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Datasheet for the decision of 2 April 2026

Case Number: T 1178/24 - 3.5.07

Application Number: 13722983.7

Publication Number: 2847457

IPC: F03D7/02, F03D7/04, F03D9/00, F03D9/25

Language of the proceedings: EN

Title of invention:
A power system and method for operating a wind power system with a dispatching algorithm

Patent Proprietor:
Vestas Wind Systems A/S

Opponent:
GE Wind Energy GmbH

Headword:
Power system and method for operating a wind power system/ VESTAS WIND SYSTEMS A/S

Relevant legal provisions:
EPC Art. 56, 83, 84, 123(2)
RPBA 2020 Art. 13(1), 13(2)

Keyword:

Amendment after summons - exceptional circumstances (yes)
Added subject-matter (no)
Claims - clarity after amendment (yes)
Inventive step - (yes)
Sufficiency of disclosure - (yes)

Decisions cited:

T 0752/16, T 0995/18, T 0190/19, G 0003/14

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Case Number: T 1178/24 - 3.5.07

D E C I S I O N
of Technical Board of Appeal 3.5.07
of 2 April 2026

Appellant: (Patent Proprietor)	Vestas Wind Systems A/S Hedeager 42 8200 Aarhus N (DK)
Representative:	Inspicos P/S Strandvejen 60 2900 Hellerup (DK)
Appellant: (Opponent)	GE Wind Energy GmbH Holsterfeld 16 48499 Salzbergen (DE)
Representative:	de Rooij, Mathieu Julien Bardehle Pagenberg S.L. Avenida Diagonal 598, 3° 1ª 08021 Barcelona (ES)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted/ electronically transmitted on 16 July 2024 concerning maintenance of the European Patent No. 2847457 in amended form.**

Composition of the Board:

Chair	P. San-Bento Furtado
Members:	C. Barel-Faucheux
	E. Mille

Summary of Facts and Submissions

I. Both the **patent proprietor** (appellant I) and the **opponent** (appellant II) appealed against the opposition division's interlocutory decision maintaining European patent No. 2 847 457 B1 in amended form pursuant to Article 101(3)(a) EPC (provided that the requirements of Rule 82(2) EPC were fulfilled).

II. Since the patent proprietor and the opponent are both appellants and respondents in these appeal proceedings, they are referred to as the patent proprietor and the opponent in the following.

III. In the decision under appeal, the following items of evidence, *inter alia*, were considered:

D1: JP 2009156171 A, 16 July 2009

D2: US 2011/0118884 A1, 19 May 2011

D3: JP 2001234845 A, 31 August 2001

D8: WO 2012/019613 A1, 16 February 2012

D9: "e.on / Netz / Ergänzende Netzanschlussregeln für Windenergieanlagen", pages 1 to 17, 1 December 2001

D10: A. Hansen et al.: "Centralised power control of wind farm with doubly fed induction generators", Renewable Energy 31, 2006, pages 935 to 951

D11: EP 1 467 463 A1, 13 October 2004

IV. In the decision under appeal, the opposition division decided to maintain the patent in amended form on the basis of auxiliary request 3. The opposition division also held that:
- the patent as granted should not be revoked on the grounds of Article 100(c) EPC (added subject-matter, Article 123(2) EPC) or Article 100(b) EPC (sufficiency of disclosure, Article 83 EPC), but the subject-matter of granted claims 1 and 11 lacked novelty over document D1 (Articles 100(a) and 54(1) and (2) EPC)
- claims 1 and 9 of auxiliary request 1 satisfied the requirements of Articles 84 and 123(2) EPC and their subject-matter was novel over document D2 but lacked inventive step over the disclosure of document D1 (Article 56 EPC)
- with regard to auxiliary request 2, claims 1 and 8 satisfied the requirements of Article 84 EPC and claims 2 and 3 satisfied the requirements of Article 123(2) EPC, but the subject-matter of claims 1 and 8 lacked an inventive step when starting from document D3 or document D1,
- the subject-matter of claims 1 and 5 of auxiliary request 3 involved an inventive step over document D3 or D1.

V. With its statement of grounds of appeal dated 15 November 2024, the patent proprietor submitted claims according to auxiliary requests 1 to 9, auxiliary requests 1, 2 and 4 corresponding to auxiliary requests 1 to 3 considered in the decision under appeal. It requested that the decision under appeal be set aside and that the patent be maintained as granted or, as auxiliary requests, in amended form on the basis of one of auxiliary requests 1 to 9.

