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(mostly) environmental economics

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Private: #MeetTopEnvEcon – Claudia Kemfert

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Claudia Kemfert

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and
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In this new episode of **Meet Top Environmental Economists** (#MeetTopEnvEcon) I am very happy to present to you Professor Dr Claudia Kemfert. Claudia Kemfert is the head of the department of energy, transportation and environment at the German Institute for Economic Research in Berlin (DIW Berlin), and she is a Professor of Energy Economics and Energy Policy at Leuphana University. In her research, Claudia focuses on climate and energy economics, with most of her research being very policy oriented. It is this policy-oriented approach that allowed her to become a member of the German Council on the Environment, a member of the scientific advisory board of the EU Commissioner for Environment where she advised, among others, EU President José Manuel Barroso, and she advises the state prime ministers of Lower Saxony and Hesse on their energy strategies. She has written over 250 scientific articles, many non-scientific ones, and several books, which are also directed towards the general public. Her most recent book is called "Mondays for Future", where she provides answers to 120 questions related to climate issues, such as climate scepticism, eco-dictatorship, emission trading and many more. This is a really interesting book, written for everyone interested in climate issues, and well-worth reading. Claudia has already had an exceptionable career in environmental economics, both contributing widely to the academic field, while at the same also being someone who is very engaged in the policy world. For her contributions and efforts to help shape environmental policy through scientific knowledge, I am very pleased to present her here in the Meet Top Environmental Economists series.

Express Views interview with Claudia Kemfert

Here is the **podcast version of the Express Views interview**:

0:00 / 23:17

Podcasts: Express Views with Claudia Kemfert

And now I am very happy to present you the **Meet Top Environmental Economists interview**:

(Date of interview: May 2022)

Could you please be so kind and give me a brief background of yourself.

I was inspired by Reinhard Selten's lectures on game theory at the University of Bielefeld. I always found the game-theoretical and behavioral-economic approaches exciting. In particular, energy markets fascinated me at a pretty early stage. The role of market power versus free competition in the fossil energy market were very interesting to me at the beginning of my studies. In the last years of my studies, environmental economics came in, especially climate science. The first report of the IPCC at the beginning of the 90s influenced me. Since then, I have been studying the economic impacts of energy and climate policy. In my doctoral thesis, I compared the effects of emissions trading with those of the eco-tax. Very early in my research career, I focused on renewable energy. In fact, I was lucky enough to study at a university where, at that time, more than 25 years ago, the first program on renewable energy was offered. I was inspired by numerous works, e.g. by Nobel Prize winner Elinor Ostrom on environmental economics, but also by climate science, especially Klaus Hasselmann, with whom I had the privilege of working very early on. Klaus Hasselmann is a very bright mind, and then an incredibly fine human being. I learned a lot from him.

You have written over 250 scientific articles, many, many non-scientific ones, several books (also for the general public). You consult the industry and governments. How do you manage this incredible workload of research, consulting, and policy work?

All my life, I have been very fortunate to work on research that interests me enormously. After all, I have been working on nothing else for 25 years. Therefore, I can benefit from a very long history of experience. A lot of knowledge has been accumulated. In addition, I work with a very great and large team. And I am also involved in a very large number of research collaborations and research projects, which results in a great many joint publications. At DIW, I have a great team of researchers, and also at the university and within the framework of the German Advisory Council on the Environment. Joint reports and publications are produced there. It's all teamwork.

Among the many publications, which of your academic (or policy) contributions are you most proud of (and why)?

One of the very early ones and one of the most recent.

I am particularly proud of one of the first publications that came out of the research network as a young scientist. Most recent Nobel price taker Klaus Hasselmann initiated a joint research network at that time, and I was incredibly happy to be part of it. I am proud of this publication not only because it is an important scientific publication, but also because it was produced in a very great research network. Many very important colleagues of many years are involved. And because as a very young researcher I got the

opportunity to be part of such an important research network. This has influenced my work. But there are so many publications that I am also proud of, not only because they cover such different facets of energy markets, the impact of conservation and environmental protection, but also because they have resulted in long-standing research collaborations and friendships. I am still friends with Klaus Hasselmann today, and it makes me glad.

And in the last few years we've done research on evaluating a full renewable energy supply, and great collaborations with colleagues in Finland and Stanford. It's very good that these findings have also been incorporated into the recent IPCC report.

Hasselmann, K., Kemfert, C., Latif, M., Azar, C., Berz, G., Edenhofer, O., Hare, B., Jaeger, C., Johannson, O., Singer, S., Wokaun, A. (2003): The case for long term mitigation of anthropogenic climate change. In: Science magazine 302 (2003), 5652, S. 12

Child, M., Kemfert, C., Bogdanov, D., Breyer C. (2019) Flexible Electricity Generation, Grid Exchange and Storage for the Transition to a 100% Renewable Energy System in Europe. In: Renewable Energy 139 (2019), S. 80-101

Pao-Yu Oei, Thorsten Burandt, Karlo Hainsch, Konstantin Löffler, Claudia Kemfert (2020). Lessons from Modeling 100% Renewable Scenarios Using GENeSYS-MOD. In: Economics of Energy and Environmental Policy 9 (2020), 1, S. 103-120

If you were to give a list of articles that a young researcher in your line of research should read, what would it be and why?

You should start with Dennis Meadows and the Limits to Growth from 1972. You should read it to understand how science and mathematical modeling has evolved, but also because this report was the starting point for global environmental policy to prevent environmental damage. At that time, the debates started about how much more we should pollute the planet.

