The pathway towards a competitive low-carbon European economy

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Arendal

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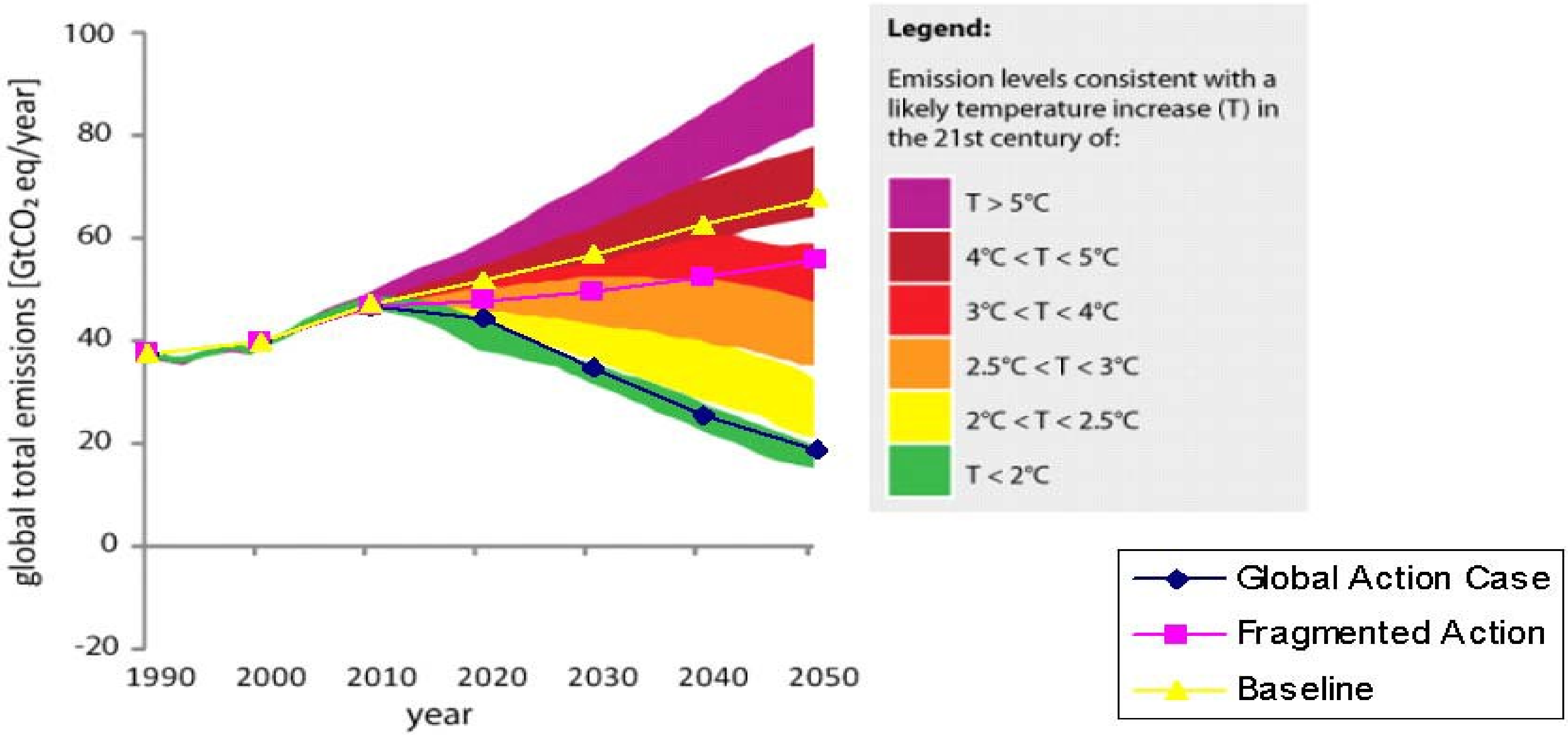
Climate Action

