Results Simple Machine Learning Surrogate Models

In the tables below, the performance of the different machine learning models are displayed in terms of their mean absolute error (MAE). This has been done for six cases, each with a different combination of input variables and predicted output variable.

Input Variables	*Gas Price*	*Gas Price, Month*	*Gas Price, Month*
Output	*Cost*	*Cost*	*Curtailment*
Linear Regression	**149.8**	145479.0	414294.5
Decision Tree	45319.0	59198.6	**6114.3**
Random Forest	31034.5	**47319.6**	6778.0

Table 1. Performance (MAE values) of ML models when varying a constant input variable.

Inputs Variables	*Month*	*Wind, Month*	*Month*	*Wind, Month*
Output	*Cost*	*Cost*	*Curtailment*	*Curtailment*
Linear Regression	39832.6	39727.6	288807.8	247390.2
Decision Tree	**37687.5**	18026.2	284010.9	223334.6
Random Forest	37689.0	**17527.8**	**283802.9**	**188057.7**

Table 2. Performance (MAE values) of ML models when varying a time series input variable.