

다시 보기: 한국의 미래전략과 저탄소 녹색성장

Revisiting Korea's Future Strategy: Low Carbon Green Growth

한국기후변화학회 창립 10주년 기념
'한국의 기후대응과 100년의 미래'
세종대학교 광개토관 컨벤션홀

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우리들의 미래 이사장

2019.6.26

Agenda

- 미래를 어떻게 볼 것인가
- 한국의 5대 리스크와 녹색성장 추진배경
- 저탄소 녹색성장전략의 성과와 과제
- 한국의 기후변화 대응과 100년의 미래
 - '더 큰 대한민국'을 위한 제언

First Mission as a Secretary to the President for National Future & Vision (Feb.26.2008)

“Define New National Interest and Direction of Korea
in the Long-term Perspective”

“대통령직속 미래기획위원회를 구성하고 대한민국의 중장기전략을 제시하라”
-청와대 국정기획수석실 미래비전비서관 출근 첫날 책상위에 놓인 업무지시

미래를 어떻게 볼 것인가?

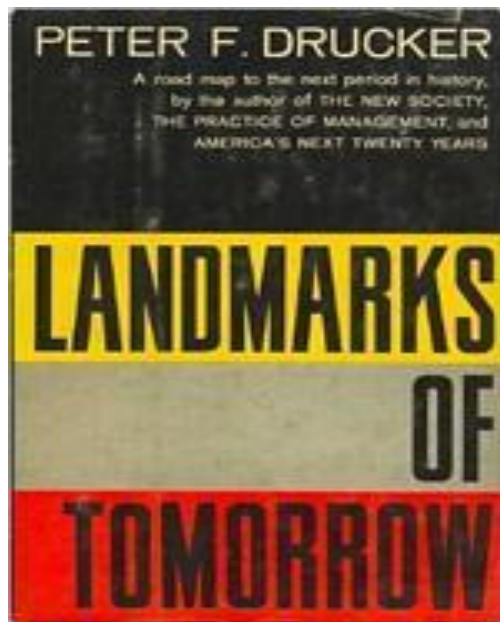
“*The Future That Has Already Happened*” by Peter F. Drucker

未來 vs 現來

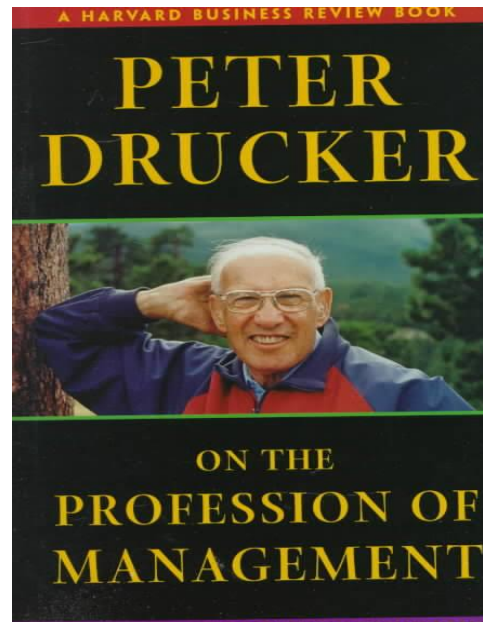
Focus on the *Future*,
Not the Past

“미래는 이미 와있는 것, 더 커질 위기와 기회에 주목해야”

“*The Best Way to Predict the Future is to Create it*”



1959



1998

대한민국의 5대 리스크

1. 기후-에너지 리스크

Mega
Risk

2. 인구변화 리스크

3. 저성장-불평등 리스크

Near
Risk

4. 한반도 리스크

5. 정치 리스크

Meta
Risk

Korea's Trilemma back then 2008 (maybe still now?)

- 1. Old economic paradigm (Input driven, Quantity Oriented, Energy Intensive, Catch-up model, Getting-old growth engine and Environmental degradation...)
- 2. Lack of Influence in the Global Stage (No Agenda Shaping Power, No Rule-setting Power, No Soft Power... Only good products, Taekwondo, NK news...Not Advanced Country)
- 3. 'Short-termism' in National Policy since 1987 and worsening partisan politics. Even Vetocracy.

How to trigger deep change? With what?

- Set-up two important thinking body (advisory group to the President)
 - 대통령 직속 미래기획위원회 및 기획단 구성
(Presidential Committee on National Future Planning)
 - 글로벌 자문 그룹 구성
(Global Advisory Group to the President)
- Came to regard Climate Change as the biggest thing for the change we need to have

Transforming Climate Change Into Positive Agenda : 'Narrative Change' Strategy for Story-telling Power

Noble

초당적협력

기후변화와 에너지:

인류의 가장 큰 도전

Global

국제적 위상

Real

중장기이익



**'기후변화'의 도전을 '녹색성장'의 기회로 전환,
새로운 국익과 리더십을 도모 (2008.8.15.정부수립
60주년)**

Low-Carbon Green Growth as New National Vision

-2008. 8.15 : 60th Anniversary of Korea



More than a development strategy

- not just another environmental program
- a new paradigm for sustainable economic growth creating a planet-responsible civilization
- long-term interest over short-term interest

2048 = 100 Year of Korea 더 큰 대한민국



Uniqueness of Korea (2008.2-2013.2)

1

Self-Determined and Tailored Policy for National Future & Vision in the climate-energy era

2

Strong Initiatives from Presidential Leadership and Coordinated Governing Structure

3

Overall and Holistic Approach as New Development Paradigm

4

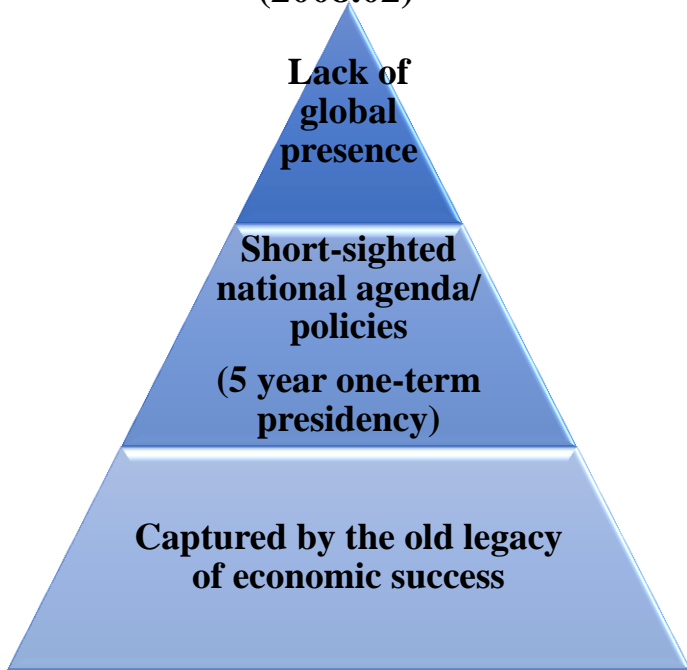
Institutionalization and Internationalization of Green Growth for Long-Term Policy

5

Emphasis on Science and Technology for New Growth Engine

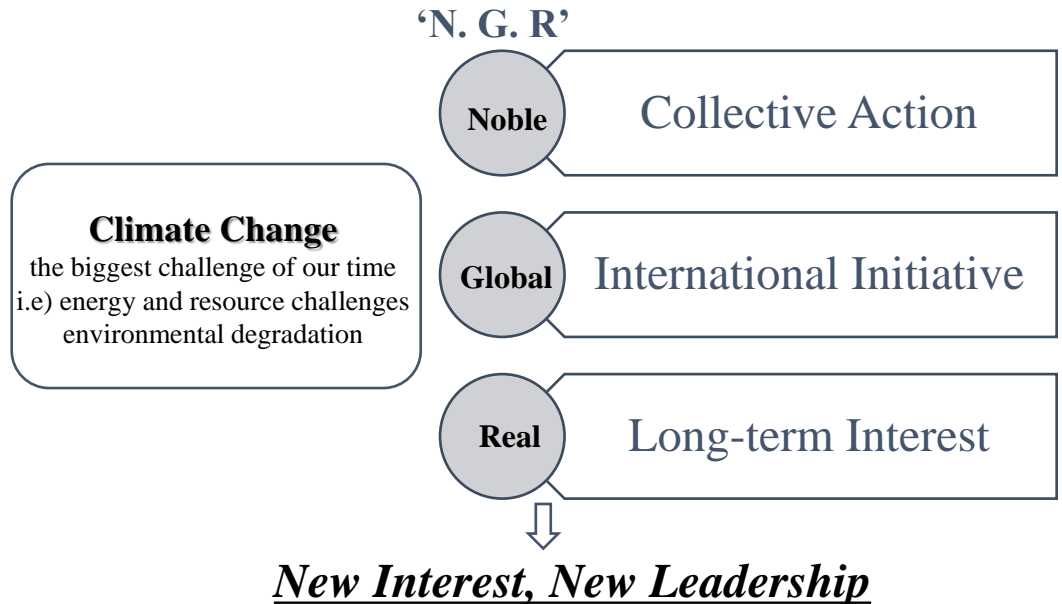
1. Self-Determined and Tailored Policy for National Future & Vision in the climate-energy era

