ONE PLANET THINKING

TOWARDS COMPANIES THAT PERFORM WITHIN THE EARTH'S REGENERATIVE CAPACITY

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LCM CONFERENCE

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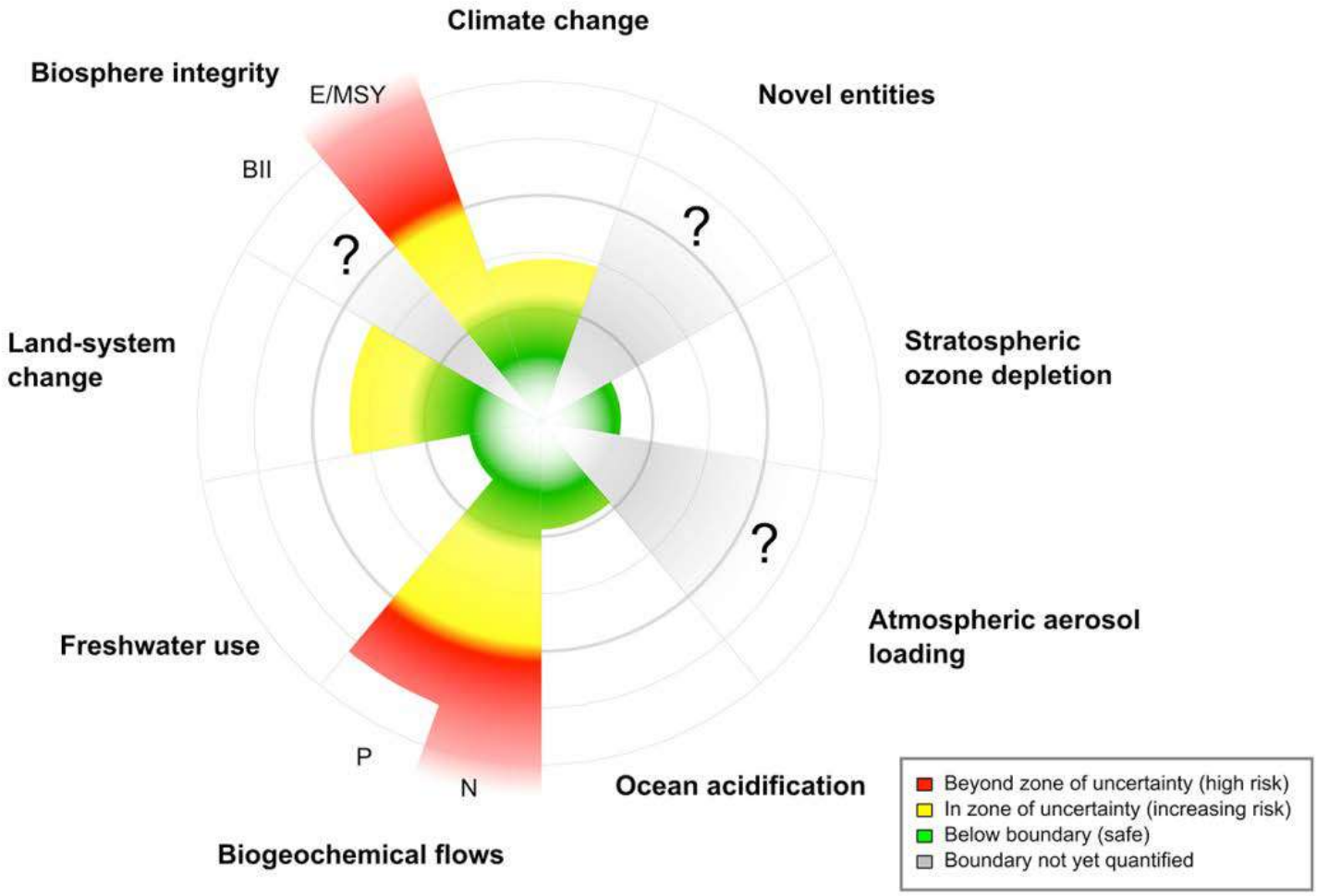
ONE EARTH – YET OUR CURRENT FOOTPRINT EQUALS 1.6 EARTHS

PLANETARY BOUNDARIES



Source: Steffen et al. 2015. Planetary boundaries: Guiding human development on a changing planet.

