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Interview with Prof. Dr-Ing. Ulrich Wagner

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Five questions with Prof. Dr-Ing. Ulrich Wagner, newly-appointed Director of Energy and Transport for the DLR Management Board.



Question: Professor Wagner, you studied electrical engineering in Colombia and Munich, you are now Professor of Energy Economics and Applications Engineering at the Technical University of Munich (Technische Universität München; TUM) and Scientific Director at the Energy Research Institute (Forschungsstelle für Energiewirtschaft; FfE). What aspects of your new role do you find attractive?

Wagner: At TUM, I developed some exciting scientific models and complex systems in my work on energy research. The new role at DLR gives me the chance to work on larger projects that are closer to implementation. Here, I am better able to implement and develop the potential in energy and transport research. In my new role, I'd like to help to shape developments rather than to administer them, and I see DLR as the right place for that to happen – the prospects are favourable.

Question: What, in your view, makes energy and transport research one of the key technologies in Germany at this time?

Wagner: There are several megatrends: one of these is to find a secure supply of energy in the future. This does not entail the same kind of linear progression in energy provision that we have today. Having said that, apart from the need to develop renewable and decentralised technologies, we must improve conventional power station processes. Transport also presents us with major challenges. There are many new technical and logistical avenues of enquiry to explore, particularly with regard to personal mobility. New forms of mobility will emerge, and local public transport will have just as important a role

to play as new forms of electrically-powered mobility. And this is precisely where a strong correlation between energy and transport research comes in. One of my initial focal points will involve finding ways to combine these two systems to their mutual benefit and to enhance them in the context of renewable energies.

I come from the world of energy research; my dissertation dealt with the topic of the electric car, as did my doctoral thesis. My interest was not just the technical side of things but also the overall concept of electrically-powered mobility, as well as the societal need for this to happen.

Question: How do you picture mobility 20 years from now?

Wagner: A paradigm shift is going to occur. I assume that 20 years from now, we shall no longer be using the same form of transport – today this means the car, for the most part – as we do now. Instead, we will become much more discriminating about the forms of transport we use. There will be flexible mobility concepts and long-haul trips will use very different concepts than those we will employ for the last mile of the journey. I assume that individual personal mobility will remain an important component of our transport, but it will be substantially more environmentally friendly, with a reduced impact on resources. In my opinion, there will be a clear shift towards electrically-powered mobility, since electric motors operate more efficiently than internal combustion engines. Even today, we can travel many hundreds of kilometres with a fuel cell and hydrogen. With battery-powered cars, driving distances of 200 to 300 kilometres at a stretch is becoming possible. This shift will also involve the use of renewable energies, in contrast with the present, where we are still 95 percent dependent on mineral oil products.

Question: What role do projects such as DESERTEC have to play in solving the energy problems of the future?

Wagner: Projects like DESERTEC set themselves extremely ambitious targets, such as meeting 15 percent of the Europe's need for electricity from the desert, and that, in my view, is very substantial indeed. Having said that, we need to aim for high targets in energy research. I certainly view this as a very worthwhile avenue to explore further and, of course, it originated from a DLR study. We are not going to be able to cover 15 percent of the European electricity demand in a single step, but a project of this nature is very important indeed. At this time, we are taking the first steps towards implementation.

Question: How is it that you attended schools in Bonn, Moscow, Antwerp, Brussels and Bogotá?

Wagner: My parents were in the diplomatic service and I attended a total of eight schools. This cultivated flexibility and an understanding of and an interest in foreign languages. During the early stages of my university studies in Bogotá, I also attended literature and language courses and even gave some thought to becoming an interpreter. However, I quickly realised that I was better-suited to assimilating the hard facts of a scientific course of study than to literature courses. I also wanted to be able to repair my broken amplifier by myself (laughs). From my earliest days on the electrical engineering course, I opted for energy research because that time in the early 1970s made a great impression on me, in particular the founding of the Club of Rome and the oil crisis at that time.

This interview was conducted by Dorothee Bürkle and Elisabeth Mittelbach.

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