CLAIMS

1. A method of supplying power in a power grid, the method comprising:

determining an initial forward probabilistic power supply time profile of an aggregate intermittent power source connected to the power grid;

determining a target power demand time profile of at least one load connected to the power grid; and

associating at least respective portions of the initial forward probabilistic power supply time profile and the target demand time profile such that a probability of supply of power from the intermittent power source to the load meets a specified criterion.

2. The method as claimed in claim 1, further comprising generating an updated forward probabilistic power supply profile based on the associated portion of the initial forward probabilistic power supply time profile being dedicated to the load.

3. The method as claimed in claims 1 or 2, further comprising outputting a forward probabilistic intermittent power supply contribution for the load based on the associated at least respective portions of the initial forward probabilistic power supply time profile and the target demand time profile.

4. The method as claimed in any one of claims 1 to 3, wherein the probability is calculated based on an expectation value of a cross-correlation of the initial forward probabilistic power supply time profile and the target demand time profile.

5. The method as claimed in any one of claims 1 to 4, wherein associating the at least respective portions of the forward probabilistic power supply profile and the target demand time profile is based on a priority level of the load, the method further comprising dedicating a subset of intermittent power generating facilities of the aggregated intermittent power source to the supply for a highest priority load and generating the updated forward probabilistic power supply profile based on excluding the subset.

6. The method as claimed in any one of claims 1 to 5, further comprising determining whether a measured supply of power from the aggregate intermittent power source to the load meets the specified criterion and generating an actual intermittent power supply contribution for the loads based on the measured supply of power.

7. The method as claimed in any one of claims 1 to 6, further comprising validating one or more consumer constraints associated with the loads.

8. The method as claimed in any one of claims 1 to 7, wherein the aggregate intermittent power source comprises one or more intermittent power generating facilities connected to the power grid.

9. The method as claimed in any one of claims 1 to 8, wherein the specified criterion comprises one or more of a group consisting of at least one percentage blend, at least one penetration ratio, at least one cross-correlation, and at least one correlation among a secondary source and the load.

10. A system supplying power in a power grid, the system comprising:

means for determining an initial forward probabilistic power supply time profile of an aggregate intermittent power source connected to the power grid;

means for determining a target power demand time profile of at least one load connected to the power grid; and

means for associating at least respective portions of the initial forward probabilistic power supply time profile and the target demand time profile such that a probability of supply of power from the intermittent power source to the load meets a specified criterion.

11. The system as claimed in claim 10, further comprising means for generating an updated forward probabilistic power supply profile based on the associated portion of the initial forward probabilistic power supply time profile being dedicated to the load.

12. The system as claimed in claims 10 or 11, further comprising means for outputting a forward probabilistic intermittent power supply contribution for the load based on the associated at least respective portions of the initial forward probabilistic power supply time profile and the target demand time profile.

13. The system as claimed in any one of claims 10 to 12, wherein the probability is calculated based on an expectation value of a cross-correlation of the initial forward probabilistic power supply time profile and the target demand time profile.

14. The system as claimed in any one of claims 10 to 13, wherein associating the at least respective portions of the forward probabilistic power supply profile and the target demand time profile is based on a priority level of the load, the method further comprising dedicating a subset of intermittent power generating facilities of the aggregated intermittent power source to the supply for a highest priority load and generating the updated forward probabilistic power supply profile based on excluding the subset.

15. The system as claimed in any one of claims 10 to 14, further comprising means for determining whether a measured supply of power from the aggregate intermittent power source to the load meets the specified criterion and generating an actual intermittent power supply contribution for the loads based on the measured supply of power.

16. The system as claimed in any one of claims 10 to 15, further comprising means for validating one or more consumer constraints associated with the loads.

17. The system as claimed in any one of claims 10 to 16, wherein the aggregate intermittent power source comprises one or more intermittent power generating facilities connected to the power grid.

18. The system as claimed in any one of claims 10 to 17, wherein the specified criterion comprises one or more of a group consisting of at least one percentage blend, at least one penetration ratio, at least one cross-correlation, and at least one correlation among a secondary source and the load.

19. A method of consolidating power injection and consumption in a power grid, the method comprising:

determining an actual power supply of an aggregate intermittent power source connected to the power grid at a time;

determining an actual power consumption of a load connected to the power grid at the time;

associating at least respective portions of the actual power supply and the actual power consumption;

determining an actual intermittent power supply contribution for the load based on the associated respective portions of the actual power supply and the actual power consumption; and

determining whether the determined actual intermittent power supply contribution from the aggregate intermittent power source to the load meets a specified criterion;

further comprising updating a forward probabilistic intermittent power supply contribution for the load based on whether the actual supply of power from the aggregate intermittent power source to the load meets the specified criterion.

20. The method as claimed in claim 19, wherein the specified criterion comprises one or more of a group consisting of at least one percentage blend, at least one penetration ratio, at least one cross-correlation, and at least one correlation among a secondary source and the load.

21. The method as claimed in claims 19 or 20, wherein associating the at least respective portions of the actual power supply and the actual power consumption is based on a priority level of the load.