Trilemma of the Korea (2008.02)

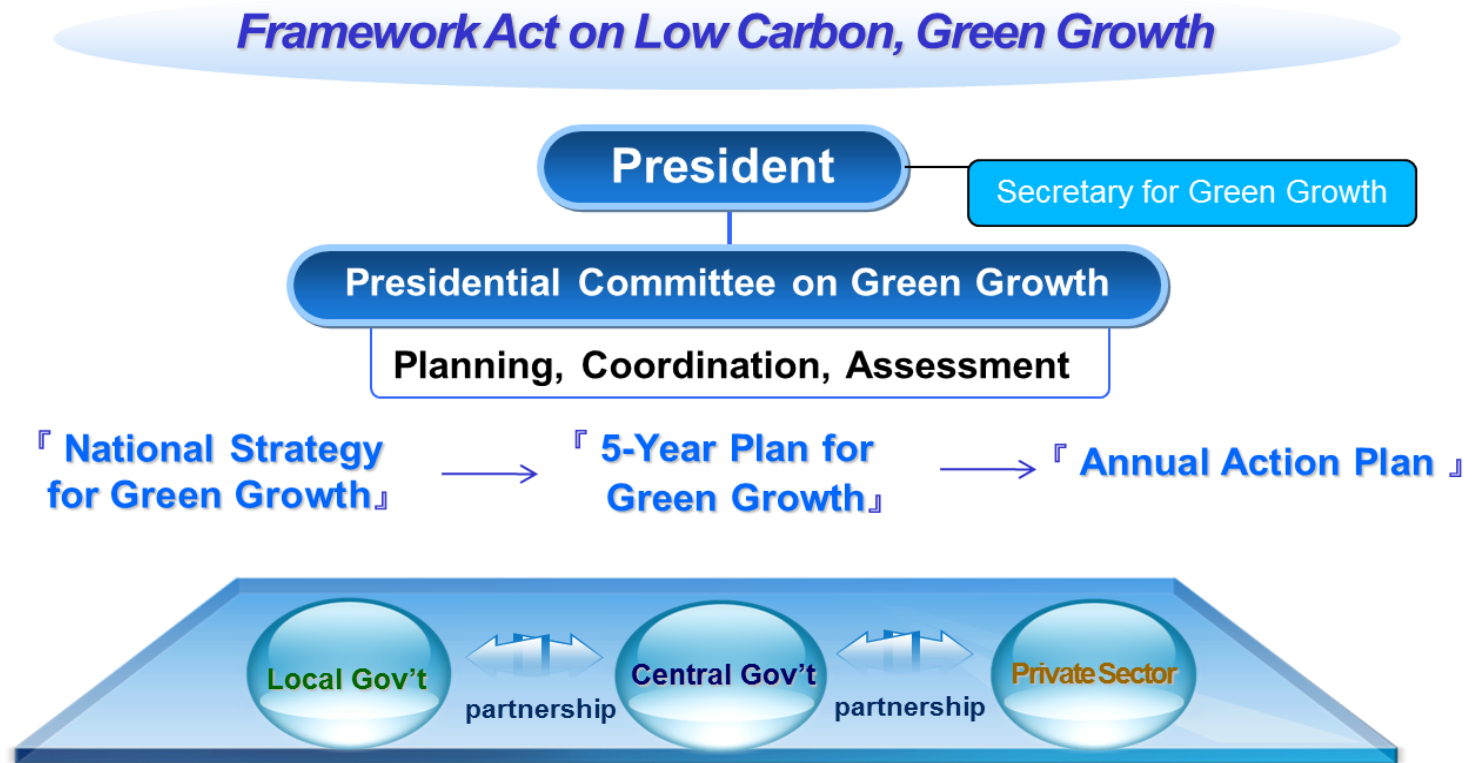


New Definition of Climate Change

as **“ Opportunities ”**



2. Strong Initiatives from Presidential Leadership and Coordinated Governing Structure



3. Overall and Holistic Approach as New Development Paradigm



4. Institutionalization and Internationalization of Green Growth for Long-Term Policy

Legal Framework

- Framework Act on Low Carbon Green Growth
- Act on the Creation and Facilitation of Use of Smart Grids
- Green Building Promotion Act
- Act on the Allocation and Trading of Greenhouse-Gas Emissions Permits

4. Institutionalization and Internationalization of Green Growth for Long-Term Policy



Global Green Growth Institute

Became full-fledged international organization with 18 founding member countries in October 2012



GREEN CLIMATE FUND

Headquarter hosted in Song-do Korea in October 2012

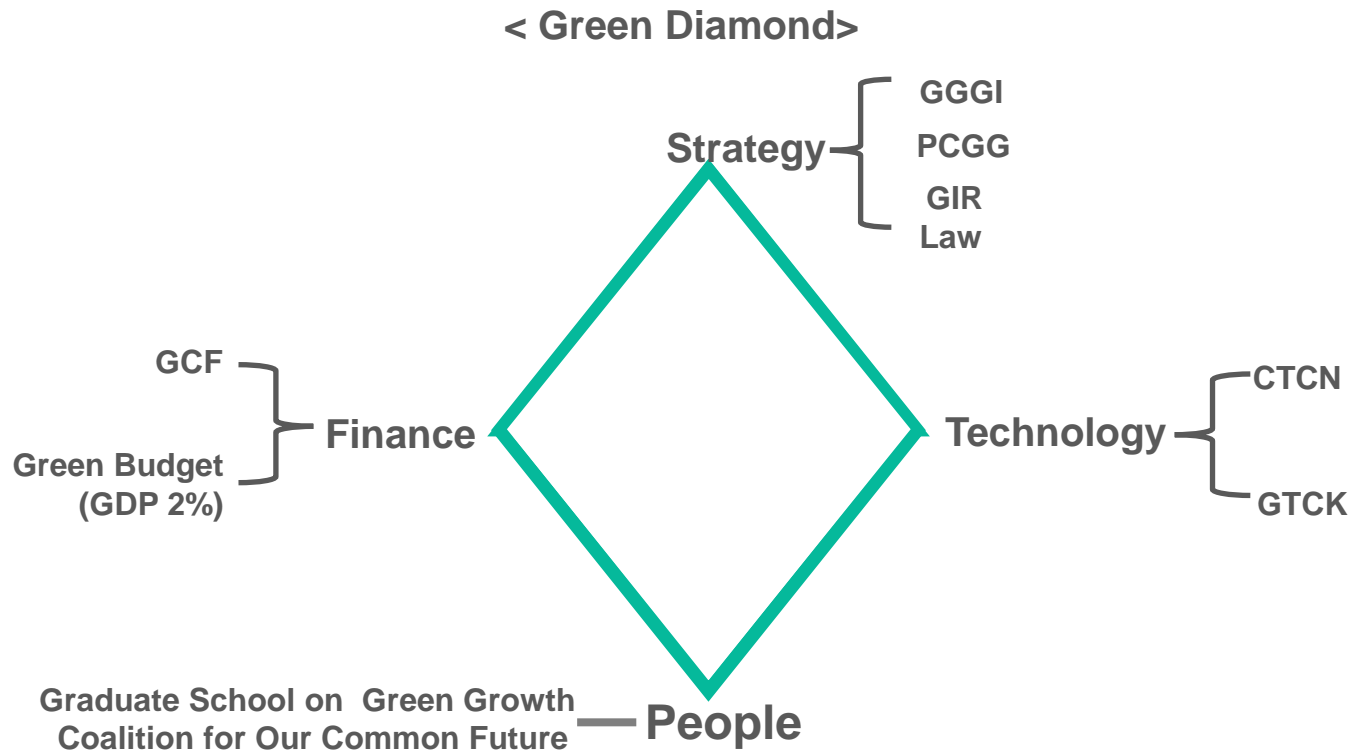
5. *Emphasis on Science and Technology for New Growth Engine*

Green Technology R&D Investment

(KRW: hundred million)

