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THE RENEWABLES COST CHALLENGE: LEVELIZED COST OF GEOTHERMAL ELECTRIC ENERGY COMPARED TO OTHER SOURCES OF PRIMARY ENERGY- REVIEW AND CASE STUDY

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Comparisons of fix and variable costs for converting different forms of primary into electric energy performed by national and international agencies as well as by a major German electrical utility consented in concluding: geothermal electricity produced from natural steam or permeable hot water reservoirs is among the cheapest renewable forms of electricity. However, in years to come, geothermal electricity may find itself restricted to the limited number of regions worldwide which feature these particularly favourable reservoirs. This would exclude most of the continental land mass of the earth which is hot but lacks natural steam or hot water reservoirs. This is due to the current lack of proven technology for engineering man-made geothermal reservoirs where natural ones do not exist. At the same time, proven technologies for generating wind and solar electricity are readily available. This may turn out to be a serious competitive disadvantage for geothermal energy as fossil primary energies are being replaced by renewables. Therefore, dedicated and proactive funding of geothermal technology development is required at much larger scale than previously for making geothermal electricity competitively available almost everywhere.

Biography

Christoph Clauser has graduated (Diploma in Geophysiker) from the Technical University of Berlin (Germany) in 1981, where he also received his Doctorate (Dr. rer. nat) in 1988 (both with distinction). He obtained his DSc (Habilitation) and *venia legendi* in Geophysics at the University of Bonn (Germany) in 1995. His employment experience includes the Institute for Deep Storage of the Natl. Research Center for Environment and Health Ltd. in Braunschweig, the Geological Survey of Lower Saxony in Hannover (both in Germany). Currently, he is a Professor for Applied Geophysics and Geothermal Energy at RWTH Aachen University in Aachen (Germany). His special fields of interest include Geothermal Heat (its use and conversion) as well as Geophysical Reservoir Engineering. He is Author and Co-Author of 65 peer-reviewed papers, and author of 5 textbooks and 20 contributions to peer-reviewed monographs. He was elected as a Member into the German National Academy of Sciences Leopoldina in 2011, also a Member of the German Geophysical Society (DGG), the American Geophysical Union (AGU), and the Society of Exploration Geophysicists (SEG).

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