22. The method as claimed in claim 21, further comprising associating respective portions of the actual power supply and the actual power consumption of a highest priority level load, prior to associating respective portions of a remaining actual power supply and the actual power consumption of a lower priority level load.

23. The method as claimed in any one of claims 19 to 22, further comprising validating one or more consumer constraints associated with the load.

24. The method as claimed in any one of claims 19 to 23, wherein the aggregate intermittent power source comprises one or more intermittent power generating facilities connected to the power grid.

25. A system for consolidating power injection and consumption in a power grid, the system comprising:

means for determining an actual power supply of an aggregate intermittent power source connected to the power grid at a time;

means for determining an actual power consumption of a load connected to the power grid at the time;

means for associating at least respective portions of the actual power supply and the actual power consumption;

means for determining an actual intermittent power supply contribution for the load based on the associated respective portions of the actual power supply and the actual power consumption; and

means for determining whether the determined actual intermittent power supply contribution from the aggregate intermittent power source to the load meets a specified criterion;

further comprising means for updating a forward probabilistic intermittent power supply contribution for the load based on whether the actual supply of power from the aggregate intermittent power source to the load meets the specified criterion.

26. The system as claimed in claim 25, wherein the specified criterion comprises one or more of a group consisting of at least one percentage blend, at least one penetration ratio, at least one cross-correlation, and at least one correlation among a secondary source and the load.

27. The system as claimed in claims 25 or 26, wherein associating the at least respective portions of the actual power supply and the actual power consumption is based on a priority level of the load.

28. The system as claimed in claim 27, further comprising means for associating respective portions of the actual power supply and the actual power consumption of a highest priority level load, prior to associating respective portions of a remaining actual power supply and the actual power consumption of a lower priority level load.

29. The system as claimed in any one of claims 25 to 28, further comprising means for validating one or more consumer constraints associated with the load.

30. The system as claimed in any one of claims 25 to 29, wherein the aggregate intermittent power source comprises one or more intermittent power generating facilities connected to the power grid.

31. A metering system for a power grid comprising:

means for metering power supply of an aggregate intermittent power source connected to the power grid;

means for metering power consumption of a load connected to the power grid at the time;

means for metering an intermittent power supply contribution for the load based on the metered power supply and the metered power consumption; and

means for determining whether the intermittent power supply contribution meets a specified criterion;

further comprising means for updating a forward probabilistic intermittent power supply contribution for the load based on whether the intermittent power supply contribution meets the specified criterion.

32. The system as claimed in claim 31, wherein the means for metering the intermittent power supply contribution is configured to associate at least respective portions of the metered power supply and the metered power consumption.

33. The system as claimed in claim 32, wherein the means for metering the intermittent power supply contribution is configured to associate the respective portions of the metered power supply and the metered power consumption based on a priority level of the load.

34. The system as claimed in claim 33, wherein the means for metering the intermittent power supply contribution is configured to associate the respective portions of the metered power supply and the metered power consumption of a highest priority level load, prior to associating respective portions of a remaining portion of the metered power supply and the metered power consumption of a lower priority level load.

35. The system as claimed in any one of claims 31 to 34, wherein the specified criterion comprises one or more of a group consisting of at least one percentage blend, at least one penetration ratio, at least one cross-correlation, and at least one correlation among a secondary source and the load.

36. The system as claimed in any one of claims 31 to 35, further comprising means for validating one or more consumer constraints associated with the load.

37. The system as claimed in any one of claims 31 to 36, wherein the aggregate intermittent power source comprises one or more intermittent power generating facilities connected to the power grid.

38. A metering method for a power grid comprising:

metering power supply of an aggregate intermittent power source connected to the power grid;

metering power consumption of a load connected to the power grid at the time;

metering an intermittent power supply contribution for the load based on the metered power supply and the metered power consumption; and

determining whether the intermittent power supply contribution meets a specified criterion;

further comprising updating a forward probabilistic intermittent power supply contribution for the load based on whether the intermittent power supply contribution meets the specified criterion.

39. The method as claimed in claim 38 wherein the metering the intermittent power supply contribution is configured to associate at least respective portions of the metered power supply and the metered power consumption.

40. The method as claimed in claim 39, wherein the metering the intermittent power supply contribution is configured to associate the respective portions of the metered power supply and the metered power consumption based on a priority level of the load.

41. The method as claimed in claim 40, wherein the metering the intermittent power supply contribution is configured to associate the respective portions of the metered power supply and the metered power consumption of a highest priority level load, prior to associating respective portions of a remaining portion of the metered power supply and the metered power consumption of a lower priority level load.

42. The method as claimed in any one of claims 38 to 41, wherein the specified criterion comprises one or more of a group consisting of at least one percentage blend, at least one penetration ratio, at least one cross-correlation, and at least one correlation among a secondary source and the load.

43. The method as claimed in any one of claims 38 to 42, further comprising validating one or more consumer constraints associated with the load.

44. The method as claimed in any one of claims 38 to 43, wherein the aggregate intermittent power source comprises one or more intermittent power generating facilities connected to the power grid.