THE QUESTION FROM ENECO

Eneco

Sustainable energy for everyone

- SAFE
- AVAILABLE
- CLEAN
- AFFORDABLE

“Is the good we are doing good enough?”

LINKING PLANETARY BOUNDARIES TO BUSINESS PRACTICE
CHALLENGES

- **Level in the value chain**
  - Indicators of earth system processes for which planetary boundaries are defined are situated at the (near) end of the cause effect chain, while companies operate at the start of the cause-effect chain.

Activities in company and its value chain → Resource use & emissions to air, water, soil → Life support functions affected → Impact on human health ecosystems & resources

LINKING PLANETARY BOUNDARIES TO BUSINESS PRACTICE
CHALLENGES

- **Fair share**
  - Once a boundary is defined, how to allocate the efforts among companies? There exist different allocation rules, e.g. based on historic emissions, reduction potential, etc.

- **Local and regional boundaries**
  - For local and regional impacts, the background situation of the company should be taken into account, e.g. background concentrations of particulate matter or the water stress in a region.

- **Time-specific impacts**
  - The time-related issue is of particular importance for climate change. Greenhouse gas emissions accumulate in the atmosphere over time, resulting in an increasing atmospheric CO_2e concentration.

FRAMEWORK OF ONE PLANET THINKING

EXAMPLES OF BOUNDARIES PER IMPACT CATEGORY

Impact Categories	Boundary	Level	Source
Climate Change	Atmospheric CO_2 concentration of 350 ppm and 1 W m^{-2} above the pre-industrial level	Global	Rockström et al. (2009)
Ozone Depletion	<5% decrease in column ozone levels for any particular latitude with respect to 1964–1980 values	Global	Rockström et al. (2009)
Particulate Matter/ Respiratory Inorganics	- PM10: 20 µg/m^3 for the annual mean and 50 µg/m^3 for the 24-hour mean. - $PM_{2.5}$: 10 µg/m^3 for the annual mean and 25 µg/m^3 for the 24-hour mean (not to be exceeded for more than 3 days/year).	Local	WHO (2006)
Photochemical Ozone Formation	Ozone target (maximum daily 8-hour mean): 100 µg/m^3.	Local	WHO (2006)