Outline

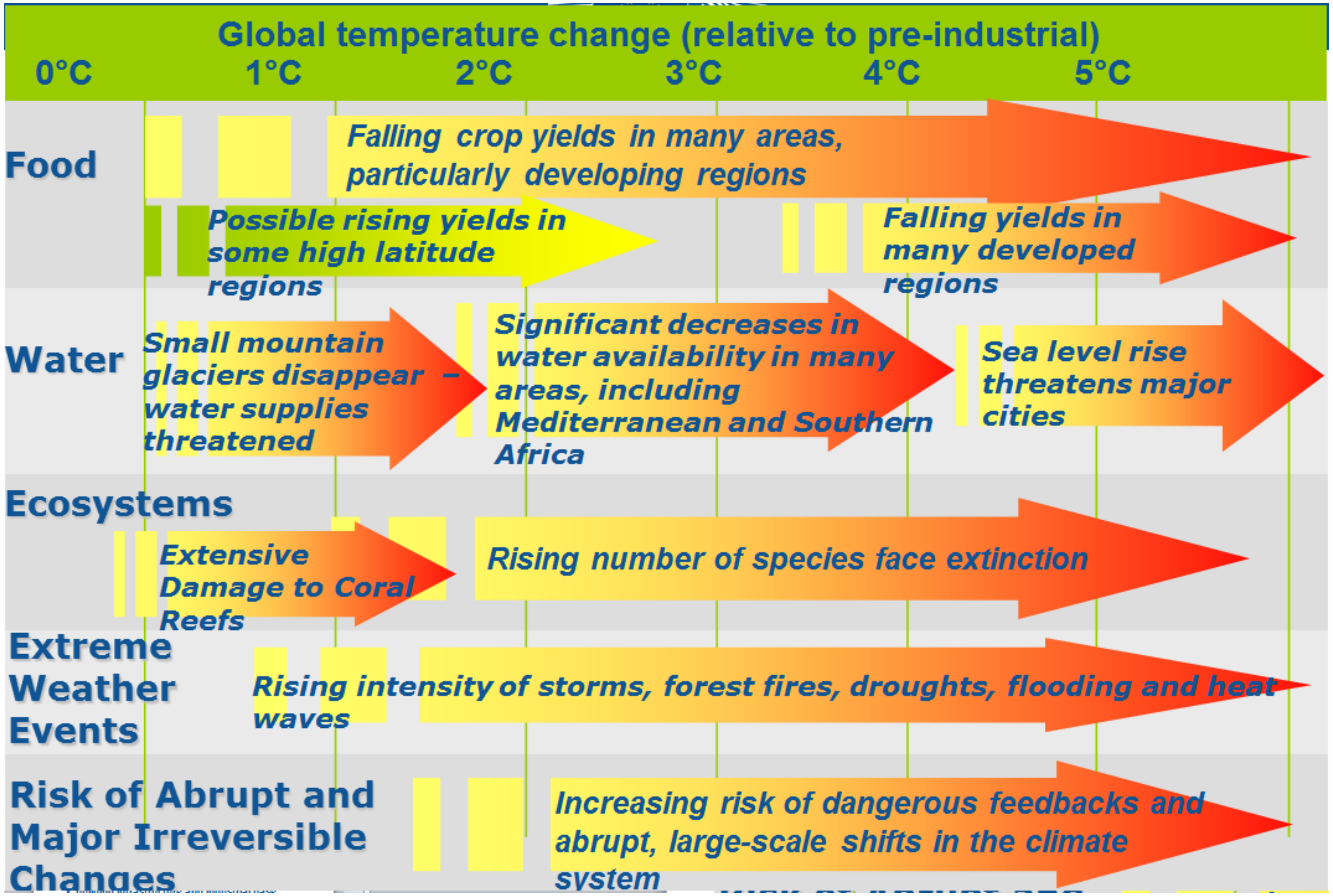
1. ***Where are we heading?***
2. ***Where does the EU stand now?***
3. ***Achievements and challenges ahead***
4. ***The road to 2050***

Where are we heading?

