THERMAL ENERGY HARVESTING - THE PATH TO TAPPING INTO A LARGE CO_2-FREE EUROPEAN POWER SOURCE

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The information of this talk is taken from a White Paper with the same title authored by KCORC and published online in April 2022.

The amount of thermal energy generated by human activity that is dispersed into the atmosphere in any given instant is so large that it escapes human comprehension. Thermal energy is discarded to the atmosphere by almost all industrial processes and by all mobile or stationary engines. Among the technologies that may be adopted to make use of this enormous asset, one is particularly suitable for the conversion of thermal power into electrical or useful mechanical power: Organic Rankine Cycle (ORC) power plants. The technology, its advantages and some applications in the energy intensive industry are briefly outlined. The results of a comprehensive analysis of the scenario of the potential of thermal energy harvesting in EU27 countries follows. A prudential estimate is that in 10 years, the capacity to generate 150 TWh/yr could be added. This corresponds to 19 nuclear power plants. Aspects related to the current geo-political situation are briefly addressed together with the impact that the spreading of this technology may have on energy resilience, employment and other social and economic benefits. KCORC has been active with respect to the recent updates to EU directives and other policy directions and is planning an upscale of its activities. KCORC is working already on the second version of the White Paper, which will contain information about various business cases. A workshop whose intent is to gather technology providers, users and policy makers will be organized in the first half of next year in the Netherlands.