Accelerating Renewable Energy by Artificial Intelligence

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Extended Abstract

To date, most of the energy sector's transition efforts have focused on hardware: new low-carbon infrastructure that will replace legacy carbon-intensive systems. Relatively little effort and investment has focused on another critical tool for the transition: next-generation digital technologies, in particular artificial intelligence (AI). These powerful technologies can be adopted more quickly at larger scales than new hardware solutions and can become an essential enabler for the energy transition.

AI is already proving its value to the energy transition in multiple domains, driving measurable improvements in renewable energy forecasting, grid operations and optimization, distributed energy assets and demand-side management coordination, and materials innovation and discovery. AI holds far greater potential to accelerate the global energy transition, but it will only be realized if there is greater AI innovation, adoption and collaboration across the industry.