

Bio: Victor Martin is leading the numerical platform for renewables and sustainability in TotalEnergie's R&D. After a career in various countries and positions as a geophysicist and an economist, he led an advanced AI solutions program for TotalEnergies in the US then oversaw digital and cybersecurity matters for America's upstream branch before coming back to France. He is strongly interested in the advances of scientific computing and how they impact businesses and society. Victor graduated from the Ecole Normale Supérieure of Paris in earth sciences and holds a PhD in geophysics from the University of Paris-Saclay.

Title: HPC applications for the energy transition in TotalEnergies

Summary: In the past years many actors in the energy landscape have embarked onto a journey towards less carbonated energy sources. This diversification towards new energies comes along with new technical challenges. If the traditional domains requiring calculation-intensive simulation such as geophysics and production modeling remain active for now although they will decline in the future, new possibilities in simulation have emerged and are now investigated to improve the efficiency of low carbon production, from the modeling of single battery cells to large wind farms to carbon capture and sequestration. While the benefits of HPC to improve these technologies are yet to be confirmed, such a diversification of use cases and technologies itself already brings new challenges.