Claims

1. Method for monitoring a process engineering installation (100), wherein the method is carried out by a computing system (300),

wherein actual values (111) of at least one operating parameter (110, 210) of the process engineering installation (100) occurring during operation of the process engineering installation (100) are received by the computing system (300),

wherein values (121) of at least one performance parameter (120, 220, 420, 520) of the process engineering installation (100) are determined, using a model (200) of the process engineering installation (100), from actual values (111) of the at least one operating parameter (110, 210) of the process engineering installation occurring during the operation of the process engineering installation (100),

wherein comparative values (221) of the at least one performance parameter (120, 220, 420, 520) of the process engineering installation (100) are determined, using the model (200), from setpoint values (100) of the at least one operating parameter (110, 210), and

wherein at least one performance gap (230, 430, 530) of the operation of the process engineering installation (100) is determined based on mutually corresponding values (121) and comparative values (221) of the at least one performance parameter (120, 220, 420, 520).

2. Method according to claim 1, wherein the values (121) and the comparative values (221) of the at least one performance parameter (120, 220, 420, 520) are determined at regular time intervals and/or given predetermined operating states of the process engineering installation (100).

3. Method according to claim 1 or 2, wherein a statistical relevance of the at least one performance gap (230, 430, 530) is determined using a plurality of mutually corresponding values (121) and comparative values (221) of the at least one performance parameter (120, 220, 420, 520).

4. Method according to any one of the preceding claims, wherein an improvement measure (250, 550) is determined for the at least one performance gap (230, 430, 530).

5. Method according to claim 4, wherein the improvement measure (250, 550) is determined on the basis of static significance indicators.

6. Method according to claim 4, wherein the improvement measure (250, 550) is determined based on dynamic significance indicators.

7. Method according to any one of the preceding claims, wherein the at least one operating parameter (110, 210) is selected from a flow of a medium in the process engineering installation; a temperature of a component of the process engineering installation; a temperature of a medium in the process engineering installation; a pressure of a medium in the process engineering installation; and a composition of a medium in the process engineering installation.

8. Method according to any one of the preceding claims, wherein the at least one performance parameter (120, 220, 420, 520) is selected from a power consumption of a component of the process engineering installation; a power consumption of the process engineering installation; a recovery rate of a medium in the process engineering installation; a degree of efficiency of a component of the process engineering installation; and a degree of efficiency of the process engineering installation.

9. Method according to any one of the preceding claims, wherein the at least one performance gap (230, 430, 530) and/or, in reference to any one of claims 4 to 6, the at least one improvement measure (250, 550) is provided via a communication means (310, 400, 500).

10. Method according to claim 9, wherein an air separation installation or a carbon dioxide liquefaction installation is used as the process engineering installation (100).

11. Computing system (300) for monitoring a process engineering installation, which is configured to implement a method according to any one of the preceding claims.

12. Process engineering installation (100), in particular a gas-treating process engineering installation, having a computing system (300) according to claim 11.