The 2015 Paris Climate Protection Agreement that has been signed by 114 countries stipulates to limit global warming at no more than 1.5°C by 2100. This entails a rapid switch to renewable energies and a significant increase in energy efficiency. Based on current facts on climate change, international experts will present the future-oriented technology portfolio and climate-friendly lifestyles to reach the goals of the 2015 Paris Climate Protection Agreement. We will discuss the different views regarding opportunities and potentials for conflict resulting from the necessary technological, social and economic transformations.

Chair: Mag. Dr. Franz Pretthenthaler, M.Litt, Direktor
JOANNEUM RESEARCH Forschungsgesellschaft mbH
LIFE – Centre for Climate, Energy and Society

Coordination: DI Dr. Gerfried Jungmeier, Stv.-Direktor
JOANNEUM RESEARCH Forschungsgesellschaft mbH
LIFE – Centre for Climate, Energy and Society
Research Group „Future Energy Systems and Lifestyles“

13:00 Welcome and introduction, Franz Pretthenthaler, JOANNEUM RESEARCH LIFE – Centre for Climate, Energy and Society, Austria

13:10 The Paris Lifestyle – Measuring and understanding the climate impact of lifestyles, Gerfried Jungmeier, JOANNEUM RESEARCH LIFE – Centre for Climate, Energy and Society, Austria

13:35 How does the 1.5°C hotter World look like? - Daniela Jacob, Climate Service Center Germany - GERICS, Helmholtz-Zentrum Geesthacht, Germany

14:00 Energy Demand, Climate-smart Solutions and Happiness, Ralph Sims, Massey University, New Zealand

14:25 Environmental Footprint of Products and Services – Future Challenges, Hugo-Maria Schally, Head of Unit, DG Environment, (Sustainable Production, Products and Consumption), European Commission, Brussels

14:50 Discussion

BREAK

15:45 Energy Lifestyles in Europe – An Empirical Approach, Daniela Velte TECNALIA, Spain

16:10 Consumption based GHG Emissions – The Swiss Case, Carsten Nathani, Rütter Sococo AG, Switzerland


17:00 Discussion

17:50 Closing remarks, Franz Pretthenthaler, JOANNEUM RESEARCH LIFE – Centre for Climate, Energy and Society, Austria

18:00: End and Paris Tasting
The "Paris Lifestyle" – Measuring and understanding the climate impact of lifestyles

Virtually all human activity in modern societies goes hand-in-hand with the emission of greenhouse gases. The target of limiting global warming to less than 2°C, better 1.5°C, as set out in the Paris Agreement, will not be achieved by technological progress alone, but significantly relies on the way we satisfy our needs. A change to low carbon products and services is in fact needed for the whole spectrum of human needs and action, which means that all societal groups are part of that transition. Unfortunately relevant stakeholders and society are still facing a massive lack of knowledge about the realities of life of the respective groups and associated potentials for an effective and feasible reduction of greenhouse gas emissions. In order to obtain such insights, a new and methodologically innovative approach is needed.

The “Paris Lifestyle” is an innovative and satisfying “Low Carbon Lifestyle” characterized by having very low greenhouse gas emissions contributing to the Paris Agreement. The Paris Lifestyle creates new economic opportunities and challenges by stimulating an increasing demand for low carbon products and services. In our research we outline a new interdisciplinary approach for analysing the specific climate-effect of different societal groups and a dynamic benchmark for a lifestyle compatible to the Paris Agreement in terms of energy demand and greenhouse gas emissions. Our methodological approach integrates state of the art consumption based greenhouse gas accounting, lifecycle assessment and innovative action based lifestyle research. These methods allow the analysis of ongoing or new societal (mega) trends. This combination leads to a cross-disciplinary tool that provides a high density of information on the four crucial questions of consumption and low carbon lifestyles: “Who?”, “How much?”, “Of what?” and “Why?”
2°C more - compared to pre-industrial levels - may not sound like much, but the implications would be major. Limiting global warming to less than +2°C relative to preindustrial levels is one of the major challenges. If global warming reaches +2°C, there are likely to be important impacts for the areas that warm faster than the global average or for highly vulnerable regions such as small island states and major deltas.

