

# Climate Change & Our Future: Lessons Learned from the Arctic Members

*International Conference on Climate Finance and Industry*

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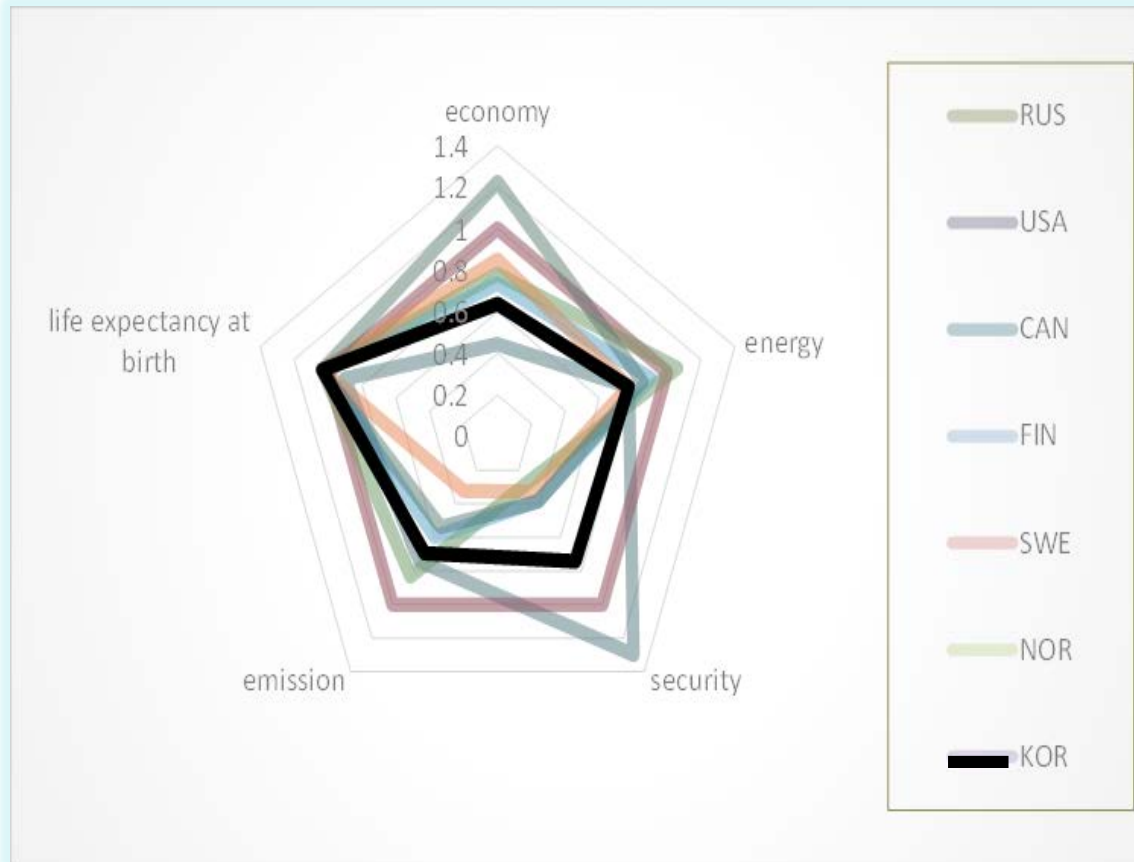


November 29, 2016, Korea Polar Research Institute (KOPRI)

