WHAT IS CLAIMED IS:

~~1. A method for producing pressurized liquefied natural gas, comprising:~~

~~performing a dehydration process to remove water from natural gas supplied from a natural gas field, without a process of removing acid gas from the natural gas;~~

~~performing a liquefaction process to produce pressurized liquefied natural gas by liquefying the natural gas, which has undergone the dehydration process, at a pressure of 13 to 25 bar and a temperature of -120 to -95°C, without a process of fractionating natural gas liquid (NGL); and~~

~~performing a carbon-dioxide removal process to remove carbon dioxide by freezing the carbon dioxide at the pressure and the temperature used in the liquefaction process, when an amount of the carbon dioxide existing in the natural gas after the dehydration process is 10% or less.~~

~~2. The method according to claim 1, further comprising:~~

~~performing a storing process to store the pressurized liquefied natural gas, which has undergone the liquefaction process, in a storage container having a dual structure.~~

~~3~~1. A system for producing pressurized liquefied natural gas, comprising:

a dehydration facility configured to remove water from natural gas supplied from a natural gas field; and

a liquefaction facility configured to produce pressurized liquefied natural gas by liquefying the natural gas, which has passed through the dehydration facility, at a pressure of 13 to 25 bar and a temperature of -120 to -95°C; and

a carbon-dioxide removal facility configured to remove carbon dioxide by freezing the carbon dioxide at the pressure and the temperature used in a liquefaction process, when an amount of the carbon dioxide existing in the natural gas having passed through the dehydration facility is 10% or less,

wherein the carbon-dioxide removal facility comprises:

an expansion valve installed in a supply line, through which the pressurized natural gas is supplied, and configured to depressurize the pressurized natural gas to a low pressure:

a solidified carbon-dioxide filter installed at a rear end of the expansion valve and configured to filter frozen solid carbon dioxide existing in the natural gas liquefied while passing through the expansion valve;

first and second on/off valves installed at a front end of the expansion valve and a rear end of the solidified carbon-dioxide filter and configured to open and close the flow of the high-pressure natural gas and the liquefied natural gas;

a heating unit configured to supply heat to vaporize solidified carbon dioxide of the expansion valve and the solidified carbon-dioxide filter;

a third on/off valve installed to open and close the exhaust of carbon dioxide recycled by the heating unit in an exhaust line branched from the supply line between the first on/off valve and the expansion valve,

wherein the carbon-dioxide removal facility is provided in plurality, and

wherein when the first and second on/off valves of some of the carbon-dioxide removal facilities are opened, the third on/off valves of some of the carbon-dioxide removal facilities are closed, and simultaneously the first, second and third on/off valves of others of carbon-dioxide removal facilities perform perform an opposite operation.

42. The system according to claim ~~3~~1, further comprising:

a storage facility configured to store the pressurized liquefied natural gas, which is produced by the liquefaction facility, in a storage container having a dual structure.

~~5~~3. The system according to claim 42, wherein a connection passage is provided between the dual structure of the storage container and the inside of the storage container, such that the internal pressure of the dual structure of the storage container is balanced with the internal pressure of the storage container.

~~6. The system according to claim 3, wherein the carbon-dioxide removal facility comprises:~~

~~an expansion valve installed in a supply line, through which the pressurized natural gas is supplied, and configured to depressurize the pressurized natural gas to a low pressure;~~

~~a solidified carbon-dioxide filter installed at a rear end of the expansion valve and configured to filter frozen solidified carbon dioxide existing in the natural gas liquefied while passing through the expansion valve;~~

~~first and second on/off valves installed at a front end of the expansion valve and a rear end of the solidified carbon-dioxide filter and configured to open and close the flow of the high-pressure natural gas and the liquefied natural gas;~~

~~a heating unit configured to supply heat to vaporize solidified carbon dioxide of the expansion valve and the solidified carbon-dioxide filter; and~~

~~a third on/off valve installed to open and close the exhaust of carbon dioxide recycled by the heating unit in an exhaust line branched from the supply line between~~

~~the first on/off valve and the expansion valve.~~

~~7~~4. The system according to claim ~~6~~1, wherein the heating unit comprises:

a recycling heat exchanger through which a heat medium for a heat exchange between the expansion valve and the solidified carbon-dioxide filter is circulated; and

fourth and fifth on/off valves installed at a front end and a rear end of the recycling heat exchanger.

