University of Stuttgart
Institute for Energy Efficiency
in Production EEP

Framing the ambition of carbon neutrality

Group of Experts on Energy Efficiency
-Seventh session
22 and 25 September 2020

Stefan M. Buettner

Fraunhofer IPA
University of Stuttgart
Institute for Energy Efficiency
in Production EEP

I. Defining carbon neutrality

An important, but unclear definition

- Carbon
  - CO_2 is not the only Greenhouse Gas (GHG)
    - Other gases, such as methane or nitrous oxide, also contribute to climate change
    - Do we count these other gases?
- Neutrality:
  - *Absolute* vs. *Net*
    - Absolute: no emissions remaining
    - Net: emissions are balanced out through compensatory measures

Ib. Defining carbon neutrality

Other "Neutralities"

- *Climate* neutrality:
  - Considers all GHGs
  - Only considers change to climate
- *Environmental* neutrality
  - Considers any substances harmful to the environment
    - Such as pesticides, soot, particulates etc.

- Important to conceptualize and address carbon, climate and environmental neutralities and succinctly distinguish which is being targeted

II. Necessity of establishing clarity on the target variable

- How will decision makers be able to make decisions if the issue to decide or act upon itself is not sufficiently clear?
  - Mutual understanding on targets and definitions is key.
- The "*do you know what I mean?*" problem:
  - Stakeholder both agree, but agree to different terms

- In practice, climate and environmental neutrality are often confused with one another, as are carbon and climate neutrality.
  - Further illustrates the importance of mutual understanding

III. The hidden long-term relevance of Industry

Why Industry and Manufacturing matter to the Climate

- Industry accounted for approximately 18% of global GHG emissions in 2018
  - In Germany, that number jumps to 23% (1/3rd process emissions)
- Long-Term:
  - What Industry decides today, impacts everything else tomorrow
    - Example:
      - What power plants are built, how buildings are constructed, which cars are manufactured.
      - These can have long lifespans, which contribute more emissions during said lifetimes than during the manufacturing process

IV. Carbon neutrality in industry

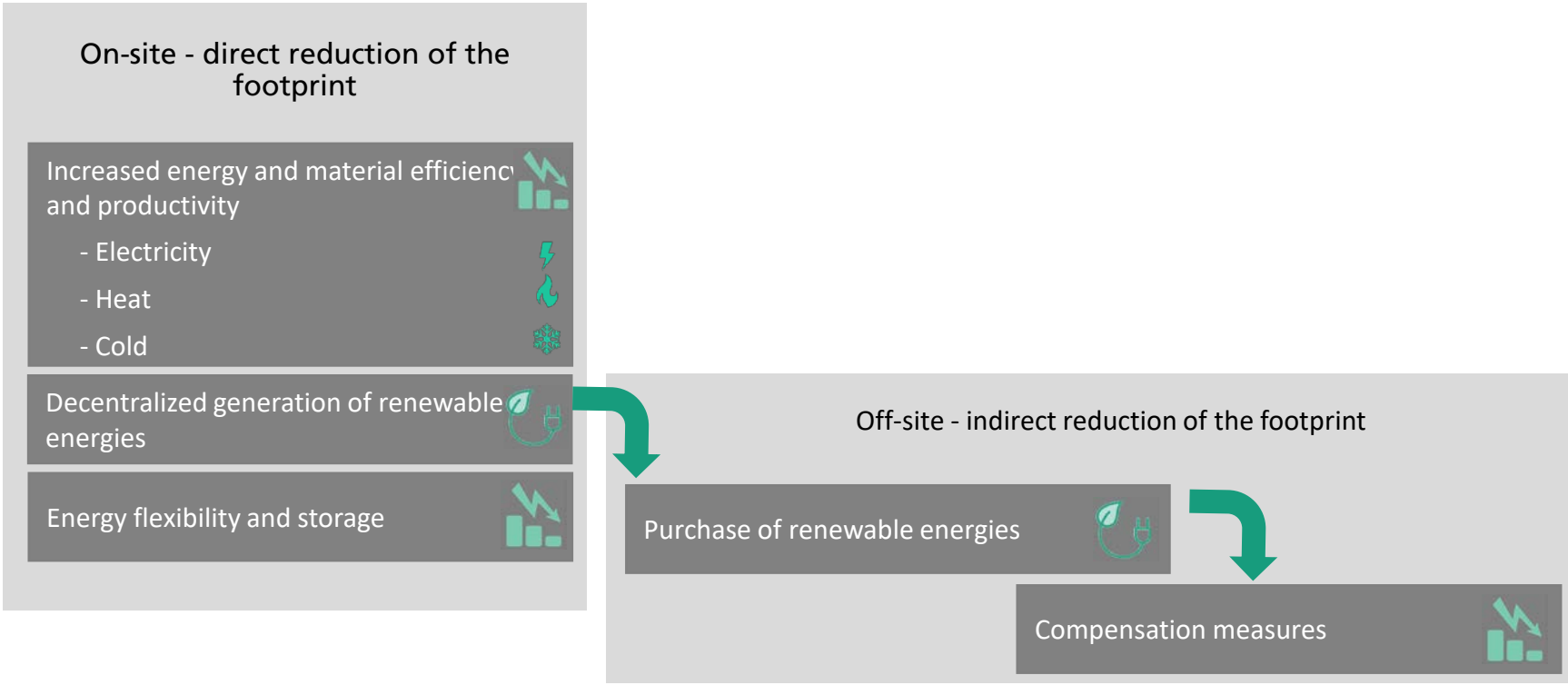
Why Industry and Manufacturing matter to the Climate

