A need therefore exists to provide a method and system for storing NG in an adsorbent storage device that seek to address at least one of the above problems.

SUMMARY

According to a first aspect of the present invention there is provided a method for storing NG in an adsorbent storage device, the method comprising the steps of providing the NG in a liquid phase to a first heat exchanger; gasifying the NG using the first heat exchanger; and feeding the NG in the gaseous phase into the adsorbent storage device. wherein the NG is gasified using the first heat exchanger such that the NG in the gaseous phase is fed into the adsorbent storage device at a cryogenic temperature for cooling of an adsorbent material of the adsorbent storage device.

Gasifying the NG using the first heat exchanger may comprise cooling a liquid for heat exchange to gasify the NG.

The method may further comprise using the cooled liquid for further processes.

The NG may be gasified using the first heat exchanger such that the NG in the gaseous phase is fed into the adsorbent storage device at a cryogenic temperature for cooling of an adsorbent material of the adsorbent storage device.

The method may further comprise regulating a pressure of the NG in the gaseous phase for feeding into the adsorbent storage device.

The NG may be fed into the adsorbent storage device at a near atmospheric pressure.

The NG maybe stored in the adsorbent storage device at a pressure in the range of 30 - 40 bar.

Feeding the NG in the gaseous state into the adsorbent storage device may comprise cooling an adsorbent material of the adsorbent storage device.

The cooling of the adsorbent material of the adsorbent storage device may use a second heat exchanger.

The second heat exchanger may be incorporated into the adsorbent storage device.

The method may further comprise discharging the NG from the adsorbent storage device using a pressure swing method.

Discharging the NG from the adsorbent storage device may further comprise heating an adsorbent material of the adsorbent storage device.

The heating of the adsorbent material of the adsorbent storage device may uses the second heat exchanger.

According to a second~~first~~ aspect of the present invention there is provided a system for storing NG, the system comprising a first heat exchanger for gasifying the NG; an adsorbent storage device; means for providing the NG in a liquid phase to the first heat exchanger; and means for feeding the NG in the gaseous phase from the first heat exchanger into the adsorbent storage device at a cryogenic temperature for cooling of an adsorbent material of the adsorbent storage device.

The system may further comprise means for regulating a pressure of the NG in the gaseous phase for feeding into the adsorbent storage device.

The system may store the NG in the adsorbent storage device at a pressure in the range of 30 – 40 bar.

The system may further comprise means for discharging the NG from the adsorbent storage device using a pressure swing method.

The system may further comprise a second heat exchanger for cooling or heating of an adsorbent material of the adsorbent storage device.

The second heat exchanger may be incorporated into the adsorbent storage device.