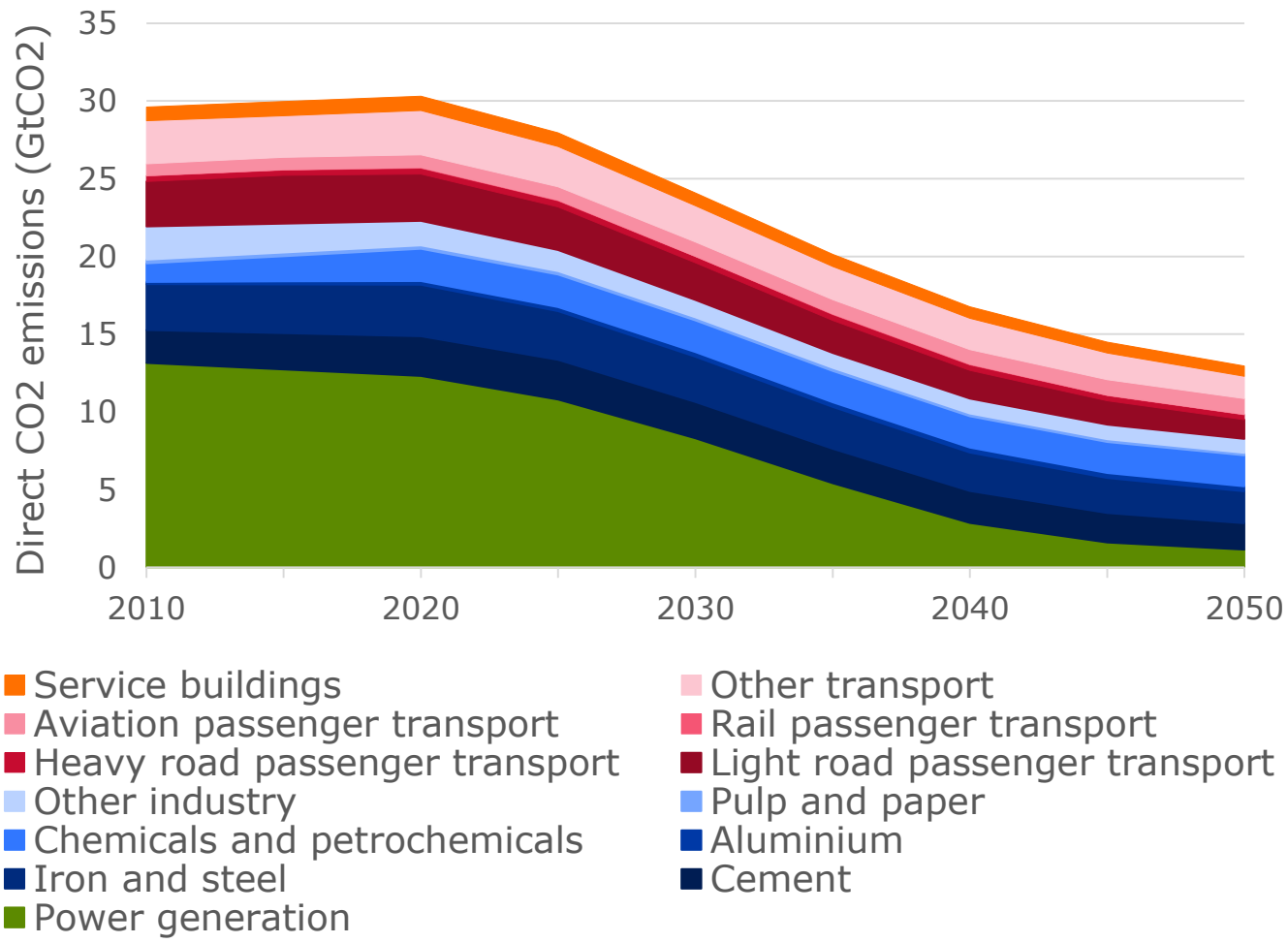
EXAMPLES OF BOUNDARIES PER IMPACT CATEGORY

Impact Categories	Boundary	Level	Source
Acidification	Spatially-specific critical loads for acidification (sulphur and nitrogen) differ per ecosystem in Europe.	Regional	CCE (2008)
Eutrophication (terrestrial and aquatic)	Spatially-specific critical loads for eutrophication (nitrogen) differ per ecosystem in Europe.	Regional	CCE (2008)
Fossil depletion	Transition resource: Up to 2050, fossil fuel use should be limited by the increased percentage of fossil resources made available by technological improvement per year.	Global	
Mineral depletion	Limiting mineral use by the increased percentage of mineral resources made available by technological improvement per year.	Global	

