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# The other crisis: climate policy and the energy system

4 June 2020

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## INTRODUCTION

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INTRODUCTION

# Our presenters



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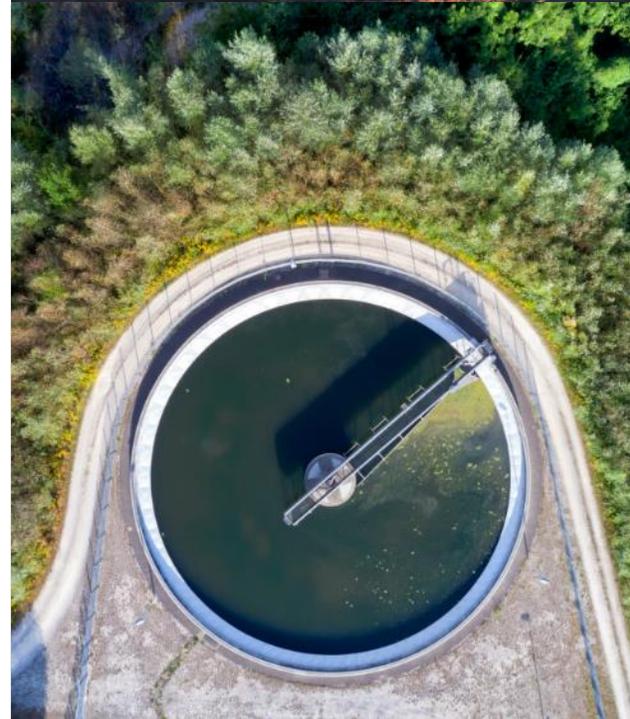
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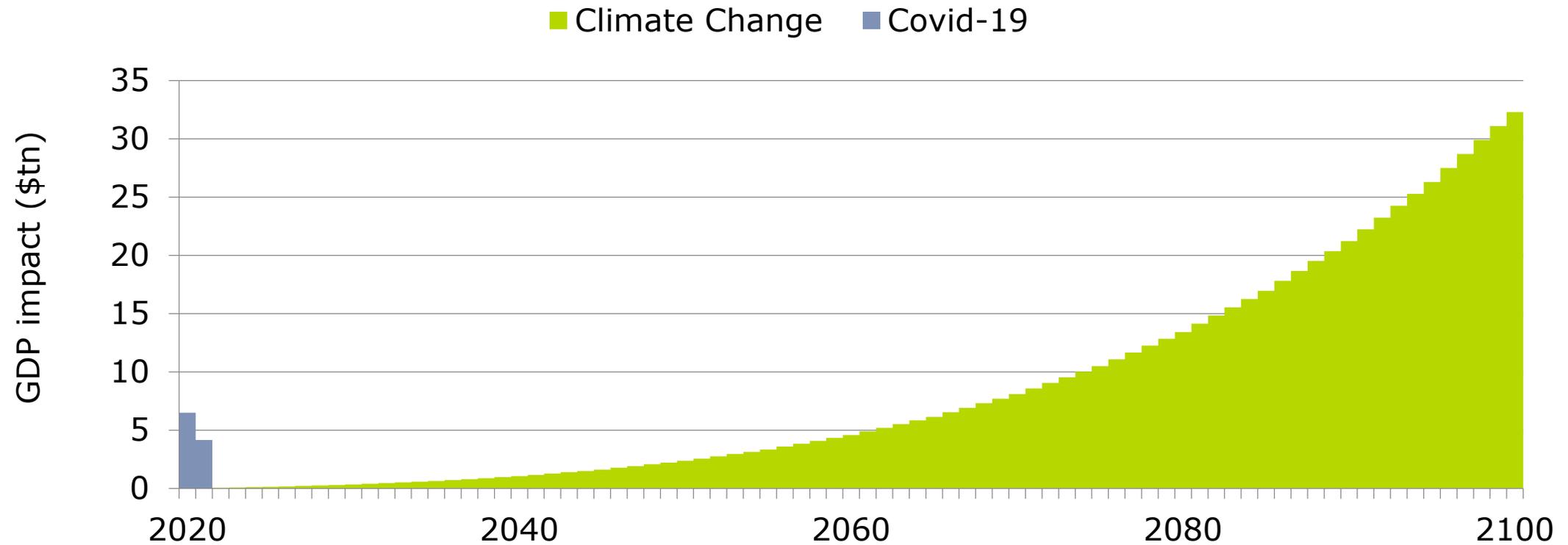
# Agenda

1. COVID-19 versus climate
2. What is climate-related risk?
3. What is the new disclosure regime?
4. Case study: UK
5. Wrap-up
6. Q&A



# COVID-19 has had a huge near-term impact on energy markets, but response to climate change is a bigger shift in the long-term

PROJECTED ECONOMIC COST OF COVID (IMF) AND CLIMATE CHANGE (OECD), \$tn



Sources: IMF; OECD.

# Political, financial and business leaders agree that COVID-19 should not derail the response to climate change



Angela Merkel  
German Chancellor

*"It will be all the more important when launching economic stimulus packages that we keep climate protection very firmly in view."*

25-28 April 2020

Speeches around the Petersburg Dialogue conference



Andrew Bailey  
Governor, Bank of England

*"There is a very strong argument for shifting the make-up of the portfolio of corporate bonds under the Bank's quantitative easing programme to one that is on the way to 'net-neutral'."*

4 March 2020

Statement during hearing within UK Parliament Treasury Select Committee



18 EU Environment and Climate Ministers

*"We call on the Commission to use the European Green Deal as a framework for the European recovery plan and thereby to keep momentum by implementing its initiatives."*

14 May 2020\*

Letter addressed to EU Commission President Ursula von der Leyen.



Markus Beyrer  
Director General,  
BusinessEurope

*"The COVID-19 pandemic does not change our commitment to make the European Green Deal a true success."*

16 April 2020

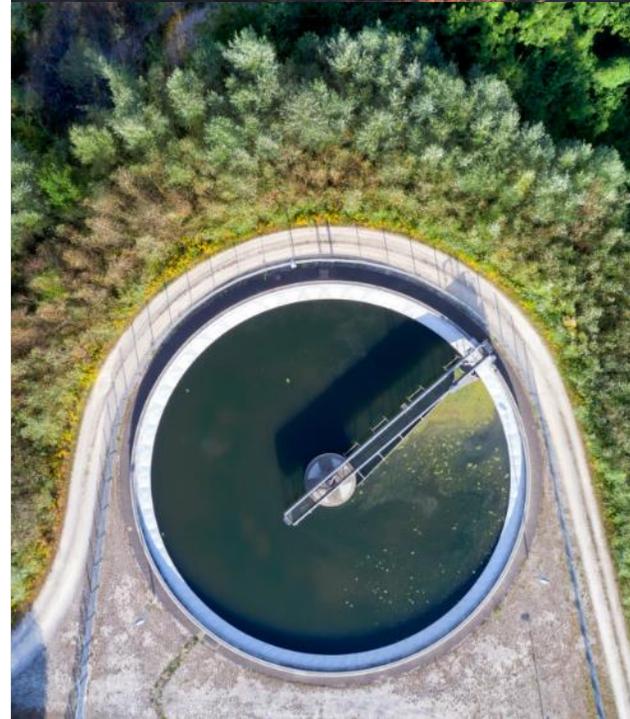
Letter to Frans Timmermans, Executive Vice-President for a European Green Deal, European Commission

\*Date of ministers' letter to the President of the EU Commission dated for day when latest signatory (Romania) joined.

