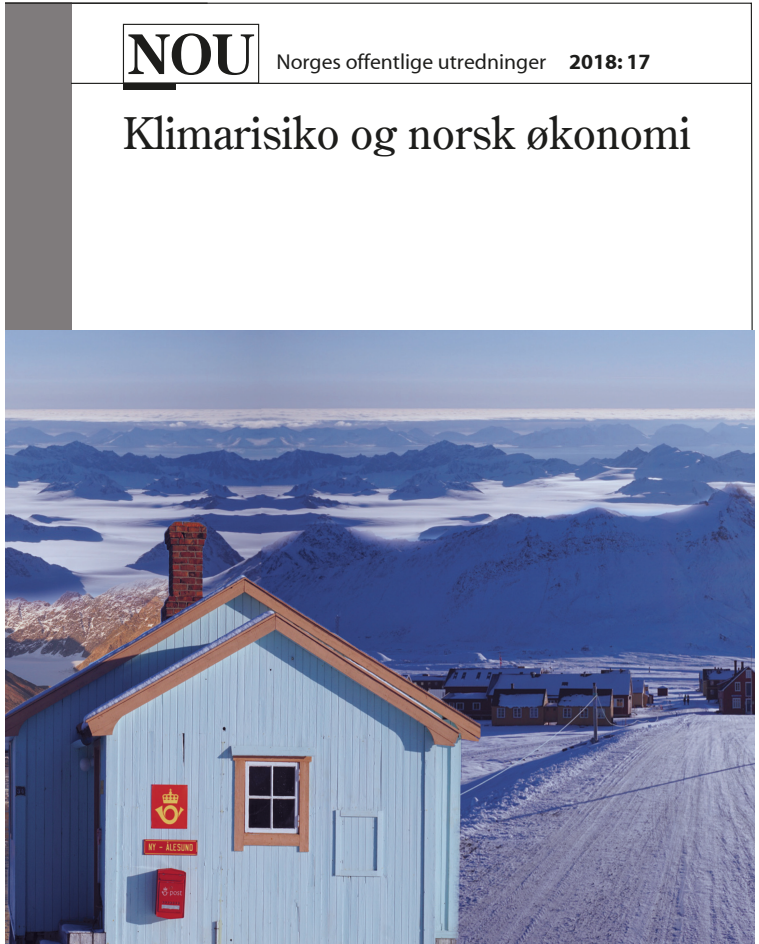
Climate risk and the Norwegian economy

January 15, 2019

Linda Nøstbakken
Norwegian School of Economics (NHH)



Background

- On Oct. 6th 2017, the Norwegian Government appointed an expert commission to assess climate-related risk factors and their significance for the Norwegian economy
- Commission to deliver its recommendation to the Ministry of Finance by mid-December 2018
- Members: Martin Skancke (chair), Terje Aven, Nalân Koç, Klaus Mohn, Trude Myklebust, Linda Nøstbakken, Ragnar Torvik

Mandate: What the Commission should do

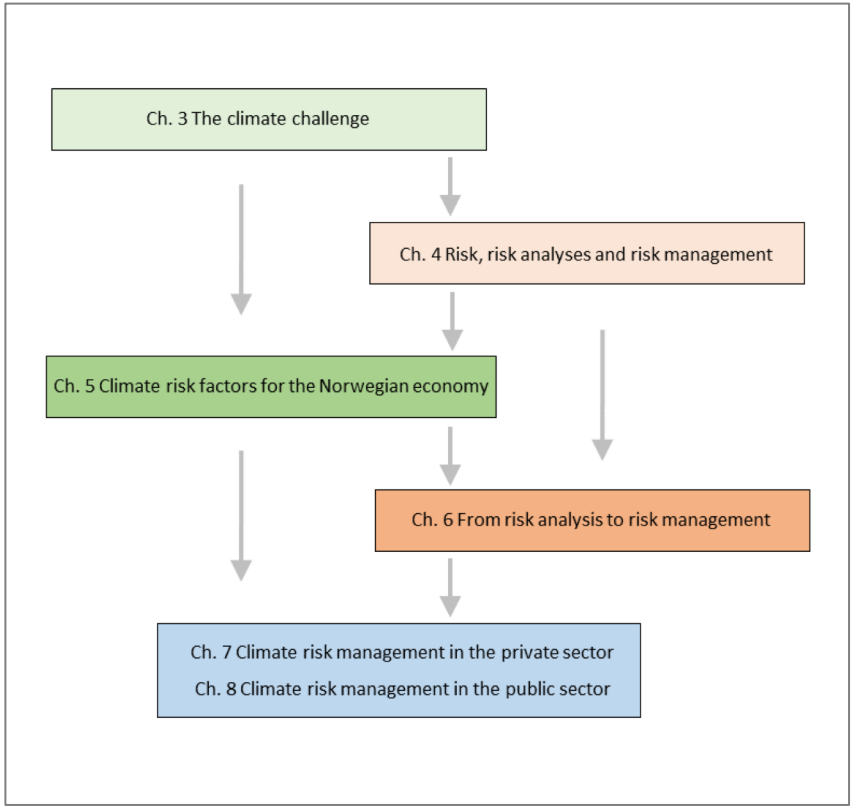
"The commission will assess climate-related risk factors and their significance for the Norwegian economy, including financial stability. The commission is asked to:

