

CLAIMS

WHAT IS CLAIMED IS:

1. A method performed at least in part by an advanced metering infrastructure (AMI) load shedding system, the method comprising:

receiving, by an application programming interface (API) frontend of the AMI load shedding system, a load shedding activation command;

in response to receiving the load shedding activation command, deploying, by the API frontend, a load shedding token to one or more electricity meters of the AMI load shedding system; and

causing the one or more electricity meters to disconnect corresponding loads based at least in part on the load shedding token.

2. The method of claim 1, further comprising, prior to receiving the load shedding activation command by the API frontend:

setting, by an authorization token service of the AMI load shedding system, a policy for a load shedding event associated with the load shedding activation command,

wherein the one or more electricity meters are a target group of electricity meters of the AMI load shedding system in accordance with the policy.

3. The method of claim 2, further comprising:

creating, by the API frontend, the load shedding event;

sending, by the API frontend, a request for tokens, the tokens including the load

shedding token and a load restoration token;

receiving, by the API frontend, the load shedding token and the load restoration token; and

loading, by the API frontend, the load shedding token and the load restoration token into the load shedding event.

4. The method of claim 3, further comprising:

receiving, by the API frontend, a load restoration activation command;

in response to receiving the load restoration activation command, deploying, by the API frontend, the load restoration token to the target group of electricity meters; and

causing the target group of electricity meters to reconnect the disconnected loads based at least in part on the load restoration token.

5. The method of claim 4, wherein:

the load shedding token and the load restoration token are encrypted,

receiving, by the API frontend, the load shedding activation command includes:

receiving, by the authorization token service, the load shedding activation command,

transmitting, by the authorization token service, a key to the API frontend, and

decrypting, by the API frontend, the load shedding token and the load restoration token using the key, and

deploying, by the API frontend, the load shedding token to the target group of electricity meters includes:

deploying, by the API frontend, the decrypted load shedding token to the target group of electricity meters.

6. The method of claim 4, wherein:

the load shedding token and the load restoration token are encrypted,

receiving, by the API frontend, the load shedding activation command includes:

receiving, by the authorization token service, the load shedding activation command,

transmitting, by the authorization token service, a key to the API frontend,

forwarding, by the API frontend, the key to a distributed agent of the AMI load shedding system, and

decrypting, by the distributed agent, the load shedding token and the load restoration token using the key, and

deploying, by the API frontend, the load shedding token to the target group of electricity meters includes:

deploying, by the distributed agent, the decrypted load shedding token to the target group of electricity meters.

7. The method of claim 6, wherein loading, by the API frontend, the load

shedding token and the load restoration token into the load shedding event includes:

forwarding, by the API frontend, the load shedding token and the load restoration token to the distributed agent; and

caching, by the distributed agent, the load shedding token and the load restoration token.

8. The method of claim 7, wherein deploying, by the API frontend, the load restoration token to the target group of electricity meters includes:

sending, by the API frontend, a command and timer information to the distributed agent; and

deploying, by the distributed agent, the load restoration token to the target group of electricity meters based on the command and the timer information.

9. The method of claim 6, wherein the distributed agent is an electricity meter of the target group of electricity meters.

10. An advanced metering infrastructure (AMI) load shedding system comprising:

one or more processors,

an application programming interface (API) frontend coupled to the one or more processors, and

memory coupled to the one or more processors, the memory storing thereon

computer-readable instructions that, when executed by the one or more processors, cause the one or more processors to perform operations comprising:

receiving, by the API frontend, a load shedding activation command;

in response to receiving the load shedding activation command,
deploying, by the API frontend, a load shedding token to a plurality of
electricity meters; and

causing the plurality of electricity meters to disconnect corresponding
loads based at least in part on load shedding token.

11. The AMI load shedding system of claim 10, further comprising:
an authorization token service coupled to the one or more processors,
wherein the operations further comprise, prior to receiving, by the API frontend, the
load shedding activation command:

setting, by the authorization token service, a policy for a load shedding
event associated with the load shedding activation command, wherein the
plurality of electricity meters is a target group of electricity meters of the
AMI load shedding system in accordance with the policy;

creating, by the API frontend, the load shedding event;

sending, by the API frontend, a request for tokens, the tokens
including the load shedding token and a load restoration token;

receiving, by the API frontend, the load shedding token and the load
restoration token; and

loading, by the API frontend, the load shedding token and the load restoration token into the load shedding event.

12. The AMI load shedding system of claim 11, wherein the operations further comprise:

receiving, by the API frontend, a load restoration activation command;

in response to receiving the load restoration activation command, deploying, by the API frontend, the load restoration token to the target group of electricity meters; and

causing the target group of electricity meters to reconnect the disconnected loads based at least in part on the load restoration token.