All quotes have been edited for brevity.  
Picture of Markus Beyrer cropped down from original by Annika Haas, Estonia EU Presidency. <https://www.flickr.com/photos/eu2017ee/37013214886/>

# Agenda

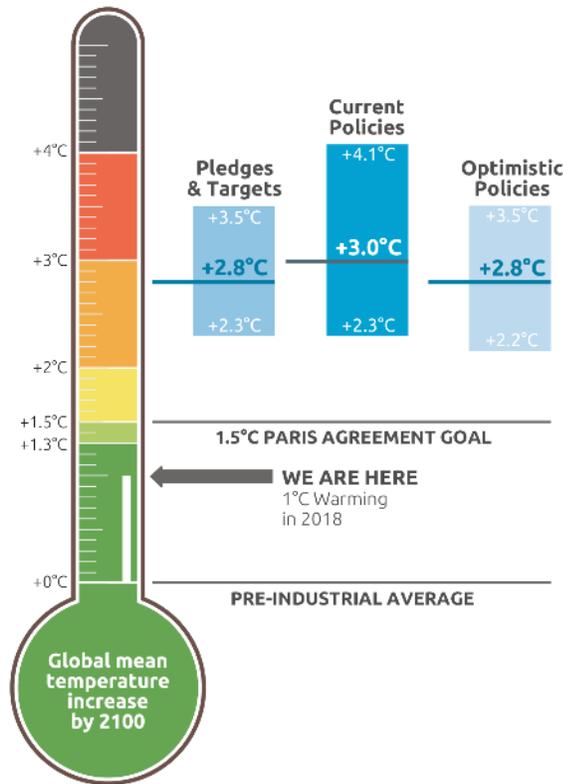
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WHAT IS CLIMATE-RELATED RISK?

The scale of the climate change challenge is very large and touches on all parts of the energy system

WHERE ARE WE ON CLIMATE?



CAT warming projections  
Global temperature increase by 2100

December 2019 Update

LIKELY IMPLICATIONS FOR ENERGY SYSTEM



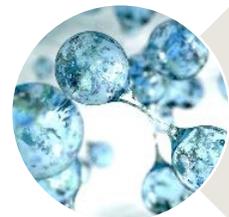
**POWER GENERATION MIX**

- Coal phase out
- Increase of renewables
- Question marks on other low carbon technologies



**TRANSPORT AND HEAT**

- Electric vehicles increase massively
- Reduced and optimised energy use in buildings



**NEW TECHNOLOGIES**

- Batteries deployed at scale
- Hydrogen developed
- CCS proven commercially

Image credit: climateactiontracker.org.

WHAT IS CLIMATE-RELATED RISK?

# Climate change will affect all aspects of the energy business

## **PHYSICAL RISK**

### – **Strictly climate-related:**

- Chronic increase in temperatures
- Sea level rise
- Acute extreme weather events

### – **Technical consequences:**

- Availability of energy resources
- Impairment of equipment performance
- Damage to assets

## **TRANSITIONAL RISK**

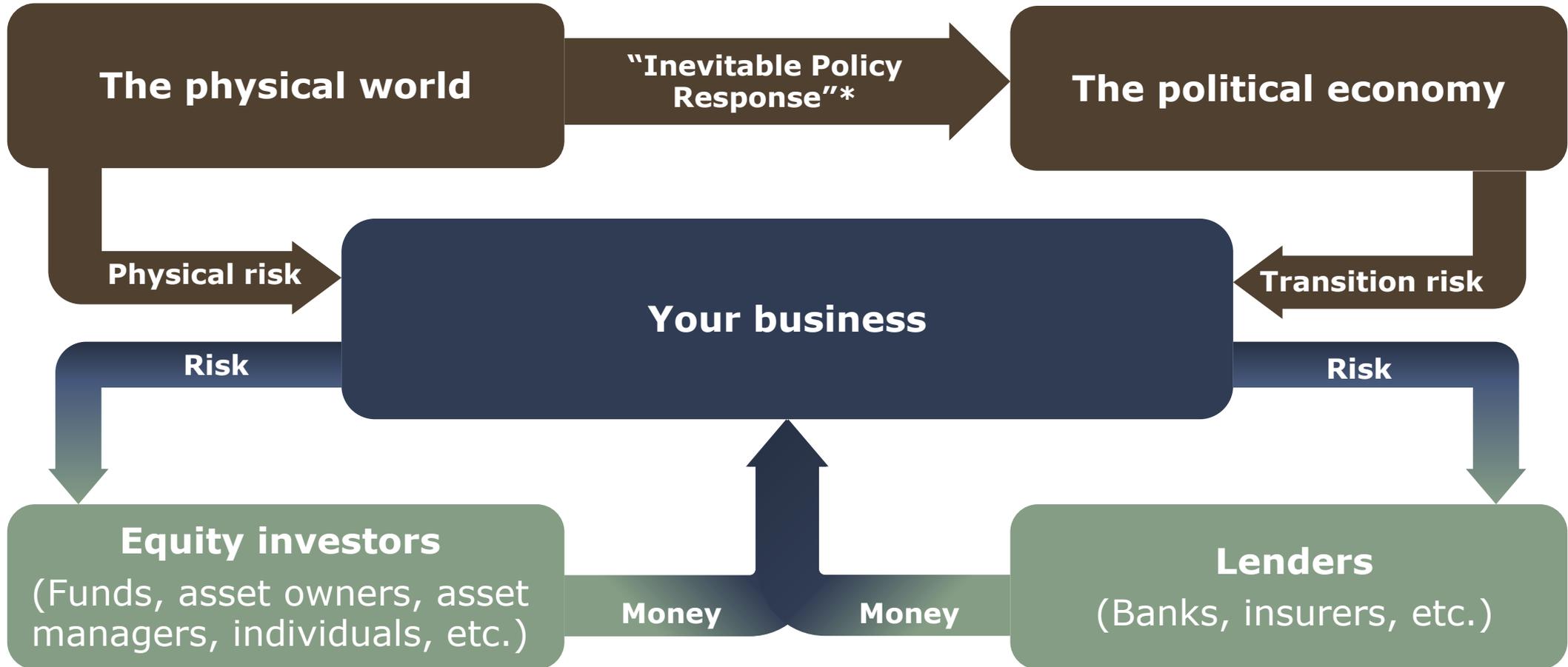
- Drastic changes to policy and legal frameworks
- Creative destruction of technological mix
- Nature and volume of commodities and products traded on markets
- Reputational consequences

Image credit: Todd McClintic, Creative Commons License CC0.



WHAT IS CLIMATE-RELATED RISK?

