WHAT IS CLAIMED IS:

1. A hydronic system, comprising:

an air to liquid heat pump interfacing with a first source circuit to outdoor ambient and hydronically connected to a first load circuit having a first load, a first load input and a first load output;

at least one hydronic coil hydronically connected to the first load circuit;

a liquid to liquid heat pump interfacing with a second source circuit having a second source input and a second source output and hydronically connected to a second load circuit having a second load input and a second load output;

a water storage hydronically connected to the second load circuit, and hydronically connected to a water consumption circuit having a water supply input and a water consumption output;

an air to liquid heat exchanger interfacing with a third source circuit to the outdoor ambient and hydronically connected to a third load circuit which is hydronically connected to the second source circuit;

at least one tee fitting each respectively having a 3-way open passageway and hydronically connected to the air to liquid heat pump and the first load;

at least one 3-way valve each of which hydronically connects a corresponding one of the at least one tee fitting to the liquid to liquid heat pump; and

at least one controller configured to co-ordinate control of the at least one 3-way valve, the air to liquid heat pump, and the liquid to liquid heat pump.

2. The hydronic system as claimed in claim 1, further comprising at least one sensor to provide sensor data of the hydronic system, wherein the co-ordinate control is based on the sensor data.

3. The hydronic system as claimed in claim 2, wherein the at least one sensor includes at least one of a pressure sensor, a flow sensor, a temperature sensor, a pump motor speed sensor, or a power sensor.

4. The hydronic system as claimed in claim 2, wherein the at least one sensor is configured to respectively detect a property of the air to liquid heat pump and/or the liquid to liquid heat pump.

5. The hydronic system as claimed in claim 1, wherein the co-ordinate control includes controlling the at least one 3-way valve, the air to liquid heat pump, and the liquid to liquid heat pump to achieve a setpoint that is beyond an individual respective capacity of the air to liquid heat pump to the first load circuit or the liquid to liquid heat pump to the second load circuit.

6. The hydronic system as claimed in claim 1, wherein the co-ordinate control includes controlling the at least one 3-way valve, the air to liquid heat pump, and the liquid to liquid heat pump that uses less energy when compared to individual respective output of the air to liquid heat pump to the first load circuit or the liquid to liquid heat pump to the second load circuit.

7. The hydronic system as claimed in claim 1, wherein a first maximum capacity of the air to liquid heat pump is at most 60% of a first full load or a first design point of the first load circuit, and/or wherein a second maximum capacity of the liquid to liquid heat pump is at most 60% of a second full load or a second design point of the second load circuit.

8. The hydronic system as claimed in claim 1, wherein the co-ordinate control includes controlling the at least one 3-way valve to configure the air to liquid heat pump and the liquid to liquid heat pump in parallel operation.

9. The hydronic system as claimed in claim 1, wherein the co-ordinate control includes controlling the at least one 3-way valve to configure the air to liquid heat pump and the liquid to liquid heat pump in series operation.

10. The hydronic system as claimed in claim 1, further comprising at least one further heat pump and a respective further 3-way valve for the at least one further heat pump, wherein the co-ordinate control includes controlling the respective further 3-way valve to cause the at least one further heat pump to be in parallel and/or series operation with the air to liquid heat pump and/or the liquid to liquid heat pump.

11. The hydronic system as claimed in claim 1, wherein the at least one tee fitting includes:

a first tee fitting which hydronically connects the first load output to the first load,

a second tee fitting which hydronically connects the first load to the first load input,

a third tee fitting which hydronically connects the first load output to the first load, and

a fourth tee fitting which hydronically connects the first load to the first load input;

wherein the at least one 3-way valve includes:

a first 3-way valve which hydronically connects the first tee fitting to the second source input of the second source circuit;

a second 3-way valve which hydronically connects the second tee fitting to the second source output of the second source circuit;

a third 3-way valve which hydronically connects the third tee fitting to the second load output of the second load circuit; and

a fourth 3-way valve which hydronically connects the fourth tee fitting to the second load input of the second load circuit.

12. The hydronic system as claimed in claim 11, wherein the co-ordinate control includes changing a state of the at least one 3-way valve during sourcing to the first load circuit or to the second load circuit.

13. The hydronic system as claimed in claim 1, further comprising water or circulation fluid in the first load circuit, the second source circuit, and the second load circuit which is in a fully enclosed loop.