~~8. The system according to claim 6, wherein the carbon-dioxide removal facility is provided in plurality, and, while some of the carbon-dioxide removal facilities perform the filtering of the carbon dioxide, others perform the recycling of the carbon dioxide, under the control of the first to third on/off valves and the heating unit.~~

~~9~~5. The system according to claim ~~3~~1, wherein the liquefaction facility comprises:

a liquefaction heat exchanger configured to liquefy the natural gas, which has passed through the dehydration facility, by a heat exchange with a coolant; and

a coolant cooling unit configured to cool the coolant by a coolant heat exchanger and supply the cooled coolant to the liquefaction heat exchanger,

wherein the liquefaction heat exchanger and the coolant heat exchanger are separated from each other.

~~10~~6. The system according to claim ~~9~~5, wherein the liquefaction heat exchanger is made of a stainless steel, and the coolant heat exchanger is made of aluminum.

~~11~~7. The system according to claim ~~9~~5, wherein, in the coolant cooling unit,

the coolant heat exchanger comprises first and second coolant heat exchangers,

the coolant exhausted from the liquefaction heat exchanger is compressed and cooled by a compressor and an after-cooler,

the coolant having passed through the after-cooler is separated into a gaseous coolant and a liquid coolant by a separator,

the gaseous coolant is supplied to a first passage of the first coolant heat exchanger and a first passage of the second coolant heat exchanger,

the liquid coolant passes through a second passage of the first coolant heat exchanger and is expanded at a low pressure by a first Joule-Thomson (J-T) valve, and the expanded liquid coolant is supplied to the compressor through a third passage of the first coolant heat exchanger,

the coolant having passed through the first passage of the second coolant heat exchanger is expanded at a low pressure by a second J-T valve and is supplied to the liquefaction heat exchanger, and

the coolant is expanded at a low pressure by a third J-T valve and is supplied to the compressor through a second passage of the second coolant heat exchanger and a third passage of the first coolant heat exchanger.

~~128~~. The system according to claim ~~95~~, wherein, in the coolant cooling unit,

the coolant exhausted from the liquefaction heat exchanger is compressed and cooled by a compressor and an after-cooler and is supplied to a first passage of the coolant heat exchanger, and

the coolant having passed through the first passage of the coolant heat exchanger is expanded by an expander and is supplied to the liquefaction heat exchanger or supplied to the compressor through a second passage of the coolant heat exchanger, according to a manipulation of a flow distribution valve.

~~139~~. The system according to claim ~~31~~, wherein the liquefaction facility comprises:

a coolant supply unit configured to supply the coolant for a heat exchange with the natural gas having passed through the dehydration facility;

a plurality of heat exchangers installed in a plurality of first branch lines branched from a supply line through which the natural gas having passed through the dehydration facility is supplied, and configured to cool the natural gas supplied from the supply line by a heat exchange with the coolant supplied from the coolant supply unit; and

a recycling unit configured to selectively supply a recycling liquid for removing carbon dioxide frozen at the heat exchangers.

~~14~~10. The system according to claim ~~13~~9, wherein the heat exchangers make the total capacity exceed production of liquefied natural gas, so that one or more of the heat exchangers are kept in a standby state when producing the liquefied natural gas.

~~15~~11. The system according to claim ~~13~~9, wherein the recycling unit comprises:

a recycling liquid supply unit configured to supply the recycling liquid;

recycling lines extending from the recycling liquid supply unit and connected to front ends and rear ends of the heat exchangers in the first branch lines;

first valves installed at front ends and rear ends of positions connected to the recycling liquid lines in the first branch lines; and

second valves installed at front ends and rear ends of the heat exchangers in the recycling liquid lines.

~~16~~12. The system according to claim ~~15~~11, further comprising:

sensing units installed to check the freezing of carbon dioxide at the heat exchangers; and

a controlling unit configured to receive sense signals output from the sensing units and control the first and second valves and the recycling liquid supply unit.

~~17~~13. The system according to claim ~~16~~12, wherein the sensing units comprise flow meters, which are installed at rear ends of the heat exchangers on the first branch lines

and measure a flow rate of the liquefied natural gas, or carbon dioxide meters, which are installed on the first branch lines and measure contents of carbon dioxide contained in gas at the front and rear ends of the heat exchangers.

~~18~~14. The system according to claim ~~16~~12, further comprising:

third valves installed at front and rear ends of the heat exchangers on a coolant line through which the coolant is supplied from the coolant supply unit to the heat exchangers, the third valves being controlled by the controlling unit.