

**Responsive CO₂ capture: Predictive multi-objective optimisation for managing intermittent
flue gas and renewable energy supply**

(Supplementary Information)

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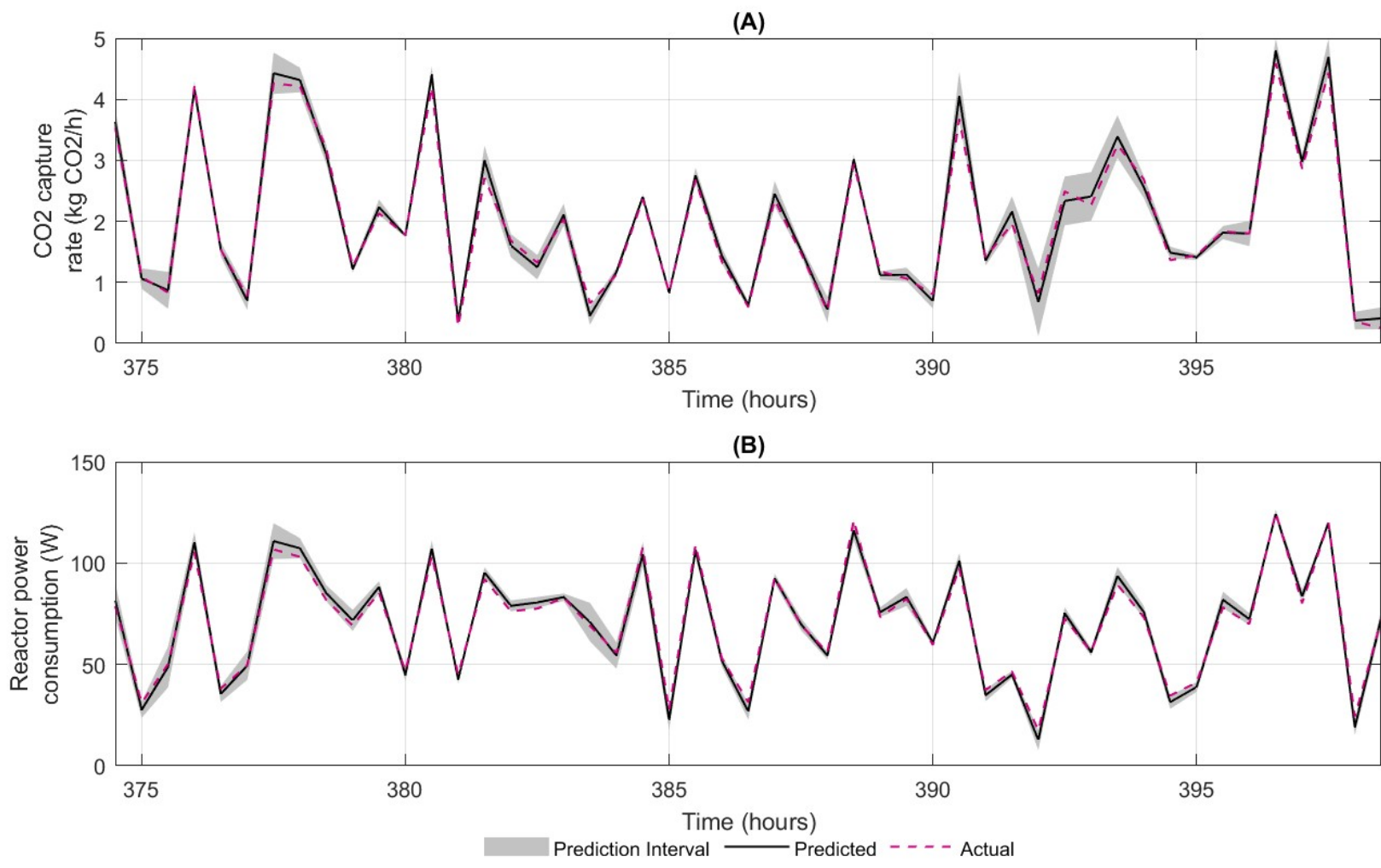


Figure SI.1 Comparison of CO₂ capture rate (A) and reactor power consumption (B) predictions against actual values, including prediction intervals determined using conformal prediction, between 347.5 and 398.5 reactor operation hours using unseen data.

