## SUMMARY

**[0007]** In ~~one~~ embodiments of the present invention, there is provided a device and method of storing electrical energy near a well on the sea floor and activating well control equipment with the stored electrical energy. According to a first aspect of the present invention, there is provided a method comprising: storing electrical energy near a well on the sea floor; and activating well control equipment with the stored electrical energy. Subsea actuators on sea floor equipment may include an electrical design. Subsea actuators may alternatively include a hybrid electrical/mechanical design, in which a main hydraulic power valve may be electrically controlled, allowing one or more electrically powered hydraulic pumps to operate a shear ram in combination with, or independently of, a pressurized hydraulic system. According to one embodiment, cylinders in the shear ram are moved a first distance under stored electrical power and are then moved a second distance under stored hydraulic energy, where the first distance may be the portion of a path the shear ram traverses before contacting an obstruction, such as a drill pipe.

**[0008]** According to ~~another embodiment~~the disclosure, stored electrical energy may be used to operate a pump to generate hydraulic pressure. The generated hydraulic pressure may be stored at the sea floor. In certain embodiments, hydraulic fluid may be recaptured for later use, rather than exhausting the fluid to the sea. Excess hydraulic fluid may be stored at ambient pressure near the well on the sea floor. This excess hydraulic fluid may be pressurized by the subsea pump using stored electrical energy. In one embodiment, a remotely-operated vehicle (ROV) may deliver either ambient-pressure hydraulic fluid or pressurized, hydraulic fluid. When pressurized fluid is delivered by the ROV, the hydraulic energy from the ROV, may operate a subsea pump as a generator to recharge the stored electrical energy in certain embodiments.

**[0009]** According to ~~one embodiment~~the disclosure, the device and method include a complete stand-alone power and communications system, multiple sensors, event and signature memory, closed-loop feedback on mechanical positioning, and math models of actuator processes. Well control equipment may be activated based on data received from one or more sensors near the well. In one embodiment, data may be wirelessly received from a sensor near the well. In certain embodiments, data received from one or more sensors may be recorded for a period of

time and compared to event signatures for the purpose of determining that an event has occurred. In addition, the overall state of the BOP or well control equipment may be determined from the received data.

**[0010]** According to ~~one embodiment~~a second aspect of the present invention, there is provided an apparatus comprising well control equipment and a subsea electrical power supply coupled to the well control equipment and configured to operate the well control equipment. There is an apparatus further comprising a hydraulic reservoir and a hydraulic line coupled to the hydraulic reservoir and coupled to the well control equipment, the hydraulic line configured to operate the well control equipment in combination with the subsea electrical power supply. In one embodiment, the apparatus further comprises a hydraulic valve, a hydraulic actuator coupled to the hydraulic valve, and a control system coupled to the hydraulic actuator and coupled to the subsea energy storage system, the control system configured to operate the well control equipment with electrical energy from the subsea electrical power supply and hydraulic energy from the hydraulic line. In still another embodiment, the well control equipment comprises a shear ram. Subsea energy storage is used to move the shear ram a first distance and a hydraulic actuator is used to move the shear ram a second distance.

**[0011]** In certain embodiments, the apparatus further comprises a sensor coupled to the control system, in which the control system is configured to activate the well control equipment based, at least in part, on data received from the sensor. In one embodiment, the well control equipment is wirelessly coupled to the control system. In another embodiment, the control system is wirelessly coupled to the sensor. According to one embodiment, the apparatus is further configured to record data from the sensor for a period of time, compare the recorded data to predetermined event signatures, and determine an event has occurred based on the step of comparing. According to another embodiment, the subsea power supply is configured to independently operate the well control equipment. In still another embodiment, the apparatus further comprises a subsea pump coupled to the hydraulic line and coupled to the subsea