14. The hydronic system as claimed in claim 1, wherein at least one of the 3-way valves is a 3-way isolation diverter valve.

15. The hydronic system as claimed in claim 1, wherein at least one of the 3-way valves is a 3-way variable diverter valve, wherein the at least one controller is configured to change a state of the 3-way variable diverter valve to maintain a partial variable position.

16. The hydronic system as claimed in claim 1, further comprising a first variable pump at the first load circuit and a second variable pump at the second load circuit.

17. The hydronic system as claimed in claim 16, wherein the first variable pump is integrated with the air to liquid heat pump during factory assembly or onsite, or wherein the second variable pump is integrated with the liquid to liquid heat pump during the factory assembly or the onsite.

18. The hydronic system as claimed in claim 16, wherein a first maximum capacity of the first variable pump is at most 60% of a first full load or a first design point of the first load circuit, and/or wherein a second maximum capacity of the second variable pump is at most 60% of a second full load or a second design point of the second load circuit.

19. The hydronic system as claimed in claim 1, wherein the water storage is a tank water heater.

20. The hydronic system as claimed in claim 1, wherein the air to liquid heat exchanger includes a radiator interfacing with the outdoor ambient.

21. The hydronic system as claimed in claim 1, wherein the co-ordinate control includes further controlling at least one plant component, a microprocessor based device, or a sequence of controls.

22. The hydronic system as claimed in claim 1, wherein the air to liquid heat pump and the liquid to liquid heat pump is controlled by the at least one controller to operate in a heating mode or a cooling mode.

23. The hydronic system as claimed in claim 1, wherein the air to liquid heat pump includes a second liquid to liquid heat pump and a radiator interfacing with the first source circuit to the outdoor ambient.

24. A hydronic system, comprising:

a first heat pump interfacing with a first source circuit to outdoor ambient having a first source input and a first source output and hydronically connected to a first load circuit having a first load, a first load input and a first load output;

a second heat pump interfacing with a second source circuit having a second source input and a second source output and hydronically connected to a second load circuit having a second load input and a second load output;

an air to liquid heat exchanger interfacing with a third source circuit to the outdoor ambient and hydronically connected to a third load circuit to the second source circuit;

a plurality of tee fittings each respectively having a 3-way open passageway, including:

a first tee fitting which hydronically connects the first load output to the first load,

a second tee fitting which hydronically connects the first load to the first load input,

a third tee fitting which hydronically connects the first load output to the first load, and

a fourth tee fitting which hydronically connects the first load to the first load input;

a plurality of 3-way valves, including:

a first 3-way valve which hydronically connects the first tee fitting to the second source input of the second source circuit,

a second 3-way valve which hydronically connects the second tee fitting to the second source output of the second source circuit,

a third 3-way valve which hydronically connects the third tee fitting to the second load output of the second load circuit, and

a fourth 3-way valve which hydronically connects the fourth tee fitting to the second load input of the second load circuit; and

at least one controller configured to co-ordinate control of the plurality of 3-way valves, the first heat pump, and the second heat pump.

25. The hydronic system as claimed in claim 24, wherein the first heat pump is an air to liquid heat pump.

26. The hydronic system as claimed in claim 24, wherein the second heat pump is a liquid to liquid heat pump.

27. The hydronic system as claimed in claim 24, wherein the first heat pump includes a liquid to liquid heat pump and a radiator interfacing with the outdoor ambient.

28. The hydronic system as claimed in claim 24, further comprising at least one sensor to provide sensor data of the hydronic system, wherein the co-ordinate control is based on the sensor data.

29. The hydronic system as claimed in claim 28, wherein the at least one sensor includes at least one of a pressure sensor, a flow sensor, a temperature sensor, a pump motor speed sensor, or a power sensor.

30. The hydronic system as claimed in claim 28, wherein the at least one sensor respectively is configured to respectively detect a property of the first heat pump and/or the second heat pump.

31. The hydronic system as claimed in claim 24, wherein the co-ordinate control includes controlling the plurality of 3-way valves, the first heat pump, and the second heat pump to achieve a setpoint that is beyond an individual respective capacity of the

first heat pump to the first load circuit or the second heat pump to the second load circuit.