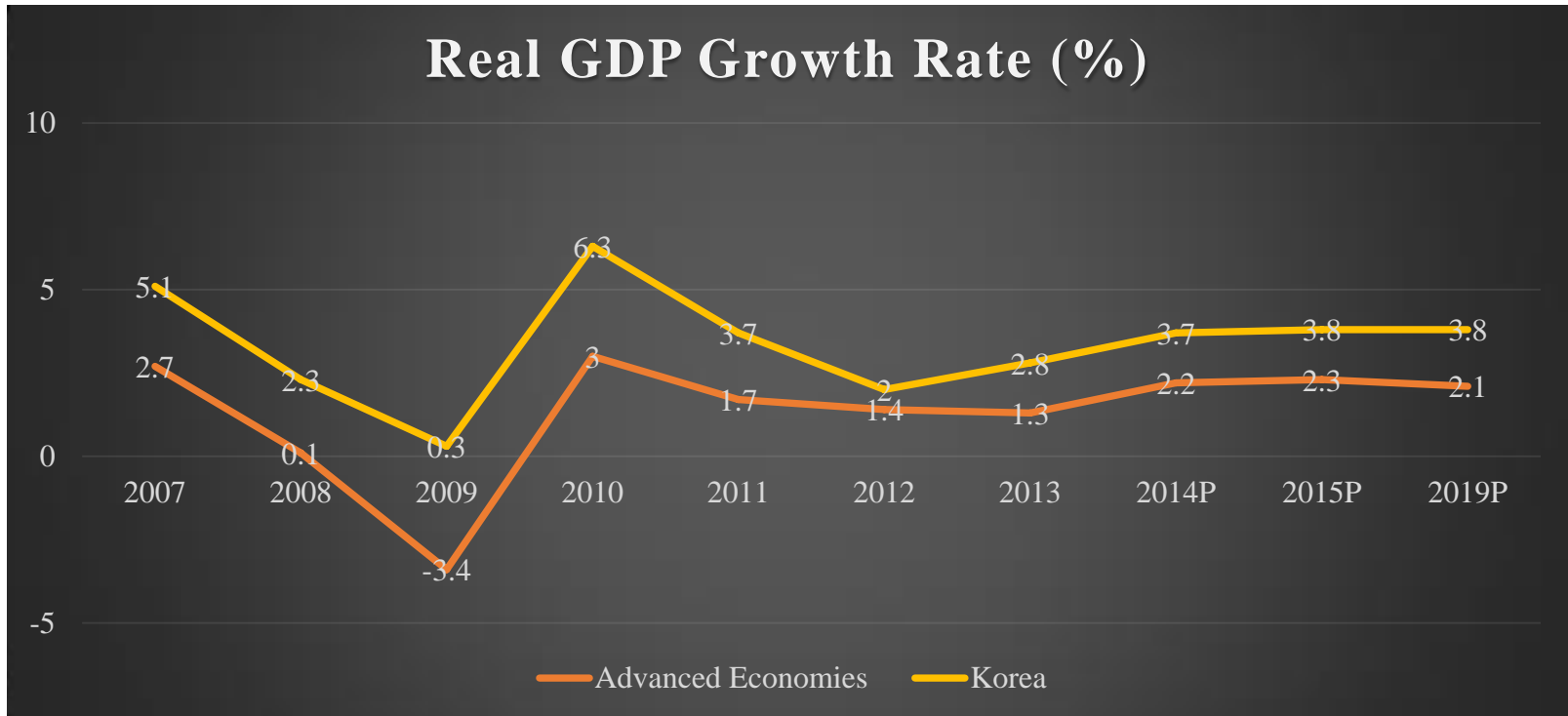
	2008	2009	2010	2011	2012	Average annual increasing rate
Green Technology R & D (A)	14,588	20,395	25,012	29,050	35,530	24.91%
Scientific Technology R & D (B)	109,936	123,437	137,014	148,902	159,725	9.79%
A/B	13.27%	16.52%	18.26%	19.52%	22.24%	

Green Growth Architecture



Green & Growth Could Go Together

Green & Growth Can Go Together



[Source World Economic Outlook 2014]

Job Creation Effect

➤ '09-11 Comparison of the Job Creation Effect green sector and non-green sector

764 thousand jobs with investing 56 trillion KRW **in the green sector**

250 thousands less if invested in the non-green sector.

< Job creation effect with 56 trillion KRW during '09~'11>

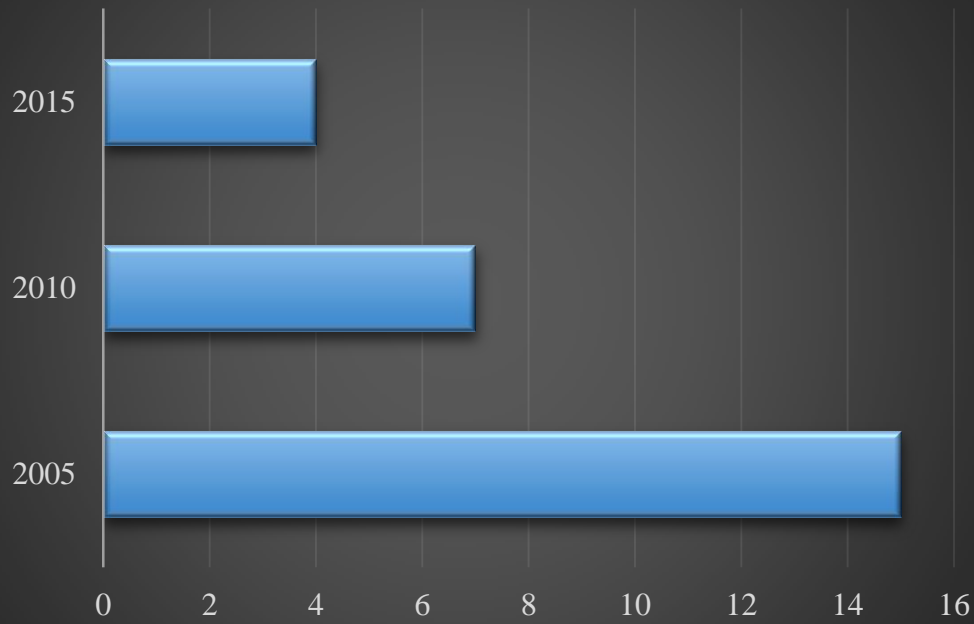
(Unit : thousand)

Green Sector (A)	Non Green Sector (B)	A-B
76.4	51.8	24.6

[Source: Korea Development Institute & Korea Labor Institute (2012)]

Increased Global Green Competitiveness

Global Green Competitiveness Ranking

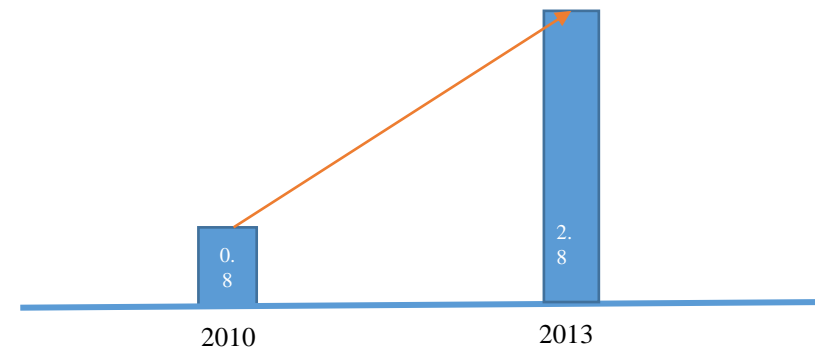


	2005	2010	2015
Ranking	15	7	4

[Source: HSBC (2012)]



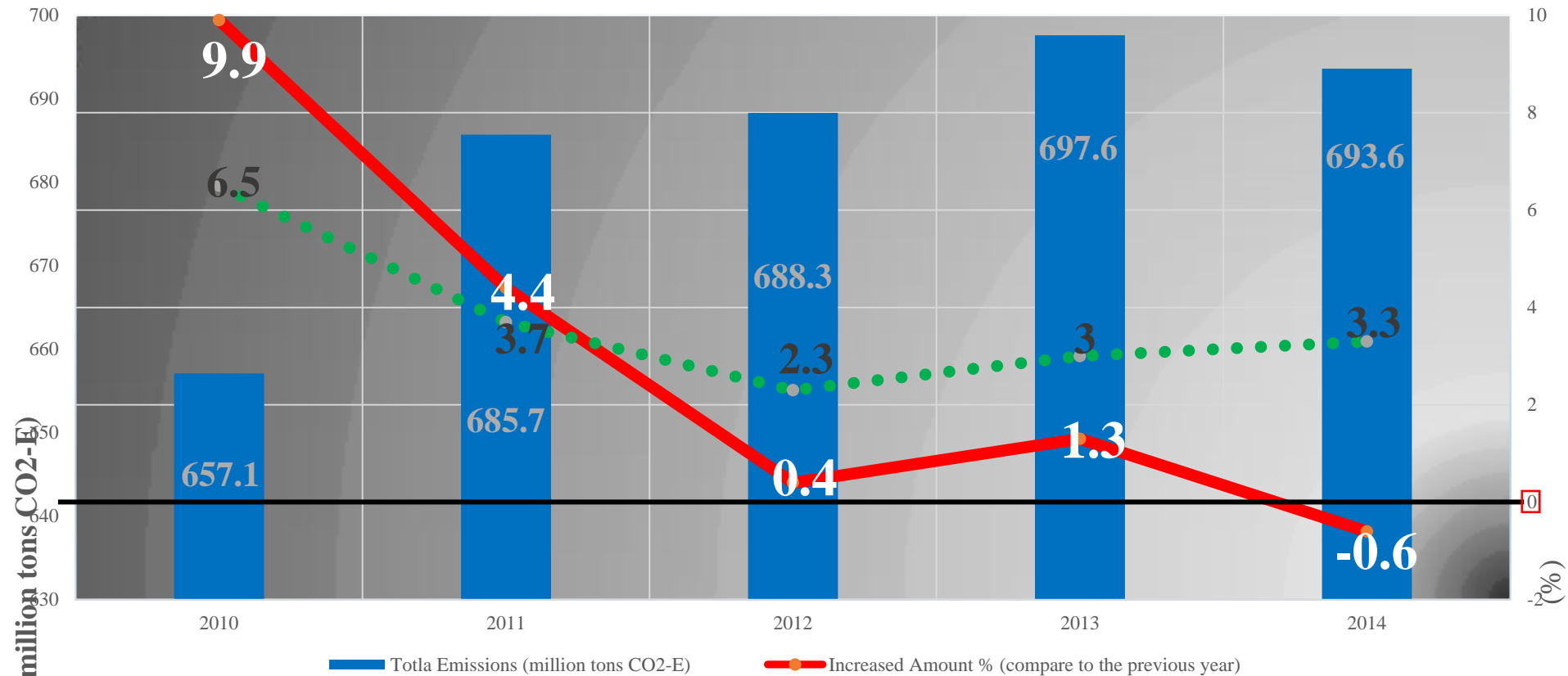
Jeju Smart Grid Test-Bed Smart Grid Maturity Model level increased *from 0.8 to 2.8*