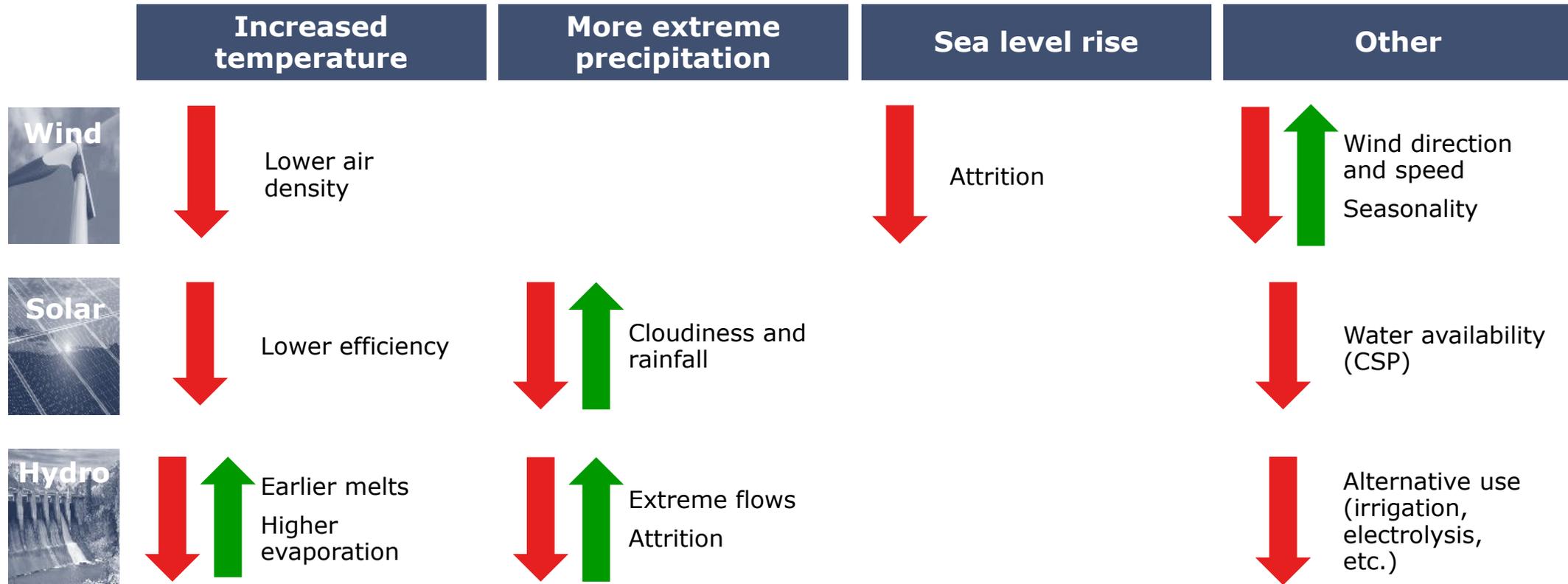
As more capital flows into the sector, regulators, lenders and investors need to understand risks more systematically



\* The “Inevitable Policy Response” is a term used under the Principles of Responsible Investment, sponsored by the UNEP Finance Initiative and UN Global Compact.

WHAT IS CLIMATE-RELATED RISK?

Climate change will affect the generation potential of all technologies, but the individual impacts are not clear cut...

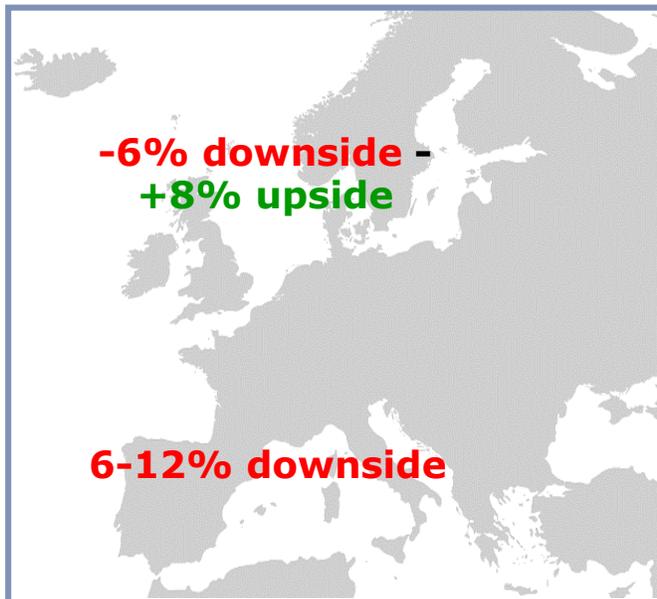


Source: Solaun & Cerdá (2019), <https://doi.org/10.1016/j.rser.2019.109415>

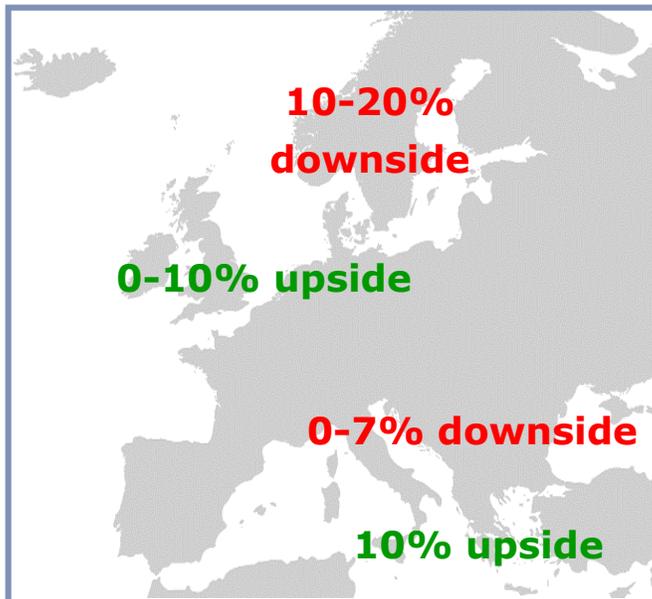
WHAT IS CLIMATE-RELATED RISK?

... and are complicated further once geographic variations are taken into account

