Claims

What is claimed is:

1. A system comprising:

a headend system for communicating with one or more meters, wherein each of the meters is associated with an asset of a power distribution network;

a processor; and

a non-transitory, computer-readable memory that includes instructions executable by the processor for causing the processor to:

receive first data at the headend system from a meter associated with an asset of the power distribution network, wherein the first data comprises metering data comprising one or more of voltage, load, and power consumption;

identify the power distribution network growth trend by mapping electrical meters of the power distribution network;

receive a query associated with the asset of the power distribution network;

access second data of the power distribution network that is associated with the asset, wherein the second data comprises the power distribution network growth trend;

apply a forecasting model to the query, the first data and the second data of the power distribution network that is associated with the asset to generate an asset inventory and a maintenance forecast; and

control an ordering operation of the asset and/or a maintenance scheduling of the asset using the asset inventory or maintenance forecast.

2. The system of claim 1, wherein the instructions are further executable by the processor for causing the processor to:

train the forecasting model to generate the asset inventory or maintenance forecast using training vectors of ground-truth data of a plurality of additional assets of the power distribution network, wherein the forecasting model comprises a machine-learning model.

3. The system of claim 2, wherein the instructions to train the forecasting model are further executable by the processor to:

train the forecasting model to generate the asset inventory or maintenance forecast using additional training vectors of ground-truth data of a plurality of additional assets of an additional power distribution network.

4. The system of claim 1, wherein the instructions are further executable by the processor for causing the processor to:

select the forecasting model from a set of forecasting models in response to evaluating an accuracy of the forecasting model in solving the asset inventory or maintenance question of the query.

5. The system of claim 1, wherein controlling the ordering operation of the asset comprises redistributing asset inventories based on the power distribution network growth trend.

6. The system of claim 1, wherein the query comprises an asset inventory or maintenance question associated with an asset of a power distribution network.

7. The system of claim 1, wherein the instructions are further executable by the processor for causing the processor to:

identify asset environments by mapping assets of the power distribution network, wherein controlling the ordering operation or maintenance scheduling of the asset is based on the asset environments identified by mapping the assets of the power distribution network.

8. A non-transitory, computer-readable medium comprising instructions that are executable by a processor for causing the processor to perform operations comprising:

receiving first data at a headend system from a meter associated with an asset of a power distribution network, wherein the first data comprises metering data comprising one or more of voltage, load, and power consumption;

identifying the power distribution network growth trend by mapping electrical meters of the power distribution network;

receiving a query comprising an asset inventory or maintenance question of the asset of the power distribution network;

accessing second data of the power distribution network that is associated with the asset, wherein the second data comprises the power distribution network growth trend;

applying a forecasting model to the query, the first data, and the second data of the power distribution network that is associated with the asset to generate an asset inventory and a maintenance forecast; and

controlling an ordering operation of the asset and/or a maintenance scheduling of the asset using the asset inventory or maintenance forecast.

9. The non-transitory, computer-readable medium of claim 8, wherein the operations further include:

training the forecasting model to generate the asset inventory or maintenance forecast using training vectors of ground-truth data of a plurality of additional assets of the power distribution network, wherein the forecasting model comprises a machine-learning model.

10. The non-transitory, computer-readable medium of claim 8, wherein the operations further include:

selecting the forecasting model from a set of forecasting models in response to evaluating an accuracy of the forecasting model in solving the asset inventory or maintenance question of the query.

11. The non-transitory, computer-readable medium of claim 8, wherein the data of the power distribution network that is associated with the asset comprises an indication of historical usable lifetimes of similar assets to the asset, device loads of the asset, information gathered from sensors of the power distribution network, or any combination thereof.

12. The non-transitory, computer-readable medium of claim 8, wherein the operations further include:

identifying asset environments by mapping assets of the power distribution network, wherein controlling the ordering operation or maintenance scheduling of the asset is based on the asset environments identified by mapping the assets of the power distribution network.

13. A computer-implemented method comprising:

receiving first data at a computing device from a meter associated with an asset of a power distribution network, wherein the first data comprises metering data comprising one or more of voltage, load, and power consumption;

identifying the power distribution network growth trend by mapping electrical meters of the power distribution network;

receiving, at the computing device, a query comprising an asset inventory or maintenance question of an asset of a power distribution network;

accessing, by the computing device, second data of the power distribution network that is associated with the asset, wherein the data comprises the power distribution network growth trend;

applying, by the computing device, a forecasting model to the query, the first data and the second data of the power distribution network that is associated with the asset to generate an asset inventory and a maintenance forecast; and

controlling, by the computing device, an ordering operation of the asset or a maintenance scheduling of the asset using the asset inventory or maintenance forecast.

14. The computer-implemented method of claim 15, further comprising:

training, by the computing device, the forecasting model to generate the asset inventory or maintenance forecast using training vectors of ground-truth data of a plurality of additional assets of the power distribution network, wherein the forecasting model comprises a machine-learning model.

15. The computer-implemented method of claim 14, wherein training the forecasting model further comprises:

training, by the computing device, the forecasting model to generate the asset inventory or maintenance forecast using additional training vectors of ground-truth data of a plurality of additional assets of an additional power distribution network.

16. The computer-implemented method of claim 15, further comprising:

identifying, by the computing device, asset environments by mapping assets of the power distribution network, wherein the data of the power distribution network comprises the asset environments.