Claims:

1. A computer-implemented method for optimizing performance of an energy dispatch system, comprising:

   creating a digital twin representing the energy dispatch system, the digital twin having a current operational behavior of the energy dispatch system;

   receiving future forecast data for a future time period;

   identifying a set of initial setpoints for controlling the current operational behavior;

   predicting, by the digital twin, one or more objective values based on the set of initial setpoints, current operational behavior and future forecast data; and

   applying an optimization model to the set of initial setpoints, based on the one or more objective values, to produce an optimized set of setpoints for controlling the energy dispatch system,

   wherein the optimization model comprises one or more of particle swarm and stochastic programming.

2. The method of claim 1, wherein identifying the set of initial setpoints comprises identifying the set of initial setpoints from a plurality of setpoints, based on the future forecast data.

3. The method of claim 2, further comprising receiving a plurality of past forecast data corresponding to the future forecast data and a set of setpoints for each past forecast data, wherein identifying the set of initial setpoints comprises selecting the set of setpoints corresponding to a best past performance of the energy dispatch system.

4. The method of claim 3, wherein the plurality of past forecast data comprise one or more of meteorological data, load demand data.

5. The method of any one of claims 2 to 4, wherein the future forecast data and the past forecast data are forecast based on one or more of weather forecast, trends in historical data, and configuration of the energy dispatch system.

6. The method of any of claims 1 to 5, further comprising operating the energy dispatch system according to the optimized set of setpoints.

7. The method of claim 6, comprising collecting operation data describing an operational behavior of the energy dispatch system for the future time period.

8. The method of claim 7, comprising updating the current operational behavior based on the operational behavior of the energy dispatch system for the future time period.

9. The method of claim 8, comprising updating the digital twin based on the current operational behavior.

10. A system for optimizing performance of an energy dispatch system, comprising:

a memory;

a training module configured to provide a digital twin representing the energy dispatch system, the digital twin having a current operational behavior of the energy dispatch system;

a receiving module for receiving future forecast data for a future time period;

a processor configured to identify a set of initial setpoints for controlling the current operational behavior;

a predicting module comprising the digital twin configured to predict one or more objective values based on the set of initial setpoints, current operational behavior and future forecast data; and

an optimization model configured to be applied to the set of initial setpoints to produce an optimized set of setpoints for controlling the energy dispatch system, based on the one or more objective values,

wherein the optimization model comprises one or more of particle swarm and stochastic programming..

11. The system of claim 10, wherein the processor is configured to identify the set of initial setpoints by identifying the set of initial setpoints from a plurality of setpoints, based on the future forecast data.

12. The system of claim 11, wherein the processor is configured to receive a plurality of past forecast data corresponding to the future forecast data and a set of setpoints for each past forecast data, wherein the processor is configured to identify the set of initial setpoints by selecting the set of setpoints corresponding to a best past performance of the energy dispatch system.

13. The system of claim 12, wherein the future forecast data and the past forecast data each comprises one or more of meteorological data, load demand data, and information of the energy dispatch system.

14. The system of any one of claims 11 to 13, wherein the future forecast data and the past forecast data are forecast based on one or more of weather forecast, trends in historical data, and configuration of the energy dispatch system.

15. The system of any of claims 10 to 14 further comprising an operating module for operating the energy dispatch system according to the optimized set of setpoints.

16. The system of claim 15, wherein the operating module is configured to collect operation data describing an operational behavior of the energy dispatch system for the future time period.

17. The system of claim 16, wherein the operating module is configured to update the current operational behavior based on the operational behavior of the energy dispatch system for the future time period.

18. The system of claim 17, wherein the training module is configured to update the digital twin based on the current operational behavior.