ENECO – CLIMATE CHANGE

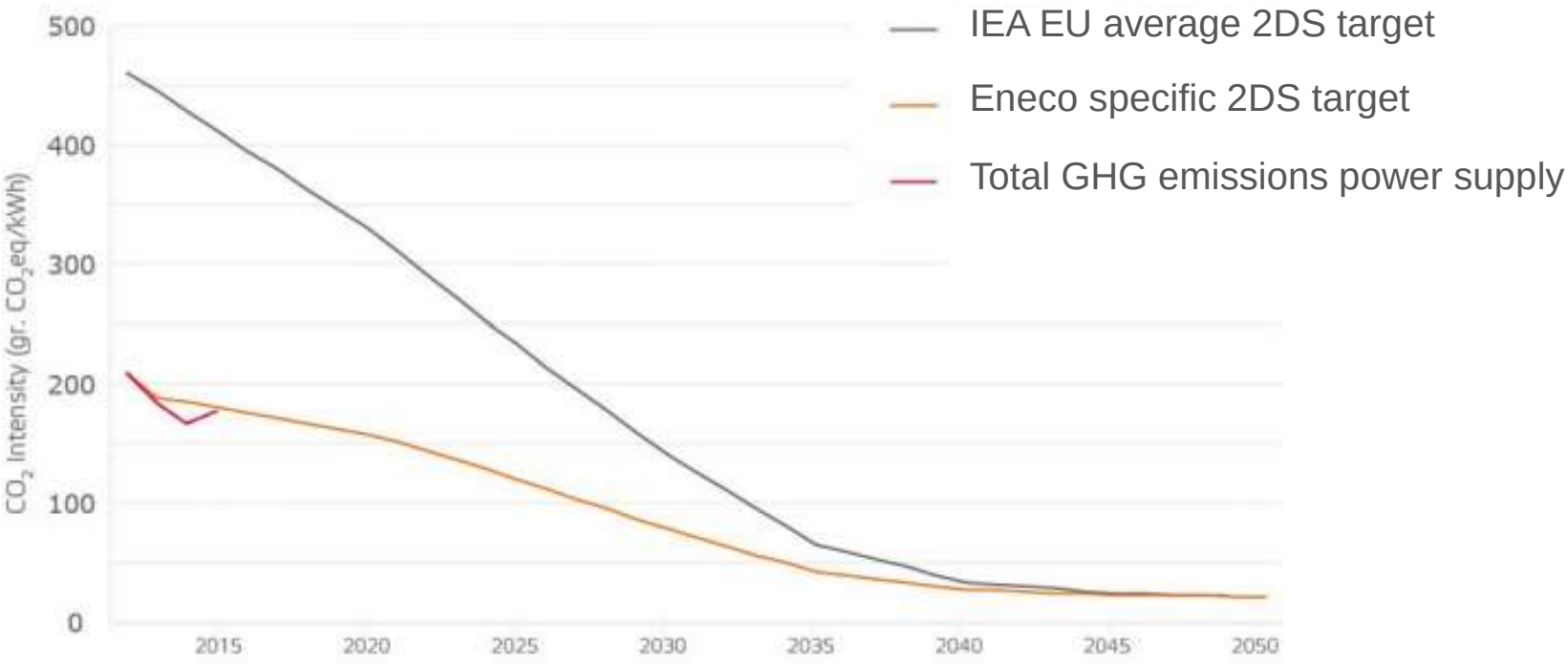
- **Define boundary and translate to sector/product level**
  - The boundary is based on the Sectoral Decarbonization Approach (SDA) method developed by Ecofys within the Science Based Targets initiative of CDP, UN Global Compact, WRI and WWF.
  - Carbon budget between 2011 – 2050 is allocated to sectors based on the IEA's detailed CO_2 sector scenarios, modelled in their 2014 Energy Technology Perspectives (ETP) report. The ETP report's carbon budget is consistent with the representative concentration pathway 2.6 (RCP2.6) scenario from the IPCC's Fifth Assessment Report.
  - The sector intensity pathways form the basis to define the targets for companies based on their current carbon intensity and convergence of their carbon intensity to the sector intensity in 2050.