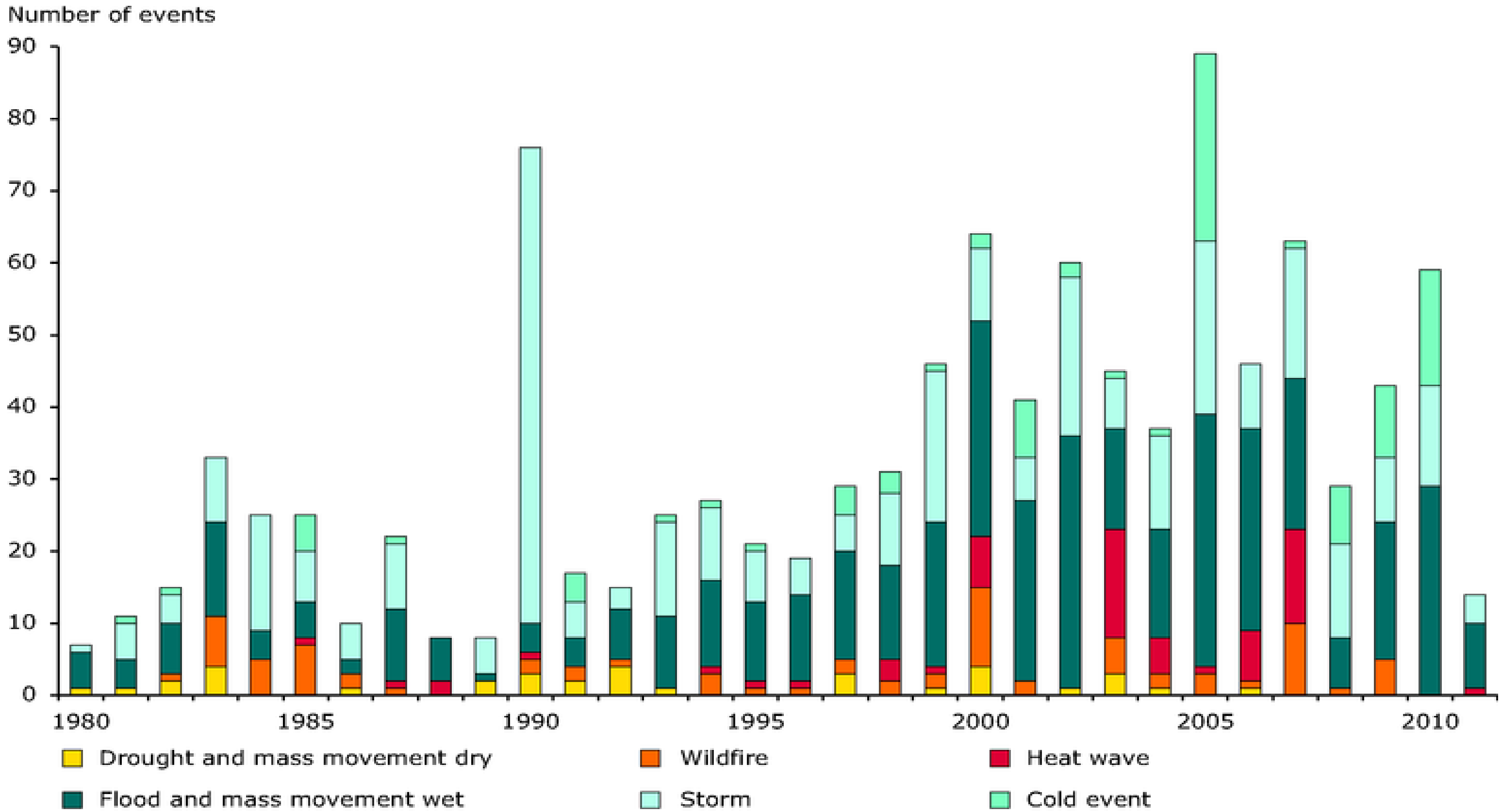
Global warming – projections



Projected impacts of climate change



Climate change threats on the rise



Mega-trends

- *global population on the rise (9 bn in 2050)*
- *emerging economies on the rise*
  - lifting population out of poverty into middle income
  - building infrastructure and industrial base
  - rising consumption patterns
- *declining economic footprint of the Western World*
- *increasing environmental / resource pressures*
- *deepening divide resource-rich vs resource-poor*
- *increasing climate change impacts and adaptation needs*