Korea Institute of S&T Evaluation and Planning (KISTEP)- 『*Composite Science and Technology Innovation Index 2014*』
 Korea's Smart Grid Technology Level is equivalent to Advanced Country

Total Amount of GHG Emissions & GDP Increased Rate (2010-2014)

Decoupling : -0.6 [CO2] / + 3.3 [GDP] (2014)



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Progress in Green Growth Architecture



GGGI

- July 2013, The organization became ODA eligible I.O. (through DAC committee)



GCF

- Headquarters launched in Song-do Korea 2013 November



GTC

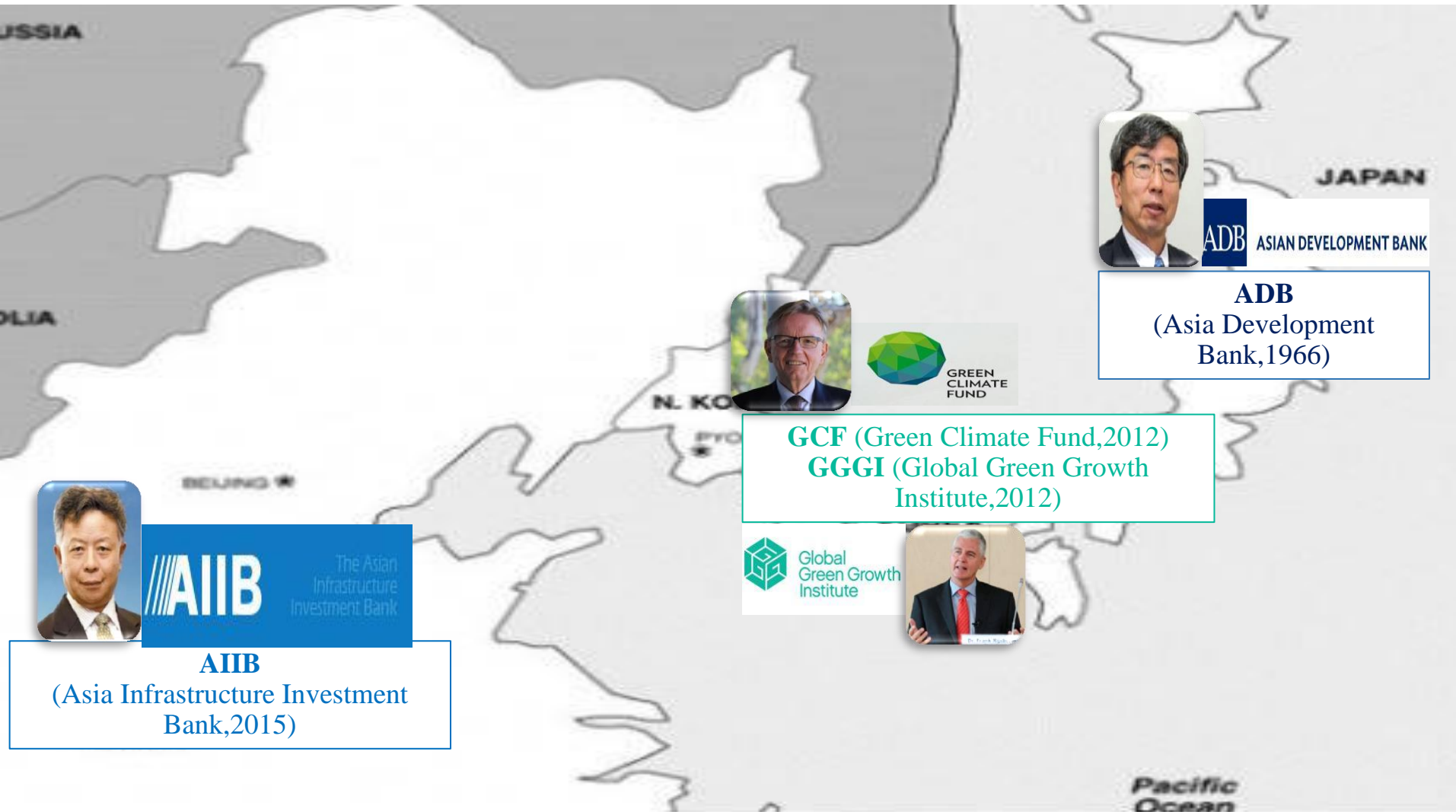
- May 2013, GTC became an independent organization – graduated from KIST in – house status



GSGG

- Canadian media organization Corporate Knight ranked the GSGG 1st in Asia & 6th in the world among green MBA

녹색성장 국제레짐(Regime)과 더 큰 대한민국 (ex 한반도와 동북아 슈퍼그리드)



AIIB
(Asia Infrastructure Investment Bank, 2015)



GCF (Green Climate Fund, 2012)
GGGI (Global Green Growth Institute, 2012)



ADB
(Asia Development Bank, 1966)

Pacific Ocean

Yet, the first phase of GG was not 'Internalized' into the heart of people

- Too much top-down approach and not enough bottom-up approach (지방 녹색성장위원회와 광주 녹색성장 선언 2012. 8... a bit late)
- Lack of due PPP platform (Industry, Technology, Finance, Green IT, Civil Society...not deep enough)
- Not effective monitoring system (Strategy Unit vs. Delivery Unit...we should have something like that)
- Lack of Epistemic Community, Green Talent and Time (한국기후변화 학회 창립 10주년이 그때였다면...)

Unfinished Job of Korean Green Growth : To Continue the Green Journey ...

10 Major Tasks Ahead for Green Growth 2.0

Green Growth Governance

- Strengthening Green Growth Governance
- Leading the Green Growth Architecture

Green Investment & Technology Development

- Expansion of Green Investment
- Enhancing Effectiveness in Green Technology Development

Market Mechanism based Green Growth

- Price Rationalization in Electric and Water Utility
- Environment-friendly Tax Reform
- Settlement of Emission Trading Scheme

Promoting Green Project

- Promoting Local-based projects
- Mega-Project in Northeast Asia
- Green Détente

2013.2 Submitted to the new administration

As the CFR Report points out, however, ...

Aspect of Sustainability

‘Lee’s efforts left South Korea in a stronger position to lead on green growth. There is no question that he succeeded in establishing a set of laws, institutions and expectations that no Blue House successor could easily dismiss.’

‘The current Park Geun-hye administration has tended to downplay any issues where “Successes” might be associated with the legacy and efforts of the preceding administration of Lee Myung-Bak.’

‘As a result, the main emphases of prior administrations are destined to gather cobwebs when new political leadership comes into power’

그 이후... Some Snapshots

China's Low-carbon Green Development Policy . It used to Korea's Initiative...