SECTORIAL BREAKDOWN OF CO_2 BUDGET



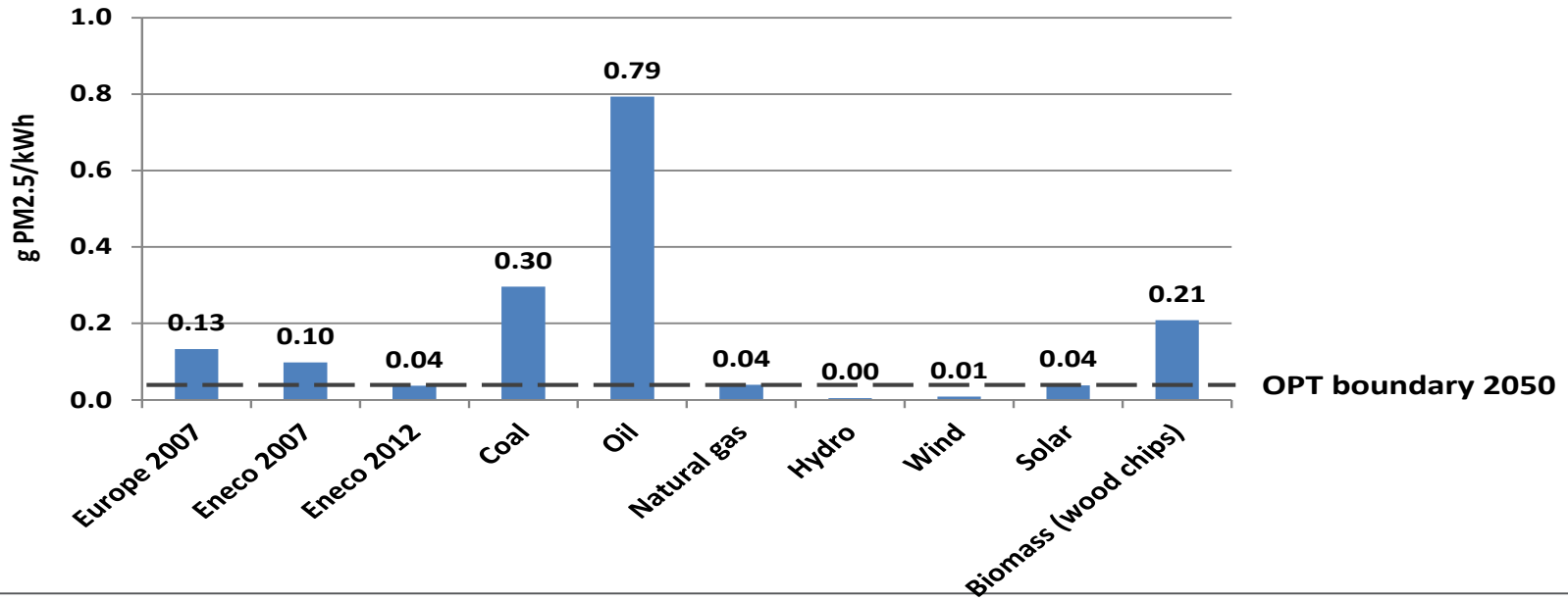
ENECO – CLIMATE CHANGE TARGET

CO_2 emissions caused by electricity
Compared to the 2°C Target Pathway



ENECO – PARTICULATE MATTER

- **Define boundary and translate to sector/product level**
  - PM_{10} and $PM_{2.5}$ concentrations of WHO
  - Eneco is located in the Netherlands, activities influence PM concentration of North-West Europe
  - PM concentrations in North-West Europe are higher than the WHO target, at some locations double the concentration. A reduction of 50% in PM emissions is needed to stay below the PM concentrations of the WHO.



CONCLUSIONS AND NEXT STEPS

- One Planet Thinking enables Eneco to set long-term, scientific targets. Climate targets are recognized by leading NGOs (WWF, CDP, WRI and UN Global Compact)

- One Planet Thinking was founded by WWF Netherlands, Eneco and Ecofys and is developed by the WWF network in close cooperation with NGO partners such as IUCN NL. http://www.oneplanetthinking.org/

- In order to provide companies with a full suite of environmental boundaries further research is needed.

CONTACT DETAILS

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