I would also recommend reading the work of Nobel Prize-winning economist William Nordhaus, especially the early work on assessing the economic costs of climate change. From this, insights can also be derived for the later works of Nicolas Stern, on the economic costs of climate change. This is particularly exciting that political conclusions were drawn from these research papers, and on research papers disappeared from publication. It was not until Kate Raworth's book, Doughnut economics, that public debate on this topic returned. She has a refreshingly innovative but also extraordinary look at economics, and the resulting problems on the environment and climate. Economics is the cause of the problem, but it can also be the solution. That's why I find Mariana Mazzucato's work very important in this context. But she also shows how economy can be rethought.

Carlos Alvarez Pereira (Eds), Ugo Bardi (2022): Limits and Beyond: 50 years on from The Limits to Growth, what did we learn and what's next?

Nordhaus, W.D. (1993) Optimal Greenhouse-Gas Reductions and Tax Policy in the Dice Model. The American Economic Review, 83, 313-317.

N. Stern (2006), Stern Review: The Economics of Climate Change (Cambridge Univ. Press, 2006)

Rate Raworth (2018) Doughnut Economics: Seven Ways to Think Like a 21st-Century

Economist https://www.kateraworth.com/doughnut/#

Mariana Mazzucato (2021) Mission Economy A Moonshot Guide to Changing Capitalism

Policy makers don't necessarily have the same technical backgrounds that researchers have. Which book or reference would you suggest a policy maker should read, if they wanted to know about research in your field?

In all my books for the general public, I summarize the latest research findings, such as the latest book "Mondays for future" from 2020.

Since we work at the interface with policy advice in our institute, we regularly produce reports for the general public, which politicians in particular also read. I myself have been involved in science communication for decades, so the translation work is done by us. Very few politicians have time to read scientific studies, which is why we provide this kind of "translation service".

What advice would you give to young students who want to work in your field (energy and climate economics)? What advice would you give young students who want to take a similar path as you did (combine research with policy advice)?

My advice is always to take time to study, to read many studies from the last decades, and to go deep into the subject matter. Especially in the field of climate research and environmental economics, it is important to read interdisciplinary research, especially from the natural and social sciences. If you are interested in the interface with policy advice, it makes sense to work at a research institute similar to ours, where this interface is very close. We ourselves also train doctoral students, so that from a very early stage such a career path is very much possible.

You are working closely together with the industry and the government. In a nutshell, what are the two most important lessons that you took away from this?

We do not work with industry, nor do we have any research collaboration with industry. We work at the interface with policy consulting, and regularly produce studies for the general public.

In direct policy advice, one can learn how the real world outside works, how real economy works, and according to which criteria politicians make decisions. These often have nothing to do with the scientific ideal model. That is why it is important to translate and to put oneself in the shoes of the decision-makers. The fact that politics often decides completely differently from what wissenschaft.de proposes is particularly striking in climate science. Whenever fundamental changes are needed and massive interventions are necessary, there is a lot of public polemical debate, which does not exactly simplify the discussion. Therefore, it is important to always make transparent how one arrives at the scientific findings, to understand and accept that politics also has other decision-making patterns, and to communicate this transparently.

You have been a strong advocate of the `energiewende' (energy transition). Many countries pursue this energy transition in different ways, Germany and France being two stark, contrasting examples. Is there too much ideology involved in the energy transition? How have the key challenges of the energy transition changed during the past 30 years?

The progress of the energy transition depends very much on political ideologies.

Germany rightly started to promote renewable energies more than 20 years ago. As a result, costs have dropped massively; they are now much cheaper than all conventional energies, especially nuclear energy. According to our studies, nuclear energy is insanely expensive, especially because the construction of the power plants consumes a lot of money, but also the storage of nuclear waste, the dismantling and the negative external effects. Only if nuclear energy is subsidized by the state, and it will be in France, can it continue to exist. The construction of new power plants requires extensive subsidies, as can be seen from the planned new construction projects in England. Purely for economic reasons, nuclear energy makes no sense at all. France has a different political system than Germany, and in our view obscures the true costs of nuclear energy. Especially in times of war, a highly risky technology like nuclear power should play a less and less significant role. But Germany has also made many mistakes, has been too slow in developing renewable energy, has not fossilized enough energy, and the share of coal-fired power plants is still far too high. It is therefore particularly important that we finally change taxes and implement the energy turnaround faster than before. Away from nuclear and coal, away from all fossil fuels to a full supply of renewable energies.

How strong is the fossil lobby (EU, USA, rest of world)? What can we do to reduce its impact upon policy?

The fossil energy lobby is enormously strong everywhere. It has prevented us from implementing sufficient environmental and climate policies over the last 40 years. The findings of climate science are overwhelming. We need to get away from fossil fuels as quickly as possible in order to reduce greenhouse gases very rapidly. We are miles away from that at the moment, partly because fossil fuel lobbyists have repeatedly cast doubt over the past decades that climate protection would be too expensive, that it supposedly wouldn't work without fossil fuels, and doubted the scientific facts. This is where science is called upon: we need to bring our findings into the public discourse much more than we have in the past. The scientific findings on climate change need to become much better known, both among the general public and in politics. That is precisely the task of science.

Let's go to a different topic. Do you know the concept of holidays? Or do you takeyour papers to the beach?

Of course I know the concept of vacation! I go on vacation regularly, and I don't take professional articles with me there. This is quite important for me. Only in absolute exceptions emergencies would take scientific work. That is actually taboo for me. But I can also relax on the weekends, but also in the weeks where we take a vacation during the year. That's when I recharge my batteries for the many exciting tasks in the field of science and science communication.

Please feel free to suggest someone else who you would like to see in this series of interviews, who would be the person on your list?

There are so many great environmental economists to interview, it's hard to pick out specific ones. It would be nice if more female researchers were visible, so I recommend Esther Duflo, Veronika Grimm, or Karen Pittel.

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