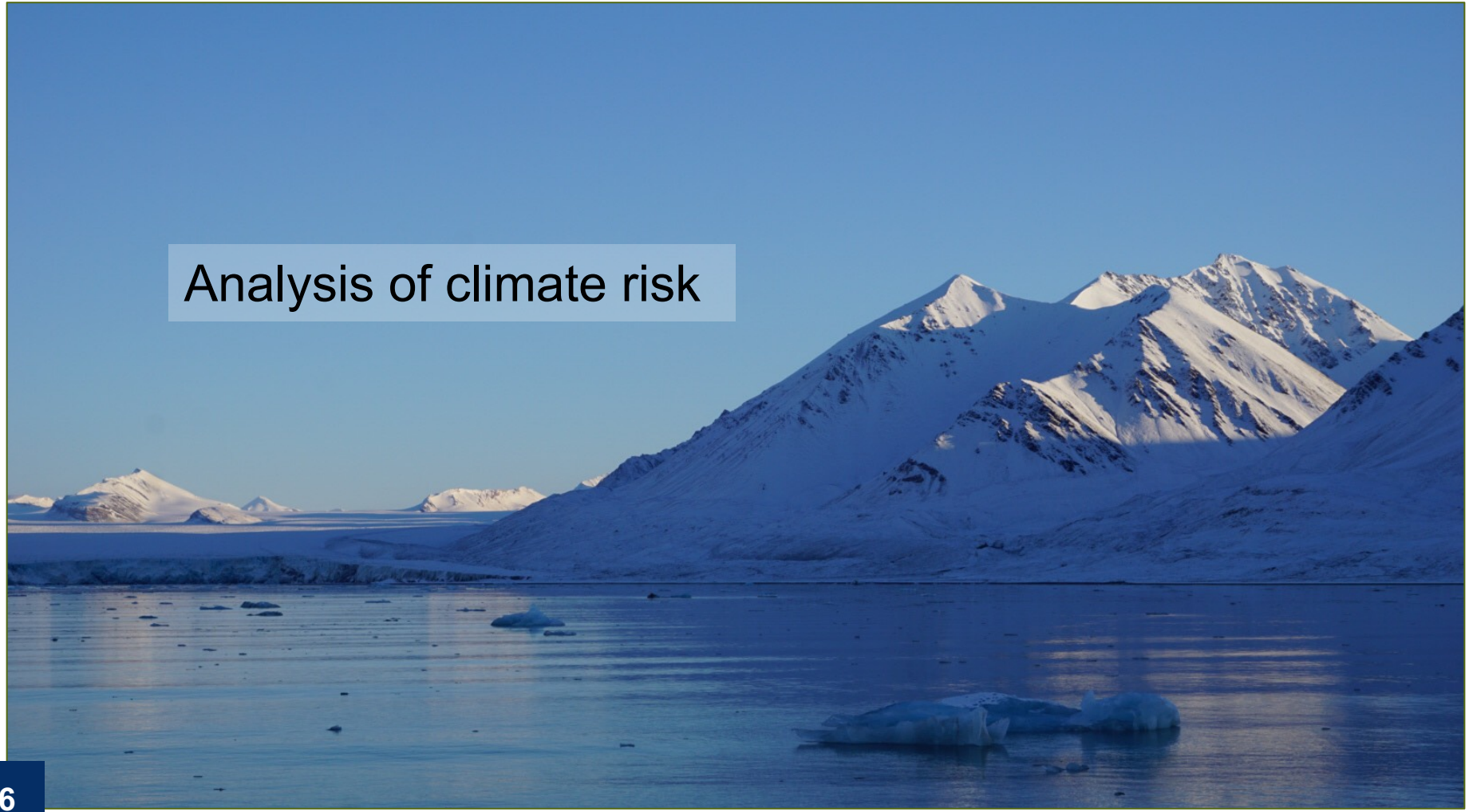
- *Assess how national-level climate risk can be most effectively analysed and described.*
- *Identify key global climate-related risk factors, and consider their importance for the Norwegian economy and financial stability.*
- *Consider a possible methodology for giving private and public entities, including financial institutions, a technical basis for analysing and managing climate risk in the best possible way."*