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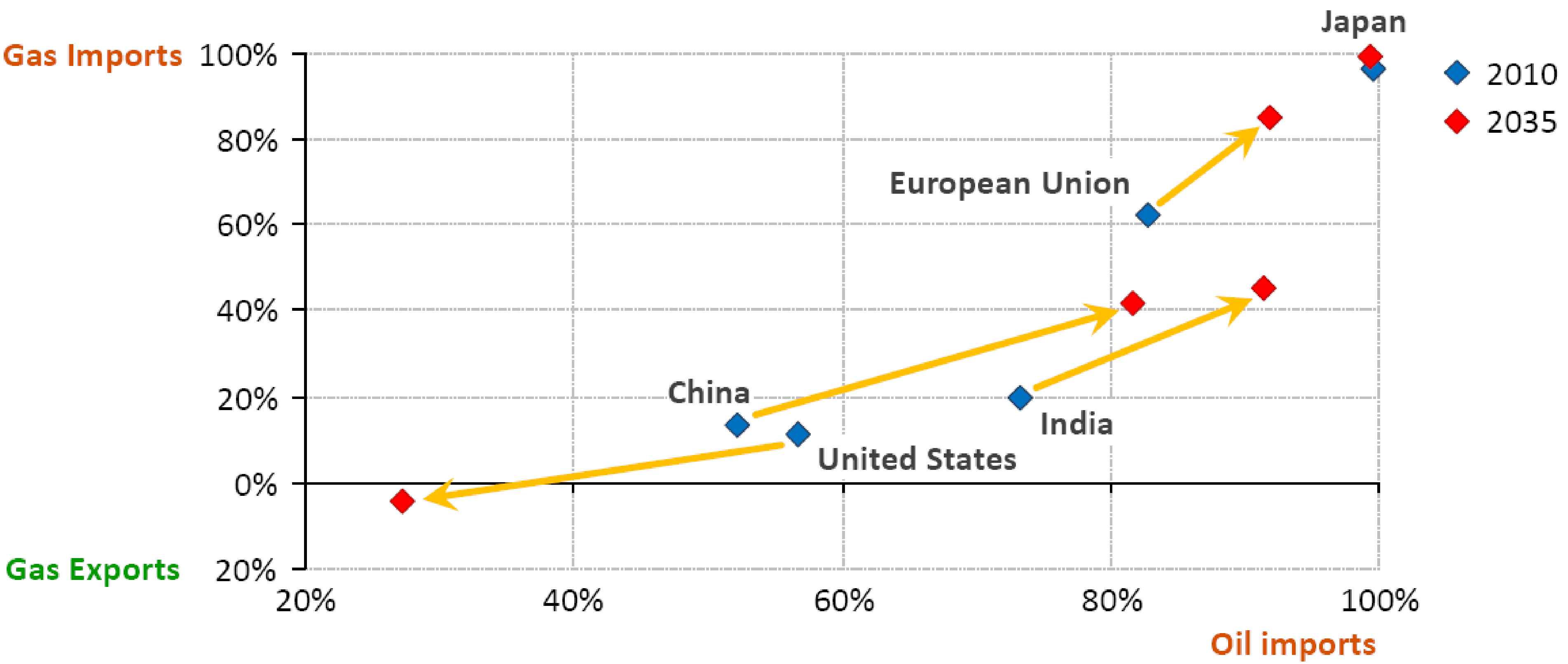
International developments on climate

- ***concrete emission pledges***
  - **by countries responsible for > 80% of GHG emissions**
  - **halfway to 2020 emissions levels needed for < 2°C**
- ***growing global action, but fragmented and diverse***
  - **South Korea: green growth, ETS**
  - **China: 5 year plan, pilot ETS, RES, industrial clean-tech policy**
  - **Australia: ETS**
  - **US: performance standards power plants, vehicles CO_2 standards, state RES portfolio standards, regional ETS**
- ***UNFCCC: towards a comprehensive climate agreement in 2015, including all major emitters***

Net oil & gas import dependency in selected countries



While dependence on imported oil & gas rises in many countries, the United States swims against the tide