# Welcome to the Arctic World



# Sustainability Indices of Arctic Community(US=1.00)

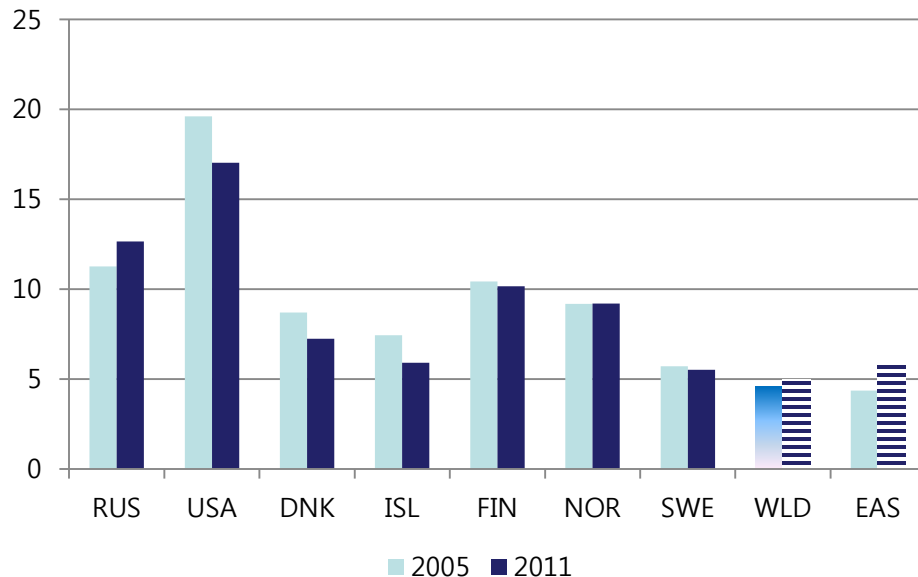


- Compared to US, Russia spends more on military expenditure and less on health care.
- Canada and Norway outperform US, in terms of mitigation policy and economic growth, respectively.
- However, depressed commodity prices may hurt economy in the Arctic region .

source: WDI (2015)

# CO<sub>2</sub> Emissions based on WDI

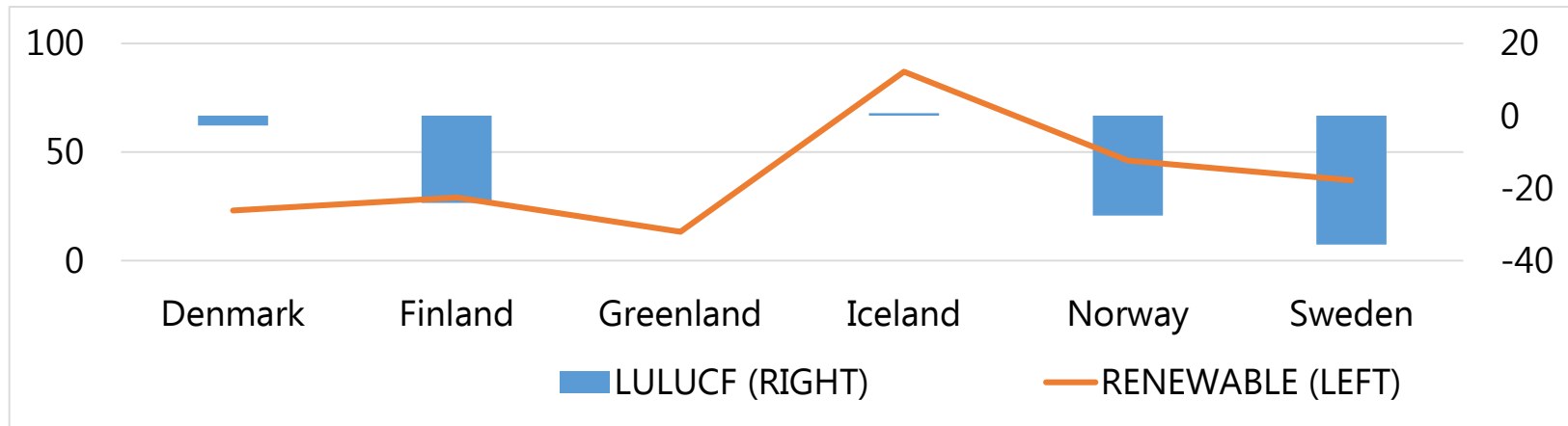
metric tons per capita



- The national targets for emission reductions for 2020 (compared to 1990 benchmark figures) in Nordic countries are as follows: Denmark (40%), Iceland (15%), Norway (30%), and Sweden (40%). Finland participates in the European Union Emissions Trading (EU-ETS). The national target outside ETS is 16% below 2015 level.

