically heated steam cracker by 2023 at Ludwigshafen, net-zero petrochemical plant at Antwerp by 2030
- Cement industry
 - Alternative fuels, reduction of clinker share in cement & CCUS



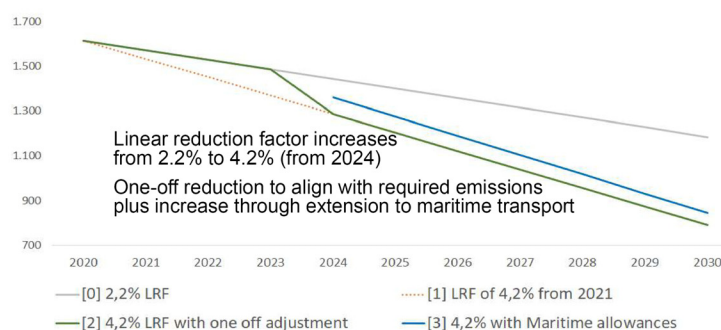
Revision of EU ETS: Cap-setting

- Proposed 2030 climate ambition to deliver at least 55% GHG reductions vs 1990
- EU ETS is a key instrument to achieve this target, in a coherent way

EU ETS cap
-61 % vs 2005
(currently -43%)

Including:

- power
- centralized heat
- energy transformation
- energy intensive industry
- aviation (intra-EU)
- maritime transport (Intra- and 50% extra EU, only intra-EU covered by EU target)



Revision of EU ETS: Free allocation

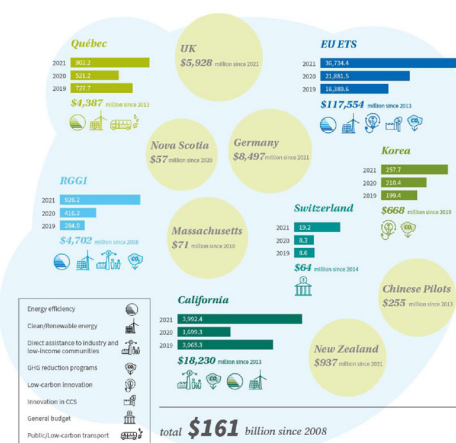
- **Free allocation (FA) continues to be based on benchmarks:**
 - Based on average of 10% best performers
 - Updated for 2021-25 (based on data for 2016-17) and 2026-30 (based on data for 2021-22)
 - Carbon leakage factor of 1.0 for sectors at risk, and 0.3 for those not at risk (for 2021-25, then declining to 0 by 2030)
- **Better targeted:** Maximum annual reduction rate increased to 2.5% (currently 1.6%), shifts more FA to sectors that are harder to decarbonise
- **Scope of benchmarks broadened:** Remove barriers for deployment of new technologies such as green hydrogen to guarantee level playing field among technologies
- **Conditionality to decarbonisation efforts:** 25% reduction of FA for installations not implementing cost-efficient measures identified in energy efficiency audits
- **FA will be phased out (and replaced by auctioning) as the proposed Carbon Border Adjustment Mechanism (CBAM) is phased in for selected sectors:** to reduce by 10 percentage points each year starting at 90% in 2026 and reaching zero in 2035; auction revenues accrue to Innovation Fund
- **FA will be phased out for aviation:** full auctioning from 2027

Revision of EU ETS: Scope

- **Extending the EU ETS to maritime transport**
 - All emissions from voyages within EU (intra-EU)
 - 50% of emissions from voyages starting or ending outside of EU (extra-EU)
 - All emissions when ships at berth in EU ports
 - Only covering large ships (above 5000 gross tonnage) – regulating same companies as covered by EU MRV maritime transport regulation
 - Rather than FA, a phase-in period of allowance surrendering (20% of verified emissions reported for 2023, 100% of verified emissions for 2026 and after)
- **New ETS for buildings and transport**
 - In both sectors emissions have increased between 2014-2019 by 2% & 7% respectively
 - Sectors under EU ETS are decarbonizing faster than sectors outside the ETS
 - Separate upstream ETS for buildings and road transport
 - Full auctioning
 - Separate MSR and price-increase based mechanism to counter risks of excessive price fluctuation
 - Social Climate Fund using 25% of revenues from this ETS will address social impacts from this policy on vulnerable groups