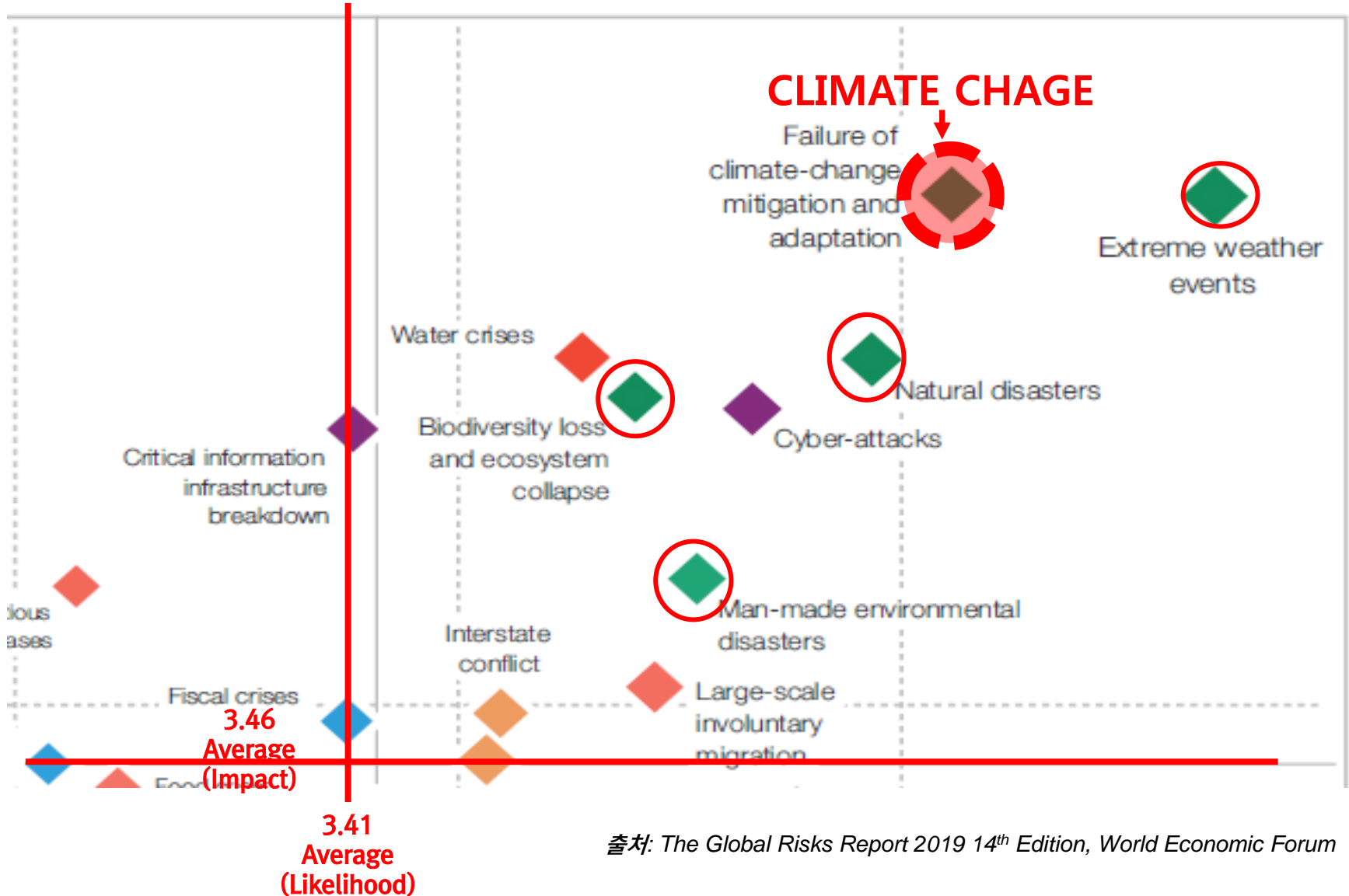
Xie Zhenhua, China's special representative on climate change at the COP, 2016

The Same to you... What can we say?



Top Global Risks (2019)

Highly-Likelihood and High - Impact CLIMATE CHANGE

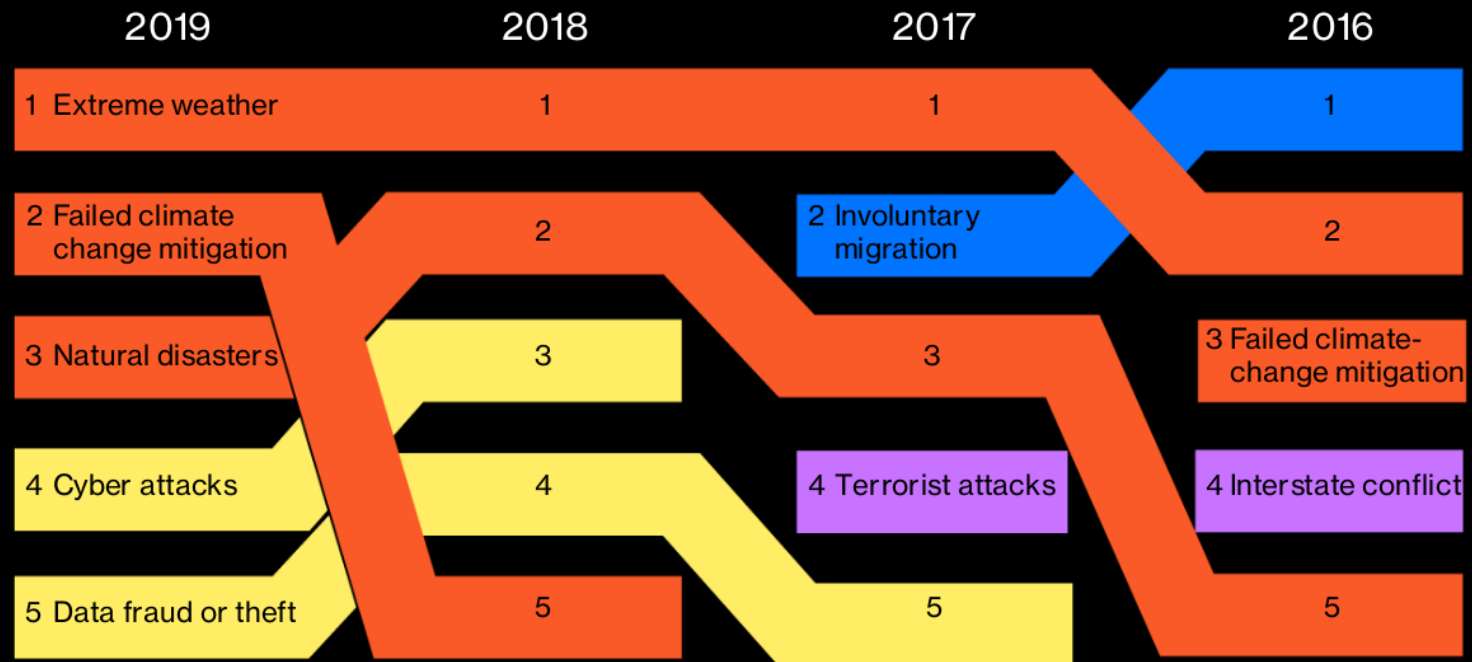


Biggest Global Risks

Biggest Global Risks

Environmental dangers dominate the WEF's survey for 2019

Environmental Technological Societal Geopolitical



Source: World Economic Forum Global Risks Report

Bloomberg

출처: Climate and Cyber Risks Top Concerns Facing the world in 2019, Bloomberg



Hothouse Earth? Hot to Mobilize the Change for Our Sustainable Future



Co-Chair, Seoul

Director, Sustainable

Visiting Professor, KAIST G

Chairman, Co



Keynote Lecture

**Trajectories of the Earth
system in the Anthropocene
Is the Tipping Point Nearer?
Age of Great Acceleration**

Katherine Richardson Christensen

Professor and Leader, Sustainability Science Centre



그린란드 얼음물 속을 달리는 개썰매



출처: Danmarks Meteorologiske Institut/Steffen M. Olsen via AP

Arctic Sea Lane - Connecting Asia-Europe and the World



Even though we still smile...



기후위기를 새로운 발전의
기회로!

파리 기후변화협정과 신기후체제 from BAU(Business As Usual) to BAW(Business As Wanted) Low-carbon Development Pathway for Our Sustainable Future!

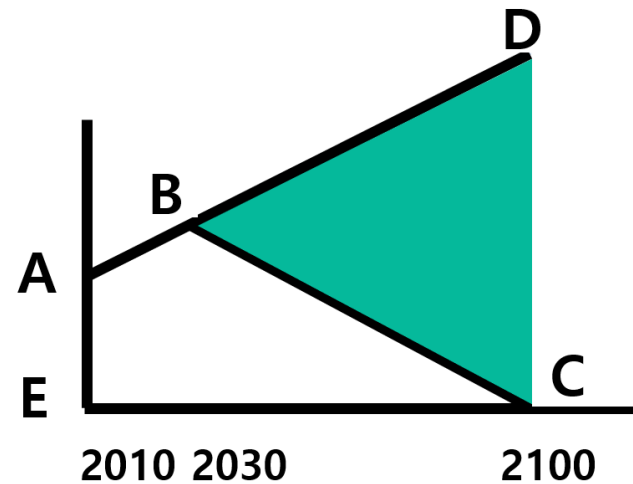
ABD (Existing) = 2.5 times increase in 2100

ABC (New) = 50 Gt CO₂ peak in 2030, 0 Gt in 2100

EABC = Global carbon emission ceiling

BDC (New low carbon market) = **Green Growth**

Opportunity for employment and economic-social
development



Source: Lee, Hoesung, Chair of IPCC & Kim, Sang Hyup
2016

Green Growth and New Industrial Revolution



New Energy → New Economy & New Jobs
New Transport → New Way of Life
New Communication → New Power Shift

