1. Houston, we've got a problem!

2. The International Perspective & Paris Agreement

3. Leading by example: The EU 2030 climate and energy policy framework
   - Cars
   - Renewables
   - The emissions Trading System

4. Summing up

Q&A
1. Houston, we've got a problem!
Area covered by ice cap (snow) at Mt. Kilimanjaro between February 1993 and February 2000.
The costs of extreme weather events have quadrupled since 1980 to about 120 billion $ per year

According to Munich Re's NatCatSERVICE, approximately 861,000 people lost their lives between 1980 and 2015 as a result of weather-related natural catastrophes worldwide. Of these, 61% (522,000) lived on less than US$ 3 per day (income groups in accordance with the World Bank definition), and therefore counted among the world's poorest people. As a proportion of the world population, however, this group represented only around 12% in 2015.

According to a study by the Internal Displacement Monitoring Centre (IDMC), over 20 million people have already been displaced from their homelands by climate- or weather related events.

According to estimates by the International Organization for Migration (IOM, 2008), there could be 200 million climate refugees worldwide by the middle of the century.
2. The International perspective & The Paris Agreement
GHG Emissions of major economies, 1990-2012

(Source: historical emissions data: inventories data to the UNFCCC (http://unfccc.int/national_reports/))
C02 emissions per capita (ton CO2eq/capita)
Fossil fuel resources: the have-s and have-nots

**Net oil & gas import dependency in selected countries**

- **Gas Imports** (100%)
- **Gas Exports**
- **Oil imports**

Countries: United States, India, China, European Union, Korea & Japan

- **2010**
- **2035**

Source: IEA
The Paris Agreement

- **A historic multilateral agreement**
  - Adopted by 195 countries on 12 December 2015
  - First ever *universal* agreement on climate change

- **EU speaking with one voice, building Alliances with LDC's, OASIS**

- **Ambition**: Well below 2°C + Efforts to limit increase to 1.5°C

- **Binding commitment** to make “nationally determined contributions” & pursue domestic measures aimed at achieving them (differentiation/bottom-up)

- **Solidarity**: $100bn/year goal for developed Parties extended to 2025
  - Governments agreed to **come together every 5 years** to set **more ambitious targets** as required by science
  - **Track progress** towards the long-term goal through a **robust transparency** and **accountability system**

- **A strong signal** to policy makers, investors & businesses

Source: UNFCCC
World emissions (GtC02e, total excluding sinks) and percent change in emission intensity per unit of GDP

Source: POLES – JRC Model
Transition to a low-carbon EU economy in 2050
(greenhouse gas emissions by sector over time as % of 1990 levels)
3. The EU 2030 climate and energy policy framework
EU leading by example: Decoupling emissions from growth (EU, 1990-2016)

Source: European Commission based on data compiled by EEA
The challenge: Decoupling emissions from growth globally, requiring strong deployment of low carbon technologies!
2030 Climate and energy package: adopted targets

- **2020**
  - **-20%** Greenhouse Gas Emissions
  - **20%** Renewable Energy
  - **≥32%** Renewable Energy
  - **≥32.5%** Energy Efficiency

- **2030**
  - **≤-40%** Greenhouse Gas Emissions (domestic)
  - **≥32%** Renewable Energy
  - **≥32.5%** Energy Efficiency
  - **15%** Interconnection

**Energy Union governance**
Legislative elements of the 2030 package

- revision of the Emissions trading system
- Effort sharing regulation
- Land use regulation

- Revision Renewables Directive
- Electricity Market design (still in co-decision)
- Revision CO2&cars Directive (still in co-decision)
- Proposal CO2 emissions from heavy duty vehicles (still in co-decision)
The three legislative pillars of the EU's 2030 climate policy framework

Emissions trading (ETS)
Target: -43% by 2030 cp. 2005
Including: Power/Energy Sector and Industry, Aviation representing ca. 40% of EU emissions

Max. 100 MtCO$_2$eq

Effort Sharing
Target: -30% by 2030 cp. 2005
Including: Households, transport, agriculture, waste, F-gases representing ca. 60% of EU emissions

Non-ETS sectors

Full flexibility

Land use, Land use change and Forestry (LULUCF)
"No-Debit"

Max 280 MtCO$_2$eq
Equity and solidarity in efforts is key.
Renewable energy & new emerging power system

- Renewable energy (solar, wind) becoming fully competitive with coal/gas, strong growth in many developing countries

- "Decarbonised, decentralised and digitised"
  - Less baseload provided by large-scale installations
  - New electricity producers: Large number, small-scale, decentralised and intermittent! Periods of overproduction of electricity
  - Smart grids /smart meters
New EU fleet-wide 2025 and 2030 targets - cars

- 2025: electric vehicles, 10-20% of the automotive market
- 2030: electric vehicles, 20-40% of the automotive market
Demand for raw materials for batteries

6 Metals demand for rechargeable batteries

7 Global producers of raw materials for battery applications

Source: EU Commission Report on Raw Materials for Battery Applications 2018
Putting a price on CO2: the EU Emissions trading system

- **For environmental reasons**
- **For economic reasons**
- **For political reasons**: experience in the EU ETS informs and influences new or emerging systems (China, South Korea etc.)

![The European carbon price pattern](image)
Summing up…

• A policy informed by science
• Fast, global action required
• Strong governance is needed, from local to global
• Putting a price on CO2 is essential to mobilise economic operators, and shift investments towards low carbon
• Technological development enables an affordable energy transition
• Equity, solidarity and development considerations must be integrated in the policy/governance
Thank you!

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Read our book "EU Climate Policy Explained" *(published by Routledge, 2015)*

climate science

The Intergovernmental Panel on climate change

IPCC 5th Assessment Report – Key findings:

• **Warming of the climate system is unequivocal** and observed changes are **unprecedented** on scales of decades to millennia

• **Human influence** on the climate system is clear

• Each of the last three decades has been successively **warmer at the Earth’s surface** than any preceding decade since 1850

• **Continued emissions of greenhouse gases** will cause further warming and changes in all components of the climate system

• Limiting climate change would require **substantial and sustained reductions in greenhouse gas emissions** which, together with **adaptation**, can limit climate change risks