Revision of EU ETS: Auction Revenue Recycling

- **Auctioning is the default and main method of allowance allocation** (Approximately 57% of all allowances are auctioned, with full auctioning for power sector)
- **Improving use of auction revenues: Member States to use entirety of revenues on climate and energy (including social) purposes**
- **\$118 billion since 2013, of which**
 - \$37 billion in 2021
 - \$22 billion in 2020
 - \$16 billion in 2019



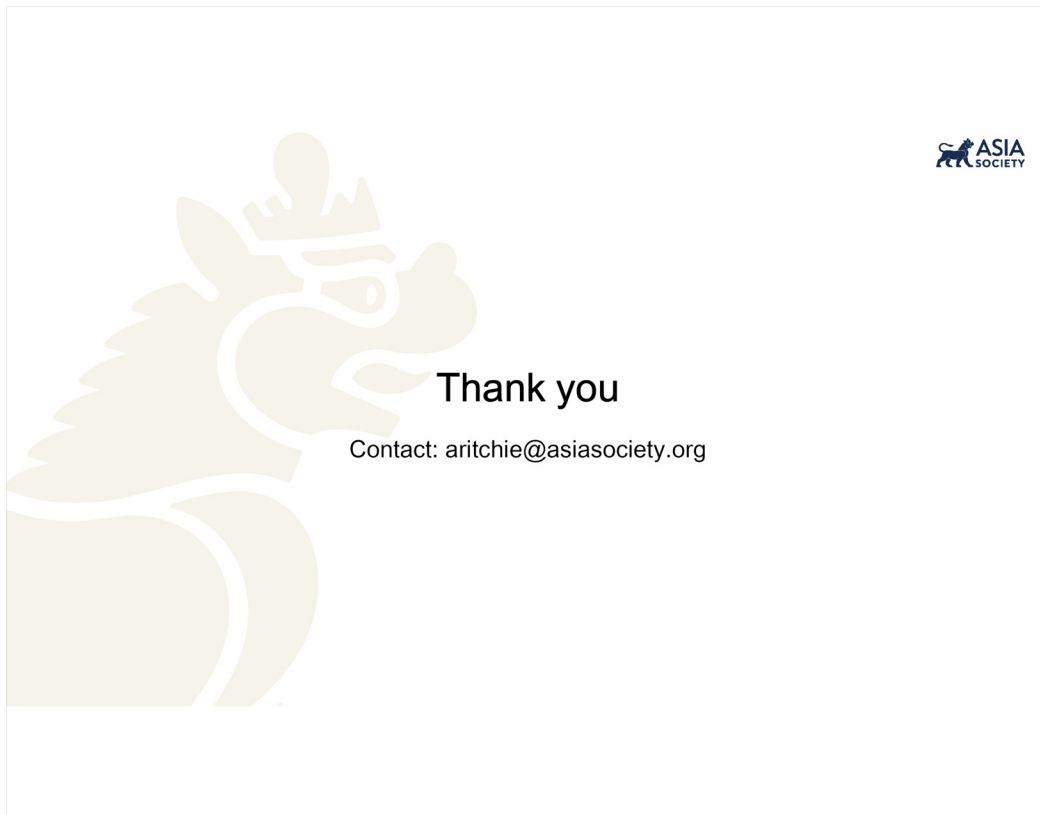
Source: ICAP, Emissions Trading Worldwide – ICAP Status Report 2022

Revision of EU ETS: Innovation Fund

- **Innovation Fund will provide tens of billions of Euros from 2020 to 2030 for commercial demonstration of innovative low-carbon technologies in energy-intensive industries to bring to the market solutions to decarbonize the EU and support transition to carbon neutrality**
- **Increased fund from 450 to 650 million EU ETS allowances:** 150 of the additional 200 million allowances from the new ETS for road transport and buildings
- **Allowances which would otherwise be allocated for free to industry sectors covered by CBAM will be added to Innovation Fund from 2026 to 2030**
- **Supporting contracts for difference under the Innovation Fund:** a tool to provide support to early deployment of innovative technologies and to complement the existing funding mechanisms in the Innovation Fund

