CLAIMS

What is claimed is:

1. A system, comprising:

an electric actuator, comprising:

an actuation stem;

a screw assembly coupled to the actuation stem, wherein the screw assembly comprises a male screw portion coupled to a female screw portion;

an electric drive coupled to the screw assembly, wherein the electric drive is configured to move the screw assembly to move the actuation stem; and

a lock configured to hold a position of the actuation stem when not driving movement of the actuation stem and

an override coupled to the screw assembly and configured to enable an override of the lock to move the screw assembly without the electric drive,

wherein the override and the electric drive are disposed in a series arrangement,

wherein the override and the electric drive are coupled to a first gear assembly, the first gear assembly being coupled to the screw assembly,

wherein the first gear assembly comprises a worm gear engaged with a worm screw, and the override and the electric drive are separately coupled to the worm screw, and

wherein an engagement between the worm gear and the worm screw of the first gear assembly functions as the lock.

2. The system of claim 1, comprising a valve assembly coupled to the electric actuator, wherein the actuation stem comprises a valve stem coupled to a valve disposed in a valve body of the valve assembly.

3. The system of claim 2, wherein the lock is configured to hold the position of the actuation stem to hold a valve position of the valve.

4. The system of claim 1, wherein the override comprises a remotely operated vehicle (ROV) override configured to interface with an ROV tool.

5. The system of claim 1, wherein the electric actuator comprises a second gear assembly disposed between the first gear assembly and the override, wherein the second gear assembly comprises one or more planetary gear assemblies.

6. The system of claim 5, wherein the electric actuator comprises a third gear assembly disposed between the first and second gear assemblies, wherein the third gear assembly comprises a plurality of bevel gears engaged with one another.

7. The system of claim 1, wherein the electric drive is retrievable via a remotely operated vehicle (ROV).

8. The system of claim 1, wherein the electric actuator comprises an energy storage unit coupled to the electric drive.

9. The system of claim 1, wherein the first gear assembly comprises a second lock, wherein the second lock comprises an electric lock, an electromagnetic lock, a mechanical lock, a fluid lock, or a combination thereof.

10. The system of claim 1, wherein the electric actuator excludes a spring configured to bias the actuation stem.

11. A method, comprising:

powering an electric drive to move a screw assembly to move an actuation stem of an electric actuator, wherein the screw assembly comprises a male screw portion coupled to a female screw portion, and the screw assembly is coupled to the actuation stem;

holding, via a lock, a position of the actuation stem when not driving movement of the actuation stem; and

overriding the lock, via an override, and moving the screw assembly to move the actuation stem without the electric drive,

wherein the override and the electric drive are disposed in a series arrangement,

wherein the override and the electric drive are coupled to a first gear assembly, the first gear assembly being coupled to the screw assembly,

wherein the first gear assembly comprises a worm gear engaged with a worm screw, and the override and the electric drive are separately coupled to the worm screw, and

wherein an engagement between the worm gear and the worm screw of the first gear assembly functions as the lock.

12. The method of claim 11, comprising actuating a valve of a valve assembly via movement of the actuation stem by the electric actuator, wherein powering the electric drive comprises supplying the power from an energy storage unit.

13. A system, comprising:

a valve assembly having a valve disposed in a valve body; and

an electric actuator, comprising:

an actuation stem coupled to the valve;

a screw assembly coupled to the actuation stem, wherein the screw assembly comprises a male screw portion coupled to a female screw portion;

an electric drive coupled to the screw assembly, wherein the electric drive is configured to move the screw assembly to move the actuation stem;

a lock configured to hold a position of the actuation stem when not driving movement of the actuation stem; and

an override coupled to the screw assembly, wherein the override is configured to enable an override of the lock to move the screw assembly without the electric drive, and the override comprises a remotely operated vehicle (ROV) override,

wherein the override and the electric drive are disposed in a series arrangement,

wherein the override and the electric drive are coupled to a first gear assembly, the first gear assembly being coupled to the screw assembly,

wherein the first gear assembly comprises a worm gear engaged with a worm screw, and the override and the electric drive are separately coupled to the worm screw, and

wherein an engagement between the worm gear and the worm screw of the first gear assembly functions as the lock.

14. The system of claim 13, wherein the lock is configured to hold the position of the actuation stem to hold a valve position of the valve.

15. The system of claim 13, wherein the ROV override is configured to interface with an ROV tool.

16. The system of claim 13, wherein the electric actuator comprises a second gear assembly disposed between the first gear assembly and the override, wherein the second gear assembly comprises one or more planetary gear assemblies.

17. The system of claim 16, wherein the electric actuator comprises a third gear assembly disposed between the first and second gear assemblies, wherein the third gear assembly comprises a plurality of bevel gears engaged with one another.

18. The system of claim 13, wherein the electric drive is retrievable via a remotely operated vehicle (ROV).

19. The system of claim 13, wherein the electric actuator comprises an energy storage unit coupled to the electric drive.

20. The system of claim 13, wherein the electric actuator excludes a spring configured to bias the actuation stem.