source : IEA 2012

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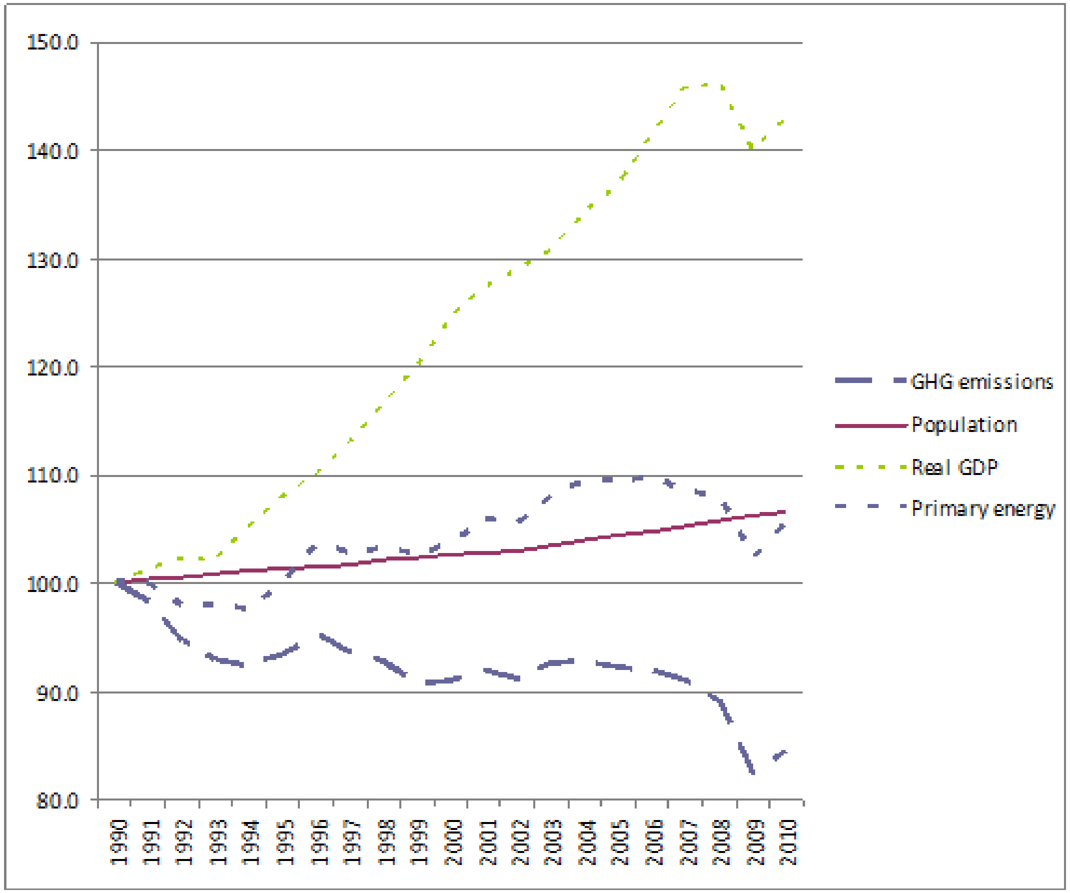
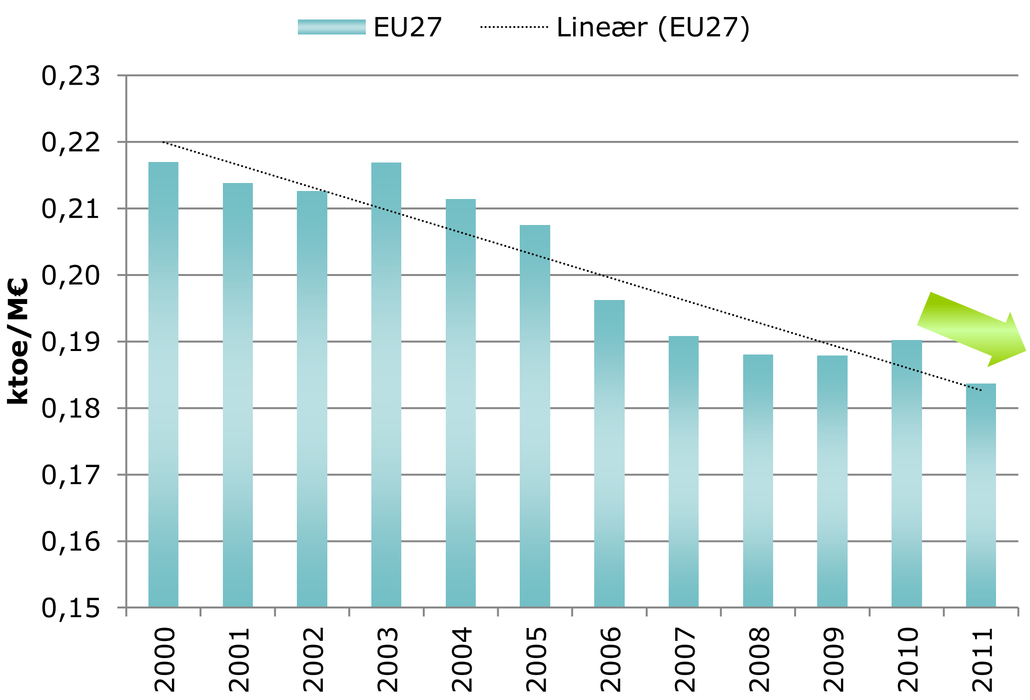
Where does the EU stand now?

GHG emissions trends



- **2010 emissions 15.4% below 1990 levels [2011 estimate: -17,6%]**
- **EU GDP grew above 40% during the same time**
- **EU on track towards 20% emission reduction by 2020**

Energy intensity of EU27 Industry & Energy



Source: Eurostat

- energy intensity indicator follows a decreasing linear trend of **-1.5%** of annual rate (2000-2011)
  - ✓ 2000-2008: significant decline in the overall EU (-1.8% annual rate)
  - ✓ 2008-2011: after stabilization slight increase in 2010, but in 2011 the declining path resumed (-0,8% annual rate)

