News

Stefan Lamp,
our new EnergyEcoLab member!

This academic year we are welcoming a new member to our team at EnergyEcoLab. Stefan Lamp is joining us as a postdoctoral researcher to start new projects on energy and environmental economics and to consolidate his research agenda focusing on the ongoing transition from fossil fuels to renewable energy sources (RES). Stefan's work can be broadly divided in two main areas: first, the analysis of climate change policies targeted at the deployment of RES and second, studying demand for residential solar photovoltaic (PV) installations.

Stefan started working on these important issues during his Ph.D. in Economics at the European University Institute in Florence, Italy. He deepened his understanding of these topics as a researcher both at Yale University and then at the Toulouse School of Economics.

At Yale's School of the Environment, Stefan collaborated with Ken Gillingham and Bryan Bollinger on the implementation and evaluation of a large-scale field experiment aimed at understanding the effectiveness of a program intended to incentivize the adoption of residential solar PV panels (Solarize Connecticut). The research related to this program focuses on different aspects of these adoption campaigns, highlighting for example how pro-social behavior spreads through communities (published in Nature in 2018). Additionally, this data is used to study the importance of word-of-mouth and the

length of campaign duration on adoption decisions, and to analyze the importance of supply-side factors, in particular, the role of competition on equilibrium market outcomes in solar PV markets.

At the Toulouse School of Economics, Stefan broadened this research agenda, studying the effects of climate change policies on RES adoption. His work focuses mainly on Germany, an interesting case study for these topics, as RES adoption there has been mainly driven by the existence of generous policy support schemes, in particular feed-in tariffs (FiTs). FiTs guarantee a preferential rate paid to RES producers of electricity, they are regulated by the government, and specify long-term contracts of about 20 years. While FiTs have been effective in increasing the share of RES in the electricity production mix, they are also expensive. In 2018, total subsidy payments in Germany alone accounted for roughly 32 billion euros and financing the subsidy has led to an intense political debate about how to distribute the total cost between different consumer groups.

In a recent paper, Stefan and his co-author Andreas Gerster study this tension for the industrial sector in Germany. In particular, they focus on the importance of exemption schemes for energy-intensive and trade-exposed industrial firms that have been granted with the objective to avoid

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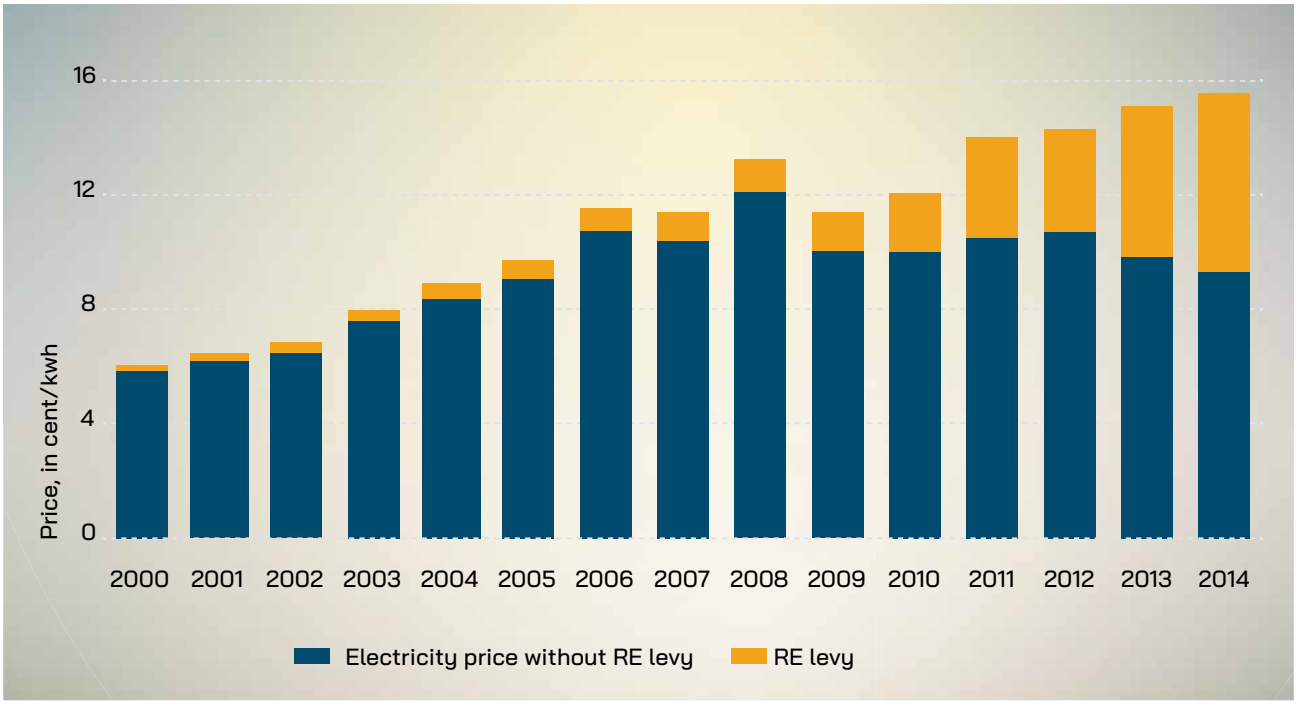
leakage of emissions and production. **Their research investigates the impact of a large electricity tax (renewable energy levy) exemption on production levels, employment, and input choices in the manufacturing industry to understand whether exemption schemes have improved competitiveness and to test for the impact of exemptions on input use.** This levy has increased significantly since its introduction in 2000, representing one third of average

Figure 1: Evolution of Renewable Energy Levy in Manufacturing.



electricity prices for the industry in 2014 (see Figure 1). Using two sources of exogenous variation, the authors show that plants that are exempted from this levy, significantly increase their electricity use. On the other hand, they detect no significant impact of the exemptions on production levels, export shares, and employment, which casts doubt on the necessity of energy tax exemptions to retain domestic production, at least in the short term.

In a related project, Stefan and his co-author Mario Samano focus on the efficiency loss stemming from uniform policies (in terms of location), as it is the case with most FiT schemes. After estimating the dispersion of the marginal benefits from solar production in Germany, they compute the social and private gains from optimal reallocation of residential solar photovoltaic plants relative to the current configuration. They find that the total value of solar PV would increase by 6.4%, assuming a 20% maximum solar installation rate per region, using a conservative value for the social cost of carbon. In addition, gains would further increase if regions were allowed to export excess production. This is currently restricted by the transmission capacity across those regions. The results of this study put in perspective the social costs of nation-wide policies that do not offer heterogeneous incentives.

Both these papers directly contribute to the academic and policy debate about effective policy design for renewable energy subsidies. This is a research area that Stefan plans to expand in future work, focusing on the introduction of market-based regulation, such as renewable auctions. Stefan looks forward to new opportunities to collaborate with the EnergyEcoLab research team on related questions.

Link to Working Papers:

Gerster, A. and Lamp, S., Energy Tax Exemptions and Industrial Production (June 17, 2020).

Lamp, S. and Samano, M., (Mis)allocation of Renewable Energy Sources (September 29, 2020).