VI. With its statement of grounds of appeal dated 18 November 2024, the opponent argued that the independent claims of the modified patent as maintained by the appealed decision, corresponding to auxiliary request 4 in appeal, did not fulfil the requirements of Articles 84 EPC, 123(2) and 83 EPC and Article 56 EPC when starting from document D1, D3 or D2.

VII. By letter of reply dated 25 March 2025, the patent proprietor maintained its requests as set forth in its statement of grounds of appeal.

VIII. By letter of reply dated 26 March 2025, the opponent requested that the contested decision of the opposition division to maintain the patent in amended form be set aside and that the patent be revoked in its entirety.

IX. By letter of reply dated 7 August 2025, the patent proprietor provided further arguments.

X. The board provided a preliminary assessment of the case in its communication pursuant to Article 15(1) RPBA accompanying a summons to oral proceedings. Among the issues addressed in its preliminary opinion, the board indicated that it was not persuaded by the opponent's objections under Articles 123(2) and 83 EPC raised against the main request and auxiliary requests 1, 2 and 4. The board did not agree with the Article 84 EPC objections raised against auxiliary requests 1, 2 and 4 but raised new clarity objections against these requests. The board was of the preliminary view that granted claim 1 was not new over document D1 or document D3 and not inventive when starting from document D2. Claim 1 of auxiliary requests 1 and 2 did

not appear to be inventive. The board discussed the admissibility of auxiliary requests 3 and 5 to 9.

XI. With its letter of reply to the board's communication, dated 16 January 2026, the patent proprietor withdrew the main request and auxiliary requests 2 and 3 and filed new auxiliary requests 1A and 4A. It requested maintenance of the patent in amended form on the basis of one of auxiliary requests 1, 1A, 4, 4A and 5 to 9.

XII. With its letter of reply to the board's communication, dated 10 February 2026, the opponent maintained the previously filed requests.

XIII. Oral proceedings were held as scheduled. At the end of the oral proceedings, the patent proprietor informed the board that it renamed auxiliary request 4A the new main request and withdrew all other requests on file.

XIV. The final request of appellant I (the patent proprietor) was that the decision under appeal be set aside and the patent be maintained on the basis of the set of claims 1 to 6 of the new main request.

XV. Appellant II (opponent) maintained its requests that the decision under appeal be set aside and that the patent be revoked.

XVI. At the end of the oral proceedings, the board announced its decision.

XVII. Claim 1 of the new main request, which is the sole request, reads as follows (itemisation added):

P1a' "A power system for supplying power to an electric grid,

P1b the power system having a plurality of wind turbine generators (220, 230, 240, 250) and

P1c a power plant controller (23) arranged to communicate with the plurality of wind turbines generators, comprising:

P2a each wind turbine generator in the plurality of wind turbine generators being related to a wind turbine controller (13),

P2b the wind turbine controller being arranged to control an active power output in its related wind turbine generator

P2c according to an active power set point (33) received from the power plant controller;

P3 a first subset of wind turbine generators operating at the active power output unrestricted of the active power set point;

P4 a second subset of wind turbine generators operating according to the active power set point;

P5a and characterized in that the power plant controller communicates the active power set point to at least the second subset of wind turbine generators,

P5b in accordance with the active power output of the first subset of the plurality of wind turbines generators,

P5c so as to reduce active power fluctuation of the aggregated active power output of the first and second subset of the plurality of wind turbine generators,

P6 wherein the first and second subset are located within the same single wind power plant, with a common point of coupling for supplying power to the electric grid; and

P7' wherein the power plant controller (23) is configured to receive an external power set point and to provide a constant aggregated active power output of the first and second subset of the plurality of wind turbine generators given by the external power set point,

P8 wherein the plurality of wind turbine generators receives a common active power set point reference, and

PG2 wherein the power plant controller is arranged to define the first and second subsets of wind turbine generators from the plurality of wind turbine generators in accordance with a selection algorithm, and

PG3 wherein the selection algorithm selects the first and second subset of wind turbine generators in accordance with an actual wind speed at each of the plurality of wind turbine generators."