Within the project IMPACT2C the impacts of +2°C global warming on Europe and key vulnerable regions in Africa (Nile and Niger river basins), Bangladesh and the Maldives were examined. The four-year research project was funded by the European Commission and integrated the expertise of climate scientists, sectorial impact researchers with both physical and economical backgrounds, and local specialists from the regions. Therefore, researchers from 29 different institutions and 17 countries worked together within this multi-disciplinary project.

Based on the project’s findings, a global warming by 2°C substantially affects a wide range of sectors and regions throughout Europe. To assess the impacts of climate change on specific sectors, cross-sectorial relationships have to be included into the analysis. In most regions of Europe, the projected regional warming is more pronounced than the global mean warming. Projections for annual mean precipitation show wetter conditions in northern Europe and drier conditions in southern Europe. Thus, some regions or sectors will benefit from a future warming, but some will experience disadvantages. Furthermore, under a 2°C global warming, a European-wide increase in the frequency of extreme events is expected. Heat waves are projected to double while extreme precipitation events tend to become more intense.

Even a limitation to 2°C global warming will not stop sea-level rise due to the delayed reaction of the oceans. Therefore costs due to coastal flooding will incur even with adaptation measures.

Bangladesh and the low-lying islands like Maldives are expected to feel the consequences of climate change, due to the continuous rise of sea-levels enhancing the risk for storm surges and flooding.

For West and East Africa, the warming is above the global temperature increase. West Africa could experience a modest increase in rainfall, whereas for East Africa no clear trend is projected.

More challenges, risk and opportunities will be discussed for different regions of the world.
Energy Demand, Climate-smart Solutions and Happiness

Ralph Sims, Professor of Sustainable Energy, Director of Centre for Energy Research, Massey University, New Zealand

Abstract

The Anthropocene age has arrived following the “great acceleration”, since the 1950s, of human demand for food, land, materials, plastics, fertilisers, freshwater, fish, automobiles, fossil fuels, etc. This, in turn, has led to deforestation, land degradation, loss of biodiversity, water contamination, etc. The impacts of fossil fuel combustion on the climate are well understood. What is less well understood are the environmental impacts arising from the agri-food supply chain. This sector accounts for around 32% of end-use energy demand and produces around a quarter of total greenhouse gas emissions.

The UN Food and Agricultural Organisation projects a 70% increased demand for food by 2050 due to both the increasing population and the rising middle class demand for protein. This presentation outlines the opportunities for climate-smart and energy-smart solutions to meeting the growing demand for quality food and clean water. The findings of several recent FAO reports (completed by the author) will be drawn on to show how the growing global food demand can be met, but with lower inputs of fossil fuels, freshwater and fertile land, and reduced environmental impacts.

Providing adequate energy, mobility, food, and freshwater supplies for all under the Sustainable Development Goals, will reduce the risk of future conflicts. Whether the materialistic, throw-away, urban-based society we currently have (including wasting one third of the food we produce) provides greater happiness for global citizens compared with what a future circular economy might bring, together with all the co-benefits arising from climate change mitigation actions, is yet to be determined.
Environmental Footprint of Products and Services – Future Challenges

Hugo-Maria Schally, Head of Unit B.1 "Sustainable Production, Products and Consumption, Directorate for "Circular Economy and Green Growth" Directorate General for the Environment, European Commission, Brussels

Abstract

The work on Environmental Footprint started in 2010 following many requests coming from business and industry as well as Member States requesting the Commission to develop a harmonised life cycle based method for the calculation of the environmental performance of products and organisations.