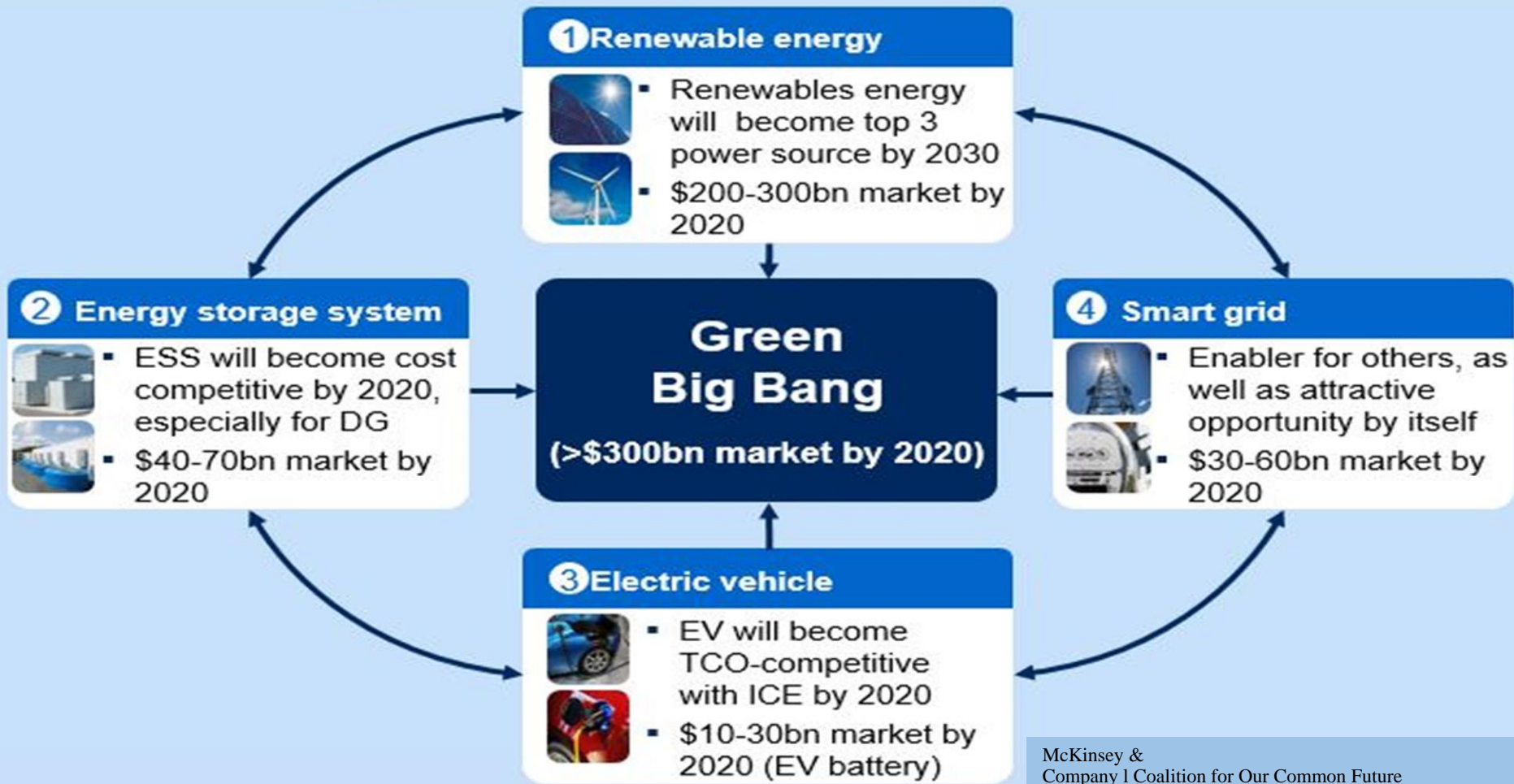
If you get **renewable energy, energy storage system, electric vehicle and energy internet** altogether, you can **exponentially change the world** and **spur new industrial revolution**. (Jeremy Rifkin)



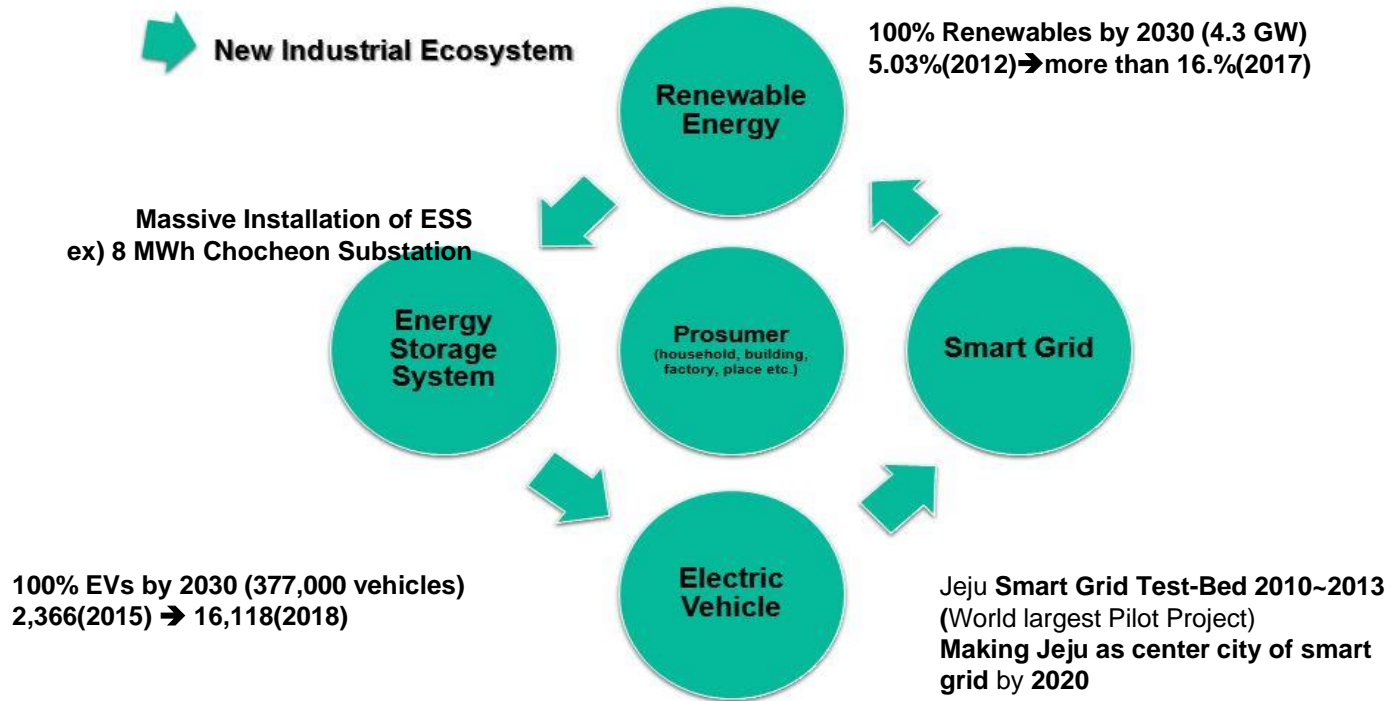
“GREEN BIG BANG”

US \$1 Trillion Opportunity in 2020

Four pillars for Green Big Bang: Their interoperability will transform life, business and the global economy fundamentally

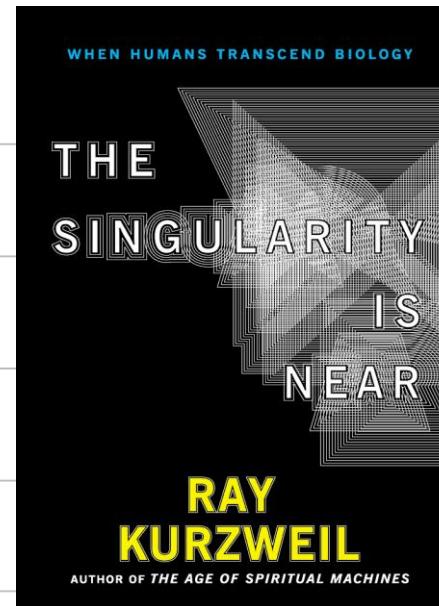
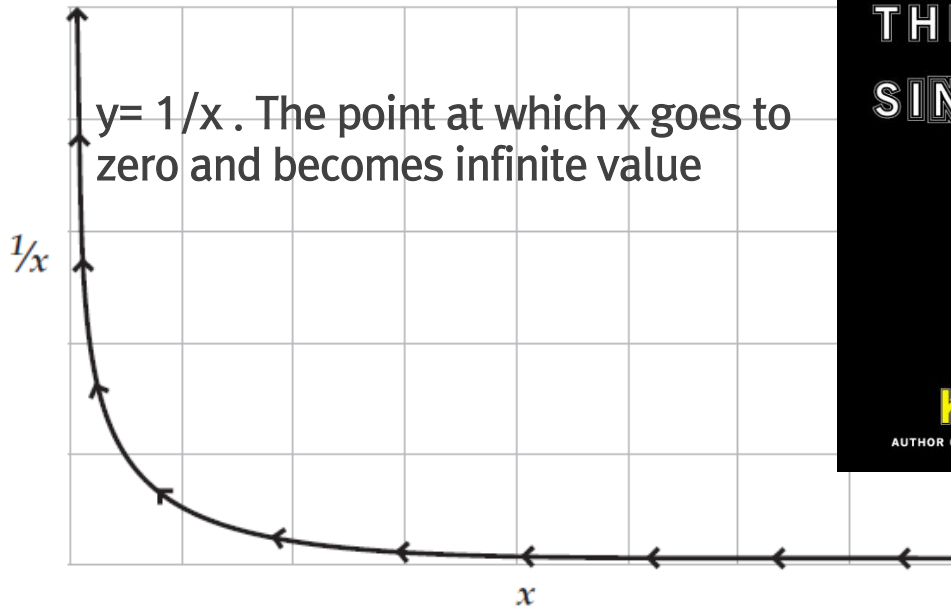