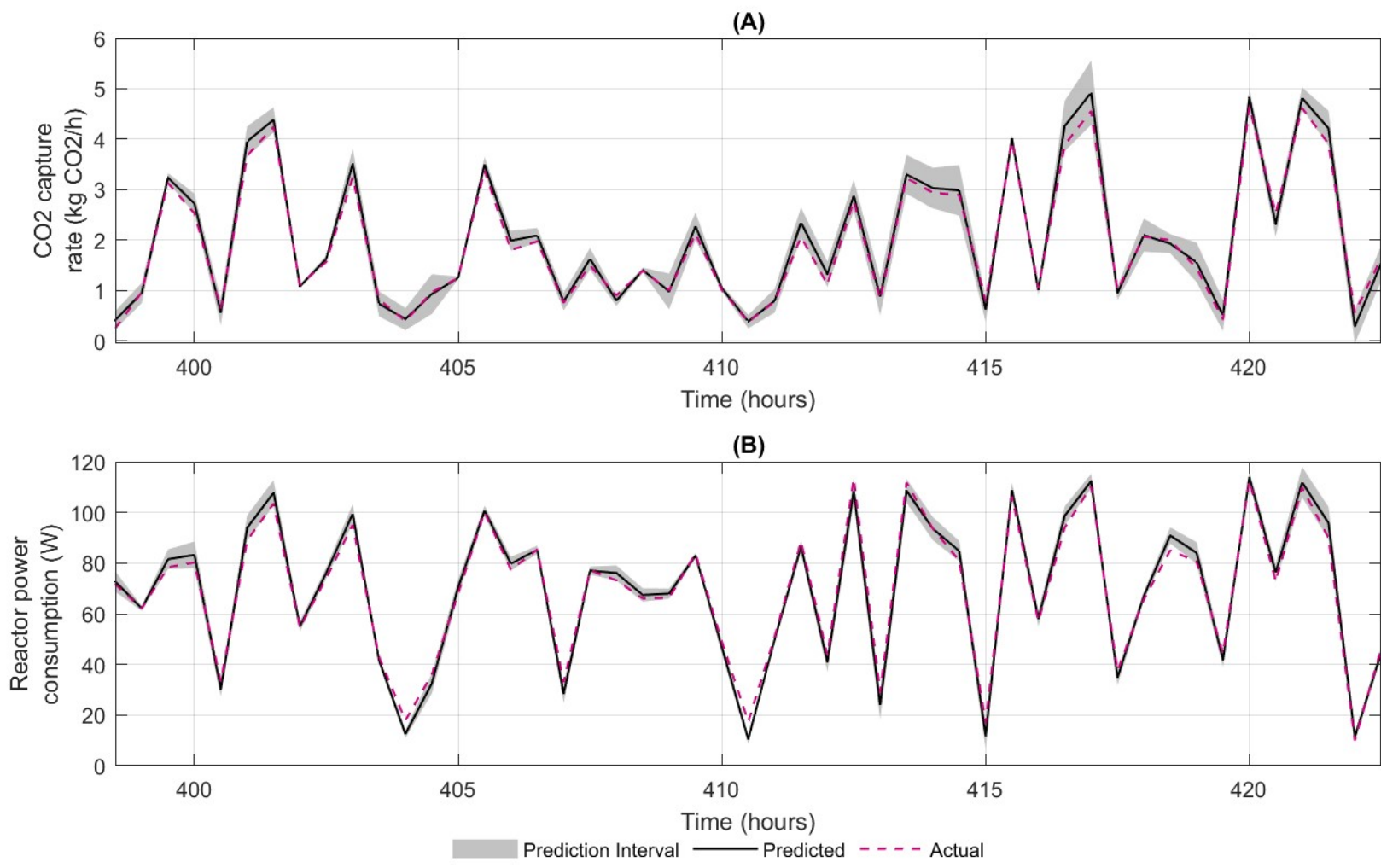


Figure SI.2 Comparison of CO₂ capture rate (A) and reactor power consumption (B) predictions against actual values, including prediction intervals determined using conformal prediction, between 398.5 and 422.5 reactor operation hours using unseen data.