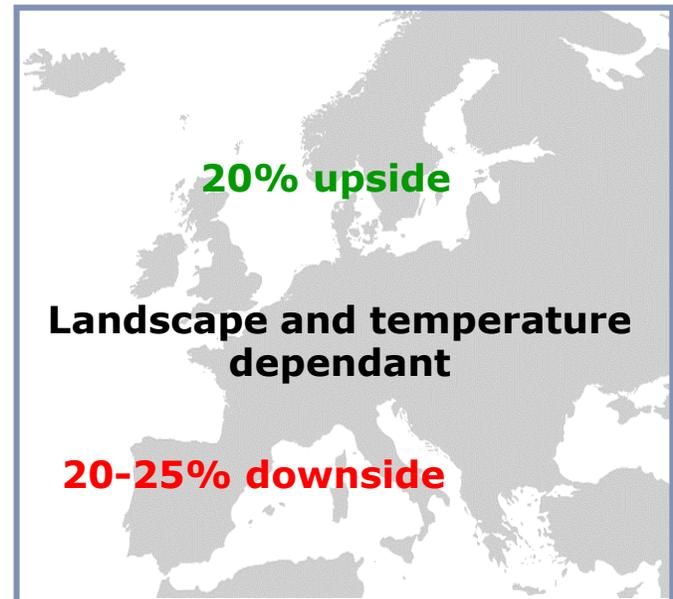
**WIND**



**SOLAR**



**HYDRO**

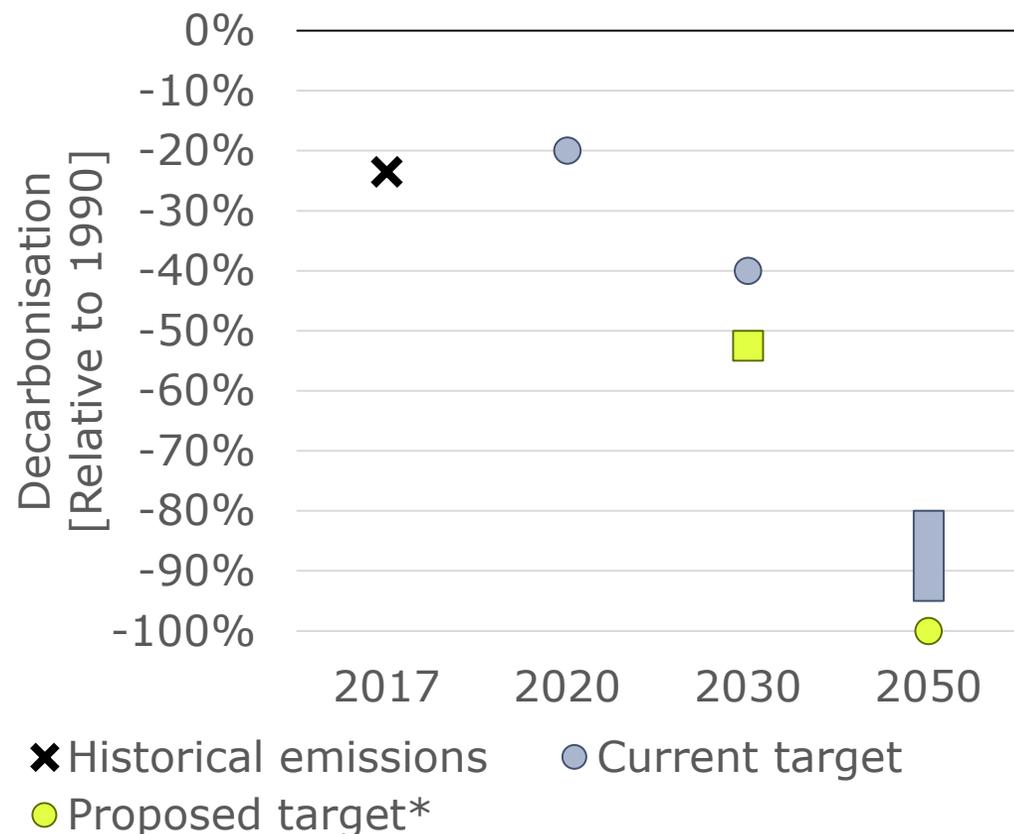


Source: Solaun & Cerdá (2019), <https://doi.org/10.1016/j.rser.2019.109415>.

## WHAT IS CLIMATE-RELATED RISK?

The process to tighten the ambition of Europe's climate ambition has begun already in 2019 and is expected to wrap up by 2022

### EU WHOLE ECONOMY TARGET



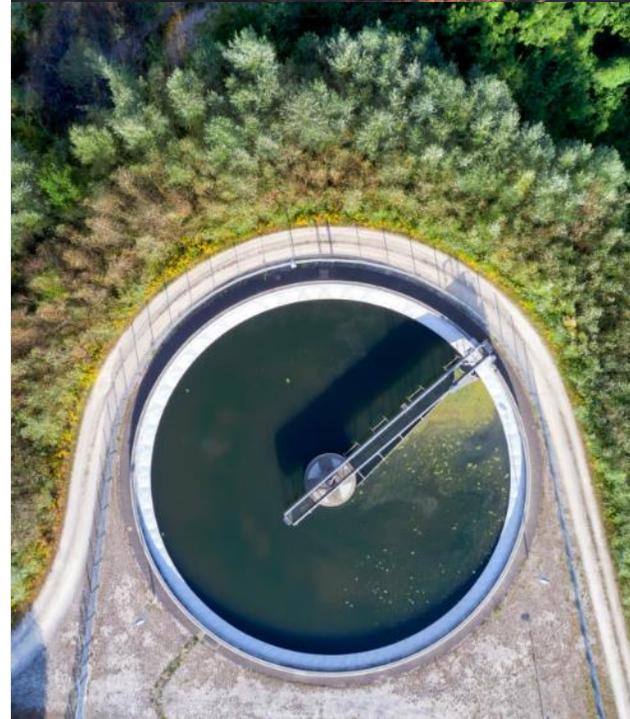
### IMPLICATIONS FOR ENERGY SECTOR

- Carbon prices likely to increase very significantly, with negative impacts for assets with high CO<sub>2</sub> emissions
- Renewable and other subsidy regimes likely to change over time, with uncertain impacts on individual assets
- Renewables will increasingly see their revenues cannibalised by other renewables
- Shift in value away from energy markets towards flexibility and capacity markets
- Pressure from institutional investors could increase costs of capital for assets and companies with higher emissions

\* The proposed 2050 target includes the effect of negative emissions from Land-Use, Land-Use Change and Forestry. Ignoring this effect brings the proposed target roughly in line with the stringent end of the current target range.

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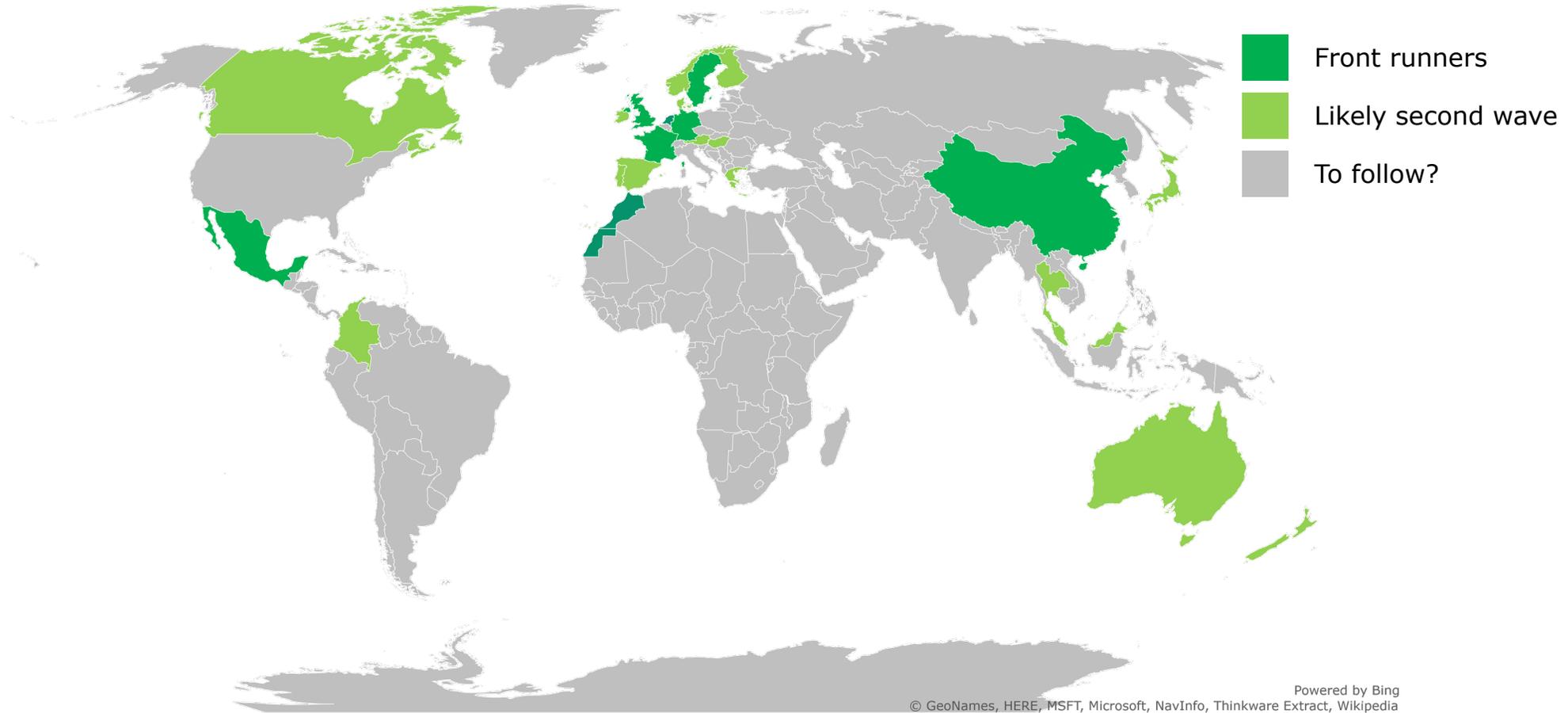
WHAT IS THE NEW DISCLOSURE REGIME?