- The Arctic council members are exporters of oil and gas. And its CO<sub>2</sub> emissions on a per capita basis are above the world average.
- However, most of the countries (except Russia) in the Arctic are experiencing a decrease in the CO<sub>2</sub> emissions on a per capita basis, since 2005.
- This is largely due to ambitious emission reduction targets and successful renewable policies in Nordic countries.
- In case of US, shale gas has contributed to mitigation progress in industrial sector.
- However, the World average and that of East Asia are increasing.

# Renewables in Total Energy Supply and Net Removals of CO<sub>2</sub> from LULUCF

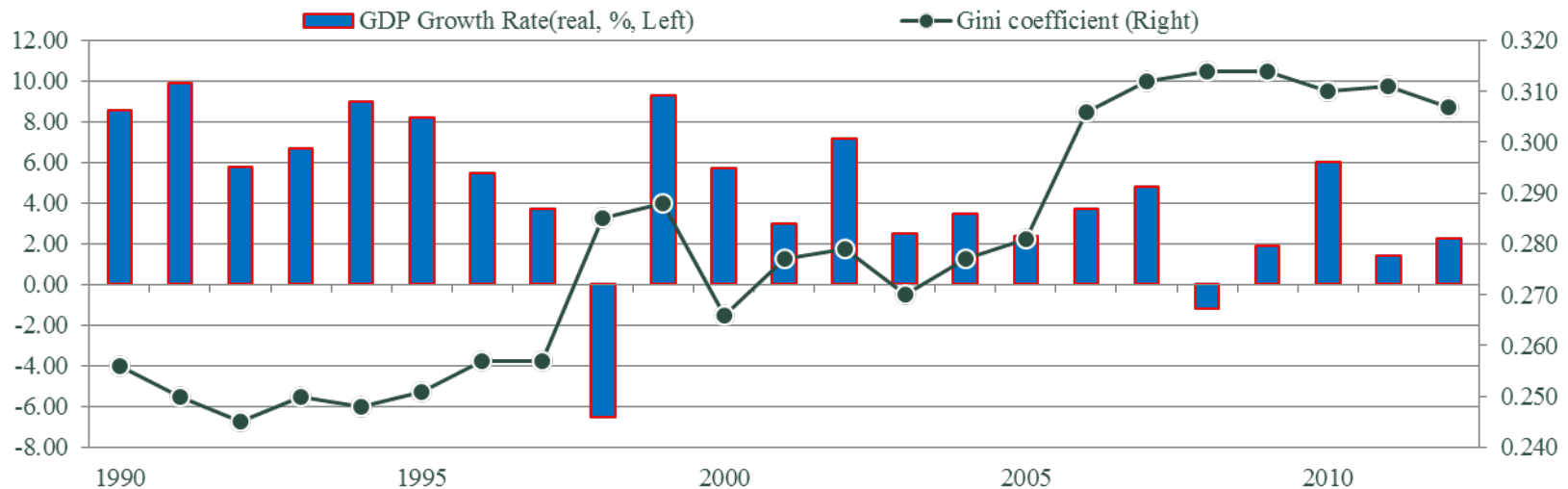
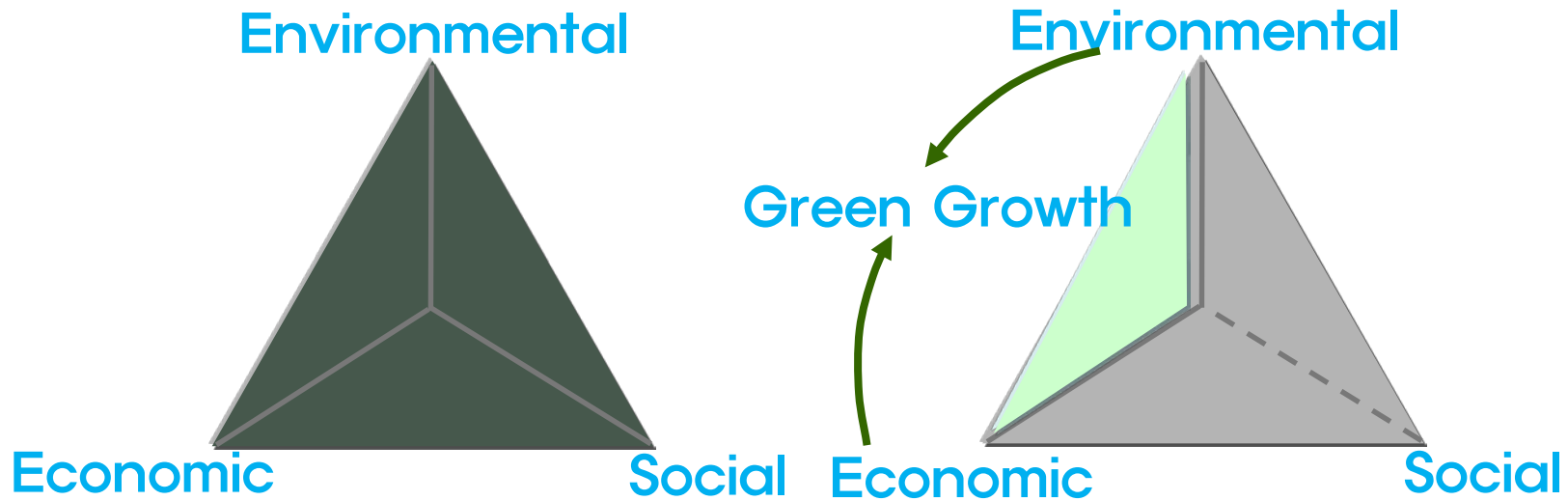


