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ABSTRACT

Local energy concepts, based on energy savings, energy efficiency and renewable energies (3E): Some examples

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Man-made induced climate change, the potential scarcity of fossil fuels as well as increasing economic reasons, require the transition of the traditional energy system mainly based on the consumption of fossil fuels to a more environment-friendly, resource-saving and economically efficient (and thus sustainable) energy system. Recent technological achievements, now allow us to harvest almost unlimited renewable energies anywhere on Earth at economically competitive costs. Another often-overlooked aspect of the energy transition is the gain in energy efficiency when using the thermodynamic unavoidable 'waste' energy (which is often heat), when energy conversion (fuel to power, heat or energy stored in chemicals) comes into play. And last but not least, applying state-of-the-art energy saving measures may largely reduce the necessary energy in modern applications, such as the consumed domestic energy. In the present talk, best practice applications for these three capital Es (renewable energies, energy efficiency and energy saving) from Germany will be presented, which all meet the requirements for sustainability.

The presentation will conclude that besides the various technological challenges, a successful energy transition requires some changes in the regularity framework of our economy and societies, but also offers new opportunities for entrepreneurs for sustainable and economically viable activities.