Domestic regulatory agencies will increasingly compel the private sector to implement a globally harmonised disclosure regime on climate-related risk



WHAT IS THE NEW DISCLOSURE REGIME?

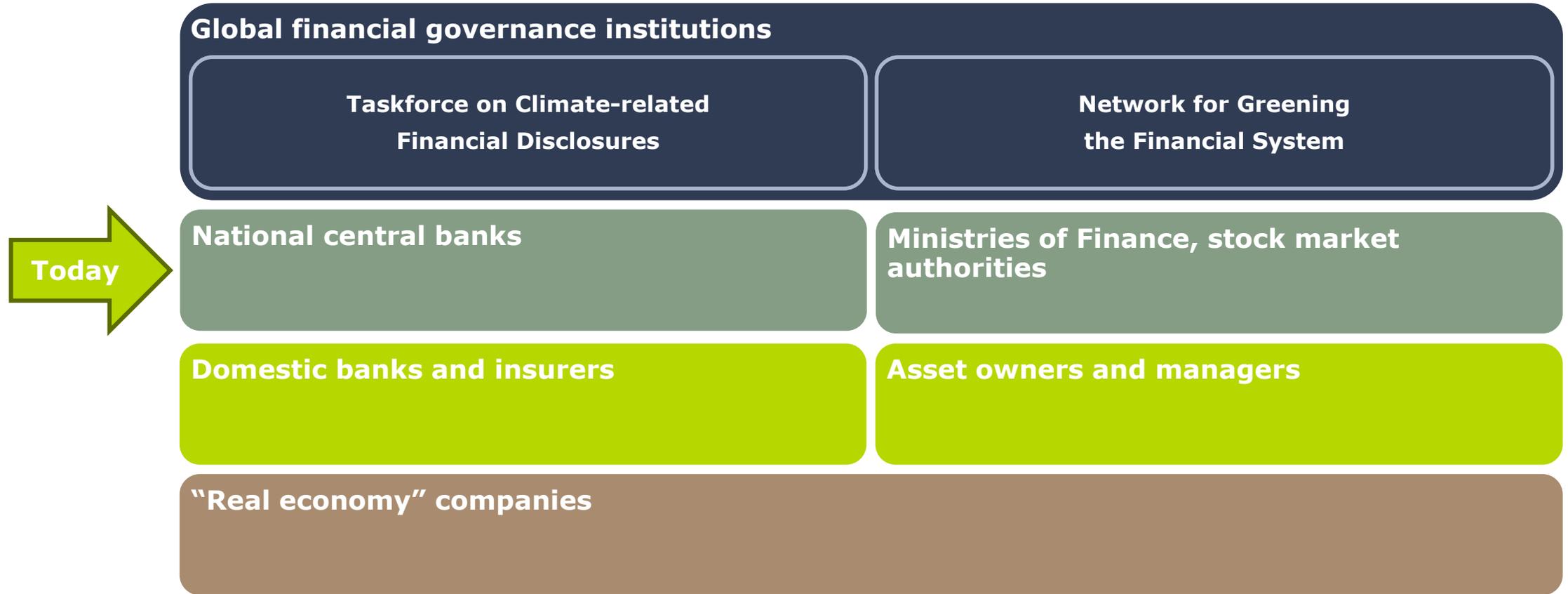
TCFD recommendations are likely to spread out through the actions of central banks in a number of core countries, contingent on political support



Sources: FSB, NGFS (March 2020). Membership by international financial organisations or standard-setting bodies not represented.

WHAT IS THE NEW DISCLOSURE REGIME?

Domestic regulatory agencies will increasingly compel the private sector to implement a globally harmonised disclosure regime on climate-related risk



## Premium-listed non-financial companies will also have to disclose in their annual statements their strategic response under different scenarios

1: Governance	2: Strategy	3: Risk Management	4: Metrics and targets
a. How do boards oversee the management of risks and opportunities (R&Os)?	a. What are the short, medium and long-term R&Os?	a. How are R&Os identified and assessed?	a. What metrics are used?
b. How does management assess and identify R&Os?	b. How do they impact on business, strategy and financial planning?	b. What processes are in place to manage them?	b. What are scope 1, 2 and (if possible) 3 emissions and related risks?
	c. How resilient is strategy under different scenarios (including 2C and below)?	c. How do these processes fit into overall risk management?	c. What targets are in place and how does performance match up?

## WHAT IS THE NEW DISCLOSURE REGIME?

The financial sector's widely-shared objective is to use scenarios to quantify "real economy" companies' resilience to a climate-constrained world

### TCFD METRICS

- USD\$ 12 trillion: Market capitalisation of organisations supporting TCFD (February 2020).

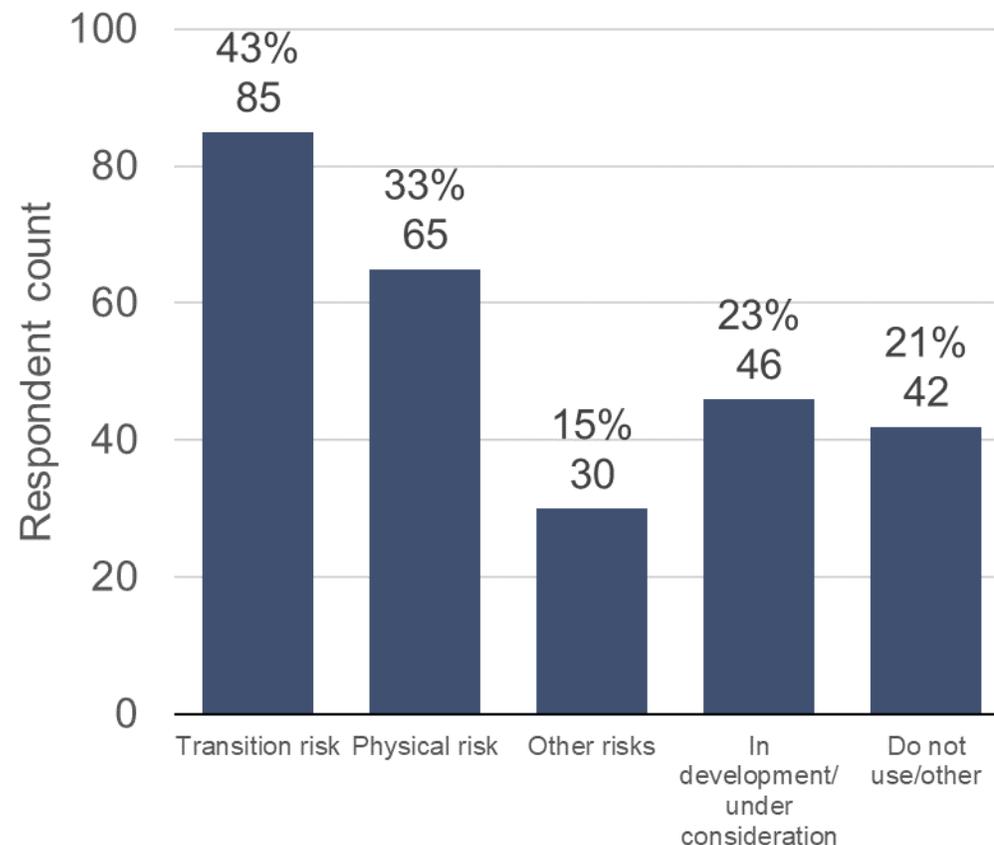
### DISCLOSURE USERS

- 96% of disclosure users are in the financial sector.
- 76% of users rely on disclosures in decision-making.

### DISCLOSURE PREPARERS

- 42% of disclosure preparers highlight the lack of standardised metrics for their industry.
- 79% of preparers find scenario-based analysis of their resilience somewhat or very difficult.