Lessons for an ETS to support Carbon Neutrality

- **Develop ETS cap in line with national GHG emissions reduction target on pathway to net-zero**
- **Ensure a broad sectoral coverage**
- **Introduce full auctioning for the power sector** (and include carbon costs in power station dispatch decisions and pass-through carbon costs to electricity prices)
- **Establish an effective fund to support investment in key technologies to achieve carbon neutrality, sourced by ETS auction revenue**
- **Implement ambitious benchmarks for free allocation** (and review carbon leakage mitigation measures as cap tightens to ensure most efficient companies are protected)
- **Introduce rule-based market stability measures to counter risks of excessive price fluctuation**
- **Ensure liquidity of market through sufficient third party participants**





MAIN SESSION

Mitigating the risk of carbon leakage



Jonathan Woodland

Head of Climate Diplomacy, British Embassy Seoul

Career History

Jonathan Woodland is Head of Climate Diplomacy at the British Embassy Seoul. Jonathan began his career with the UK Ministry of Justice in 2009 and has held roles in both the Ministry of Defence and the Foreign Commonwealth and Development Office.

He is a graduate of the University of York (BA History) and King's College London (MA History).



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Mitigating the risk of carbon leakage

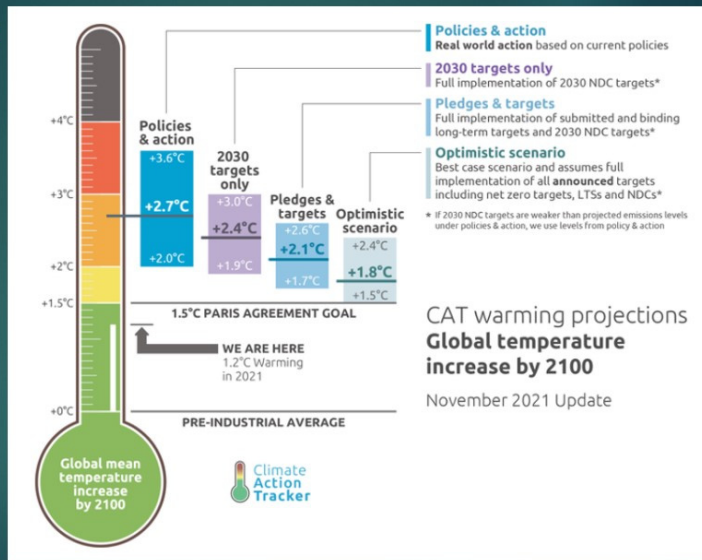
*Jonathan Woodland
Head of Climate Diplomacy
British Embassy Seoul*

The Definition

Carbon Leakage: What is it? Why does it matter?

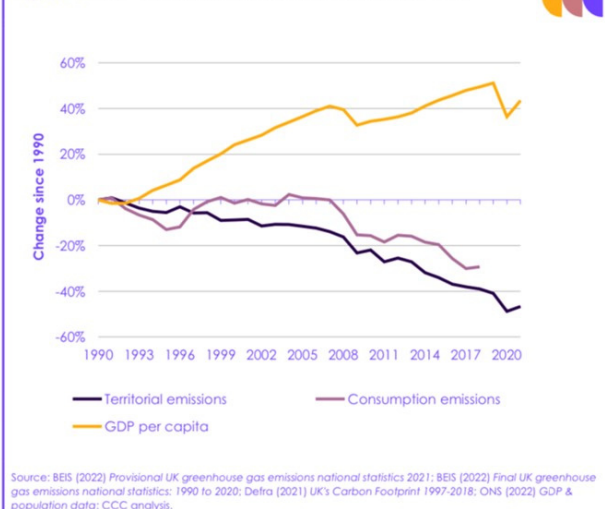
“Carbon leakage is the displacement of domestic production, and its associated emissions due to different levels of carbon pricing and climate regulations across jurisdictions”.