Source: WDI (2015)

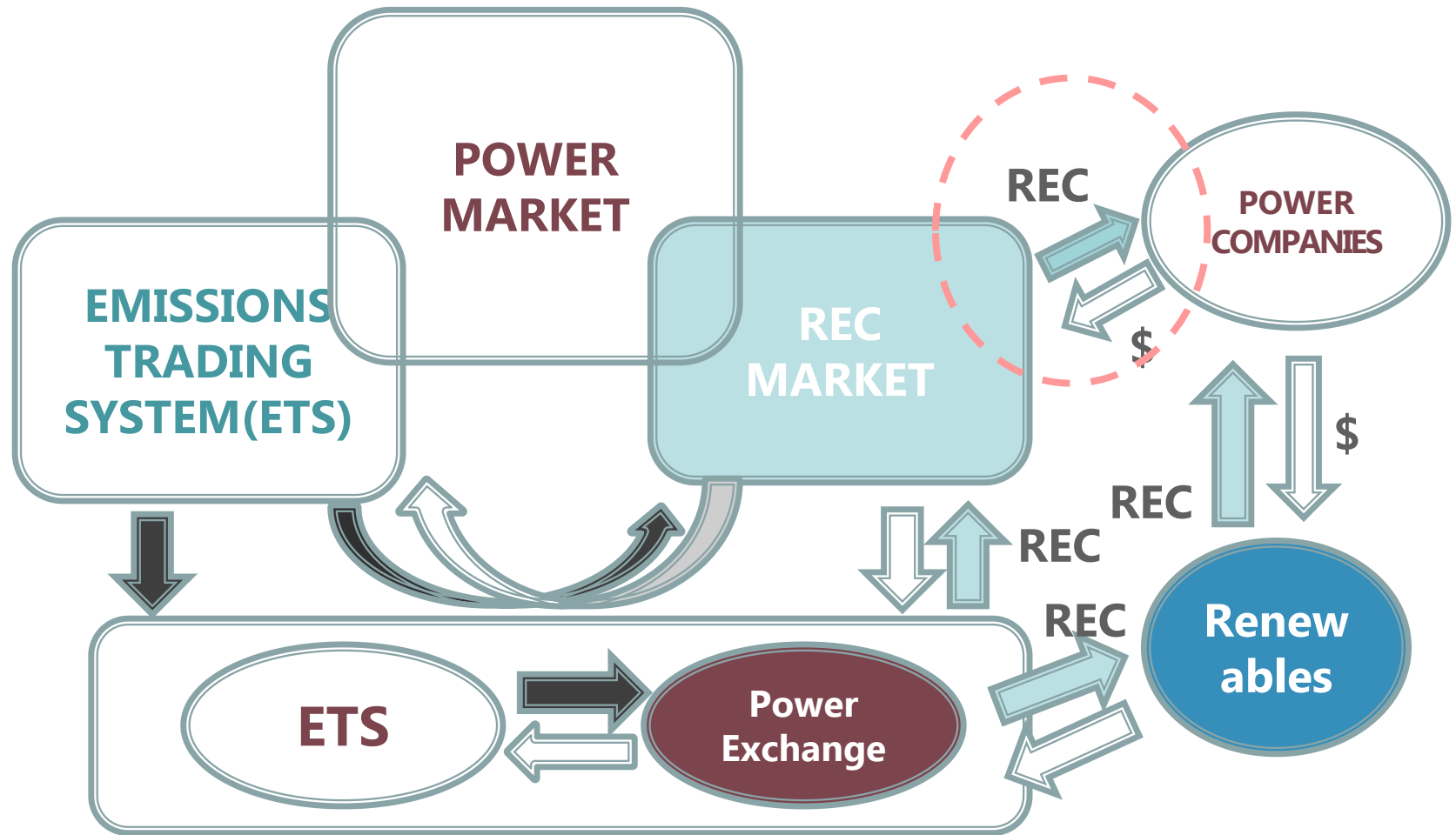
\* Renewable Energy as % of Total Energy Supply (2012) and Net Removals (MT CO<sub>2</sub>) from LULUCF (2011)

- The Nordic countries have pioneered energy and carbon taxes, which provide incentives for energy-saving and fuel switching to lower carbon energy
- Iceland has high portion of renewables in total energy supply.
- And carbon sequestration such as LULUCF results in decrease of net carbon emissions, by 25% lower than in 1990

# Rethinking New Nexus of Climate and Energy Security



# Carbon Financing toward Green Economy: Market-based Approach



Registries

# Lessons Learned from Korean ETS and RPS

## Market Confidence

- Lack of market confidence is a major obstacle
- Learning by doing would help market participants to become rational players
- Malfunction of ETS may provide wrong signals for investment

## Strict Regulation

- Poorly designed regulation derives mal-allocation of resources
- This causes distortions in energy market and economy
- Strict guideline for MRV is essential

## Flexibility

- Market instrument helps economic agent to improve carbon management by using banking & burrowing
- Private sectors wish to take advantage of gains from trade with full fungibility between two different credits