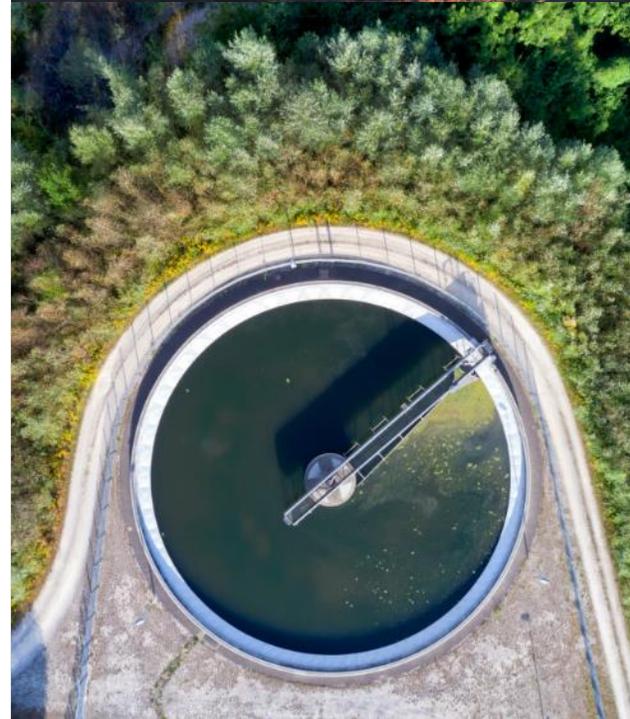
### INTEREST IN SCENARIO ANALYSIS



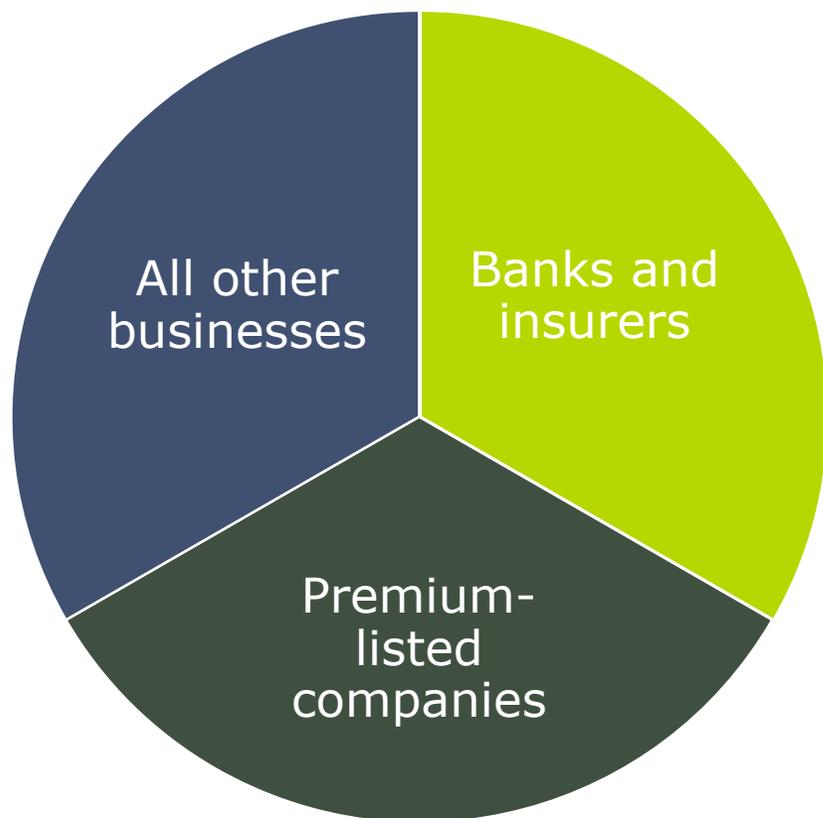
Adapted from 2019 TCFD Status Report. Chart on right based on a sample of 198 disclosure preparers, submitting multiple choice answers.

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## Key members of the UK financial community have been preparing the groundwork for implementing the TCFD guidelines domestically



### COVERAGE

#### **Banks and insurers:**

- Participants:
  - banks participating in the annual cyclical scenario (Barclays, HSBC, Lloyds, Naitonwide, RBS, Santander UK, Standard Chartered, CYBG), and
  - largest insurers.
- Participation (Biennial Exploratory Scenario): Mandatory.

#### **Premium-listed companies:**

- Participants:
  - 480 of 1180 companies listed on LSE (all of FTSE 100),
  - GBP 2.3 trillion market capitalisation.
- Participation: Formally 'comply or explain' regime.

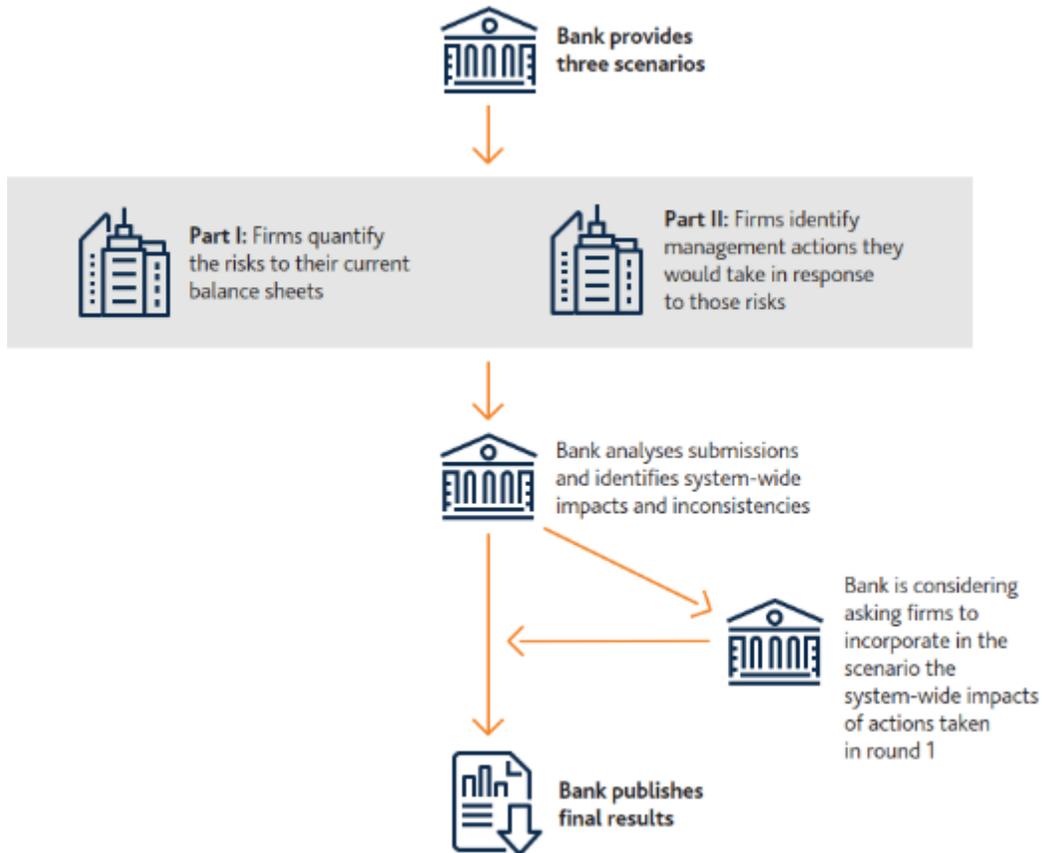
#### **Other companies:**

- Formally no compliance obligation.

