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Solving energy-related scheduling problems with column generation and an adiabatic quantum computer

We present an algorithm for solving an energy-related scheduling optimization problem with mixed binary variables. The main idea behind the algorithm is to divide the problem in two subproblems, one with the real variables and the other with the binary variables. Then, a column generation scheme is used, thus adding proposals iteratively for the real variables and the binary variables, while solving a master problem for pricing the subproblems. In order to add the binary proposals, a binary solver has to be used. We explain the advantages of using an adiabatic quantum computer such as D-Wave Two for this kind of problems and its integration with the rest of the scheme. This work is a collaboration with Francisco Pena from the University of Santiago de Compostela, Spain.