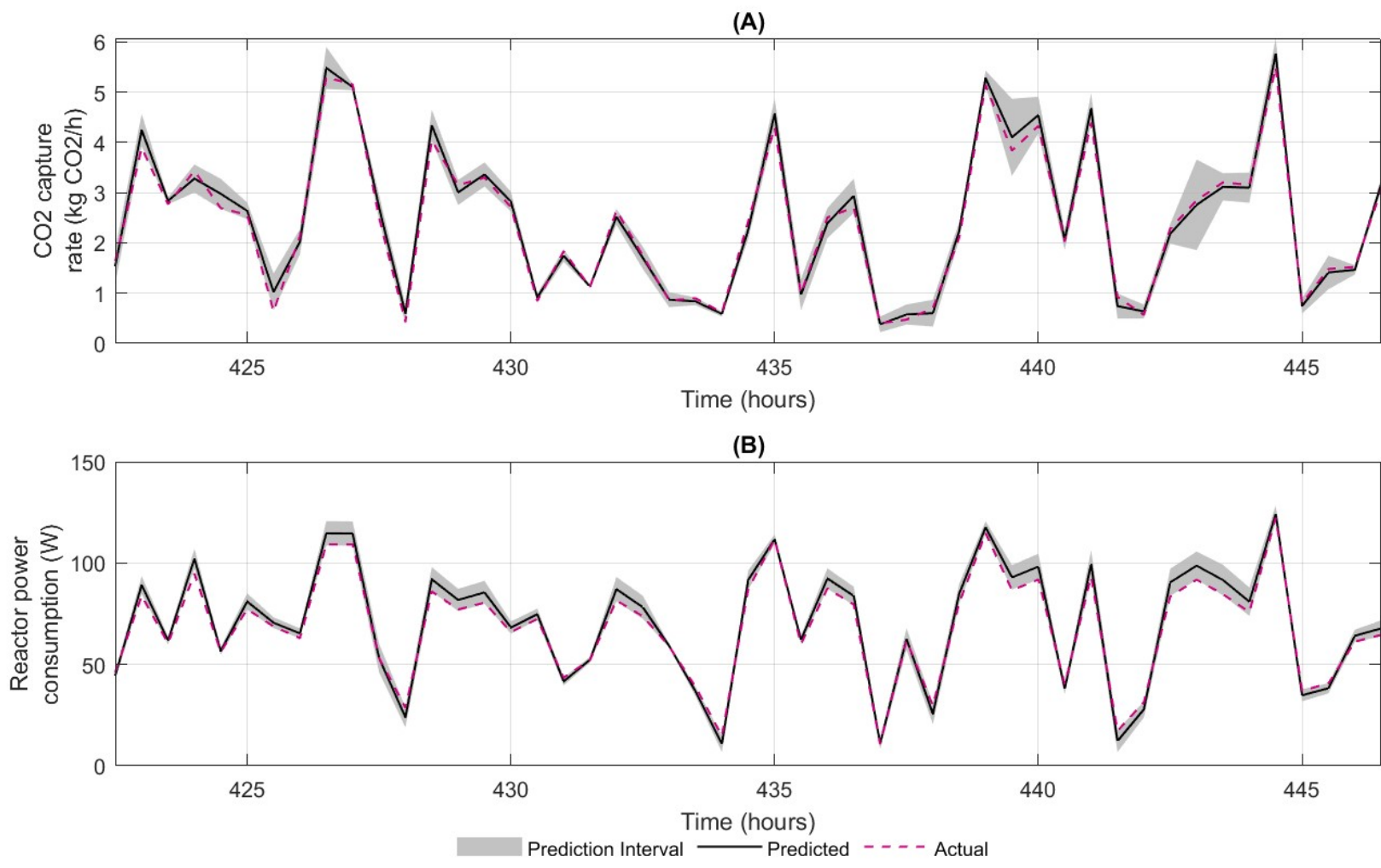


Figure SI.3 Comparison of CO₂ capture rate (A) and reactor power consumption (B) predictions against actual values, including prediction intervals determined using conformal prediction, between 422.5 and 446.5 reactor operation hours using unseen data.