XVIII. Independent claim 5 reads as follows:

"Method for operating a wind power system to supply power to an electric grid, the wind power system comprising a first subset of wind turbine generators and a second subset of wind turbine generators and a power plant controller (23), wherein

a first subset of wind turbine generators is operating at an active power output unrestricted of an active power set point (33);

a second subset of wind turbine generators is operating according to the active power set point;

wherein the first and second subset are located within the same single wind power plant, with a common point of coupling for supplying power to the electric grid;

and wherein the method comprises the steps of:

- analyzing the active power output of each of the first subset of wind turbine generators; and wherein the method is characterized in further comprising the steps of:
- calculating the active power set point to at least the second subset of wind turbine generators based on the active power output of the first subset of wind turbine generators;
- dispatching the active power set point to at least each of the second subset of wind turbine generator to minimize power fluctuations;

wherein the power plant controller (23) receives an external power set point and provides a constant aggregated active power output of the first and second subset of the plurality of wind turbine generators given by the external power set point, and wherein the plurality of wind turbine generators receives a common active power set point reference,

wherein the method comprises a further step of defining the first subsets of wind turbine generators and the second subsets of wind turbine generators from the plurality of wind turbine generators, in accordance with a selection algorithm, and

wherein the selection algorithm selects the first and second subset of wind turbine generators in accordance with an actual wind speed at each of the plurality of wind turbine generators."

XIX. The text of claims 2 to 4 and 6 is not relevant for this decision. Claims 2 to 4 are dependent on claim 1. Claim 6 is dependent on claim 5.

Reasons for the Decision

Application

1. The invention relates to a system, and a corresponding method, to reduce power fluctuations in the power produced by a wind power plant (grid) comprising a plurality of variable speed wind turbine generators (description as originally filed, page 1, lines 4 to 6, and page 7, lines 1 to 4).

2. The reduced fluctuations are reached by making two subsets of wind turbine generators supplying power to an electric grid. The first subset of wind turbine generators comprises turbines that operate at a power production that is not limited or reduced by an external power set point, i.e. unrestricted of the power set point, and thus may produce power with fluctuations as the wind speed may fluctuate. The second subset of wind turbine generators comprises turbines that are constrained or restricted in their power production by an external power set point, i.e. power production is therefore curtailed (description, page 7, lines 5 to 12).

Admissibility of the claims

3. The current claims were filed as auxiliary request 4A by the patent proprietor with its letter of reply to the board's communication. They differ from the claims maintained by the contested decision (auxiliary request 4 in appeal) in that feature P7 of claim 1:

> "wherein the power plant controller (23) is configured to receive an external power set point

and to provide a constant power output of the wind power plant given by the external power set point,"

has been replaced with feature P7' (see section XVII. above):

"wherein the power plant controller (23) is configured to receive an external power set point and to provide a constant aggregated active power output of the first and second subset of the plurality of wind turbine generators given by the external power set point"

Independent method claim 5 was amended accordingly.

4. In its communication, with regard to Article 84 EPC and claim 1 as maintained by the decision under appeal (i.e. claim 1 of auxiliary request 4 in appeal), the board expressed its preliminary opinion that the same objections applied as discussed for the higher-ranking requests. These objections were that it was unclear (1) whether the first and second subsets of wind turbine generators of features P3 and P4 constitute the plurality of wind turbine generators as a whole of feature P1b, (2) whether the "power output of the wind power plant" that is constant (feature P7) is the same as the "aggregated active power output" of feature P5c and (3) how a constant power output of the wind power plant can be "given by" the external power set point it receives, i.e. how the expression "given by" is to be understood in this context. In reply to the board's objections, the patent proprietor submitted auxiliary requests 1A and 4A. The opponent supported objections (1) to (3). At the oral proceedings, the board admitted auxiliary request 1A into the proceedings and considered claim 1 clear. The board no longer maintained objections (1) and (3) for the reasons given

under point 27. below, which deals with the arguments by both parties.

5. Article 13(2) RPBA stipulates that any amendment to a party's appeal case made after notification of a communication under Article 15, paragraph 1, RPBA, shall, in principle, not be taken into account unless there are exceptional circumstances justified with cogent reasons by the party concerned.

6. The opponent argued that in accordance with existing case law, when applying Article 13(2) RPBA, the criteria of Article 13(1) RBPA could also be applied (reference was made to decisions T 0752/16, Reasons 3.2; T 0995/18, Reasons 1.6 and T 0190/19, Reasons 2.4). Article 13(1) RPBA specified that in the case of amendments to a patent, the party submitting the amendment had to demonstrate that the amendment, *prima facie*, overcame the issues raised and did not give rise to new objections. The opponent submitted that this was not the case here. The amendment was not simply based on a dependent claim or on a specific passage of the description which was literally transcribed. Instead, the amendment was based on diverse passages of the description, which, in its view, resulted in new objections under Article 123(2) EPC. Moreover, the amendment did not overcome the clarity objection under Article 84 EPC.