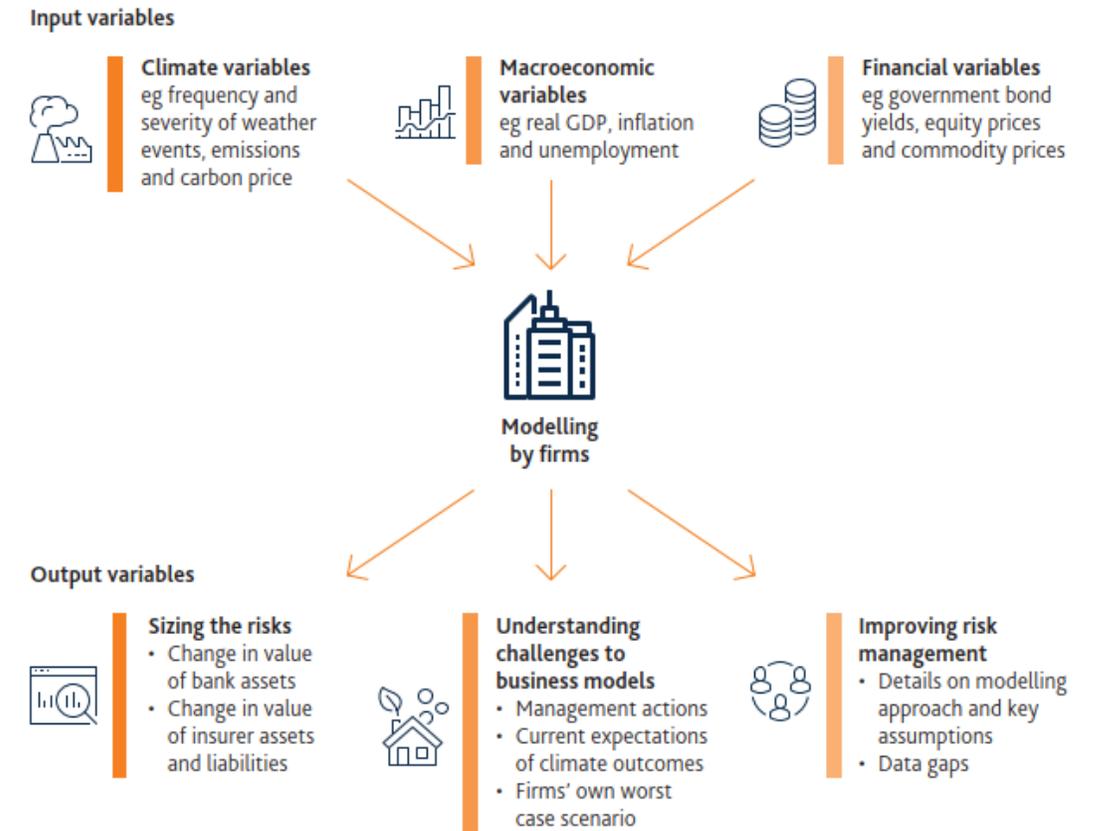
CASE STUDY: UK

# Most large UK businesses will be swept up in the upcoming effort to assess how robustly the British economy can respond to climate-related risk

## PROCESS OVERVIEW



## INPUTS AND OUTPUTS



BoE December 2019 Discussion Paper, figure 2.1 (page 11) and figure 6.1 (page 24).

The risk assessment has at its core a balance sheet analysis of individual businesses under climate-based scenarios with fixed input parameters

#### DOMESTIC SCENARIO OVERVIEW

- **No additional policy action:** no policy action beyond that which has already been announced is delivered.
- **Early policy action:** the transition starts early and the increase in global temperature stays below 2°C, in line with the Paris Agreement.
- **Late policy action:** the global climate goal is met but the transition is delayed by 10 years and must be more severe to compensate for the late start.

#### PARAMETERS IMPOSED BY THE BANK OF ENGLAND

##### Physical variables

- Temperature pathways
- Climate-related perils
- Longevity
- Agricultural productivity

##### Transition variables

- Carbon prices
- Emission pathways
- Commodity & energy prices (including renewables)
- Energy mix

##### Macroeconomic variables

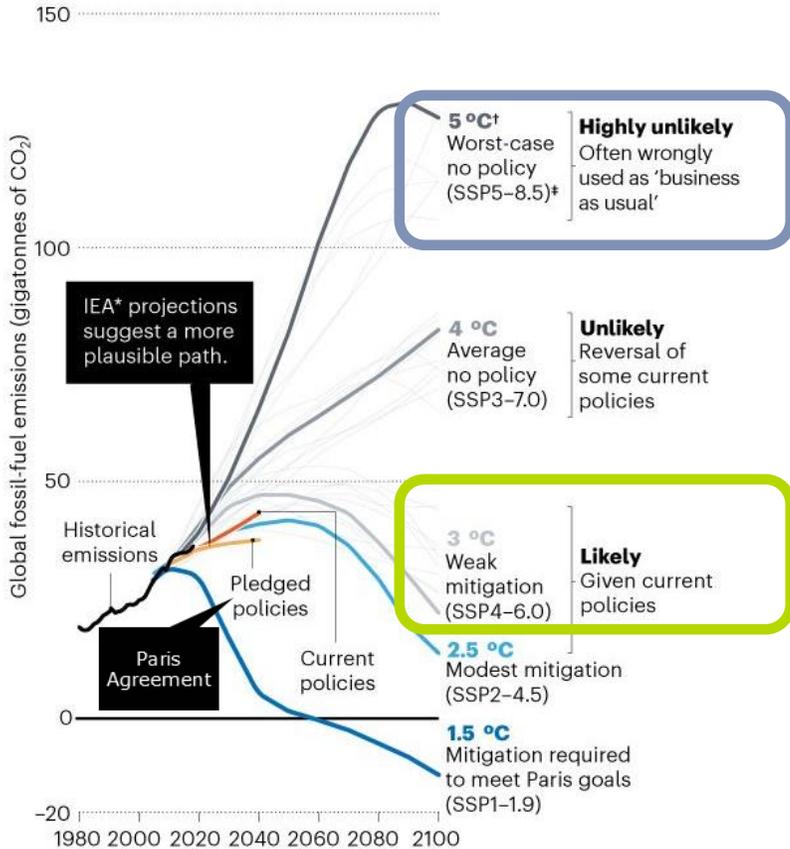
- Real GDP
- Unemployment
- Inflation
- Central bank rates
- Corporate profits
- Household income
- Property prices