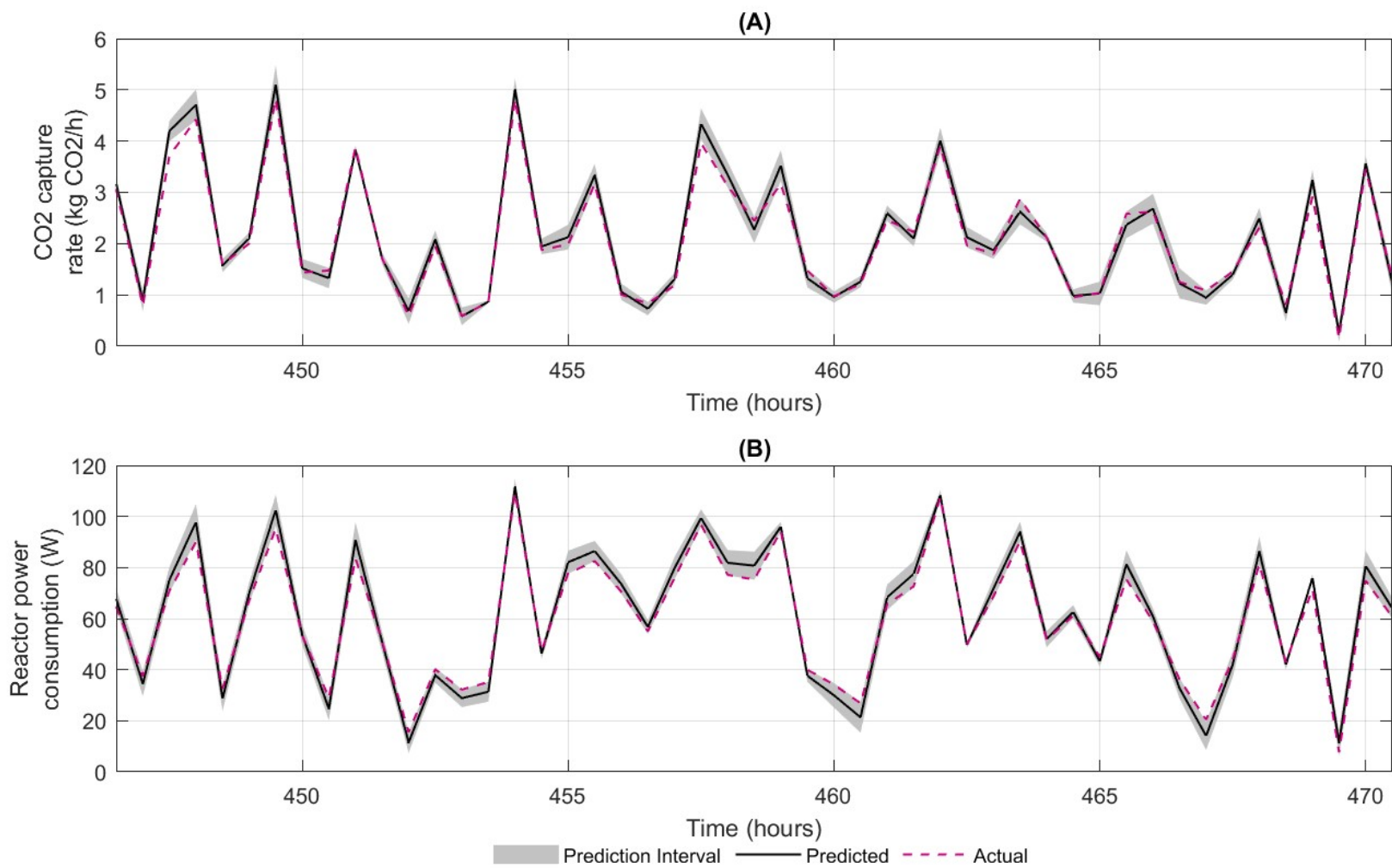


Figure SI.4 Comparison of CO₂ capture rate (A) and reactor power consumption (B) predictions against actual values, including prediction intervals determined using conformal prediction, between 446.5 and 470.5 reactor operation hours using unseen data.