# New Challenges, New Mechanisms & Approaches: Effectiveness vs. Efficiency

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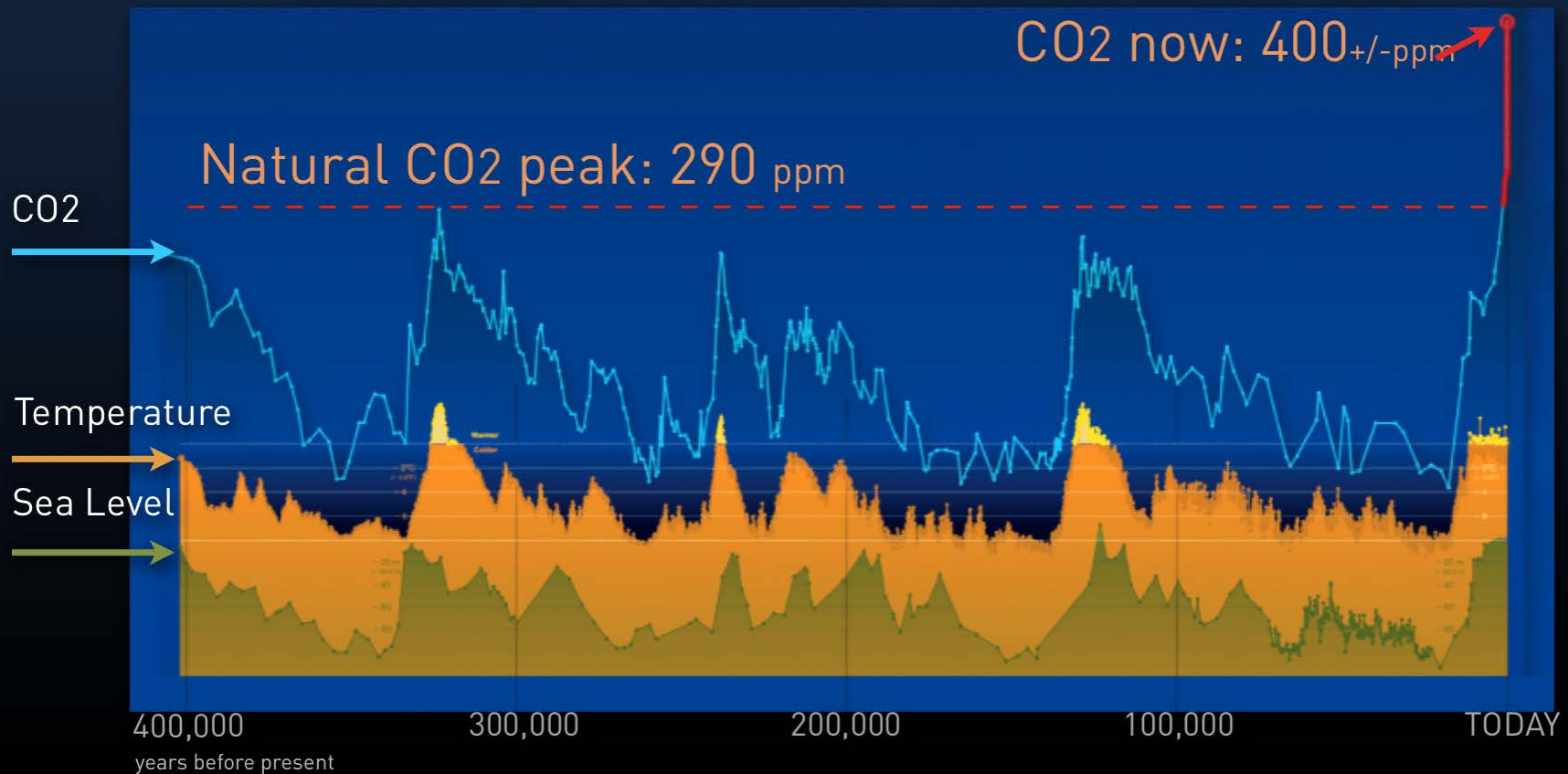
- Clear Vision & Goal
- Transparency & Flexibility
- Workable Incentives for Whom?
- Diverse Route for Partnership
- SEA(Strategic Environment Assessment): Policy, Plan, Program