In 2013 the Commission adopted a Communication on "Building the Single Market for Green Products", which stated as an ambition to address the proliferation of labels and schemes, to provide a better tool to deal with the high number of misleading green claims and to provide a level playing field for companies truly interested in competing on the green features of their products/organisations.

The Communication established two methods to measure environmental performance throughout the lifecycle, the Product Environmental Footprint (PEF) and the Organisation Environmental Footprint (OEF). These methods were adopted by the College through a Commission Recommendation (179/2013). It also initiated a three-year testing period to develop product- and sector-specific rules through a multi-stakeholder process; established principles for communicating environmental performance, such as transparency, reliability, completeness, comparability and clarity and supported international efforts towards more coordination in methodological development and data availability.

At the end of 2015 the Commission launched a package of measures on the circular economy, including an action plan comprising 54 initiatives covering the entire life cycle of products and services. The circular economy provides a range of opportunities for European companies and for society as a whole. It presents an opportunity for businesses to position themselves as precursors on the market and therefore to anticipate the necessary changes but it should at the same time enable the company to advance with the necessary changes in consumption patterns. The action plan confirmed the importance of environmental information in the context of changing consumption pattern and thus promoting the transition to a circular economy, which will also benefit the climate agenda.
The Commission received more than 120 requests to participate in the pilot phase from various sectors and selected 27 of those. There were 11 pilots from the food&drinks sector (including feed), while there were 16 pilots from other sectors. There are 260 leading active participants (companies, associations, governments and NGOs) who are doing the real work and who have invested relevant resources in this pilot phase. According to some rough estimation for each € invested by the Commission industry has invested about 4-5 €. In addition there are more than 1600 individual stakeholders that are following the development of the work through our wiki page system. About 14% of these stakeholders are non-European. On average we have 5 new stakeholders registering per day.

The Environmental Footprint pilot phase serves to:

- Test the implementation of the PEF/OEF methods adopted in 2013 in Product Category Rules and Organisation Sectoral Rules (respectively called PEFCRs and OEFSRs).
- Implement the "materiality" principle, meaning that the environmental assessment shall focus on those life cycle stages, processes and emissions that are responsible for the majority of the environmental impacts, and the most relevant impacts.
- Develop a "benchmark" for each product category, where the benchmark is the quantified environmental performance of the average product sold in EU.
- Improve the availability of high quality secondary life cycle inventory dataset (one of the main limitations to the current use of LCA methodology in policy making).
- Test alternative verification approaches, knowing that the reliability and traceability of the information provided is a key element.
- Test communication vehicles (websites, leaflets, Environmental Product Declarations, labels, bar codes, QR codes, etc).

The technical work on the PEFCRs and OEFCRs will be completed by November 2017 and the documents will be adopted in December 2017. At the same the Commission is reflecting on future actions for the possible use of EF methods in current or new policies.
Energy Lifestyles in Europe – An Empirical Approach

Daniela Velte: Senior researcher at TECNALIA (Parque Tecnológico Miramón, San Sebastián, Spain)

Abstract

Our individual choices related to energy are highly influenced by our personal values and a long list of seemingly unrelated factors, which may or not be beyond our control and which set the boundaries for individual and collective decision-making. Factors influencing and sometimes determining our “energy lifestyle” are motivations such as the search for comfort, health and safety, but also available transport and building infrastructure, access to services, or market settings, which enhance or limit our scope of action. Research aiming at broadening the citizen’s influence on how energy is produced and consumed has to deliver a full understanding of all these elements and their complex, reciprocal relationship to support the transition to a much more decentralized and sustainable energy model.