The Science



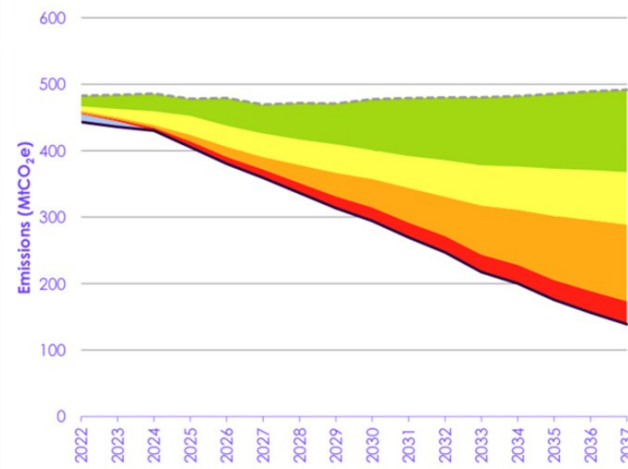
UK Progress To Date

Figure 1 The UK's historical emissions and GDP



UK Outlook

Figure 4 Assessment of policies and plans



The International Response: Carbon Leakage

An international problem requiring an international solution:

- OECD's Inclusive Forum on Carbon Mitigation Approaches
- International "Climate Clubs"
- G7 / G20
- IMF International Carbon Price Floor
- WTO's Trade and Environmental Sustainability Structured Discussions (TESSD)
- The Glasgow Breakthrough Agenda
- Industrial Deep Decarbonisation Agenda
- Clean Energy Ministerial

UK Net Zero Strategy: Build Back Greener (Oct '21)

“We recognise the importance of addressing the risk of carbon leakage so policy interventions do not lead to increased emissions elsewhere, and to ensure that UK industry has the confidence needed to fully decarbonise. The IDS and the Net Zero Review set out the potential options available to address this, including regulatory standards and Carbon Border Adjustment Mechanisms (CBAMs), as well as the ongoing review of our current carbon leakage mitigation policy of free allowances under the UK ETS”.

MAIN SESSION

The Evolution of Sustainability Disclosure



Mark Watson

Country Managing Partner, ERM Korea

Career History

Mark Watson has over 35 years' experience in the fields of ESG, sustainability and environmental management. He has worked across the power, oil & gas, financial, chemical, technology and manufacturing sectors and has a career history that spans government, industry, consultancy and contracting.

He is currently the Country Managing Partner with ERM Korea based in Seoul, South Korea.



13th International Greenhouse Gas Conference

The Evolution of Sustainability Disclosure

Mark Watson
Country Managing Partner
ERM Korea

Aug 11th, 2022

The business of sustainability



About ERM

Shaping a sustainable future with the world's leading organizations

50+
Years of experience

20,000+
Projects delivered each year

>50%
of the Global Fortune 500

170
Offices in 40+ countries and territories

7,500+
Employees worldwide

US\$1bil
Annual Revenue

About SustainAbility Institute by ERM

ERM's primary platform for thought leadership on sustainability.

Purpose
Define, accelerate and scale sustainability performance by developing actionable insights for business.



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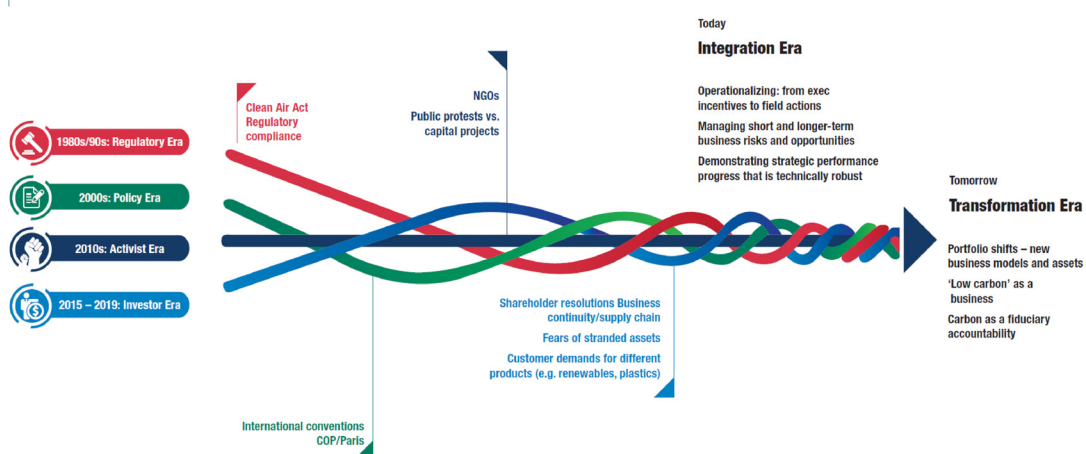
Overview