Mandate: What the Commission should not do

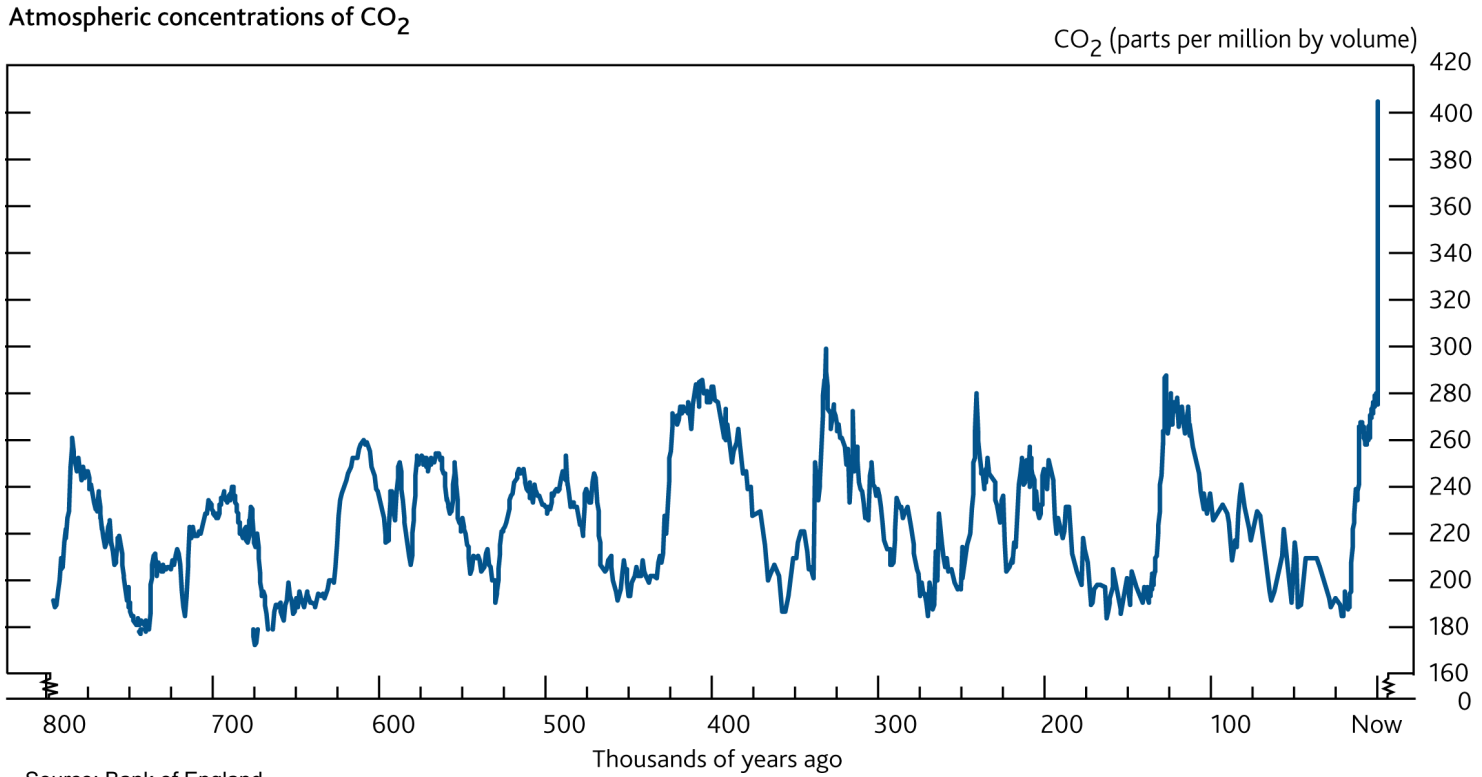
"*The guidelines on fiscal policy and the investment strategy for the Government Pension Fund Global have recently been assessed by other public commissions, and therefore fall outside the scope of this mandate. Further, the commission is not tasked with proposing measures to reduce greenhouse gas emissions, specific measures to facilitate adaptation to climate change, or changes to the petroleum tax system or Norwegian petroleum policy*."

