CLAIMS

1. A natural gas liquefaction plant comprising:

a feed gas line fluidly connected to a liquefaction subsystem to supply feed gas to the liquefaction subsystem;

a liquefied natural gas (LNG) line fluidly connecting the liquefaction subsystem to one or more LNG tanks to supply LNG from the liquefaction subsystem to the one or more LNG tanks;

an end-flash gas (EFG) line fluidly connecting the liquefaction subsystem to a fuel gas subsystem to supply EFG from the liquefaction subsystem to a fuel gas subsystem;

a LNG boil off gas (BOG) header fluidly connecting the one or more LNG tanks to a compressor to supply LNG BOG from the one or more LNG tanks to the compressor;

a compressed LNG BOG line fluidly connecting the compressor to a fuel gas line and a bidirectional line in which fluid may flow in either of two directions;

the fuel gas line fluidly connecting the compressed LNG BOG line and the bidirectional line to the fuel gas subsystem;

the bidirectional line fluidly connecting the feed gas line to the fuel gas line and fluidly connecting the compressed LNG BOG line to the feed gas line;

wherein when in a recycle mode the compressed LNG BOG line supplies compressed LNG BOG from the compressor to the bidirectional line and the bidirectional line supplies the compressed LNG BOG from the compressed LNG BOG line to the feed gas line, and

wherein when in a fuel mode the compressed LNG BOG line supplies compressed LNG BOG from the compressor to the fuel gas line and the bidirectional line supplies the natural gas from the feed gas line to the fuel gas line.

2. The natural gas liquefaction plant of claim 1, wherein when the system is in the recycle mode the compressed LNG BOG line supplies compressed LNG BOG from the compressor to the fuel gas and bidirectional lines.

3. The natural gas liquefaction plant of claim 1 or claim 2, wherein the feed gas line, the compressed LNG BOG line, and the bidirectional line are pressurized at about 55 bar gauge to about 70 bar gauge.

4. The natural gas liquefaction plant of any of claims 1-3, wherein the feed gas line, the compressed LNG BOG line, and the bidirectional line are pressurized at about 60 bar gauge to about 65 bar gauge.

5. The natural gas liquefaction plant of any one of claims 1-4, further comprising one or more subsystems upstream of the liquefaction subsystem, the subsystems selected from the group consisting of a gas receiving subsystem, a condensate removal subsystem, an acid gas removal subsystem, a dehydration subsystem, a mercury removal subsystem, a precooling subsystem, a heavy-hydrocarbon removal subsystem, and any combination thereof.

6. A method of operating a natural gas liquefaction plant comprising:

supplying a feed gas to a liquefaction subsystem;

liquefying the feed gas to produce liquefied natural gas (LNG) and end-flash gas (EFG);

compressing the EFG to compressed EFG;

using the compressed EFG as fuel gas;

storing the LNG in one or more LNG tanks;

compressing LNG boil off gas (BOG) from the one or more LNG tanks to produce compressed LNG BOG; and

either

(1) operating in a recycle mode by supplying at least a portion of the compressed LNG BOG to the feed gas via a bidirectional line in which fluid may flow in either of two directions, or

(2) operating in a fuel mode by (a) supplying a portion of the feed gas to the fuel gas via the bidirectional line and (b) supplying the compressed LNG BOG to the fuel gas.

7. The method of claim 6, wherein operating in the recycle mode further includes supplying at least a portion of the compressed LNG BOG to the fuel gas.

8. The method of claim 6 or claim 7, wherein the feed gas and the compressed LNG BOG are individually at a pressure of about 55 bar gauge to about 70 bar gauge.

9. The method of claim 6 or claim 7, wherein the feed gas and the compressed LNG BOG are individually at a pressure of about 60 bar gauge to about 65 bar gauge.

10. The method of any one of claims 6-9, further comprising:

treating a natural gas supply by one or more methods to produce the feed gas for liquefaction, the one or more methods being selected from the group consisting of: condensate removal, acid gas removal, dehydration, mercury removal, precooling, heavy-hydrocarbon removal, and any combination thereof.