CLAIMS

1. A method of producing liquefied natural gas (LNG), the method comprising:

providing a natural gas stream from a supply of natural gas;

compressing the natural gas stream in at least two serially arranged compressors to a pressure of at least 2,000 psia to form a compressed natural gas stream;

cooling the compressed natural gas stream to form a cooled compressed natural gas stream;

expanding, in at least one work producing natural gas expander, the cooled compressed natural gas stream to a pressure that is less than 3000 psia and no greater than the pressure to which the at least two serially arranged compressors compress the natural gas stream, to thereby form a chilled natural gas stream; and

liquefying the chilled natural gas stream; in one or more expander-based liquefaction modules, wherein the expander-based liquefaction module is one of a nitrogen gas expander-based liquefaction module and a feed gas expander-based liquefaction module; wherein

the feed gas expander-based liquefaction module is an open loop feed gas expander-based liquefaction module, and wherein a recycle refrigerant stream of the open loop feed gas expander-based process is combined with the natural gas stream prior to the compressing step;

and wherein the chilled natural gas stream is a first chilled natural gas stream, and further comprises:

separating the first chilled natural gas stream into a second chilled natural gas stream, a first refrigerant stream, and a second refrigerant stream;

discharging a first cooling stream from a warm-end expander forming part of the feed gas expander-based liquefaction module, the first cooling stream having a first temperature; and

discharging a second cooling stream from a cold-end expander forming part of the feed gas expander-based liquefaction module, the second cooling stream having a second temperature;

wherein the first temperature is higher than the second temperature; and wherein a pressure of the first cooling stream is one of the same or similar to a pressure of the second cooling stream, or higher than a pressure of the second cooling stream.