##### Financial market variables

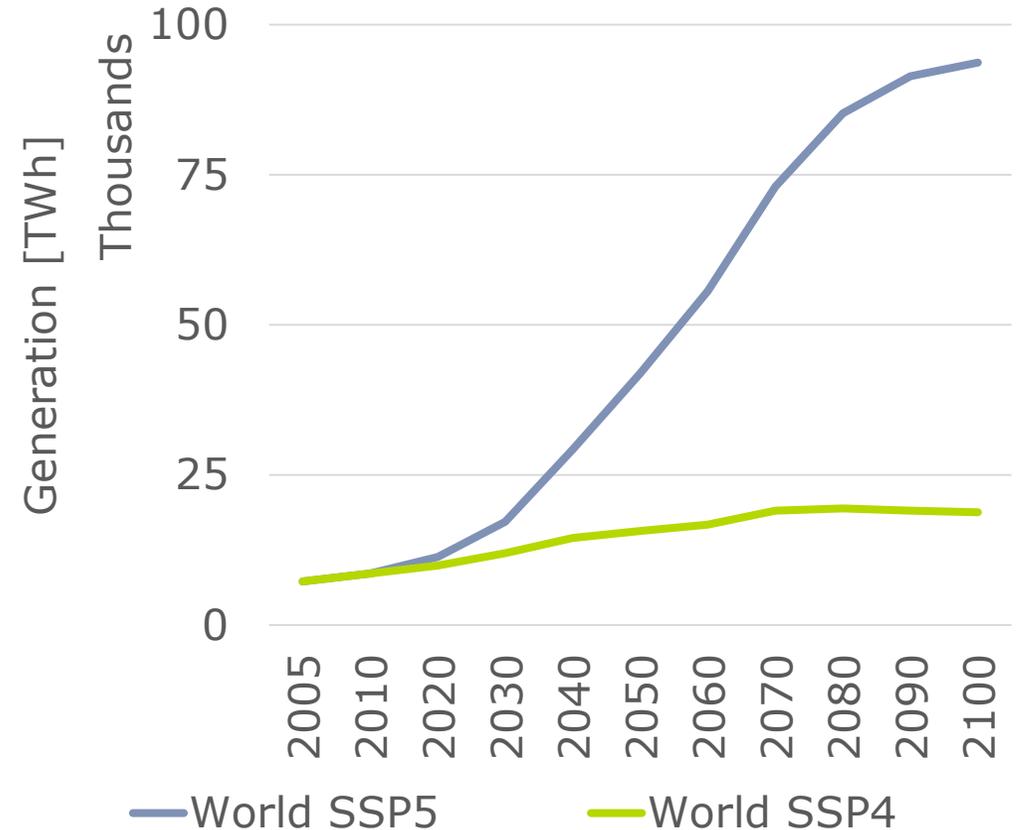
- Government & corporate bond yields
- Equity indices
- Exchange rates
- Bank rate

# The robustness of individual companies' assessment depends crucially on selecting credible parameters from the variety of existing IPCC pathways

## IPCC MARKER SCENARIOS UNDER DEVELOPMENT



## POSSIBLE COAL GENERATION PATHWAYS



Left: Hausfather & Peters, Nature (29 January 2020). Right: IIASA SSP public database v2.0 (AFRY calculations).

Before the COVID-19 outbreak disclosures would have started in 2020, subject to the publication of reference scenarios by the NGFS

Timing	Global level	UK	
		<i>Biennial Exploratory Scenarios</i>	<i>Disclosures in Annual Financial Reports</i>
2017	TCFD publishes final report on voluntary disclosures NGFS established		
2019		PRA and FCA establish Climate Financial Risk Forum	
2019 December		BoE publishes discussion paper proposing the Biennial Exploratory Scenario	
2020 March			FCA publishes discussion paper on annual disclosures
2020 April	NGFS to publish reference scenarios		
2020 H2		BoE to publish reference scenarios, launching BES process	FCA to publish Policy Statement on annual financial disclosures
2021		BES results published	FCA rules take effect
2022		Potential second submission to assess systemic effects?	First TCFD-compliant annual disclosures published

# Although COVID-19 has delayed regulatory processes, significantly more robust and intrusive disclosures will likely become standard around 2022



2019 **Taxonomy Regulation agreed:**  
Investors and listed companies EU-wide must disclose information about the sustainability of their activities.

2020 **March** (Technical Expert Group): Recommendations for criteria for climate mitigation and adaptation finished  
  
December: Commission formally adopts criteria

**March** (Autorité des Marchés Financiers): New mandatory ESG metrics for asset managers  
  
**Nov 30: Publication deadline for first disclosures**

**March** (Sustainable Finance Committee): Recommendation submitted to the Federal Government to enforce TCFD guidelines  
  
Consultations ongoing throughout 2020

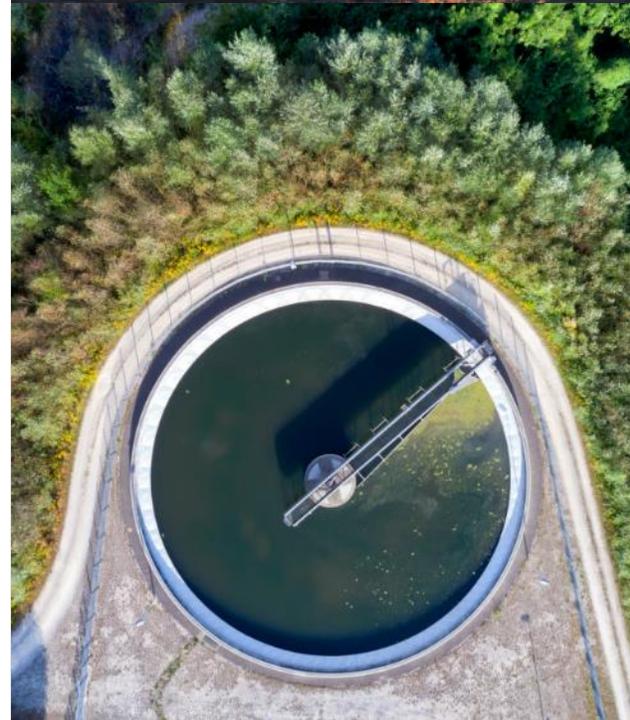
2021

2022 **Publication deadline for first disclosures**

**Expected publication deadline for first disclosures**

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# Climate-related risk is emerging as a major criterion for determining future capital flows

## CONCLUSIONS

As a society we do not fully understand yet what economic risks are inherent to the ongoing climate emergency.

Regulators increasingly agree they must quantify the relative financial consequences of managed versus disorderly societal responses.

Large companies will soon have to disclose as a matter of course how their business models cope with climate-related risk.

## AFRY ACTIONS

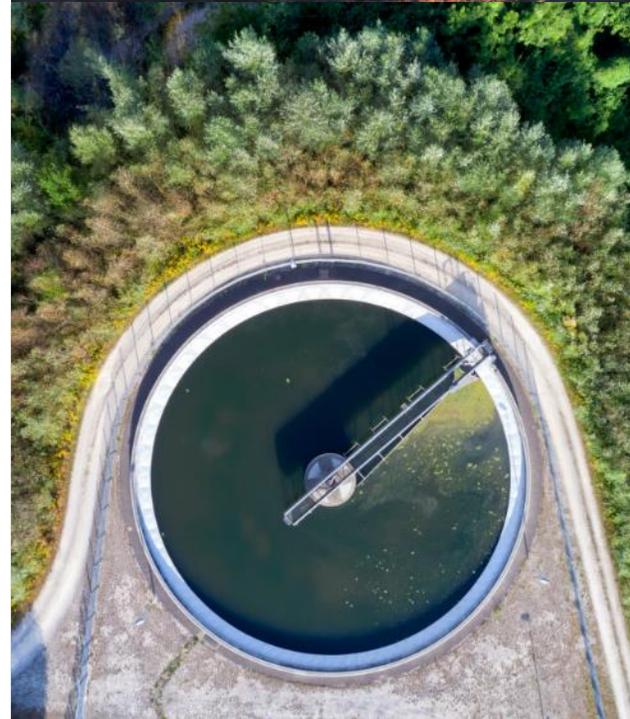
Our modelling capability allows us to assess the impact of physical and transitional risks under a wide range of scenarios.

We can build the input parameters of the climate scenarios being developed into our suite of modelling tools.

We are reaching out to our clients to help them develop scenario-based disclosures and climate-resilient strategies.

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Q&A

# Thank you for your time!

– Now is the time to let us know if you have any questions.



CONCLUDING REMARKS

## Contact us

- **Reach out** to us for more information:

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[alex.luta@afry.com](mailto:alex.luta@afry.com)

- Next week:

### **Where are gas prices heading?**

Wednesday 10 June 2020

14:00 BST / 15:00 CEST

[Sign up](#)

- Advance notice:

### **Key drivers of carbon prices**

Thursday 25 June 2020

[E-mail us](#) to register interest