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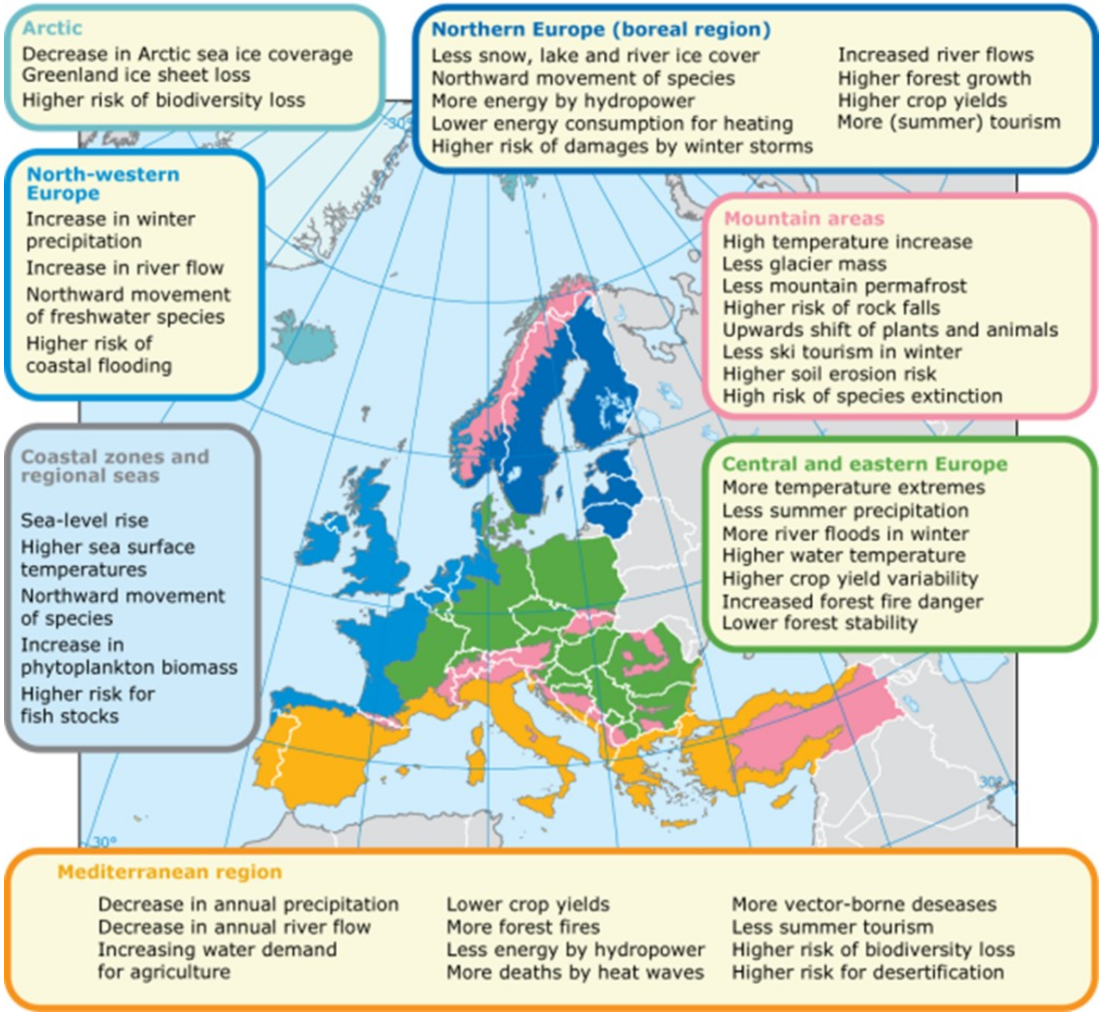
Vulnerable Europe

Europe is already facing **unavoidable impacts of climate change**

Impacts will affect the full EU territory, with regional differences

Arctic region among most vulnerable areas



EU climate & energy policy

- ***EU's key policy instruments until 2020***
  - **Emissions Trading System**
  - **Renewable Energy**
  - **Energy Efficiency**
  - **Internal market for energy**
  - **EU Adaptation Strategy**
  - **EU budget**
- ***Towards 2030 climate and energy package***
  - **Roadmaps 2050**
  - **Global trends on energy markets**
  - **International climate negotiations**

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EU achievements and challenges ahead