Jeju Green Big Bang Case: Carbon Free Island by 2030



4TH INDUSTRIAL REVOLUTION & THE ADVENT OF SINGULARITY

Singularity (Linear Plot)



Ray Kurzweil

The point at which humans push the envelope on biological limits through the **exponential growth** of artificial intelligence –the singularity of biology, energy, transport is getting nearer

Human total intelligence
 10^{16} cps

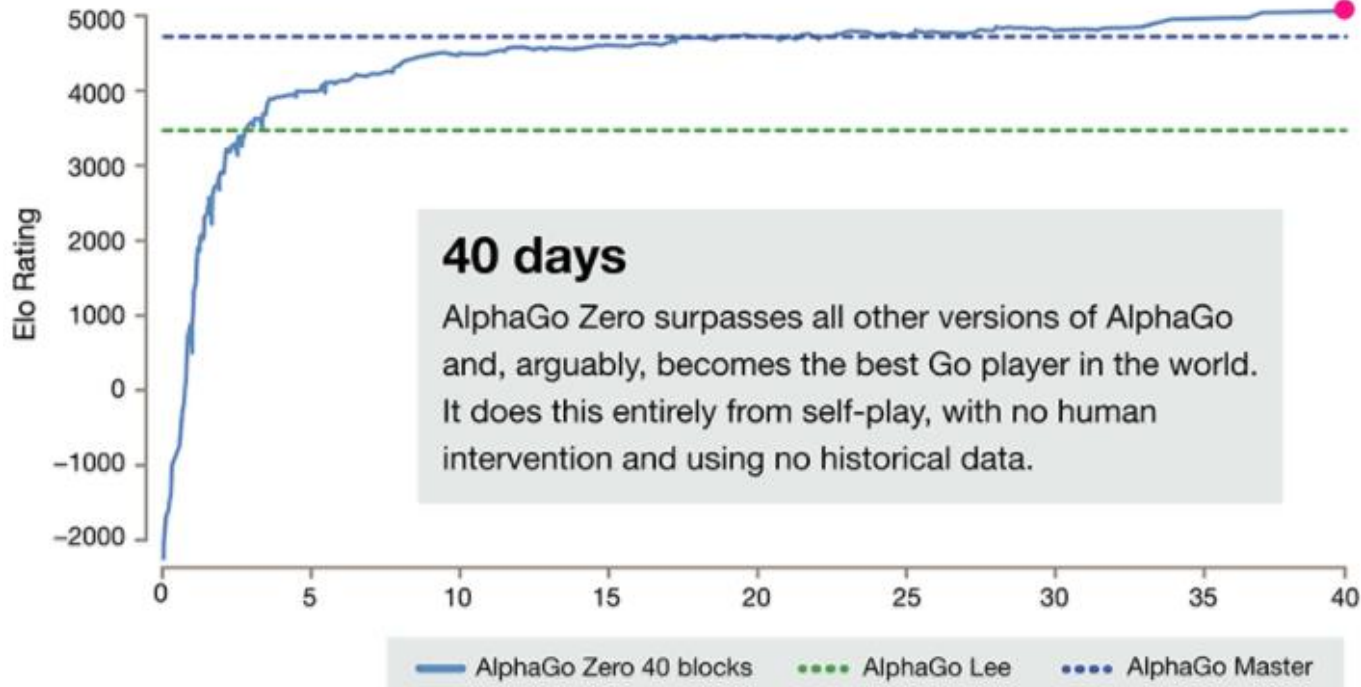


Machine total intelligence
 10^{60} cps



Human-Machine
Civilization

AlphaGo Zero reaches Singularity? Data < Algorithm Age of Great Acceleration!

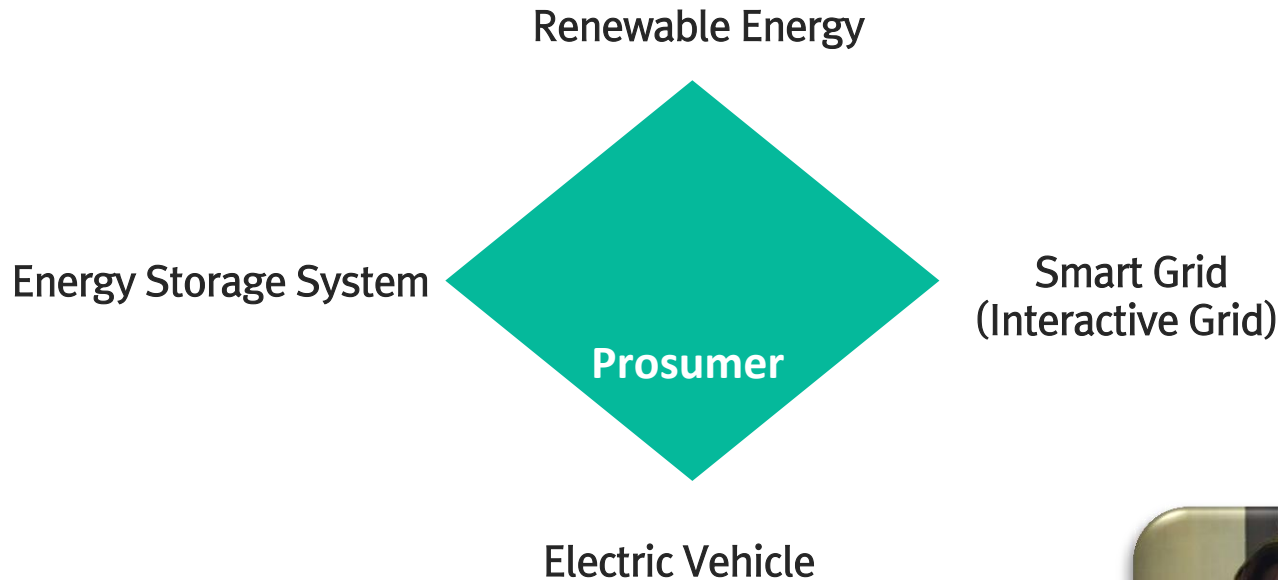


“AlphaGo wasn’ t just about winning the game of Go, it was also a big step for us towards building general purpose learning algorithms that can learn from a blank slate. It can now be applied to other world problem” →health care, autonomous vehicle , climate change

DeepMind CEO Demis Hassabis

GREEN BIG BANG= DATA BIA BANG

*New Energy and New Mobility as
System Initiatives for the 4th Industrial Revolution*



+
**Full Autonomous Vehicle
(Smart Connector on Wheel)**

**→ Pioneer of Hyper Connected Society and Big Data
Explosion with the 5G)**



IoT x Energy = GoT

Internet of Things

(nerve system)



Grid of Things

(blood system)



Next Grid should be redesigned with “Data technologies”: post Smart Grid

The technology-based innovations is arriving much faster than we thought. Low-cost sensors, two-way communicating devices, and cloud computing together empower a home & building that are self-aware in terms of its ability to efficiently consume energy

Smart Grid



Technology-driven (Still Hardware)

Battery (ESS), Renewable, Electric Vehicle, Smart Meter

Post Smart Grid



Digitally connected lifestyle

Data, Platform, Open API, IoT, Artificial Intelligence, Demand Response on line

“Collective Intelligence”

North-East Asia Super Grid (Green Energy Ring)



끝나지 않은 녹색성장의 여정

- Green Growth Laws and Architectures are still alive!

It ain't over till it's over.

- The word race for Green Growth...