In her contribution, Mrs Velte will systematically review the knowledge presently available on different types of energy lifestyles in Europe, as well as the gaps, which remain to be filled. She will revisit some features of the centralized energy system, which have strongly influenced the citizens’ energy choices over many decades and explore technology and social trends, which are nowadays supporting the energy transition.
(Speaker 6: name, title/function, organization)

**Consumption based GHG Emissions – The Swiss Case**

*Carsten Nathani*: Member of Management, Rütter Sococo AG, Switzerland

**Abstract**

This presentation reports on results of several research projects analyzing the GHG emissions and other environmental impacts caused by Swiss consumption. As a small, open and service-based economy, Switzerland’s consumption based GHG emissions are much higher than its domestic GHG emissions. While its domestic emissions amounted to 7 t CO$_2$-eq per capita in 2011, its consumption-based emissions were almost double at 13.7 t CO$_2$-eq per capita. And while domestic emissions have decreased by 26% since 1996, consumption-based emissions have decreased only by 5%. Thus Switzerland has continuously outsourced its GHG emissions abroad.

Consumption based emissions are mainly caused by consumption of private households, with collective government consumption and net capital formation playing a minor role. Within consumption of private households, housing, mobility and nutrition are the most important consumption categories with a share of together 63%, but other categories are relevant as well. The GHG emission intensity of consumption categories differ significantly with again housing, mobility and nutrition being the most emission intensive. Yet the analysis of the temporal development of consumption patterns shows that below-average emission intensive consumption categories tend to grow stronger than above-average emission intensive categories, thus constraining the growth of consumption-based emissions.

The presentation moves on to analyze food consumption in more detail and the contribution of different socio-economic groups to consumption-based emissions.

The results are based on two different methodological approaches, one combining environmental statistics with trade data and data from life cycle inventory databases and one using a modified form of environmentally extended input-output analysis.
Carbon Neutral Transport of Goods: THE INITIATIVE CO2 NEUTRAL DELIVERY – A SUCCESS STORY

DI Harald Hagenauer, Leitung Investor Relations, Konzernrevision & Controlling, Österreichische Post AG, Austria

Abstract

The challenges of slowing down climate change and minimizing the ecological footprint are becoming increasingly explosive issues in Austria. “Of all sectors, the greenhouse gas emissions increased the most in the last decades in the transport sector by 55%” according to the Austrian Panel on Climate Change¹. This naturally applies to Austrian Post in its capacity as the country’s largest logistics service company. Furthermore, surveys by the company show that the stakeholders of Austrian Post attach great importance to the issue of avoiding greenhouse-gas emissions and making transport more ecologically sustainable.

Accordingly, the ecological objectives of the company are:

1. Protecting the climate and conserving resources
2. Raising awareness amongst the relevant stakeholders about the need for environmental and climate protection

Austrian Post takes it responsibility seriously and successfully demonstrates that a company can tackle environmental and climate challenges positively. Austrian Post makes a major contribution to climate protection thanks to its CO2 NEUTRAL DELIVERY initiative and serves as a trailblazer in the field of “green logistics”. In addition, Austrian Post leverages its position in society as one of the most important companies in the country to build awareness among its stakeholders for the importance of environmental and climate protection.

Austrian Post is involved in a very energy-intensive business, which in turn leads to considerable CO2-emissions. Within the context of its initiative CO2 NEUTRAL DELIVERY, all letters, parcels and direct-mail items delivered in Austria by Austrian Post are delivered in a CO2 neutral manner. Whereas most companies offer individual climate-neutral products and pass on the higher costs to their customers, Austrian Post delivers all mail items in Austria in a CO2 neutral manner without exception. The initiative is being implemented in a three-phase programme:

1. Avoid emissions and increase efficiency in buildings and the vehicle fleet.
2. Use alternative technologies such as electric vehicles and renewable energy.
3. Compensation of all emissions which cannot be avoided at the present.

In order to ensure that the targeted positive effects are achieved, the entire initiative CO2 NEUTRAL DELIVERY is being monitored by independent experts at TÜV AUSTRIA. On the basis of this initiative Austrian Post demonstrates, that it is possible to integrate environment- and climate-protection measures into the core business and make a business case out of it.