# EoCoE: Energy oriented Centre of Excellence for computer applications

## Description

The aim of the present proposal is to establish an Energy Oriented Centre of Excellence for computing applications (EoCoE). EoCoE will use the prodigious potential offered by the ever-growing computing infrastructureto foster and accelerate the European transition to a reliable and low carbon energy supply.

To achieve this goal, we believe that the present revolution in hardware technology calls for a similar paradigm change in the way application codes aredesigned. EoCoE will assist the energy transition via targeted support to four renewable energy pillars: Meteo, Materials,Water and Fusion, each with a heavy reliance on numerical modelling. These four pillars will be anchored within a strongtransversal multidisciplinary basis providing high-end expertise in applied mathematics and HPC. EoCoE is structured around a central Franco-German hub coordinating a pan-European network, gathering a total of 8countries and 23 teams.

Its partners are strongly engaged in both the HPC and energy fields; a prerequisite for the long-term sustainability of EoCoE and also ensuring that it is deeply integrated in the overall European strategy for HPC. The primary goal of EoCoE is to create a new, long lasting and sustainable community around computational energy science. At the same time, EoCoE is committed to deliver high-impact results within the first three years. It will resolve current bottlenecks in application codes, leading to new modelling capabilities and scientific advances among the four user communities; it will develop cutting-edge mathematical and numerical methods, and tools to foster the usage of Exascale computing. Dedicated services for laboratories and industries will be established to leverage this expertise and to foster an ecosystem around HPC for energy. EoCoE will give birth to new collaborations and working methods and will encourage widely spread best practices.

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