FIVE QUESTIONS

ON THE ENERGY CRISIS

TO ROBERT SCHLÖGL

Gas shortages and the climate crisis are reasons enough to move away from fossil fuels as quickly as possible. Robert Schlögl assesses energy policy and explains what science can contribute.

Prof. Schlögl, what's your view of the current energy policy?

ROBERT SCHLÖGL: The government has done quite a lot, and in the short term I don't think they could do much more. In principle, however, there is a problem with the overall system in Germany. There is no sense in using the Climate Protection Act to divide the energy transition into sectors that are tailored to ministries. Now five ministries are each taking independent action. Instead, the overall system needs to be optimized, rather than one sector at the cost of all the others. Everyone now wants access to green electricity that just isn't available: some want to drive electric vehicles, others want electric heating, and still more want to electrify their industry. A big problem is that we will need much more electricity for this than we currently require; we need to store about 50 percent of the energy in order to compensate for fluctuations in the wind and sun This costs four times the energy, however, than just using it directly. I am concerned that we don't have an overall plan.

Do systemic concepts already exist in science?

Two years ago, the German Federal Ministry of Education and Research launched the TransHyDE project, which I coordinate. The focus of this project is investigating the transportation of hydrogen for Germany. In a sub-project, around 40 companies and 250 people are developing concepts for the overall system.

Why are you promoting a global renewable energy market?

The energy transition that is politically advocated now is not based on a global energy market, but on independence. That is a grave error. How can we, as the world's export champion, be self-sufficient? We do, however, need to diversify energy imports. That's easier to do with renewable energy than with fossil energy, because it can be produced efficiently in transportable form within a band of plus/minus 20 degrees around the equator. Half the land area of Saudi Arabia would be enough to meet the energy needs of the entire world.

How can our energy supply be secured in the long term?

We need to get our infrastructure up to speed as quickly as possible. There are no power lines for the thousands of wind turbines that are now to be built, nor are there any pipelines for the green hydrogen we want to buy. In order to utilize the natural gas pipelines, as their operators propose, the hydrogen would have to be available first, and that will take another 20 years. By then, it won't be possible to use the old pipelines. To replace Russian gas with hydrogen, all the factories in the world that produce electrolyzers would have to produce electrolyzers for 40 years – and that's just for Germany. To meet hydrogen demand in 20 years, we must start now. With projects of this magnitude, you lose the most time at the beginning. Once the diggers get going, it takes as long as it takes. What we can do is speed up all the talk about whether the diggers should get going in the first place.

How can basic research in nuclear fusion, for example, contribute to the energy transition?

Nuclear fusion is a topic for the 22nd century, but it is something to pursue, of course. There are a million difficulties in the engine room of the energy transition, though. Catalysts, for example, are needed everywhere. Most of them don't work properly, and we are losing a lot of energy this way. We're doing a lot of work on this at the Max Planck Society. The only thing is that the energy transition does not work according to Max Planck's motto: insight must precede application. We have to get started now and then seek out the optimum approach. Opponents of the energy transition often say: we will implement the energy transition when you have all the necessary knowledge. But that's totally wrong.

Interview: Peter Hergersberg

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