# Guus Hiddink Quotes

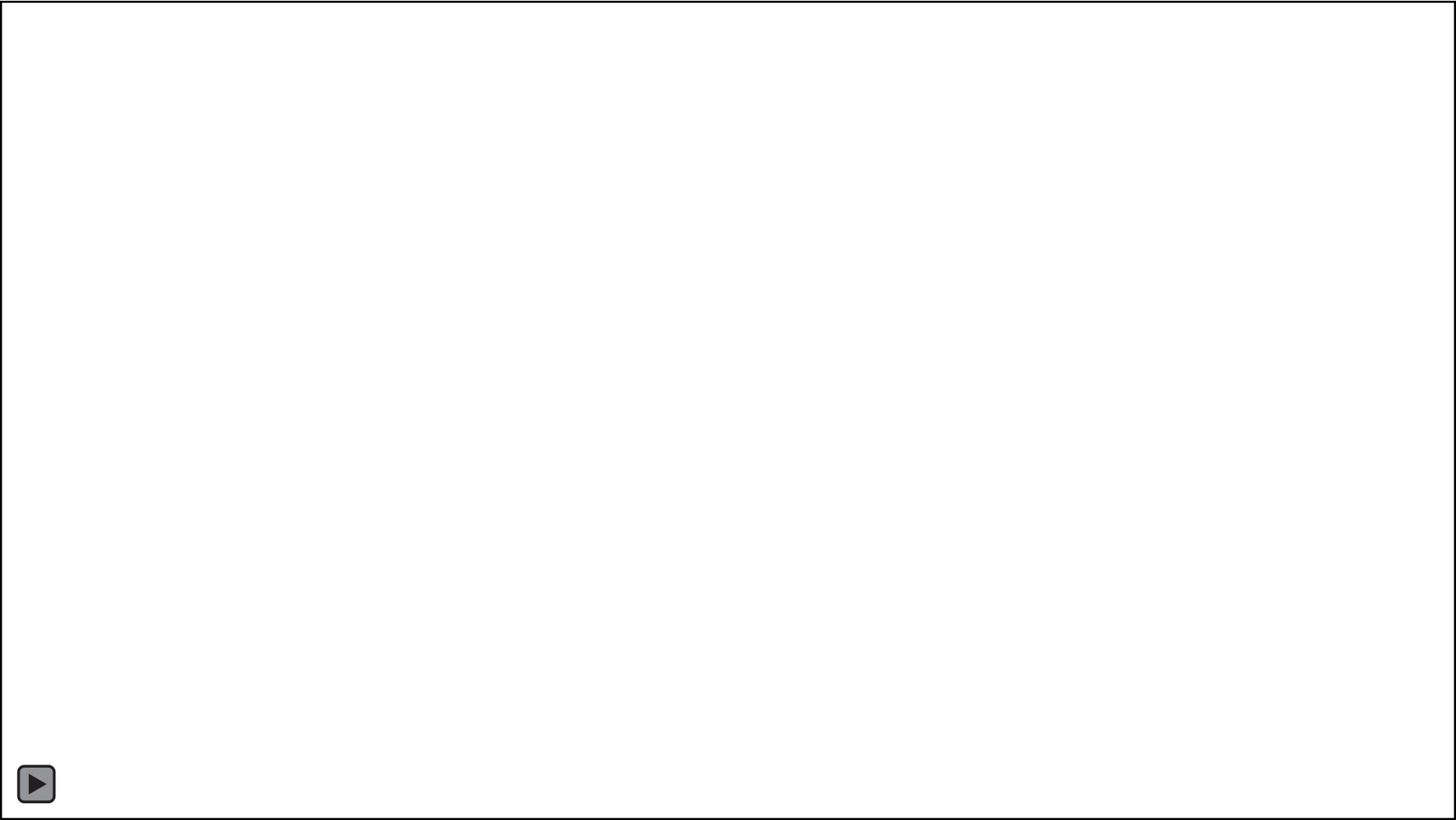
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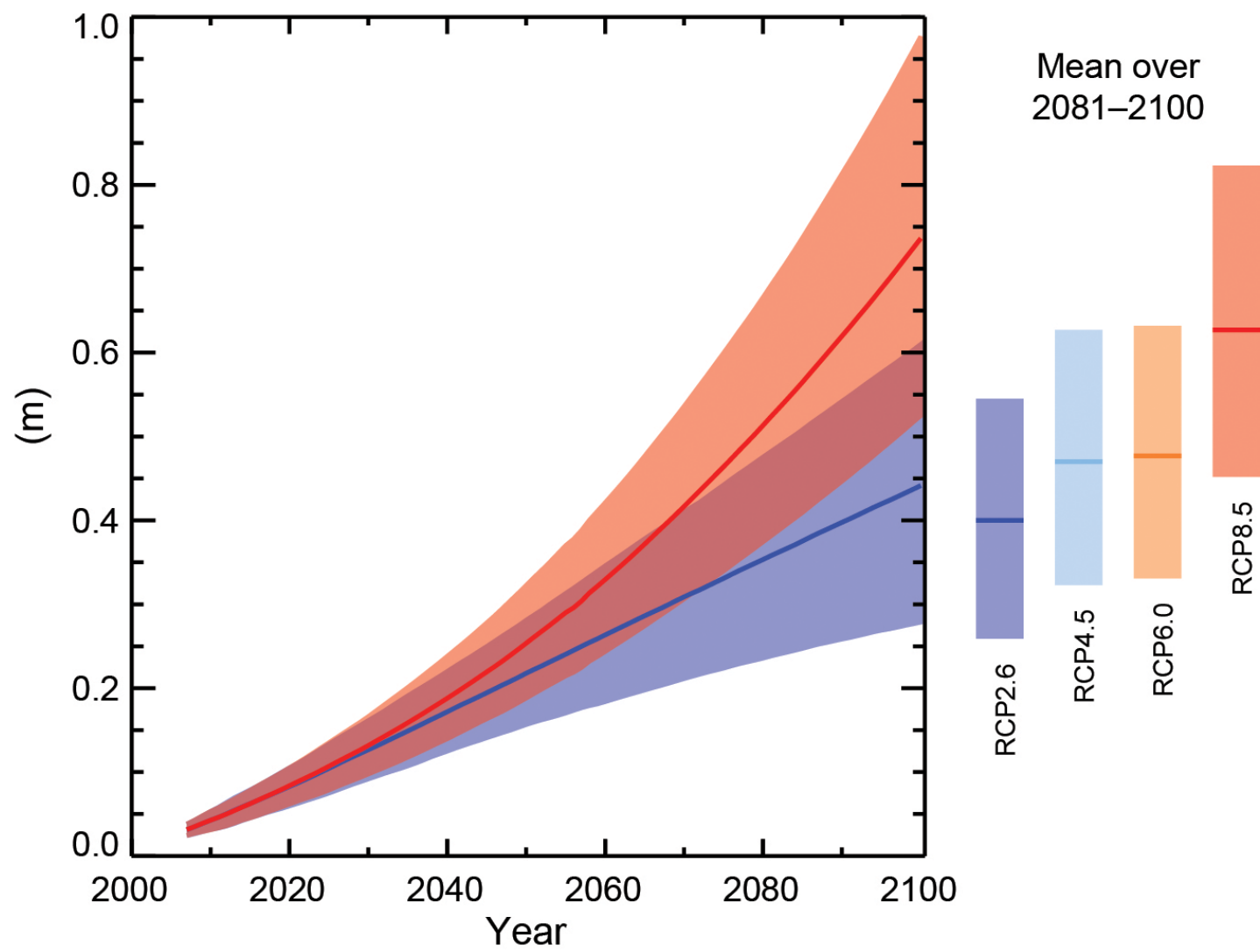
*“We have picked a squad that is  
flexible and will be able to adapt!”*

# EARTH FEVER: +1.6 F/0.9 C since 1900



Sources:  
National Geographic Society  
U.S. Department of Energy  
NASA Goddard Institute for Space Studies  
Oak Ridge National Laboratory  
Scripps Institution of Oceanography







A photograph of two penguins, likely Adelie penguins, standing on a snowy mountain peak. The penguin on the right is in the foreground, looking down with its wings slightly out. The penguin on the left is slightly behind and to the side, looking towards the camera. A yellow speech bubble with a white border is positioned above the penguin on the right, containing the text "Thanks You!". The background shows a vast, snow-covered mountain range under a clear blue sky.

Thanks You!