Tenth Annual Münchner Wissenschafstage:
Full Speed Ahead Was Yesterday: Energy Paths into the Present

Rachel Carson Center

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Sponsors: Rachel Carson Center, Deutsches Museum

Event Organizers: Helmuth Trischler (RCC/Deutsches Museum), Nina Möllers (RCC/Deutsches Museum), Stefan Esselborn (RCC), Felix Mauch (RCC))

Energy is the basis of human life and the "fuel of civilization." Where it came from and how much of it was available had a formative effect on our history. Today, it determines our present and future. Energy is, however, not an unlimited resource. Its supply is connected to economic, social, and ecological costs. Securing a stable and sustainable energy supply is therefore one of the biggest challenges of the twenty-first century. Our supply of non-regenerable resources is dwindling as time goes by. Simultaneously, their production is becoming increasingly risky. Discussions surrounding man-made climate change or natural disasters like in the Gulf of Mexico are time and again making our dependence on fossil fuels more apparent.

How many parts of the world have developed into "high-energy societies" is seldom a topic for discussion. Thus, contribuations collected by the Rachel Carson Center and the Deutsches Museum for the Tenth Annual Münchner Wissenschafstage at LMU Munich (Ludwigs-Maximilians Universität, LMU) reflected the demand for a historical dimension to our current treatment of energy. Supported by the Munich universities, non-university research institutes, and research-intensive companies, the Wissenschaftstage attempt to relay basic scientific topics to a broad audience. The event offers a supra-institutional and interdisciplinary forum for exchange among researchers and members of the public. Every year, the Münchner Wissenschaftstage draws an estimated 25,000 visitors. The event includes lectures, podium discussions, exhibitions, and tours, aiming, above all, to both orient and educate.

A "market stand for the sciences" was created in the foyer of LMU Munich's main building. Under the leadership of **Helmuth Trischler** in cooperation with **Nina Möllers**, an exhibition, conceptualized by **Stefan Esselborn** and **Felix Mauch** entitled "Full Speed Ahead Was Yesterday: Energy

Paths into the Present" was created. The exhibition used a global perspective to divide the history of energy use into four phases that demonstrate each period's problems and advantages.

The contents of the exhibition illustrated the utilization and appropriation of different energy sources. Aside from muscle power, biomass, wind, and water, wood was the universal raw material for energy in the pre-industrial period. Only from the nineteenth century onwards did non-regenerable energy stores such a coal, and later oil and natural gas begin to be used. With these additions, considerably more energy was available. The consequences of this were increased industrialization, urbanization, and mobilization. In the twentieth century, oil became one of the most important primary energy sources. It served above all as fuel for car and airplane engines, as well as for mixers and televisions. The rising standard of living of millions of people was based on this growing use of energy. At the time, economic, social, and political inequality grew. A large part of the world's population had no access to energy sources.

The exhibition made one thing clear: the history of energy is above all a history of scarcity—or at least the fear of scarcity. Whenever the need for energy sources was higher than its ability to regenerate, it would quickly lead to a supply crisis or conflicts over distribution.

For a long time, humankind sought a solution to this problem through technological advancements. As a case study for this, the exhibition used Atlantropa, a project planned by the Munich architect Hermann Sörgel in the 1920s and 1930s, the history of which has been reconstructed in the Deutsches Museum. Sorgel wanted to erect world's largest hydroelectric power plant with an enormous dam over the Strait of Gibraltar. At the same time, Sorgel planned to cut off the Mediterranean Sea's principal waterway and the use the resulting natural evaporation to create a land route to Africa. The consequences of such a monumental restructuring of the earth's surface would have been catastrophic to the ocean, its inhabitants, natural ecosystems, and the climate. However these factors played no role in deliberations concerning the project.

By no stretch of the imagination was Atlantropa an isolated phenomenon. Instead, it was a reflection of a mostly blind enthusiasm for the technological ability to plan progress. Only in the 1970s did "high-energy societies" rethink their treatment of energy. The negative effects of energy use on both humans and the environment were called to attention by the book The Limits to Growth (1972) and by reactions to the Chernobyl reactor accident in 1986.

Today, climate change has become a major focus in debates surrounding energy. The burning of fossil fuels is responsible for some eighty percent of the world's carbon dioxide emissions and is

therefore a major factor in the rise of the world's average temperature. It is becoming more and more clear that a reduction in energy use throughout the world is necessary.

With her talk "Burnt Through: The Momentous History of Energy Consumption," Nina Möllers opened the event's lecture program in the LMU's Auditorium Maximum. In her talk, she focused on the private use of energy, concentrating heavily on electrification, which Möllers identified as probably the most important development in daily energy consumption.

Since the end of nineteenth century, electricity has found its use as a universal and stationary source of secondary energy in many households. As a result, electricity became the symbol of progress and modernity. Behind the wide distribution of electricity stood not only entire systems of power plants and circuits, but also new and useful domestic items produced by power supply companies and manufacturers. Soon the major concern was no longer just the fulfillment of energy demands, but also the creation of new demands. The message was consistently positive: Electricity is clean, easy to use, and above all cheaper than other forms of energy. In short, it makes life easier. Its multifaceted applicability—transportation and communication technology were revolutionized by electric energy—allowed for a previously inconceivable control of consumption. Möllers identified the 1950s as a time, in which a energy obsession, still in place today, established itself among consumers.

The standard of living in industrialized countries requires a lot of energy: not only in factories, but also in the production and waste disposal processes. Möllers concluded her presentation by pointing out that despite a strategic rethinking in light of oil crisis and ecologization of the 1970s as well as the all-pervading presence of discourse on energy-saving and the environment, we still live in "high-energy societies."

The Wissenschaftstage attracted a broad audience. In both the lectures given Nina Möllers and others, and the exhibition supervised by Felix Mauch, researchers were able to interact with visitors by discussing the history of energy and answering related questions. The topic of energy presents a complex and controversial problem for both the present and the future. But a review of energy history also shows that many "energy challenges" have already existed for centuries and changed the face of the world in both negative and positive ways. Therein lies the potential of a historical and humanities-based approach to energy concerns. Political regulations and technological innovations alone cannot explain or solve current energy concerns. In order to ensure sustainable energy use, we need to establish a more advanced understanding of the historical development of energy production and consummation. Established behavior patterns and cultural habits must first be identified

in order to change them. As demonstrated by the event's lectures and exhibition, energy supplies are not limitless and their use has ecological consequences. And, contrary to historically developed perceptions, energy also has a high financial price.

-Felix Mauch