Outline of the report



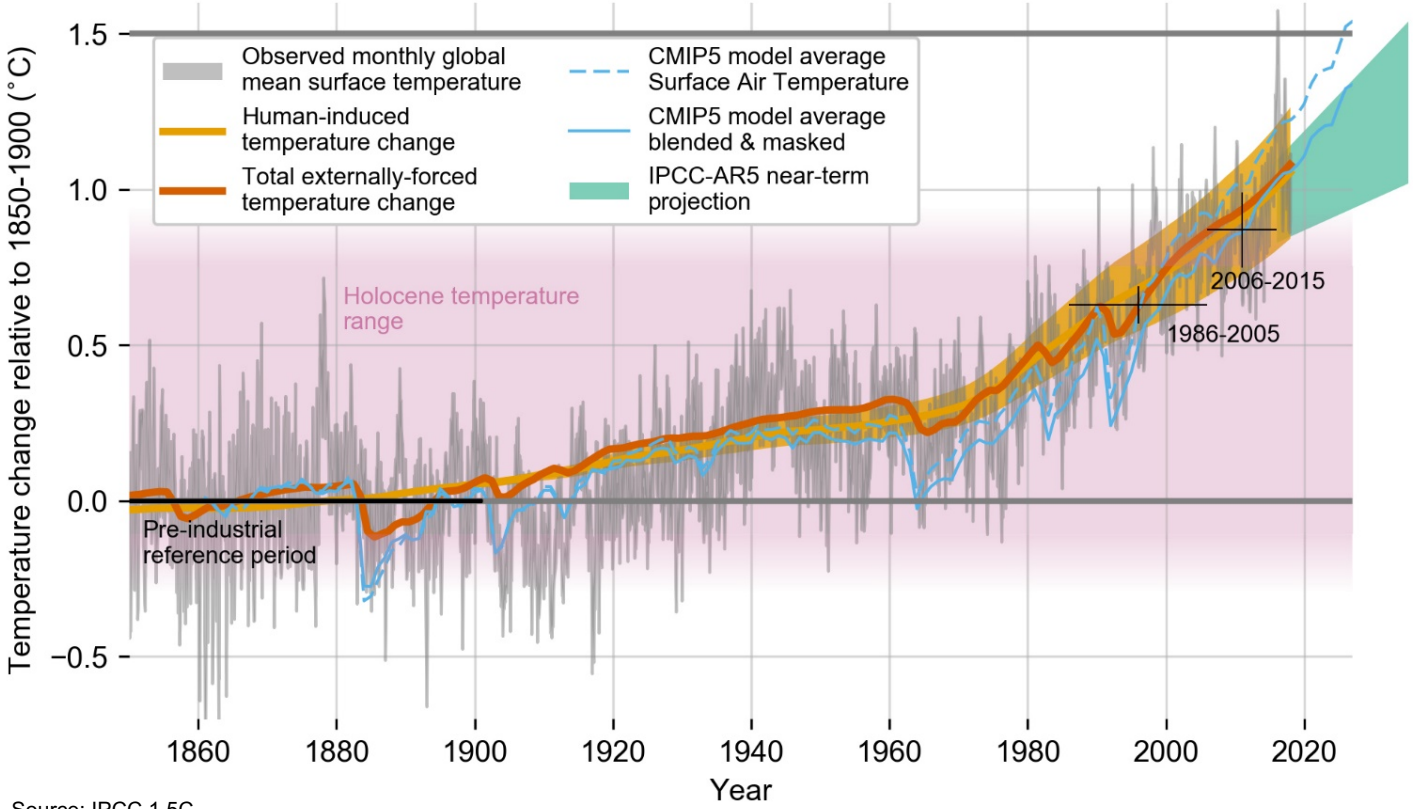

Analysis of climate risk

Starting point:
Increasing CO_2 level in the atmosphere…



Source: Bank of England

…has caused climate change

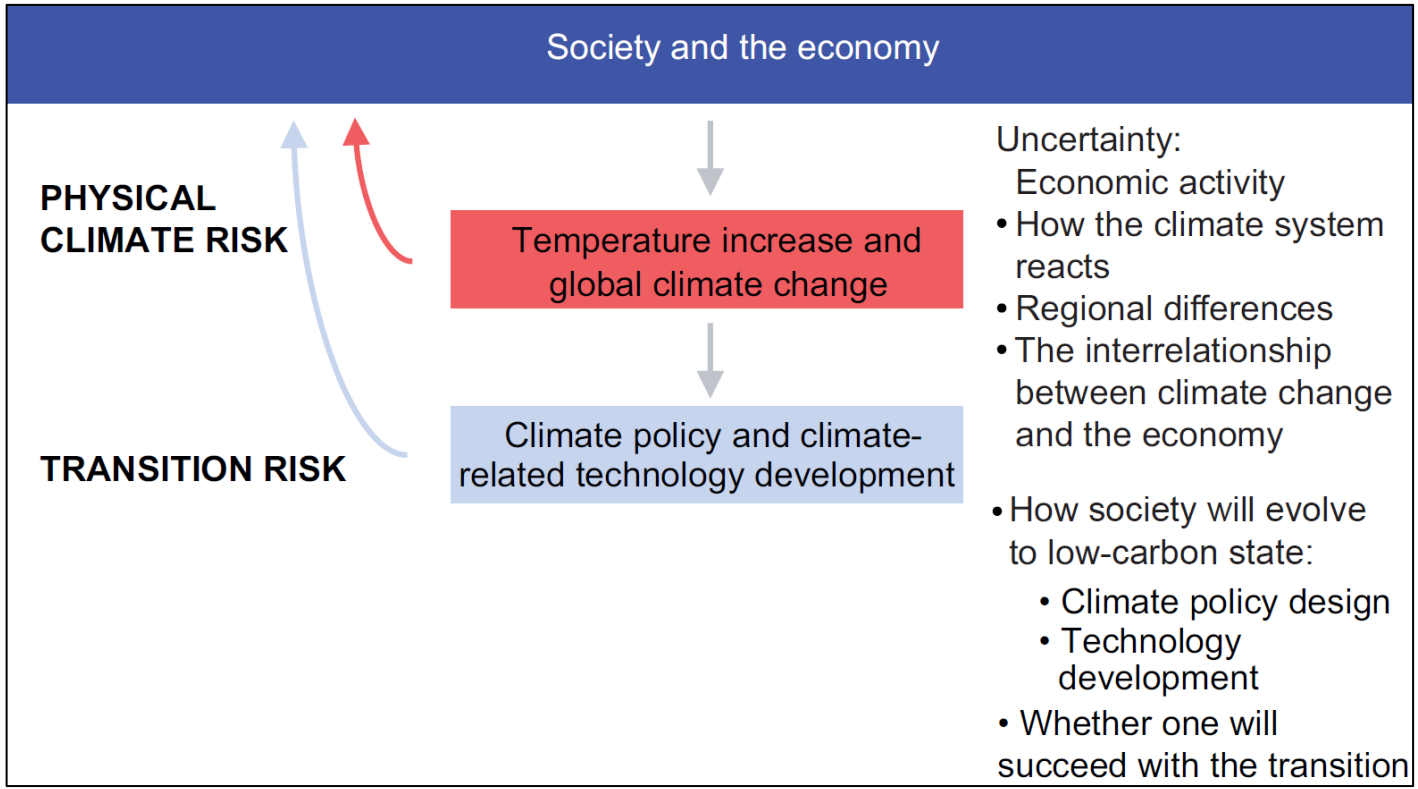


Source: IPCC 1,5C.