- History of sustainability, ESG and climate-related disclosure
- Current status and recent developments
- Implications for business
- A look into the future

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Sustainability Evolution



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Guidelines | Frameworks | Standards | Disclosures



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Guidelines | Frameworks | Standards | Disclosures

TCFD | TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

- Released in 2017
- Aim to help companies provide better information to support informed capital allocation
- Four thematic areas
- 11 climate-related financial disclosure recommendations



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Who Makes Up the ESG Ecosystem?

Top Companies & Most Sustainable companies

Based on sustainability reporting standards and frameworks

Provide **frameworks** for disclosure and don't evaluate companies.



Actively request information, aggregate data and add ratings.



Passively pull information from sustainability reports, aggregate data, and add ratings.



Purchase data and ratings from other raters and add rankings.



Recent Developments

Call for harmonisation

"There is an urgent need to work towards improving the completeness, consistency, comparability, reliability and auditability of sustainability reporting."

International Organization of Securities Commission, June 2021

Internationally – 2022

- US Securities and Exchange Commission (SEC)
- European Financial Reporting Advisory Group (EFRAG)
- International Financial Reporting Standards (IFRS)

A Rapidly Evolving Context



- *Enhancement and Standardization of Climate-Related Disclosures for Investors* (March 2022)
- Require nearly all companies filing with SEC to report climate-related risks, including greenhouse gas emissions.



- *European Sustainability Reporting Standards* (April 2022)
- Part of the EU Corporate Sustainability Reporting Directive (CSRD).
- Guidance on a broad range of sustainability-related disclosure requirements



- *General Requirements for Disclosure of Sustainability-related Financial Information and Climate-related Disclosures* (April 2022)
- The IFRS Foundation's recently-formed International Sustainability Standards Board (ISSB)
- Includes detailed standards for climate-related disclosures

TCFD Alignment

SEC

- Uses TCFD as a guide in developing disclosure requirements
- Uses its own approach for disclosure related to metrics, targets and climate-related opportunities

ISSB

- Aligns with TCFD guidance
- Presents additional requirements and components, making it more detailed

ESRS

- Most prescriptive and detailed of the three
- Aligns with TCFD guidelines but significantly adds detail to recommended disclosures (e.g. EU double materiality framework)

Emission disclosures

- All adhere to TCFD guidance
- All use the Greenhouse Gas Protocol's Corporate Accounting and Reporting Standard, including the concept of scopes and related methodology
- All require companies to disclose Scopes 1 & 2 greenhouse gas emissions measured in metric tons of CO₂ equivalent
- Scope 3 emissions are required by the ISSB and ESRS proposals, and by SEC if Scope 3 emissions are material or if the company has set reduction targets that include Scope 3

Korean Corporate ESG Environment



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ESG disclosure requirements in Korea

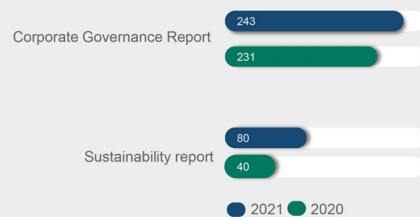
Mandates ESG Disclosure Timeline

Corporate Governance Report		Sustainability Report
More than 2 Trillion Won (implemented)	2021	Voluntary Disclosure
More than 1 Trillion Won (implemented)	2022	
	2024	More than 2 Trillion Won
More than 50 billion Won	2025	
	2026	All listed in the KOSPI
All listed in the KOSPI	2030	

*KOSPI: Korea Composite Stock Price Index

Apply to all KOSPI-listed companies from 2030

Current ESG Disclosure



Increased sustainability report


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A look into the future...

