

## ONE-TWO Energy transition as a trigger for collaboration.

A great deal of research is being done on energy transition, but when it comes to transferring this into politics, industry and society, a number of questions still remain unanswered. A conversation between Astrid Bjørnsen (WSL) and Rolf Iten (Infras).

**Both of you deal with the possible ramifications of the energy transition in your work. Where are the biggest gaps in our knowledge?**

**RI:** When you undertake such a significant change on a political, technical and industrial level, you need a wealth of information. First, you need information on technology and resources, but you also need to know if it's acceptable for society and manageable for industry. The biggest challenge, in my opinion, is that we still do not know how to go about introducing the energy transition into society and industry.

**AB:** The challenge is to obtain an overall view of things, and to then deduce the best measures for implementing the energy transition right down to the local level – for example, how many wind turbines could reasonably be installed in a particular valley. That's an issue we have not yet resolved.

**How do we get information to where it's needed?**

**RI:** It seems to me that energy research nowadays is more academic than applied. As a result, questions that are interesting on a scientific level are often more important to professors and doctoral students than questions that arise from society, industry or politics.

**AB:** Despite this, there is an increasing awareness within the research community of the so-called Valley of Death; that is, the gap between research and marketplace. Research programs such as the European Horizon 2020 Framework Program and the Swiss Competence Centers for Energy Research (SCCER) provide more and more incentives to close this gap.

**RI:** For me, the Valley of Death is not so much about pure technology transfer as it is about transfer in politics and society. It's at this level that we're doing too little. I think the Energy Trialogue – a top-level discussion forum for scientists, businesses, politicians, consumers, and NGOs – is going in the right direction.

**AB:** The reason for the communication deficit in research lies in the academic system itself. What really matters in a researcher's career is publication. Time spent networking with politicians or seeking dialogue with the population – i.e. transmission of knowledge – is not valued highly enough. On the other hand, it's still very difficult to get non-scientists to attend energy research conferences, since this type of event does not suit the busy schedules of politicians and journalists. Researchers need a new con-



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ception of their role. We need more people able to deliver knowledge to both politicians and the general public.

**A great deal of research and discussion is going on, but not much is being implemented. Why?**

**RI:** After more than 20 years in business, I still don't know how to untie this Gordian knot. We know what is possible when it comes to technology and resources. We know that the energy transition is socially and economically feasible, but this message is not getting across. The moment someone tries to introduce effective corrective measures, shouting and complaining resound from all quarters.

**Does this mean that there's no plan for how to use the research results – including those relating to the potential impacts?**

**AB:** There is a spirit of progress in research – people want to develop new technologies that help to save the world. Nobody wants someone standing by the wayside saying, 'Wait a minute! First let's see if this is the right direction'. But I do see a strong need for research that uses data and studies to predict the impact of various interventions – for example financial steering measures – thereby providing guidance for the transformation of the energy system.

**RI:** It's also a matter of communication. People do not understand how financial steering measures work ...

**AB:** ... and there's a particular lack of understanding of the system in politics and among the public. Currently, there's a fresh outcry against pumped storage plants, and

a lack of understanding that energy transition cannot be achieved without appropriate energy storage.

**RI:** Behavioral economists and social psychologists are also needed here to study how these things are perceived. How do we foster the willingness to support such change? So far we have not made significant progress.

**AB:** No, not at all!

**Social scientists and economists are also carrying out research at WSL. What is the outcome of this?**

**AB:** These projects sometimes unearth surprising things. One study on how tourists perceived the heightening of the Grimsel Pass dam showed that hydropower was not viewed as green energy. It's not considered to be as positive or innovative as wind, solar or biomass energy. Another WSL study showed that the installation of solar cells on roofs is relatively conflict-free, whereas there are very few places where wind power can be exploited without a risk of conflict.

**How can such findings influence the implementation of energy transition?**

**AB:** The problem is that researchers, politicians and business-people speak completely different languages. We need a national network that makes knowledge and technology from the energy sector available for use in industry. This should help foster understanding on both sides and unite the various sectors putting the energy transition into practice.

**RI:** We have to move beyond ideological identities and disputes – who favors renewable energy, who favors nuclear power – the kind of thing we currently see in parliament.



A successful energy transition requires flexibility with regard to electricity grids – and communications networks.

**AB:** In order to get a bird’s-eye view of the whole energy system, individual research disciplines must do a better job of collaborating with each other. Collaboration is essential if the energy transition is to succeed. *(bki)*

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