- 세계은행 녹색성장 트러스트펀드 60여개국 녹색성장 추진

- 프랑스의 녹색성장입법 (La loi relative à la transition énergétique pour la croissance verte (LTECV) publiée au Journal Officiel du 18 août 2015)

- 영국의 저탄소 청정성장전략 (UK's Clean Growth Strategy for low-carbon future : Mike Thompson)

- Interconnection between Green Economy and SDGs
(at least 12 goals out of 17 are climate related)

President Moon says “He will succeed Green Growth policies no matter who initiated.” at the P4G Summit (Oct.20.2018)

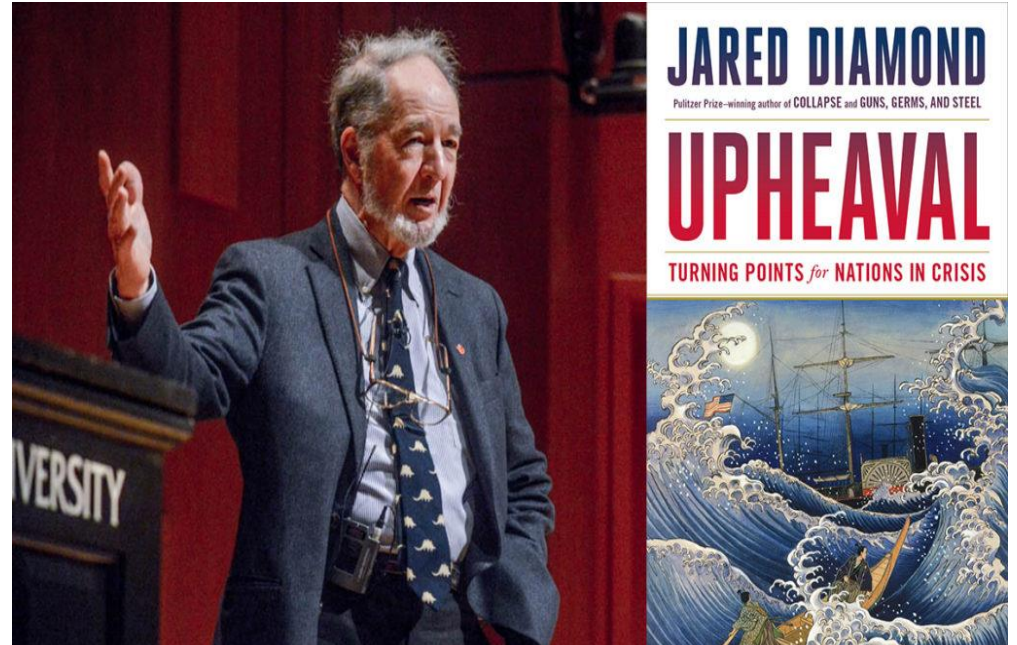


- 한-덴마크 녹색성장동맹 체결(May. 12. 2011) → P4G 2018 in Copenhagen, P4G 2020 in Seoul?
- 문재인 대통령은 녹색성장을 계승하는가? (매일경제 .2018.11.28) → 저탄소 에너지전환과 탈원전문제는? Does he really mean it?

UPHEAVAL
JARED DIAMOND

핵무기와 기후변화는
인류문명을 위협하는
최대의 실존적 위협

“위기를 위기로 인정
하는 것이 문제 해결
의 출발점”



New Climate Regime & the Politics of Climate Change

“Yet we have not established good politics of climate change”

-

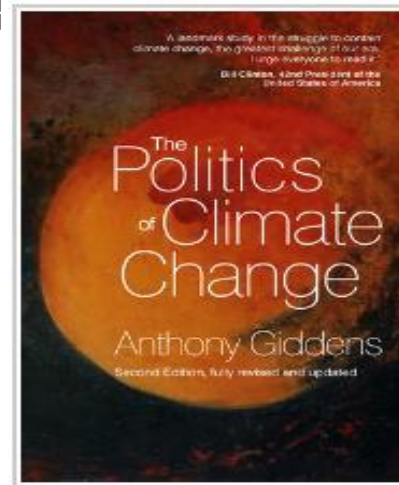
UN SG → ANTÓNIO GUTERRES “The Biggest Battleground”

기후변화에 대응하는 새로운 정치 시스템의 정치



Anthony Giddens

*Director of the London School of Economics (1997-2003)
Life fellow of King's College, Cambridge*



The Politics of Climate Change

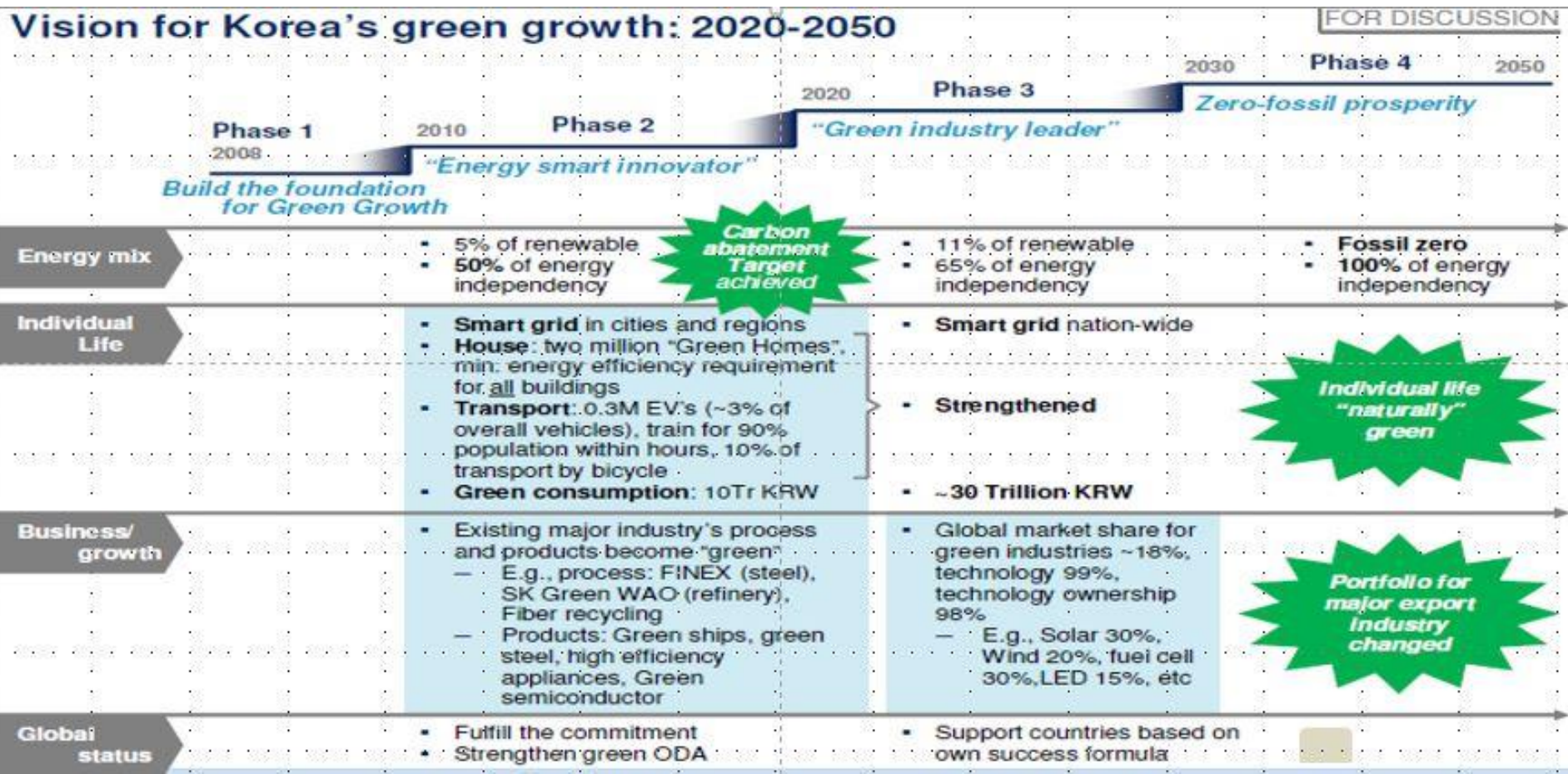
Published. March. 2009

녹색성장은 더 큰 대한민국을 위한 New Statecraft

- 기후변화가 이 시대 최고의 도전이라면 최고수준의 국가 가버넌스(ex:BH)를 구축, 정권과 이념을 초월한 미래 전략체제(ex:독립기구)를 수립해야 함.
- 신뢰할 수 있는 '인식공동체(Epistemic Community)'를 통해 Top-down과 Bottom-up의 결합을 이끌어야 함.
- 기후변화의 도전을 기회로 바꾸는 Green New Deal, Green Entrepreneurship과 이를 뒷받침할 private-public partnership을 키워 나가야 함.

“다음선거가 아니라 세대를 위한 지속발전의 리더십이 시대적 요청 (statesman not politician)”

G-7 in 2020, G-5 in 2050 ?



Continuing the Green Journey

Political Leadership →

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Common Future

한국기후변화 학회 창립 10주년을 축하드리며,
'더 큰 발전'을 기원합니다.

EOD