CLAIMS

1. A system for producing liquefied natural gas (LNG) from a natural gas stream, comprising:

a first LNG train configured to liquefy a first portion of the natural gas stream to generate

a first warm LNG stream in a first operating mode, and

a first cold LNG stream in a second operating mode;

a second LNG train configured to liquefy a second portion of the natural gas stream to generate

a second warm LNG stream in a first operating mode, and

a second cold LNG stream in a second operating mode; and

a sub-cooling unit configured to, in the first operating mode, sub-cool the first warm LNG stream and the second warm LNG stream to generate a first cold LNG stream in the first operating mode and a second cold LNG stream in the first operating mode;

wherein the first and second warm LNG streams have a higher temperature than a temperature of the first and second cold LNG streams in the second operating mode; and

wherein the first and second cold LNG streams, in the first operating mode, have a higher combined flow rate than the combined flow rate of the first and second cold LNG streams in the second operating mode.

2. The system of claim 1, wherein the sub-cooling unit uses a nitrogen refrigerant to sub-cool the first and second warm LNG streams.

3. The system of claim 1 or claim 2, wherein at least one of the first and second LNG trains uses a propane refrigerant and/or a mixed refrigerant to liquefy the first or second portions of the natural gas stream.

4. The system of any one of claims 1-3 wherein a heat exchanger associated with the sub-cooling unit is one of a spiral-wound heat exchanger and a brazed aluminum heat exchanger.

5. The system of any one of claims 1-4, wherein the sub-cooling unit is installed to be

used with existing first and second LNG trains.

6. The system of any one of claims 1-5, wherein the sub-cooling unit is constructed at substantially the same time as the first and second LNG trains.

7. The system of any one of claims 1-6, wherein at least one of the first and second LNG trains and the sub-cooling system includes at least one gas turbine, and further comprising an inlet air cooling system installed with the at least one gas turbine.

8. The system of any one of claims 1-7, wherein the first and second warm LNG streams are combined prior to being sub-cooled in the sub-cooling system.

9. A method of producing liquefied natural gas (LNG) from a natural gas stream, the method comprising:

providing a plurality of LNG trains and a sub-cooling unit;

using each of the plurality of LNG trains, liquefying a portion of the natural gas stream to thereby generate

a warm LNG stream in a first operating mode, and

a cold LNG stream in a second operating mode;

and

in the first operating mode, sub-cooling in the sub-cooling unit the warm LNG stream to thereby generate a combined cold LNG stream;

wherein the warm LNG stream has a higher temperature than a temperature of the cold LNG stream and the combined cold LNG stream; and

wherein the combined cold LNG stream has, in the first operating mode, a higher flow rate than a flow rate of the cold LNG stream in the second operating mode.

10. The method of claim 9, wherein the sub-cooling unit uses a nitrogen refrigerant to sub-cool the warm LNG stream.

11. The method of claim 9 or claim 10, wherein at least one of the plurality of LNG trains uses a propane refrigerant and/or a mixed refrigerant to liquefy the respective portions of the natural gas stream.

12. The method of any one of claims 9-11, wherein a heat exchanger associated with the sub-cooling unit is one of a spiral-wound heat exchanger and a brazed aluminum heat exchanger.

13. The method of any one of claims 9-12, wherein the plurality of LNG trains are pre-existing LNG trains, and further comprising:

constructing the sub-cooling unit to be used with the existing LNG trains.

14. The method of any one of claims 9-13, further comprising:

constructing the sub-cooling unit at substantially the same time as the first and second LNG trains.

15. The method of any one of claims 9-14, wherein at least one of the plurality of LNG trains and the sub-cooling system includes at least one gas turbine, and further comprising:

installing an inlet air cooling system with the at least one gas turbine.