can cause erroneous data to be passed to the compartments protected by barrier 150. The consequences erroneous data can disable or otherwise compromise the operation of the equipment in a compartment that has not been damaged by a fire or flood.

## BRIEF SUMMARY

**[0011]** Reducing the reliance of a breaker on input from other breakers can improve the resiliency of a power system. For example, each breaker can independently execute a method for determining when a breaker is safe to close. Providing each breaker with the capability to independently execute such a method can reduce or eliminate reliance of each breaker on other breakers. The improved resiliency of a power system employing the autonomous breakers may result from a lower likelihood that one breaker operating erroneously can cause all breakers to operate erroneously. Thus, a power system can continue to operate normally even though one breaker may become inoperable.

**[0012]** According to ~~one embodiment~~ a first aspect of the present invention, there is provided a method, ~~for determining when to close a breaker includes~~ comprising applying a first current to a first bus coupled to a breaker. The method may also include measuring a first impedance of the first bus after applying the first current to the first bus; ~~in order to determine~~ determining if a fault exists on the first bus~~.~~ based, at least in part, on the measured first impedance; and ~~If no fault is determined to exist on the first bus, the method may further include~~ coupling the first bus to a second bus coupled to the breaker when no fault exists on the first bus.

**[0013]** The method can include applying the current to the first bus through a potential transformer. The method can be initiated by receiving a command, at a controller, to close the breaker. Furthermore, the method can include checking the status of the first bus and instructing, by a controller, a contactor coupled to a sensor to either close or open. The sensor can be a voltage sensor, a current sensor, or both a voltage and current sensor.

**[0014]** According to an embodiment, the method can also include determining a fault detection procedure to implement based, in part, on the measured first impedance of the first bus. The method can also include processing the measured first impedance of the first bus in order to determine the status of the bus. Instructions within a controller can be executed to select the fault detection procedure to implement based, in part, on the determined status of the first bus.

**[0015]** The method can include instructing, by a controller, a contactor coupled to the sensor to close or open when implementing the selected fault detection procedure. A second current can be applied to the first bus in order to measure a second impedance of the first bus. The second measured impedance can be processed by a controller to determine whether a fault exists on the first bus.

**[0016]** According to an embodiment, the measuring of the impedance of a bus can be performed by measuring a voltage, a current, or both a voltage and a current of the bus. Furthermore, the coupling of the first bus to at least a second bus can be performed by first synchronizing the first bus to a second bus, and then closing the breaker between the first and the second bus. Moreover, the coupling of the first bus to the second bus can result in the coupling of a generator to a load on a drilling vessel.

**[0017]** According to ~~another embodiment~~ a second aspect of the present invention, there is provided an apparatus ~~includes~~comprising a breaker coupled between a first bus and a second bus; a first potential transformer coupled to a controller and the first bus; and a second potential transformer coupled to the controller and the second bus, in which the~~. The apparatus also includes a~~ controller is coupled to the breaker ~~that allows the apparatus to operate autonomously. The controller can be~~ and configured; to apply ~~the~~a first current to the first bus; ~~coupled to the breaker. The controller can also be configured~~ to measure a first impedance of the first bus~~;~~ after applying the first current to the first bus; and to determine if a fault exists on the first bus based, at least in part, on the measured first impedance. ~~The apparatus can also include at least one potential transformer coupled to the controller and the first bus and at least one other potential transformer coupled to the controller and the second bus.~~

[0017a] According to a third aspect of the present invention, there is provided an apparatus, comprising: a breaker coupled to a first bus and a second bus; means for applying a first current to the first bus; and a controller coupled to the first current applying means, in which the controller is configured: to determine if a fault exists on the first bus; and to couple the first bus to a second bus coupled to the breaker when no fault exists on the first bus.

**[0018]** The apparatus can also include devices that protect, such as a protection circuit coupled to the breaker and an external protection system, or devices that control the internal components of the breaker, such as an operator interface. The apparatus can also include a device for performing measurements on the breaker, such as a universal measuring transducer, coupled to the controller and to an external bus. Furthermore, the apparatus can include synchronization circuitry, such as a synchronizer coupled to an external power source. Other synchronization circuitry can include a sync check relay coupled to the operator interface and to an external power source control circuit. The protection circuit, universal measuring transducer, synchronizer, sync check relay, and/or the controller can be part of a control circuit within the apparatus.