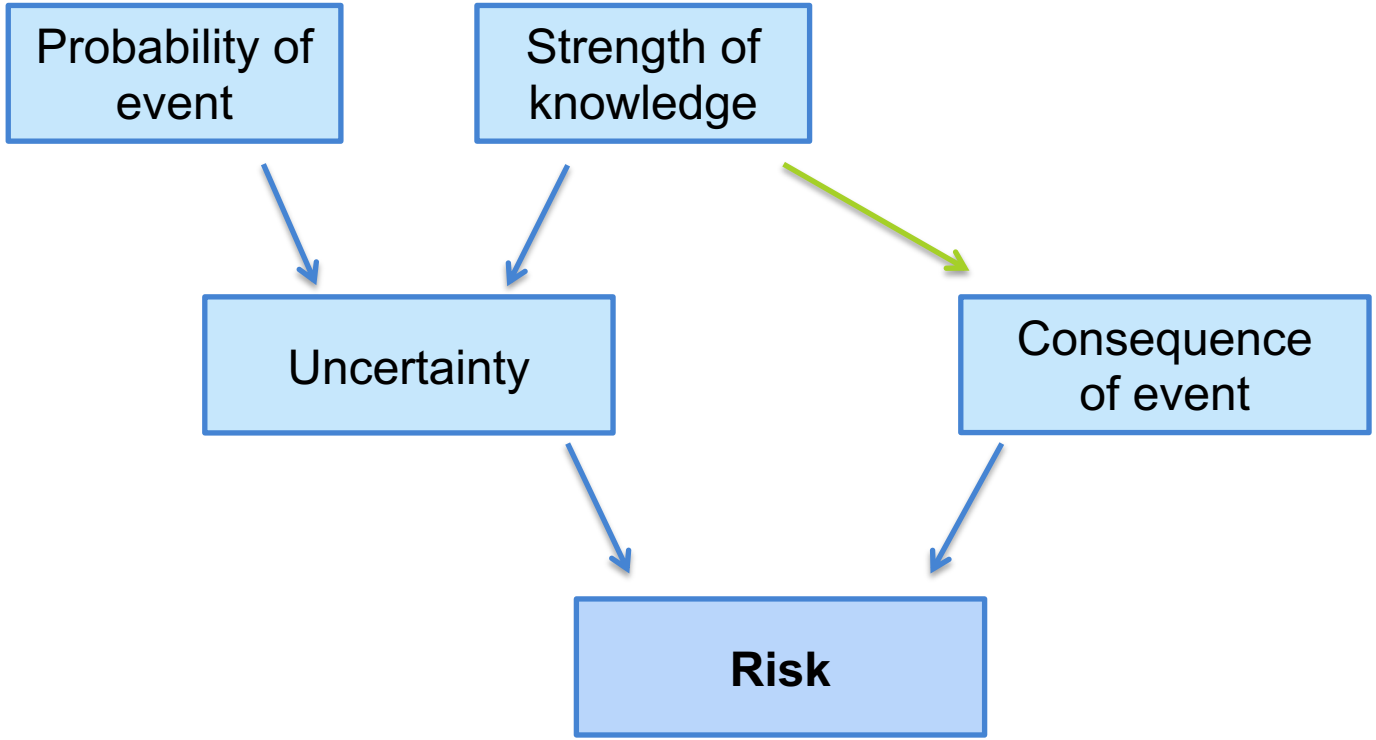
Climate change means climate risk

- Climate change presents not only physical risk but also transition risk – the risk associated with economic impacts of the transition to a low carbon economy
- Impossible to fully predict the effects of global warming
- The possibility of catastrophic climate change cannot be excluded, even if we limit carbon emissions – ex.: tipping points → self-reinforcing processes → more warming
- From a risk perspective, it is important to consider all possible outcomes, not just the most likely

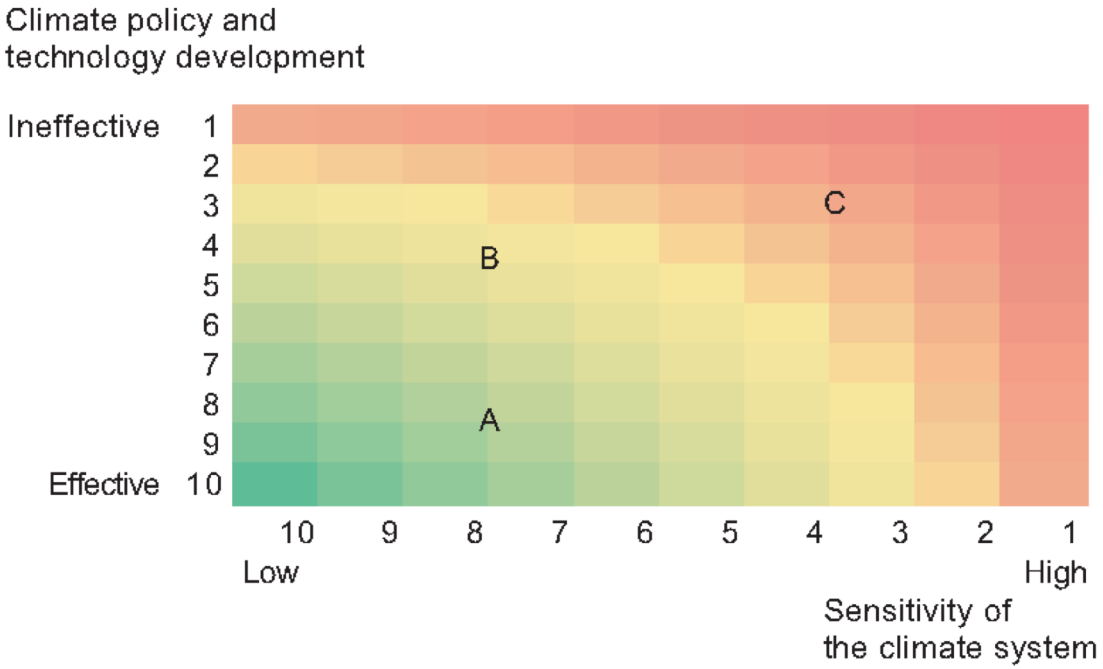
Climate risk: Physical + transition



What is risk?


Probability of event
Strength of knowledge
Uncertainty
Consequence of event
Risk

Wide range of possible outcomes



Considerable uncertainty at many levels means significant climate risk

Possible future scenarios:

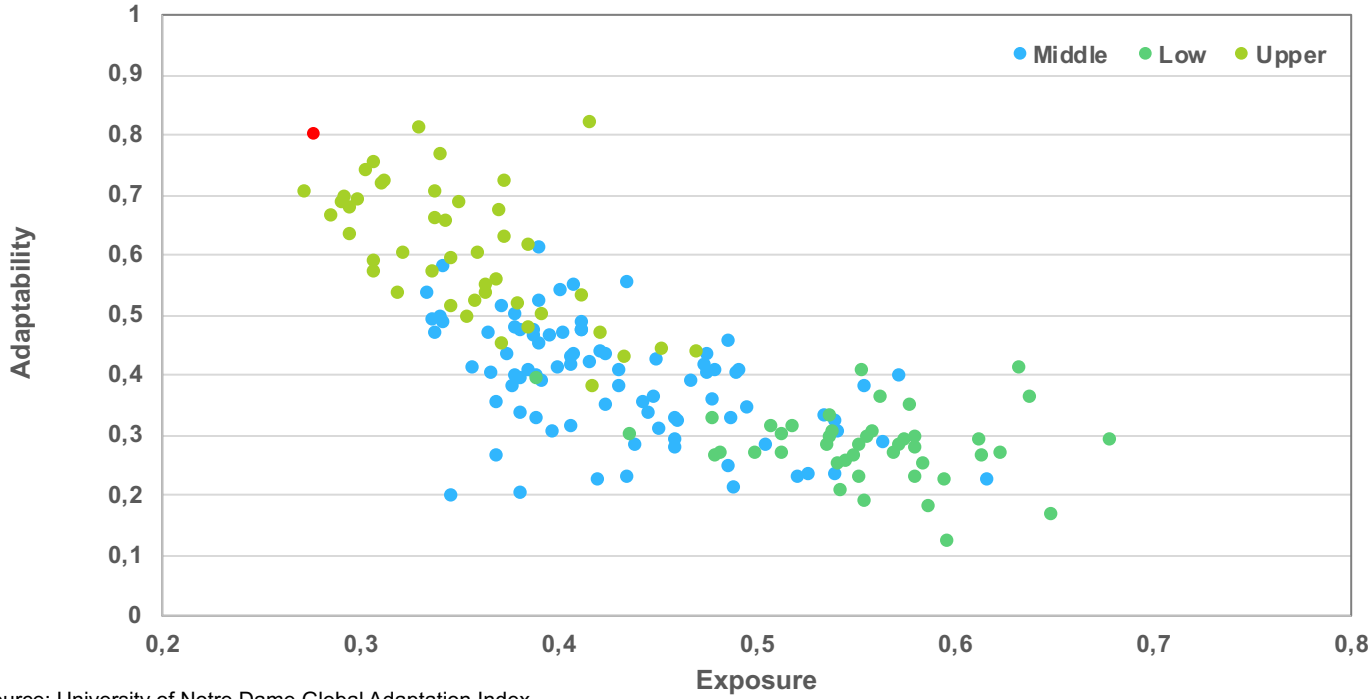
A) Successful climate policy
B) Late transition
C) Dramatic climate change

The main climate risk factors for Norway

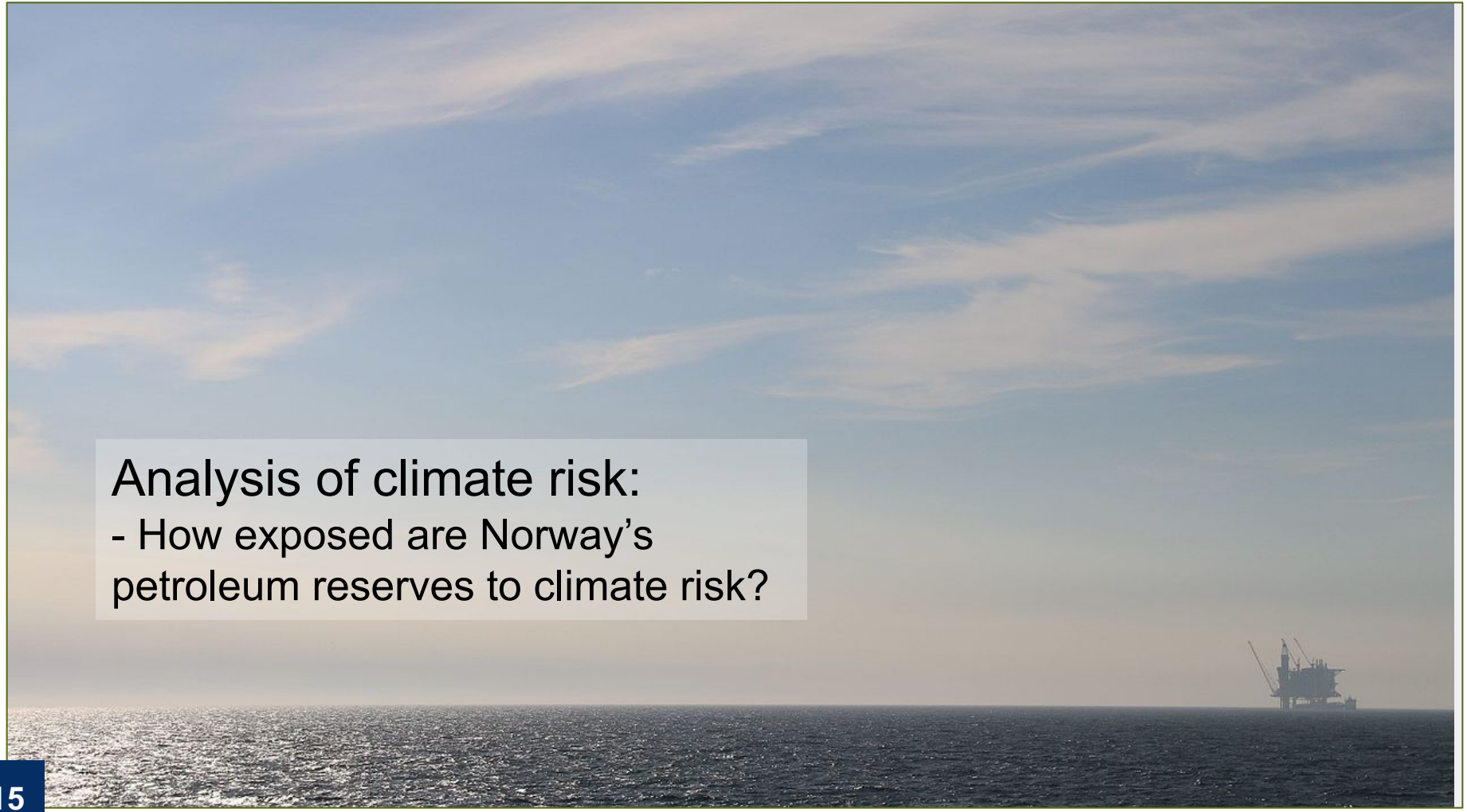
	Direct effects	Indirect effects
Physical climate risk	Increased costs of mitigation and maintenance, reduced need for heating, increased primary production, increased power production	Increased level of conflict internationally, changing migration patterns, changing food prices
Transition risk	Lower value of Norwegian petroleum resources Increased value of Norwegian hydropower	
Combination of physical risk and transition risk	Climate related law suits	Lower value of GPFG (the 'oil fund')

