WHAT IS CLAIMED IS:

1. A method of maintaining electrical power to electrical systems in operation during reconfiguration or maintenance of a power distribution system for the electrical systems, comprising:

coupling a set of input lines to a power source such that the input lines are connected to at least one phase of AC power from the power source;

coupling a set of feed lines to a power distribution unit that is supplying primary power to one or more systems;

testing the set of feed lines and the set of input lines to determine a match between at least one pair of lines in the set of feed lines and at least one pair of lines in the set of input lines, wherein determining the match comprises matching the phase of the at least one pair of feed lines with the phase of the at least one pair of input lines; and

coupling the at least one pair of feed lines to the matching at least one pair of input lines while primary power is maintained to the systems and the systems are operating; and

disconnecting or disabling primary power at one or more points in a primary power chain.

2. The method of claim 1, further comprising performing at least one reconfiguration operation on the power distribution system while primary power is disconnected or disabled and the feed is supplying power to the systems.

3. The method of claim 1, further comprising:

performing at least one reconfiguration or maintenance operation on the power distribution system while primary power is disconnected or disabled and the feed is supplying power to the systems;

reconnecting or re-enabling the primary power after performing the at least one reconfiguration or maintenance operation; and

disconnecting the feed after primary power has been reconnected or re-enabled.

4. A system for supplying power during reconfiguration or maintenance of a primary power system, comprising:

one or more feed cables comprising a set of feed lines, wherein the set of feed lines is configured to couple with an output receptacle of a power distribution unit;

an input cable comprising a set of input lines configured to couple with a power source;

a synchronization system configurable to test one or more lines of the feed cable and one or more lines of the input cable to establish a match of phase and polarity between at least one pair of lines in the set of feed lines and at least one pair of lines in the set of input lines; and

a coupling system configured to couple at least one pair of lines from the set of feed lines to at least one matching pair of lines from the set of input lines.

5. The system of claim 4, wherein the coupling system comprises:

a phase selection panel comprising two or more receptacles coupled to the set of input lines, wherein each of at least one of the receptacles is configured to supply power from the source power supply in a different phase or different polarity from at least one other of the receptacles; and

a feed unit input cable coupled to at least one of the feed cables, wherein the feed unit input cable is configured to plug into at least two of the receptacles in the phase selection panel to establish a feed from the input lines to the feed lines.

6. The system of claim 4, further comprising a paralleling panel comprising two or more output receptacles, wherein each of at least two of the output receptacles are configured to supply power to at least one of the feed cables.

7. The system of claim 6, wherein the paralleling panel comprises at least one switch configured to switch power in at least one of the feed lines.

8. The system of claim 6, wherein the paralleling panel comprises at least one meter configurable to display the amount of current in at least one of the feed lines.

9. The system of claim 4, further comprising at least one meter configurable to test synchronization of the feed lines with the input lines.

10. The system of claim 4, wherein the system is configured to automatically determine a match between at least one pair lines and at least one pair of lines of the input lines.

11. The system of claim 4, wherein the system is configured to automatically couple at least one pair lines with at least one matching pair of lines of the input lines.

12. The system of claim 4, further comprising a circuit breaker configured for installation in a floor power distribution unit, wherein the input cable is configured to couple with the circuit breaker.

13. A system for supplying power during reconfiguration or maintenance of a primary power system, comprising:

a set of input lines configurable to supply power in at least two phases from a source power supply;

a phase selection panel comprising two or more receptacles coupled to the set of input lines, wherein each of at least one of the receptacles is configured to supply power from the source power supply in a different phase or different polarity from at least one other of the receptacles; and

a set of feed lines configurable to supply power from the phase selection panel to at least one electrical load.

14. The system of claim 13, further comprising a feed unit input cable coupled to set of feed lines, wherein the feed unit input cable is configured to plug into at least two of the receptacles in the phase selection panel to establish a feed from the input lines to the feed lines.

15. The system of claim 13, wherein the set of input lines is configurable to supply power in three phases from the source power supply, wherein the phase selection panel comprises at least one receptacle for each phase combination of the three phase power in the set of input lines.

16. The system of claim 13, further comprising at least one meter configurable to test synchronization between lines in the feed lines and one or more lines.

CLAIMS:

1. A method of adding a power feed to systems while the systems are in operation, comprising:

coupling a set of input lines to a power source such that the input lines are connected to at least one phase of AC power from the power source;

coupling a set of backfeed lines to an output receptacle in a power distribution unit, wherein the output receptacle is connected in parallel with at least one other output receptacle, wherein the at least one other output receptacle is supplying primary power to one or more systems;

testing the set of backfeed lines and the set of input lines to determine a match between at least one pair of lines in the set of backfeed lines and at least one pair of lines in the set of input lines, wherein determining the match comprises matching the phase of the at least one pair of backfeed lines with the phase of the at least one pair of input lines; and

coupling the at least one pair of backfeed lines to the matching at least one pair of input lines while primary power is maintained to the systems and the systems are operating.

2. The method of claim 1, wherein the power supplied to the input lines comprises three phase power,

wherein testing the set of backfeed lines and the set of input lines to determine a match comprises determining the phase and polarity of at least one pair of the backfeed lines; and

wherein coupling the at least one pair of backfeed lines to the matching at least one pair of input lines comprises coupling the at least one pair of backfeed lines to a pair of input lines that matches the phase and polarity of the at least one pair of backfeed lines.

3. The method of claim 1, wherein coupling the at least one pair of backfeed lines to the matching at least one pair of input lines comprises installing a feed unit input cable plug coupled to at least one pair of the backfeed lines into a phase selection panel receptacle that is coupled to a matching pair of lines of the set of input lines.

