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Multicyclic multistage stochastic programming using daisy chains in the electricity market

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Hydropower scheduling is an important application of stochastic dynamic programming, involving large optimization problems with intertemporal dependency and complex dynamics. The nature of this problem is naturally seasonal (and therefore cyclic), and even though most real-world use cases usually apply discretization strategies (such as monthly, weekly or daily time steps) it is reasonable to expect that these are approximations of an underlying continuous time representation. Different discretization strategies are explored in this paper using functionalities of IARA (https://iara.psr-inc.com/), a novel open-source tool for Interaction Assessment between Regulators and Agents.

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