Poor countries most exposed to climate risk – Norway favorably positioned

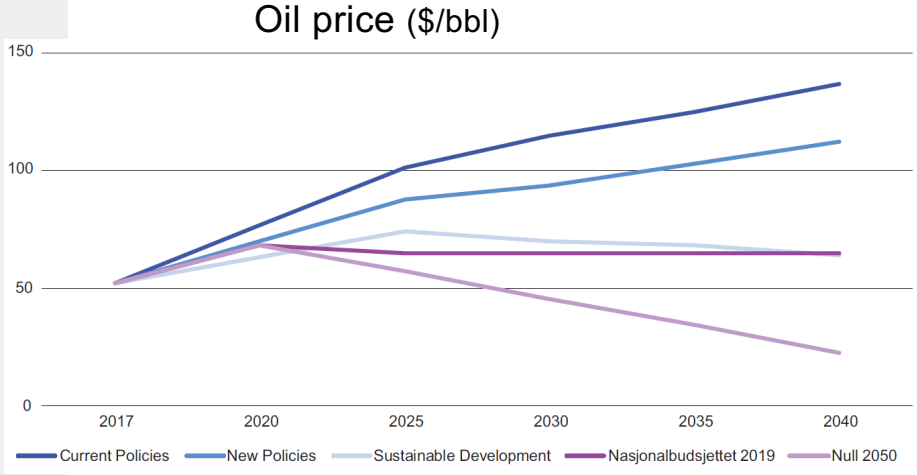
Countries by level of economic development. Norway in red.

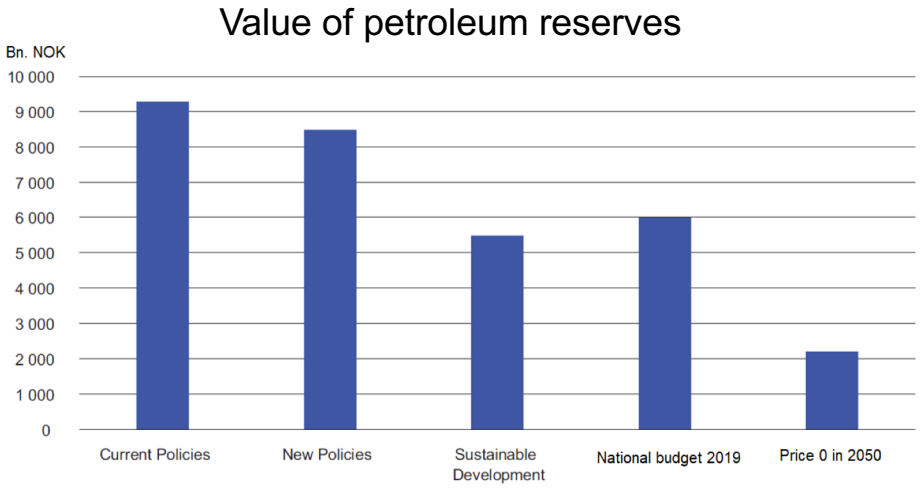


Source: University of Notre Dame Global Adaptation Index


Analysis of climate risk:
- How exposed are Norway’s petroleum reserves to climate risk?

Oil price scenarios and value of Norway's remaining petroleum reserves





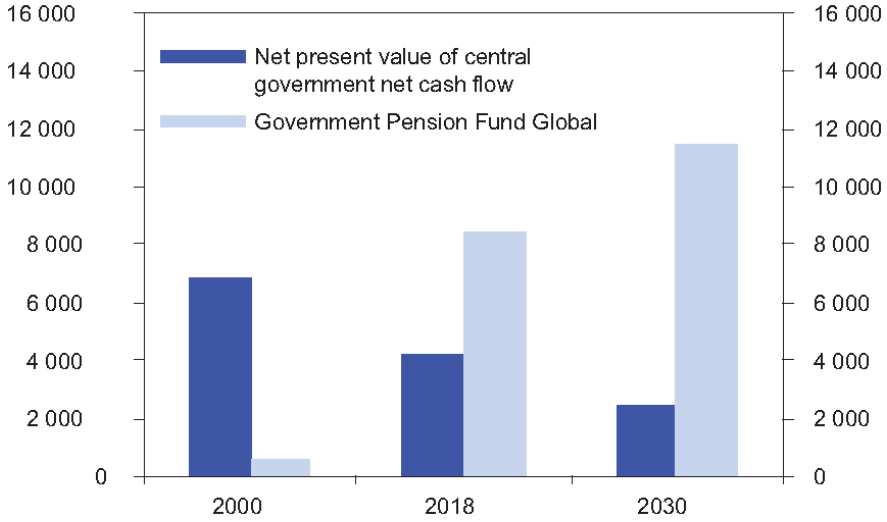
Sources: IEA, World Energy Outlook 2018, Norwegian Ministry of Finance and Climate Risk Commission.

