Energy Supply for Large Scale Electricity Consumers:

High Altitude Wind Energy – a Transition Path to a CO_2-free Energy Supply without Regrets?

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Abstract

Today, 80% of mankind's energy supply is still based on fossil fuels. In order to live CO_2 free, we need to build power plants that produce a total of about 130.000 TWh of energy and ensure 100% supply. It is mainly the industrial sector that still has too little access to economically viable CO_2-free energy sources. Especially in NRW, where several power intensive industries are built around the coal mining area, the termination of coal mining latest in 2038 will affect these businesses existentially.

The lecture suggests a new path towards an economic transition to a CO_2-free energy supply that especially highlights a way for large electricity consumers, such as the aluminum industry, to a profitable, off-grid and sustainable solution.

The presentation shows different options for energy generation with their advantages and disadvantages and deals in particular with the costs and long-term consequences of the respective power sources. Based on extensive research, different aspects of energy balance, performance potential, long-term emissions, landscape impact, energy production cost potential, investment, operating, and follow-up cost expenditure of the respective sources are presented or compared.

An analysis by Garrad Hassan concludes: “HAWE (*High Altitude Wind Energy*) systems have the potential to take energy generation from wind into a new dimension; unlocking resources with far greater potential energy than so far realized.”

As a result, a secure and sustainable CO_2-free energy supply will only be possible with a sensible transition of existing to future power plants. One in particular promising path is the employment of High-Altitude Wind Energy systems.

Biography: Uwe Ahrens is an aerospace engineer educated at the TU Berlin. Since more than 2 decades he has been working for a sustainable and economic development of the Berlin-Brandenburg region as chairman of the industry committee of the IHK Berlin.

Uwe Ahrens is working on the research and utilization of Airborne Wind Energy. He is the initiator and co-editor of the first scientific book on the use of Airborne Wind Energy published by Springer Verlag. The book is ranked 10th best e-books on renewable energy of all time (Link: https://bookauthority.org/books/best-renewable-energy-ebooks)

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