

Success Story Templates

NCC Spain

23/06/2022

eurocc@res.es

Industrial HPC Course



EURO

SUCCESS STORY IN ENERGY

COMPANY NORVENTO

NORVENTO is a company focused on the promotion and development of energy production facilities based on renewable energies (wind, solar and biomass), as well as the manufacture of wind turbines.

THE PROBLEM

Application of computational models to simulate anaerobic digesters and to help in the design and optimization of the energy balance is a possible resource for the development of advanced digesters.

SUCCESS STORY DETAILS

HPC provider: CESGA
Domain Expert:
Country: Spain
Link: [NORVENTO](#)

THE HPC PROBLEM DOMAIN

Computacional Models
HPC Simulation

THE SOLUTION

A new open source solution was developed that allows simulation of flow and biological aspects of an anaerobic digester. Due to the scale of the process, the solution requires HPC capabilities to achieve results in a reasonable time.

THE BENEFITS

Reduce the volume and cost of industrial anaerobic digesters, increasing the number and quality of biogas produced and reducing energy consumption.

SUCCESS STORY ININDUSTRIAL DOMAIN x

THE PROBLEM

Anaerobic digestion is the process by which microorganisms degrade organic matter in the absence of oxygen, producing biogas rich in methane that can be used to generate energy.

Demonstrate that it is possible to achieve an optimal energy balance between energy consumption and production in small-scale anaerobic digesters.

Use of computational models to simulate digesters and to help in the design and optimization of the energy balance.

THE HPC PROBLEM DOMAIN

Computacional Models

HPC simulation

THE SOLUTION

Prior to this experiment, there was no integrated model for anaerobic digester design that considered flow and biological aspects and was able to take advantage of HPC systems.

A new open source solution that allows simulation of flow and biological aspects of an anaerobic digester.

Due to the scale of the process the numerical solution of this problem is very complex and the solution requires HPC capabilities to achieve results in a reasonable time.

THE BENEFITS

The design and optimization tools developed allow NORVENTO to reduce the volume and cost of industrial anaerobic digesters, increasing the number and quality of biogas produced and reducing energy consumption.

NORVENTO's power plants based on renewable energies can increase their electrical and thermal production.

For NORVENTO, a reduction in the cost of investment and maintenance, as a direct result of reduced-size digesters, will improve and support a profitable and sustainable business.