7. With its filing of auxiliary request 4A, the patent proprietor argued that this request was filed in response to the new clarity objections set forth in points 66.5 to 69 of the board's communication. It ruled out interpretations which, in the proprietor’s view, were illogical, and which had not been asserted by the opponent at any stage of the first- or second-

instance proceedings. The scope of protection of the claims of auxiliary request 4A was the same as that of auxiliary request 4. These objections had not been brought forward by the opponent and had been raised for the first time in the board's communication. The patent proprietor had therefore not had the opportunity to react to the objections at an earlier time. These circumstances were exceptional within the meaning of Article 13(2) RPBA.

8. The board is of the opinion that the submission of the current claims - filed as auxiliary request 4A - constitutes a legitimate attempt to overcome the Article 84 EPC objections raised for the first time by the board in its communication. The amendment made to either of the independent claims is not complex. It merely changes the wording "constant power output of the wind power plant" in a clear attempt to address at least objection (2) raised by the board (see point 4. above). At the oral proceedings, the board was of the opinion that the reasons for not maintaining objections (1) and (3) for a higher-ranking request applied equally to auxiliary request 4A. In addition, the board found that, *prima facie,* the amendments did not raise new issues and overcame the new clarity objection (2) by clarifying that the power that is constant is the "aggregated active power output" of the two subsets.

9. The case at hand is different from that of decisions T 0752/16 and T 0995/18 cited by the opponent. In these two decisions, the board changed its opinion on objections raised previously in the proceedings (T 0752/16, Reasons 3.3 to 3.6; T 0995/18, Reasons 1.3 to 1.5). The objections were thus not raised for the first time by the board, as in the current case.

10. The opponent also cited decision T 0190/19. In that decision, the board raised objections for the first time in its communication, but concluded that, *prima facie*, the amendments (i) did not overcome all objections raised in the decision under appeal, (ii) gave rise to new objections and (iii) did not relate exclusively to the objections raised for the first time by the board (T 0190/19, Reasons 2.4).

In the board's opinion, whether and how each of these criteria is to be considered depends on the circumstances of each case. In the current case, since auxiliary request 4 on which the amendments were based was maintained by the decision under appeal, there are no objections raised in the decision under appeal, and criterion (i) is irrelevant. Instead, the considerations given in point 8. above are relevant, including those explaining that conditions (ii) and (iii) for non-admittance are not met by the current claims.

11. In view of the above, the board recognises that the new objections raised for the first time in the board's communication created an exceptional circumstance within the meaning of Article 13(2) RPBA and that, even having regard to the considerations under Article 13(1) RPBA, this exceptional circumstance justifies admitting the claims.

12. Therefore, the board admits the claims of the sole request on file, which corresponds to auxiliary request 4A, into the proceedings (Article 13(2) RPBA).

Article 123(2) EPC - Added subject-matter

13. The opponent submitted that the amendment of "wind power plant controller" to "power plant controller" in features P2c and P5a extended beyond the content of the originally filed patent application. Claim 1 as originally filed referred both to a "power plant controller" (in feature P1c) and to a "wind power plant controller" (in feature P2c), whereas claim 1 as amended referred to a "power plant controller" only (see features P1c, P2c and P5a above). Moreover, on the one hand, the power plant controller was arranged to define the first and second subsets of wind turbine generators from the plurality of wind turbine generators (feature PG2), while, on the other hand, it was the wind power plant controller that communicated the common active power set point (see Figure 6 reproduced below).