- Working towards carbon (or climate) neutrality effectively requires assessing the status quo.
- What has to be understood:
  - How effective are current policies considered to facilitate an increase in energy efficiency in industry?
  - What measures, if any, are being taken by companies to reduce their carbon footprint?
  - Are energy, resource and carbon footprint being considered during product development?
  - What GHG reduction do companies aim for within the next 5 years?
  - Impact of Covid-19

IV. Carbon neutrality in industry

- Goal: Industry and Policymakers can be on the same page regarding climate strategies
  - Example: If companies aim to decarbonise by largely switching to renewable electricity, this may lead to a demand overshoot: the increase in renewable electricity is not sufficiently high to satisfy the increase in demand for renewable electricity
- Recommendation:
  - (1) to reduce energy and resource consumption and then
  - (2) to substitute from renewable sources, before
  - (3) compensating what is left

IVb. Carbon neutrality in industry -neutral



V. Conclusion

What is needed

- A clear definition and mutual understanding of the target variable
- The industrial sector is varied in different dimensions. The sector has a pivotal role in enabling us to achieve the goal set
- Understanding the sectors' actions, plans and ambitions
  - This is where the *Energy Efficiency Barometer of Industry* comes in
    - Sheds light on the current realities in manufacturing across all company sizes, 27 manufacturing sectors and different energy intensities across the ECE region
- Experts' and Countries' support in reaching out to companies across the ECE constituency to gather status quo evidence

The **#EEBarometer** covers **88 countries** in **10 languages**

United Kingdom:
ecci – Edinburgh Centre for Carbon Innovation
Zero Waste Scotland
Catapult – High Value Manufacturing

Italy:
ITALCOGEN
Associazione dei costruttori e distributori di impianti di cogenerazione

Germany:
University of Stuttgart – Institute for Energy Efficiency in Production EEP
Fraunhofer IPA
dena – German Energy Agency
TÜVRheinland® – Precisely Right.
THE-CO FIRM
Expense Reduction Analysts
KEA-BW – Die Landesenergieagentur
REZ – Dezentrale Energiesysteme und Energieeffizienz
BDI
K-EFF – Regionale Kompetenzstellen Netzwerk Energieeffizienz

Canada:
Expense Reduction Analysts

Sweden:
LINKÖPING UNIVERSITY

Latvia:
LABEEF

United States:
ALLIANCE TO SAVE ENERGY – Using less. Doing more.
Expense Reduction Analysts

Poland:
Expense Reduction Analysts

Slovenia:
University of Ljubljana – Faculty of Economics

Mexico:
Expense Reduction Analysts

Launching the #EEBarometer
www.eep.uni-stuttgart.de/eeei

- Country specific barometer and economic indicator
- Country specific barometer
- Global barometer in widely used languages
- Global barometer in English, French, Spanish, Russian or German

Spain:
COMILLAS – Universidad Pontificia (ICAI · ICADE · CIHS)
CEOE – Empresas Españolas – Industria, Energía, Medio Ambiente y Clima
Expense Reduction Analysts

Austria:
OEENERGIESPARVERBAND

Global:
Energy Efficiency in Industrial Processes
Mac Nulty Consulting
UNECE
University of Stuttgart – Institute for Energy Efficiency in Production EEP
Expense Reduction Analysts
Fraunhofer IPA

English · Spanish · French · Russian · German

University of Stuttgart
Institute for Energy Efficiency
in Production EEP

Thank You!

Dipl.-Volkswirt

Stefan M. Buettner

Director, Global Strategy & Impact
Chair, UNECE Task Force on Industrial Energy Efficiency

E-Mail Stefan.buettner@eep.uni-stuttgart.de

Telephone +49 (0) 711 970 - 1156

www.eep.uni-stuttgart.de/en/
www.ipa.fraunhofer.de/en/expertise/efficiency-systems.html
@StefanMBuettner
/in/stefan-m-buettner

Fraunhofer IPA
University of Stuttgart
Institute for Energy Efficiency
in Production EEP