4. The method of claim 1, wherein testing the set of backfeed lines and the set of input lines comprises determining a match between a waveform of a pair of the input lines with a waveform of a pair of backfeed lines.

5. The method of claim 1, wherein the power distribution unit is a rack power distribution unit configured to supply power to one or more computer systems in one or more racks in a data center.

6. The method of claim 1, wherein the power distribution unit is a floor power distribution unit, wherein the power distribution unit is configured to supply power to one or more computer systems in a rack.

7. The method of claim 1, wherein the power source is in a primary power chain for the systems.

8. The method of claim 1, wherein the power source is primary side floor power distribution unit.

9. The method of claim 1, wherein the power source is separate from a primary power distribution system.

10. The method of claim 1, wherein at least a portion of the tests to establish a match are performed automatically.

11. The method of claim 1, wherein coupling the at least one pair of backfeed lines to the matching at least one pair of input lines is performed automatically.

12. A method of maintaining electrical power to electrical systems in operation during reconfiguration or maintenance of a power distribution system for the electrical systems, comprising:

coupling a set of input lines to a power source such that the input lines are connected to at least one phase of AC power from the power source;

coupling a set of feed lines to a power distribution unit that is supplying primary power to one or more systems;

testing the set of feed lines and the set of input lines to determine a match between at least one pair of lines in the set of feed lines and at least one pair of lines in the set of input lines, wherein determining the match comprises matching the phase of the at least one pair of feed lines with the phase of the at least one pair of input lines; and

coupling the at least one pair of feed lines to the matching at least one pair of input lines while primary power is maintained to the systems and the systems are operating; and

disconnecting or disabling primary power at one or more points in a primary power chain.

13. The method of claim 12, further comprising performing at least one reconfiguration operation on the power distribution system while primary power is disconnected or disabled and the feed is supplying power to the systems.

14. The method of claim 13, wherein performing the at least one reconfiguration operation comprises connecting a reserve power system to the power distribution system.

15. The method of claim 13, wherein performing the at least one reconfiguration operation comprises coupling an automatic transfer switch between a floor power distribution unit and a rack power distribution unit.

16. The method of claim 12, further comprising performing at least one maintenance operation on the power distribution system while primary power is disconnected or disabled and the feed is supplying power to the systems.

17. The method of claim 12, further comprising:

performing at least one reconfiguration or maintenance operation on the power distribution system while primary power is disconnected or disabled and the feed is supplying power to the systems;

reconnecting or re-enabling the primary power after performing the at least one reconfiguration or maintenance operation; and

disconnecting the feed after primary power has been reconnected or re-enabled.

18. A system for supplying power during reconfiguration or maintenance of a primary power system, comprising:

one or more feed cables comprising a set of feed lines, wherein the set of feed lines is configured to couple with an output receptacle of a power distribution unit;

an input cable comprising a set of input lines configured to couple with a power source;

a synchronization system configurable to test one or more lines of the feed cable and one or more lines of the input cable to establish a match of phase and polarity between at least one pair of lines in the set of feed lines and at least one pair of lines in the set of input lines; and

a coupling system configured to couple at least one pair of lines from the set of feed lines to at least one matching pair of lines from the set of input lines.

19. The system of claim 18, wherein the coupling system comprises:

a phase selection panel comprising two or more receptacles coupled to the set of input lines, wherein each of at least one of the receptacles is configured to supply power from the source power supply in a different phase or different polarity from at least one other of the receptacles; and

a feed unit input cable coupled to at least one of the feed cables, wherein the feed unit input cable is configured to plug into at least two of the receptacles in the phase selection panel to establish a feed from the input lines to the feed lines.

20. The system of claim 18, further comprising a paralleling panel comprising two or more output receptacles, wherein each of at least two of the output receptacles are configured to supply power to at least one of the feed cables.

21. The system of claim 20, wherein the paralleling panel comprises at least one switch configured to switch power in at least one of the feed lines.

22. The system of claim 20, wherein the paralleling panel comprises at least one switch configured to switch power in at least one of the input lines.

23. The system of claim 20, wherein the paralleling panel comprises at least one meter configurable to display the amount of current in at least one of the feed lines.

24. The system of claim 20, wherein the paralleling panel comprises at least one meter configurable to display the amount of current in at least one of the input lines.

25. The system of claim 18, further comprising at least one meter configurable to test synchronization of the feed lines with the input lines.

26. The system of claim 18, wherein the system is configured to automatically determine a match between at least one pair lines and at least one pair of lines of the input lines.

27. The system of claim 18, wherein the system is configured to automatically couple at least one pair lines with at least one matching pair of lines of the input lines.

28. The system of claim 18, further comprising a circuit breaker configured for installation in a floor power distribution unit, wherein the input cable is configured to couple with the circuit breaker.

29. A system for supplying power during reconfiguration or maintenance of a primary power system, comprising:

a set of input lines configurable to supply power in at least two phases from a source power supply;

a phase selection panel comprising two or more receptacles coupled to the set of input lines, wherein each of at least one of the receptacles is configured to supply power from the source power supply in a different phase or different polarity from at least one other of the receptacles; and

a set of feed lines configurable to supply power from the phase selection panel to at least one electrical load.

30. The system of claim 29, further comprising a feed unit input cable coupled to set of feed lines, wherein the feed unit input cable is configured to plug into at least two of the receptacles in the phase selection panel to establish a feed from the input lines to the feed lines.

31. The system of claim 29, wherein the set of input lines is configurable to supply power in three phases from the source power supply, wherein the phase selection panel comprises at least one receptacle for each phase combination of the three phase power in the set of input lines.

32. The system of claim 29, further comprising at least one meter configurable to test synchronization between lines in the feed lines and one or more lines.