CLAIMS

1. Method for operating a combined-cycle power plant (1), the plant (1) comprising at least a gas turbine (2) and at least a steam power generation system (10), the plant (1) activating at least one electric generator (20) connectable to an electric grid (21), wherein the gas turbine (2) comprises a compressor (3) and wherein the steam power generation system (10) comprises a steam turbine (12), a heat recovery steam generator (11) and a bypass line (40), the method being characterized in that the gas turbine (2) de-loads to a condition, where the compressor (3) operates at its nominal speed, the method being further characterized in that the steam turbine (12) de-loads in coordination with the de-load of the gas turbine (2), to a condition where the total load exported by the plant (1) to the grid (21) is substantially equal to zero, being both the gas turbine (2) and the steam power generation system (10) connected.

2. The method of claim 1, characterized in that the steam turbine (12) de-loads to a condition such that the steam turbine (12) covers the internal auxiliary load demand of the plant (1) and also covers the load necessary for maintaining the compressor (3) operating at its nominal speed.

3. Method according to any of claims 1-2, characterized in that the gas turbine (2) is de-loaded following a gradient such that the steam temperature at the outlet of the heat recovery steam generator (11) is above the allowable temperature required by the steam turbine (12), before the steam turbine (12) has reached the minimum load condition.

4. Method according to any of the previous claims, characterized in that with the de-loading of the steam turbine (12), the bypass line (40) opens to reduce the steam pressure to a fixed value relative to the nominal pressure.

5. Method according to claim 4, characterized in that the bypass line (40) opens to reduce the steam pressure to a fixed value between 15% and 100% of the nominal pressure.

6. Method according to claim 4, characterized in that the bypass line (40) opens to reduce the steam pressure to a fixed value between 30% and 50% of the nominal pressure.

7. Method according to any of claims 4-6, characterized in that the de-loading of the steam turbine (12) and the reduction of the steam pressure by acting on the bypass line (40) in the steam power generation system (10) are such that the minimum steam turbine (12) load and the minimum steam pressure are reached prior to the reduction of the steam temperature caused by the reduction of the gas turbine (2) exhaust temperature during the de-loading of the gas turbine (2).

8. Method according to any of the previous claims, characterized in that the generator (20) is connected to the grid (21).

9. Method according to any of claims 1-7, characterized in that the generator (20) is disconnected from the grid (21).

10. Method according to any of the previous claims, characterized in that the steam turbine (12) provides primary frequency support to the plant (1) by acting on a steam turbine control valve.

CLAIMS:

1. Method for operating a combined-cycle power plant, the plant comprising at least a gas turbine and at least a steam power generation system, the plant activating at least one electric generator connectable to an electric grid, wherein the gas turbine comprises a compressor and wherein the steam power generation system comprises a steam turbine, a heat recovery steam generator and a bypass line, wherein the gas turbine de-loads to a condition, where the compressor operates at its nominal speed, wherein the steam turbine de-loads in coordination with the de-load of the gas turbine, to a condition where the total load exported by the plant to the grid is substantially equal to zero, being both the gas turbine and the steam power generation system connected, and wherein the steam turbine de-loads to a condition such that the steam turbine covers the internal auxiliary load demand of the plant and also covers the load necessary for maintaining the compressor operating at its nominal speed.

2. Method according to claim 1, wherein the gas turbine is de-loaded following a gradient such that the steam temperature at the outlet of the heat recovery steam generator is above the allowable temperature required by the steam turbine, before the steam turbine has reached the minimum load condition.

3. Method according to claim 1 or 2, wherein with the de-loading of the steam turbine, the bypass line opens to reduce the steam pressure to a fixed value relative to the nominal pressure.

4. Method according to claim 3, wherein the bypass line opens to reduce the steam pressure to a fixed value between 15% and 100% of the nominal pressure.

5. Method according to claim 3, wherein the bypass line opens to reduce the steam pressure to a fixed value between 30% and 50% of the nominal pressure.

6. Method according to any one of claims 3-5, wherein the de-loading of the steam turbine and the reduction of the steam pressure by acting on the bypass

line in the steam power generation system are such that the minimum steam turbine load and the minimum steam pressure are reached prior to the reduction of the steam temperature caused by the reduction of the gas turbine exhaust temperature during the de-loading of the gas turbine.

7. Method according to any one of claims 1-6, wherein the generator is connected to the grid.

8. Method according to any one of claims 1-6, wherein the generator is disconnected from the grid.

9. Method according to any one of claims 1-8, wherein the steam turbine provides primary frequency support to the plant by acting on a steam turbine control valve.