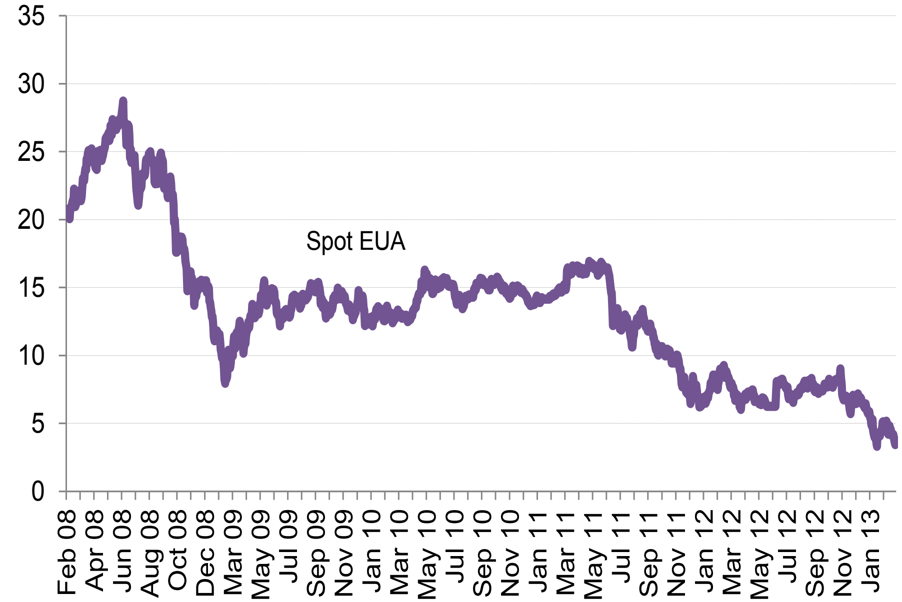
ETS

Achievements

- one carbon price, level playing field across the EU
- functioning and liquid market
- long-term clarity on reductions (-1.74%)

Challenges ahead

- "surplus" increasing fast
- not driving investments
- carbon leakage
- auctioning revenues
- interaction with other policy instruments



Renewable Energy

Achievements

- accelerated deployment – strong impact on investment patterns
- important effects in terms of emission reductions
- drove down costs of key technologies (PV, wind)

Challenges ahead

- increasing expenditures (feed-in tariffs) in times of fiscal consolidation
- successful industrial policy?
- national systems vs. internal market?
- market integration – grid integration

Energy Efficiency

Achievements

- CO_2 & cars (130g/km in 2015, 95g/km in 2020)
- energy efficiency standards (light bulbs, appliances, electric motors…)
- energy labelling (domestic appliances)
- adoption of the Energy Efficiency Directive (October 2012)

Challenges ahead

- finance (renovation of buildings, link with EU funds)
- structural changes (urban planning, modal shift)
- system changes (electrification)

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Internal Market

Achievements

- wholesale electricity prices kept in check
- increasing competition in electricity and gas markets
- increase in liquidity and transparency in wholesale markets
- improved unbundling and open access to network

Challenges Ahead

- market fragmentation resulting from MS national policies
- need to reward flexible generation and demand side management
- third liberalisation package still to be fully implemented
- integration of renewable energy in electricity markets

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Adaptation

Achievements

- EU Strategy on adaptation to climate change (2013)
- mainstreamed into sectoral policies (water, agriculture, health)
- EU funds made available for adaptation
- webportal on adaptation information in Europe (Climate-ADAPT)

Challenges Ahead

- *need to increase resilience across the whole EU territory*
- *additional mainstreaming (energy, transport, social issues)*
- *adaptation considerations in investment and business decisions*
- *flexible approach to deal with increasing climate impacts*

EU budget 2014-2020

- Climate mainstreaming of the EU budget to be raised significantly to at least **20% of the whole EU budget** (€200bn)
- **R&I**: at least 35% of Horizon 2020 budget to be climate-related
- **Cohesion policy funds**: developed/transition regions to allocate at least 20% to energy efficiency and renewable energy (6% in case of less developed regions)
- **Connecting Europe Facility** (€50bn, energy, transport, e-services)
- **Greening of the Common Agricultural Policy**
- **LIFE climate sub-programme** (€864m)