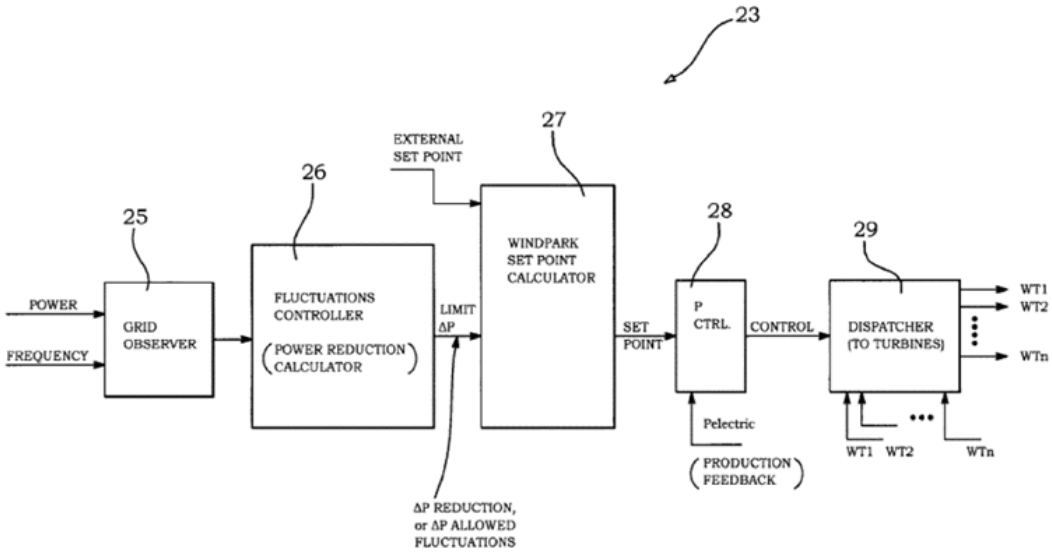


Figure 6

14. The patent proprietor argued that the first two lines of claim 1 as originally filed recited "a power plant controller", while lines 8 and 9 and line 14 of claim 1 as originally filed referred to "the wind power plant

controller"; it was thus clear that the same controller was referred to, and no distinction was to be made between the two terms. The two terms were used interchangeably throughout the application as filed, e.g. on page 24, line 24 to page 25, line 15, and on page 26, lines 28 to 31, of the description. Thus, by omitting the word "wind" from claim 1 as granted (features P2c and P5a), the reader was not presented with new information, and the amendment found a basis in claim 1 as originally filed.

15. In the board's opinion, original claim 1 covers both interpretations according to which the text "power plant controller" of the first two lines of claim 1 as originally filed could be replaced with "wind power plant controller" or the two occurrences of the text "wind power plant controller" could be read as "power plant controller", as done in claim 1.

16. The board further notes that original claim 2 and page 3, lines 11 to 14, disclose "the power plant controller" as the controller that is arranged to define the first and second subsets of wind turbine generators from the plurality of wind turbine generators.

17. The disclosure of the original claims is not changed by the fact that page 16, lines 10 to 13, of the application as originally filed refers to both a "power plant controller" and a "wind power plant controller". In any case, the board agrees with the patent proprietor that this passage, which reads "The control system may be an individual wind turbine controller, a wind power plant controller, a power plant controller or a controller at a higher level in the grid and connected to the wind-turbine controller to send limit-

fluctuation commands", does not provide technical limitations between a power plant controller and a wind power plant controller.

18. Therefore, in the board's view, replacing the term "wind power plant controller" with the term "power plant controller" in features P2c and P5a does not amount to extending the claimed subject-matter beyond the content of the application as originally filed (Article 123(2) EPC).

19. Feature P1a', which specifies that the power system is for supplying power to an electric grid, finds a basis in the application as originally filed on page 8, lines 12 to 18, where it is disclosed that [each of] the wind turbine generators supplies power to an electric grid, and that the wind power plant grid is connected at a point of common coupling.

20. Feature P6 is based on page 27, lines 6 to 8, stating that "[t]he term wind power plant, WPGS may in some embodiments be a single wind power plant with a plurality of wind turbine generators according to Figure 1", together with page 18, lines 12 to 14, and Figure 1.

21. The opponent argued that feature P7' added subject-matter beyond the content of the application as originally filed. Compared to the alleged basis for this feature, page 7, lines 20 to 21, the word "general" had been deleted from the expression "external general power set point". The teaching of the passage on page 7, and that on pages 24 and 25, which describes the power plant controller of Figure 6 reproduced above, could not readily be combined. The output-power controller 28 of Figure 6 based the

control signal for the power to be output by the wind power plant not only on the external power set point. Furthermore, the description disclosed that the dispatcher was "concerned about having a constant power output". Feature P7' specified instead that the power plant controller, not the dispatcher, was configured to provide, not concerned with providing, constant power output. It was clear from Figure 6 that the dispatcher was a component of the power plant controller but not the same as the power plant controller. The application as filed disclosed a single particular configuration of the "wind power plant controller 23", which comprised concrete modules, as shown in Figure 6, each of which had a particular task. With claim 1, the skilled person was presented with new technical information as the wording of claim 1 now taught that the required operations could be achieved in other forms, for example, with a controller with different modules or even with a controller without a specific dispatcher. The dispatcher was functionally inextricably linked to a specific function, and abstracting the function to the controller level led to an intermediate generalisation.