Norway's petroleum resources and climate risk

- Value of Norway's remaining petroleum reserves sensitive to transition risk
- Can limit risk of new projects: Petroleum development happens stepwise, most production in first few years
- Relative importance of oil resources falling: Norway's oil wealth is shifting from the ground to financial markets (the 'oil fund')

➢ We should worry more about changes in the global economy than oil price

Value of Government Pension Fund Global and the State's petroleum reserves (NOK bn.)

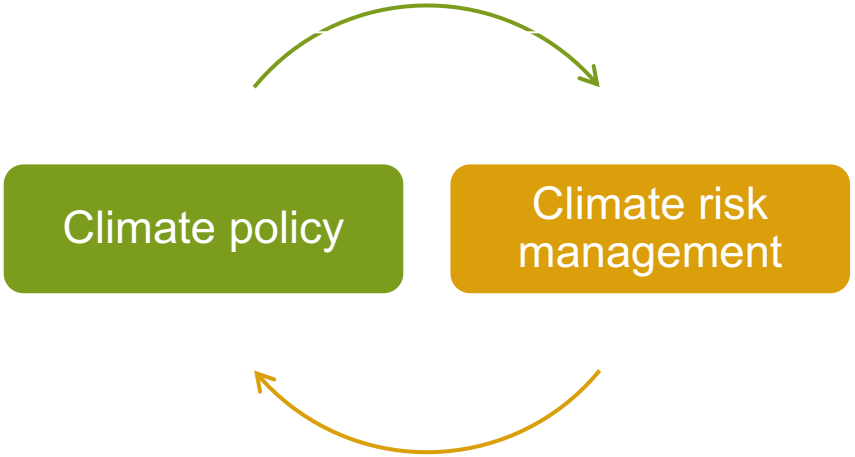


Source: Ministry of Finance

Managing climate risk

Climate policy and climate risk management

- Reduce the probability of catastrophic climate change
- Reduce the uncertainty of transitioning to low-carbon society



- Better basis for making investment decisions
- Smoother transition to low-carbon society

Mandate: Methods for better decisions

"Consider a possible methodology for giving private and public entities, including financial institutions, a technical basis for analyzing and managing climate risk in the best possible way"

- Which decisions are made and by whom?
- Is the decision basis strong enough? What characterizes a strong decision basis?
- TCFD – contribute to expand its use in the private sector, inspiration for the public sector?

Lessons from the TCFD

- The Task Force for Climate-related Financial Disclosures (TCFD):
  - Recommended disclosures on company's governance, strategy, risk management, and metrics and targets
- Importance of sound decision processes integrating climate
- Importance of strong and relevant decision basis
- Consistency in assessment and decisions across companies and industries
- Separate between "*how can the decision affect the climate?*" and "*how can climate change and climate policy affect the profitability of the decision?*"
- Stress testing and scenario thinking
- Attention to the role of markets in allocating capital effectively – important to achieve the same for public investments where there is no market

Governance	Risk descritption	Risk management measures	Risk measurements and methods
Description of general framework and key principles for managing	Description of climate-related risk faced by the Norwegian economy, and how it may affect key national objectives and strategies	Description of measures aimed at managing climate-related threats and opportunities	Description og how to measure and monitor climate-related threats and opportunities
A. Describe current framework and key principles applied by the Government in managing climate-related risk	A. Describe climate-relatedthreats, opportunities and associated risk in the long, medium and short term for national objectives and strategies	A. Describe potential measures of strengthening resilience under relevant scenarios	A. Describe key climate-related indicators for the country
B. Describe the role of the public administration in the identification and management of climate-related threats and opportunities	B. Describe how climate-related risk affects "overall risk" (e.g. relating to the Norwegian economy)	B. Describe potential measures of managing physical climate risk	
	C. Describe the resilience of overarching objectives, strategies and functions under relevant scenarios and uncertainties	C. Describe potential measures of managing transition risk	

The Commission proposes a framework for national reporting on climate change

- Inspired by the TCFD framework

Advice to government for good risk management

1. Sound **analysis**
2. Appropriate **incentives**
3. Decision-making **process** that integrates climate risk

⇒ Good management of climate risk

Sound analysis

More information, improved reporting, broader knowledge base

The government should:

- Stress test public finances and the national wealth for climate risk
- Establish and maintain relevant scenarios for petroleum and CO2 prices
- Support and apply the TCFD's principles in the private and public sectors
- Build competence on climate risk, focus on scenario thinking and stress testing
- Develop a web-based knowledge hub for better access to climate risk information

Appropriate incentives

Correct market failure, create appropriate incentives

The government should:

- Conduct effective and predictable climate policy
- Undertake a comprehensive review of natural disaster insurance scheme
  - ➢ Highlight link between prevention and extent of damage
- Stimulate businesses to integrate climate risk in strategic planning

Decision-making processes integrating climate risk

Good decision processes with a comprehensive perspective

The government should:

- Prepare a thematic handbook (guide) on climate risk to strengthen the public sector's decision-making system
- Highlight climate risk in petroleum projects
- Emphasize general principles for climate risk management
- Stimulate high quality central and local government planning, which accommodates climate risk


What’s next?

We need much more work on climate risk

- Climate-risk thinking is in a very early stage
- The Climate risk commission's focus (given tight time constraint):
  - Creating common understanding of climate risk
  - Facilitating knowledge sharing and knowledge building
    - ➢ Foundation for others to build on

- Lots of work to be done:
  - Quantify 'everything': How climate system reacts to economic activity, how climate affects economic activity, regional differences, timing of things, …
  - Better understanding of climate risk
  - Risk management competence and capacity, in Norway and beyond
  - Climate policy design: Efficient and predictive policy to cut emissions
  - Make climate-risk related knowledge available to decision makers


NY - ÅLESUND
post