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The road to 2050

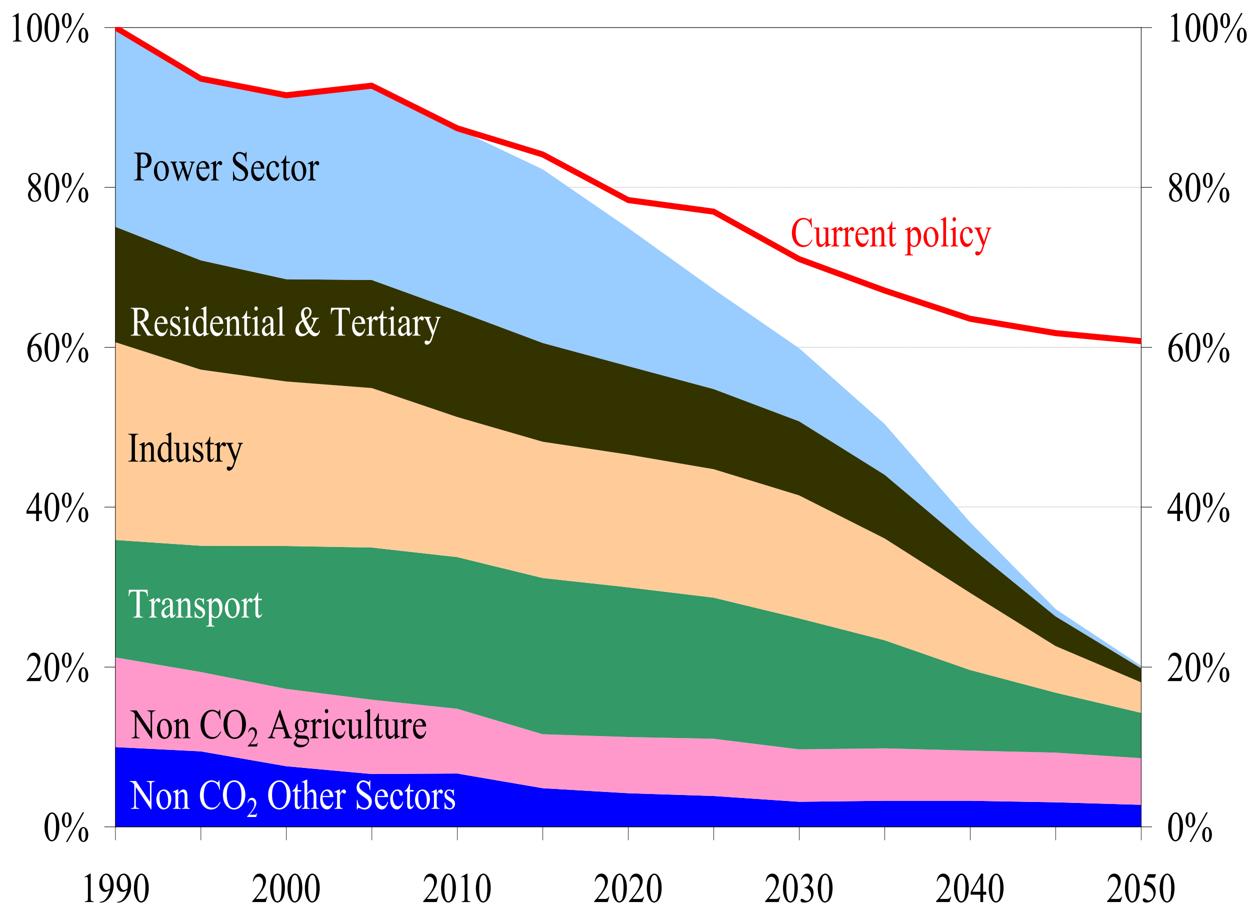
A cost-efficient pathway towards 2050

80% domestic reduction feasible:

- with currently available technologies
- with behavioural change induced through prices
- with all economic sectors contributing at varying degree & pace

Efficient pathway and milestones:

- -25% in 2020
- -40% in 2030
- -60% in 2040



Investing in innovation and fuel savings

Additional domestic investment: €270bn annually (2010-2050), equivalent to 1.5% GDP, of which,

- built environment (buildings and appliances): €75 bn
- transport (vehicles and infrastructure): €150 bn
- power (electricity generation, grid): €30 bn

Making EU economy more energy secure:

- fuel savings of €175 to €320 bn on average annually 2010-2050
- halves imports of oil and gas compared to today
- saving €400 bn of oil & gas imports in 2050 (> 3% of today's GDP)

Air quality and health benefits: €27 bn in 2030, €88 bn in 2050

Adaptation benefits: water and energy savings, increased resilience of energy and transport systems, etc.

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Towards a 2030 climate & energy framework

- *Which targets? (GHG, RES, EE)*
- *Which instruments? What interaction of instruments?*
- *How to re-design the ETS?*
- *How to assure cost-effectiveness? (i.e. carbon market, RES, EE)*
- *How to combine climate change, energy security, competitiveness?*
- *How to reap industrial opportunities of low carbon transition?*
- *How to address carbon leakage?*
- *How to develop a policy framework robust to key energy developments which will remain uncertain?*
  - shale gas
  - nuclear energy (post-Fukushima)
  - increased technology competition (solar, wind, ...)
  - ...?

More information:

http://ec.europa.eu/clima/policies/brief/eu/index_en.htm