We claim:

1. A computer implemented method implemented on a computer system including non-transient memory storing instructions for configuring a plurality of district metering areas within a utility supply network, comprising:

identifying a plurality of flow measurement devices, wherein each flow measurement device is connected by a directional connection to at least one other flow measurement device;

generating a flow-based functional utility supply network representation modelling the utility supply network topology and stored in the non-transient memory based on the directional connections between the flow measurement devices; and

generating a plurality of district metering areas for the utility supply network representation, each district metering area being a directed acyclic graph based on the directional connections and including a subset of the plurality of flow measuring devices and including at least one flow measurement device designated as a supply meter and at least one flow measurement device designated as a demand meter.

2. The method of claim 1, wherein at least one flow measurement device is designated as a supply meter in a first district metering area and designated as a demand meter in a second district metering area.

3. The method of claim 1, further including generating a listing of flow measurement devices that are not included in a subset for a district metering area for the utility supply network representation.

4. The method of claim 1, further including determining a net utility flow discrepancy based on a comparison of the aggregate supply flow, measured by flow meters designated as supply meters, and the aggregate demand flow, measured by flow meters designated as demand meters, preferably further including modifying the operation of one or more flow measurement devices based on the determined net utility flow discrepancy.

5. The method of claim 4, further including replacing one or more meters in a district metering area based on a determination that the aggregate supply flow has been less than the aggregate demand flow over one of a defined period of time and by a defined amount.

6. The method of claim 4, further including initiating loss mitigation in a district metering area based on a determination that the aggregate supply flow has been greater than the aggregate demand flow over one of a defined period of time and a defined amount.

7. The method of claim 1, further including regenerating the utility supply network representation and the plurality of district metering areas for the utility supply network based on a detected change to one or more flow measurement devices in the utility supply network.

8. A computer system executing instructions, stored in non-transient memory, for configuring a plurality of district metering areas within a utility supply network, comprising:

a network control system configured to

identify a plurality of flow measurement devices, wherein each flow measurement device is connected by a directional connection to at least one other flow measurement device and

generate a flow-based functional utility supply network representation modelling the utility supply network topology and stored in the non-transient memory based on the directional connections between the flow measurement devices; and

a district metering system configured to generate a plurality of district metering areas for the utility supply network representation, each district metering area being a directed acyclic graph based on the directional connections and including a subset of the plurality of flow measuring devices and including at least one flow measurement device designated as a supply meter and at least one flow measurement device designated as a demand meter.

9. The computer system of claim 8, wherein at least one flow measurement device is designated as a supply meter in a first district metering area and designated as a demand meter in a second district metering area.

10. The computer system of claim 8, wherein the district metering system is further configured to generate a listing of flow measurement devices that are not included in a subset for a district metering area for the utility supply network representation.

11. The computer system of claim 8, further including determining a net utility flow discrepancy based on a comparison of the aggregate supply flow, measured by flow meters designated as supply meters, and the aggregate demand flow, measured by flow meters designated as demand meters.

12. The computer system of claim 11, wherein the district metering system is further configured to order the replacement of one or more meters in a district metering area based on a determination that the aggregate supply flow has been less than the aggregate demand flow over one of a defined period of time and by a defined amount.

13. The computer system of claim 11, wherein the district metering system is further configured to initiate loss mitigation in a district metering area based on a determination that the aggregate supply flow has been greater than the aggregate demand flow over one of a defined period of time and a defined amount.

14. The computer system of claim 11, wherein the district metering system is further configured to modify the operation of one or more flow measurement devices based on the determined net utility flow discrepancy.

15. The computer system of claim 8, wherein the network control system is further configured to regenerate the utility supply network representation and the plurality of district metering areas for the utility supply network based on a detected change to one or more flow measurement devices in the utility supply network.