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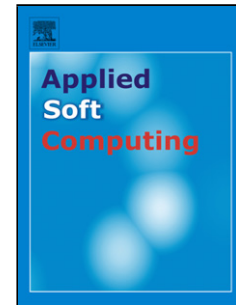
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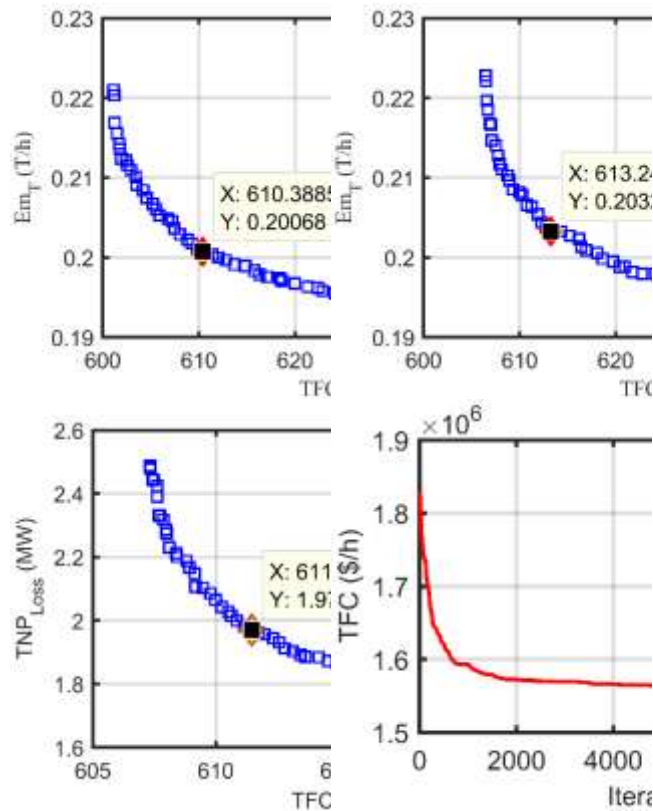


Water Cycle Algorithm-based Economic Dispatcher for Sequential and Simultaneous Objectives Including Practical Constraints

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Graphical abstract



Highlights

- An efficient WCA-based ELD is proposed for single and multiple objectives.
- Practical constraints such as ramp rates along with forbidden intervals are considered.
- The proposed method is demonstrated on three test cases with various complexities.
- The cropped best results by WCA are compared to other competing optimisers.
- Best compromise solutions among Pareto-set are picked up carefully.

Abstract: The manuscript presents an efficient methodology based-on water cycle algorithm (WCA) to solve single and multiple objectives of economic load dispatch (ELD) aiming to generate the optimal value of the active generated power for each unit. Three objectives are adopted for optimisation either sequentially or concurrently; they are: i) fuel cost considering valve-ripple effect, ii) emission rate, and iii) total network loss. The generating unit prohibited zones

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