13. The AMI load shedding system of claim 12, wherein:

the load shedding token and the load restoration token are encrypted,

receiving, by the API frontend, the load shedding activation command includes:

receiving, by the authorization token service, the load shedding activation command,

transmitting, by the authorization token service, a key to the API frontend, and

decrypting, by the API frontend, the load shedding token and the load restoration token using the key, and

deploying, by the API frontend, the load shedding token to the target group of electricity meters includes:

deploying, by the API frontend, the decrypted load shedding token to the target group of electricity meters.

14. The AMI load shedding system of claim 12, wherein:
the load shedding token and the load restoration token are encrypted,
loading, by the API frontend, the load shedding token and the load restoration token into the load shedding event includes:

forwarding, by the API frontend, the load shedding token and the load restoration token to a distributed agent, and

caching, by the distributed agent, the load shedding token and the load restoration token,

receiving, by the API frontend, the load shedding activation command includes:

receiving, by the authorization token service, the load shedding activation command,

transmitting, by the authorization token service, a key to the API frontend,

forwarding, by the API frontend, the key to a distributed agent of the AMI load shedding system, the distributed agent being an electricity meter of the target group of electricity meters, and

decrypting, by the distributed agent, the load shedding token and the load restoration token using the key, and

deploying, by the API frontend, the load shedding token to the target group of

electricity meters includes:

deploying, by the distributed agent, the decrypted load shedding token to the target group of electricity meters.

15. The AMI load shedding system of claim 14, wherein deploying, by the API frontend, the load restoration token to the target group of electricity meters includes:

sending, by the API frontend, a command and timer information to the distributed agent; and

deploying, by the distributed agent, the load restoration token to the target group of electricity meters based on the command and the timer information.

16. A non-transitory computer-readable storage medium storing thereon computer executable instructions that, when executed by one or more processors of an advanced metering infrastructure (AMI) load shedding system, cause the one or more processors to perform operations comprising:

setting, by an authorization token service of the AMI load shedding system, a policy for a load shedding event associated with a load shedding activation command;

creating, by an application programming interface (API) frontend of the AMI load shedding system, the load shedding event;

sending, by the API frontend, a request for tokens to the authorization token service, the tokens including the load shedding token and a load restoration token;

receiving, by the API frontend, the load shedding token and the load restoration

token from the authorization token service;

loading, by the API frontend, the load shedding token and the load restoration token into the load shedding event;

receiving, by the API frontend, a load shedding activation command;

in response to receiving the load shedding activation command, deploying, by the API frontend, the load shedding token to a target group of electricity meters of the AMI load shedding system in accordance with the policy; and

causing the group of electricity meters to disconnect corresponding loads based at least in part on the load shedding token.

17. The non-transitory computer-readable storage medium of claim 16, wherein the operations further comprise:

receiving, by the API frontend, a load restoration activation command;

in response to receiving the load restoration activation command, deploying, by the API frontend, the load restoration token to the target group of electricity meters; and

causing the target group of electricity meters to reconnect the disconnected loads based at least in part on the load restoration token.

18. The non-transitory computer-readable storage medium of claim 17, wherein: the load shedding token and the load restoration token are encrypted,

receiving, by the API frontend, the load shedding activation command includes:

receiving, by the authorization token service, the load shedding

activation command,

transmitting, by the authorization token service, a key to the API frontend, and

decrypting, by the API frontend, the load shedding token and the load restoration token using the key, and

deploying, by the API frontend, the load shedding token to the target group of electricity meters includes:

deploying, by the API frontend, the decrypted load shedding token to the target group of electricity meters.

19. The non-transitory computer-readable storage medium of claim 17, wherein:
the load shedding token and the load restoration token are encrypted,
loading, by the API frontend, the load shedding token and the load restoration token into the load shedding event includes:

forwarding, by the API frontend, the load shedding token and the load restoration token to a distributed agent of the AMI load shedding system, and

caching, by the distributed agent, the load shedding token and the load restoration token,

receiving, by the API frontend, the load shedding activation command includes:

receiving, by the authorization token service, the load shedding activation command,

transmitting, by the authorization token service, a key to the API

frontend,

forwarding, by the API frontend, the key to the distributed agent of the AMI load shedding system, and

decrypting, by the distributed agent, the load shedding token and the load restoration token using the key, and

deploying, by the API frontend, the load shedding token to the target group of electricity meters includes:

deploying, by the distributed agent, the decrypted load shedding token to the target group of electricity meters.

20. The non-transitory computer-readable storage medium of claim 19, wherein deploying, by the API frontend, the load restoration token to the target group of electricity meters includes:

sending, by the API frontend, a command and timer information to the distributed agent; and

deploying, by the distributed agent, the load restoration token to the target group of electricity meters based on the command and the timer information.