32. The hydronic system as claimed in claim 24, wherein the co-ordinate control includes controlling the plurality of 3-way valves, the first heat pump, and the second heat pump that uses less energy when compared to individual respective output of the first heat pump to the first load circuit or the second heat pump to the second load circuit.

33. The hydronic system as claimed in claim 24, wherein a first maximum capacity of the first heat pump at most 60% of a first full load or a first design point of the first load circuit, and/or wherein a second maximum capacity of the second heat pump is at most 60% of a second full load or a second design point of the second load circuit.

34. The hydronic system as claimed in claim 33, wherein the first maximum capacity is on or about 50%, and/or wherein the second maximum capacity is on or about 50%.

35. The hydronic system as claimed in claim 24, wherein the co-ordinate control includes controlling the plurality of 3-way valves to configure the first heat pump and the second heat pump in parallel operation.

36. The hydronic system as claimed in claim 24, wherein the co-ordinate control includes controlling the plurality of 3-way valves to configure the first heat pump and the second heat pump in series operation.

37. The hydronic system as claimed in claim 24, further comprising at least one further heat pump and a respective further 3-way valve for the at least one further heat pump, wherein the co-ordinate control includes controlling the respective further 3-way valve to cause the at least one further heat pump to be in parallel and/or series operation with the first heat pump and/or the second heat pump

38. The hydronic system as claimed in claim 24, wherein the co-ordinate control includes changing a state of at least one of the 3-way valves during sourcing to the first load circuit or to the second load circuit.

39. The hydronic system as claimed in claim 24, further comprising water or circulation fluid in the first load circuit, the second source circuit, and the second load circuit which is in a fully enclosed loop.

40. The hydronic system as claimed in claim 24, wherein at least one of the 3-way valves is a 3-way isolation diverter valve.

41. The hydronic system as claimed in claim 24, wherein at least one of the 3-way valves is a 3-way variable diverter valve, wherein the at least one controller is configured to change a state of the 3-way variable diverter valve to maintain a partial variable position.

42. The hydronic system as claimed in claim 24, further comprising a first variable pump at the first load circuit and a second variable pump at the second load circuit.

43. The hydronic system as claimed in claim 42, wherein the first variable pump is integrated with the first heat pump during factory assembly or onsite, or wherein the second variable pump is integrated with the second heat pump during the factory assembly or the onsite.

44. The hydronic system as claimed in claim 42, wherein a first maximum capacity of the first variable pump at most 60% of a first full load or a first design point of the first load circuit, and wherein a second maximum capacity of the second variable pump is at most 60% of a second full load or a second design point of the second load circuit.

45. The hydronic system as claimed in claim 44, wherein the first maximum capacity is on or about 50%, and/or wherein the second maximum capacity is on or about 50%.

46. The hydronic system as claimed in claim 24, wherein the co-ordinate control includes further controlling at least one plant component, a microprocessor based device, or a sequence of controls.

47. The hydronic system as claimed in claim 24, wherein the first heat pump and the second heat pump is controlled by the at least one controller to operate in a heating mode or a cooling mode.

48. The hydronic system as claimed in claim 24, wherein the first source circuit or the second source circuit is thermally coupled to a cooling source, wherein the cooling source comprises a ground source heat sink, a cooling tower, or natural water.

49. The hydronic system as claimed in claim 24, wherein the first source circuit or the second source circuit is thermally coupled to a heat source, wherein the heat source comprises a data center, hydrogen power, a district energy system, thermal energy storage, geothermal, a boiler, thermal solar, or waste water.

50. The hydronic system as claimed in claim 24, further comprising a water storage hydronically connected to the second load circuit, and hydronically connected to a water consumption circuit having a water supply input and a water consumption output.

51. A method of controlling the hydronic system as claimed in any one of claims 1-50, comprising changing a state of at least one of the 3-way valves.

52. The method as claimed in claim 51, wherein the changing the state includes causing a respective passageway between the air to liquid heat pump and the liquid to liquid heat pump as between the first load output and the second source input and as between the first load input and the second source output.

53. The method as claimed in claim 51, wherein the changing the state includes causing a respective passageway between the air to liquid heat pump and the liquid to

liquid heat pump as between the second load output and the first load output and as between the first load input and the second load input.

54. A non-transitory computer readable medium comprising instructions which, when executed by at least one controller, causes the at least one controller to perform the method of any one of claims 51-53.