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- Sustainability, ESG and GHG emissions disclosure requirements continue to evolve
 - Harmonisation is a way off
 - Jurisdictions may not recognize disclosures made pursuant to other jurisdictions' rules
 - Trends internationally have implications for Korea
 - Potential future expansion is likely
 - More companies will disclose Scope 3 Emissions
 - Third-party assurance will become more common
 - Companies should follow developments and be prepared for change
 - ...but in meantime utilise the TCFD Framework to guide current reporting

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Discussion Session

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Moderator



Jong-Ho Hong

Professor, Graduate School of Environmental Studies,
Seoul National University

Career History

Jong-Ho Hong is a Professor of Economics and former Dean of the Graduate School of Environmental Studies at Seoul National University (SNU). His teaching and research are focused on environmental/energy economics and sustainable economy and policy. His involvement within the school extends to serving as the former Director of the Environmental Planning Institute and the Institute for Sustainable Development. Before his career at SNU, he held research and academic positions at Korea Development Institute (KDI) and Hanyang University, after receiving his Ph.D. at Cornell University. He also has broad experiences working as a consultant for international organizations, such as the World Bank and Asian Development Bank. He has previously served as the President of the Asian Association of Environmental and Resource Economics (AAERE), Korea Environmental Economics Association and Korean Association of Public Finance. He is also devoted to activities related to civil society, serving as Co-President of the Korean Federation for Environmental Movement.

Currently, he serves as Chairman of the Energy Transition Forum of Korea and policy advisor to the Korea Chamber of Commerce and Industry.

MEMO

Discussants



Ji-Young Park

Deputy Director of Climate Economy Division, Ministry of Environment of Korea

Career History

Working in the Climate Economy Division which deals with Korean ETS.

Being in charge of K-ETS regulations.

Having worked in the Ministry of Environment since 2014.

MEMO

Discussants



Dae-Woong Lim

CEO, BNZ PARTNERS (Country Coordinator of Korea, United Nations Environment Program Finance Initiative)

Career History

Dae-Woong Lim is an expert and business innovator in green finance, climate change and sustainability. He coordinates UNEP Finance Initiative as the Korea representative to promote ESG and sustainable finance in Korea. He launched ECO&PARTNERS in 2014 and BNZ PARTNERS in 2020. The companies provide knowledge-based service in net-zero, green finance (TCFD and taxonomy), carbon credit investment, climate technology investment (as an accelerator), and blockchain-based decarbonized economy. He is working as a secretary of the Economics and Industry Division of the 2050 Carbon Neutrality Committee, the Financial Development Council and the Green Finance Promotion Group of the Financial Services Commission, and an advisory member of the Deposit Insurance Advisory Committee of the Korea Deposit Insurance Corporation. He started his first career at Eco-Frontier from 1995. He had provided advisory services on sustainability policy, ESG strategy, ESG rating, renewables project development and carbon trading. He studied MSc. in Environmental Sustainability at the University of Edinburgh.

Discussants



So-Young Lim

Research Fellow at Center for International Industry & Trade, Korea Institute for Industrial Economics & Trade

Career History

So-Young Lim has 15 years of experience in the conduct of policy research on development cooperation and sustainable development in environmental and climate change-related fields. She holds a doctoral degree in environmental economics from Seoul National University.

She was a key adviser for the Korean government with regards to the establishment of the Green Climate Fund (GCF), analyzing the design of the fund for the Ministry of Strategy and Finance. More recently, she has advised the government on environmental and climate issues in the context of trade.

Dr. Lim's major works include "Analyzing the effects of carbon border adjustments," a policy report for KIET and "Industrial trends and prospects in response to the Green Swan post-pandemic," a policy report for KIET. She is currently conducting research on strengthening ESG in the global supply chain.

