



# CHALLENGE #28

## CUE-SMART-03

### Smart Control and Optimization of Renewable Energy Systems

Meet the expectations of this US Node through the technology challenge described below



## GOALS

The goal is to solve fundamental open problems in the control of certain renewable energy systems such as wind farms and fuel cells. In particular, switching controllers/algorithms that can improve the performance of wind farms that operate under different wind regimes are of interest. Similarly, real-time optimization algorithms that can improve the performance efficiency of fuel cells are also of interest. CU Boulder has expertise in the development of some of these systems, and it is looking for partners with expertise in renewable energy technologies to test and validate the algorithms.

## DETAILS

The main final objective is to obtain a comprehensive numerical validation of intelligent controllers in renewable systems such as wind farms and fuel cells. There is particular interest in new algorithmic architectures based on hybrid controllers or switching algorithms.

## SKILLS REQUIRED

Solid mathematical background, and previous knowledge in renewable energy systems (ideally wind farms and/or fuel cells).