21.1 The patent proprietor argued that the basis for feature P7' was the description as originally filed, page 7, lines 20 and 21, and page 7, line 28 to page 8, line 4. Omitting the word "general" from the term "external general power set point" did not constitute an impermissible intermediate generalisation because the word "general" did not add anything to the meaning of the external power set point. The patent proprietor further argued that the power plant controller provided the constant power output by means of or via the dispatcher, which formed part of the power plant

controller. The skilled person understood that the dispatcher was a module of the power plant controller.

21.2 Page 7, lines 20 and 21, reads "[t]he dispatcher is concerned about having a constant power output given by an external general power set point". The fact that the dispatcher is part of the power plant controller (23) is illustrated in Figure 6, together with the description as originally filed, page 24, line 24 to page 25, line 15. Page 8, lines 1 to 5, discloses that "the first subset of wind turbine generators will be controlled in order to compensate the fluctuations in the second subset of wind turbine generators, with the overall objective of having a constant or desired value of total power output from the wind power plant".

21.3 In the board's opinion, omitting the word "general" does not extend the claimed subject-matter beyond the content of the application as originally filed. The word does not have any specific meaning in the context of the disclosure on page 7. Besides, the skilled reader understands that the "external general power set point" mentioned on page 7 corresponds to the "external (power) set point" mentioned in other passages of the application as filed, for example, on page 22, line 16, and in Figure 6 and to the "external-point signal" mentioned on page 25, line 4, with reference to Figure 6.

21.4 The board is further of the opinion that the skilled person interprets "being concerned about having" in the context of the passage cited above as "being configured [...] to provide". In addition, even though claim 1 does not use the word "compensate", it specifies that the active power set point is communicated to the second subset of wind turbine generators in accordance

with the active power output of the first subset so as to reduce active power fluctuation of the aggregated active power output (features P5a, P5b and P5c), the wind turbine generators of the second set operating according to the active power set point (feature P4). This implies a compensation of the fluctuations in one subset by controlling the other subset. Therefore, contrary to the opponent's argument, claim 1 also specifies the compensation of fluctuations described in the passage on pages 7 and 8.

21.5 The board agrees with the patent proprietor that there is no inextricable link between the "dispatcher" and setting the power output since the output power controller 28 of the dispatcher is external to the dispatcher 29 but part of the wind power plant controller 23 (see Figure 6). As explained in the decision under appeal, the skilled person understands that the dispatcher is a unit of the power plant controller and that it is indeed the power plant controller that is configured to provide the constant power output given by the external power set point. In the board's opinion, the skilled person unambiguously derives from the application as originally filed, including the original claims and the passages on pages 7 and 8, the general teaching that the power plant controller is configured to receive an external active power set point and to provide a constant aggregated power output as defined in feature P7' and the other features of claim 1.

22. The opponent further argued that whereas features P6, P8, PG2 and PG3 were based on originally filed claims, there was no basis in the application as originally filed for the combination of features that had been selected, i.e. no pointer to these features being used

in combination. The paragraph bridging pages 3 and 4 provided as a basis by the patent proprietor and in the decision under appeal contained further features that had not been incorporated into claim 1 (some wind turbines generate what they can, which is less than the common reference, and others follow the common reference). The claimed combination of features thus constituted an intermediate generalisation. Furthermore, these features from the originally filed claims had now been further combined with feature P7'. There was no basis for this combination of features.

23. The patent proprietor argued that the passage of page 3, line 11 to page 4, line 4 of the application as filed provided a description of the subject-matter of claims 2, 3 and 5 as filed. This passage presented the subject-matter of the respective claims as a general teaching. Moreover, the paragraph bridging pages 3 and 4 clearly linked the concept of providing a common set point value to the wind turbine generators (feature P8) with the concept of defining the first and second subsets of wind turbine generators (features PG2 and PG3).

23.1 The board notes that features P6, P7', P8, PG2 and PG3 at the end of claim 1 combine features from the claims and from the description of the application as originally filed. Feature P6 is taken from original claim 8 (the first and second subset of wind turbine generators within the same single power plant) and the description (the common point of coupling). Feature P7' is disclosed in original claim 1 (the aggregated active power output of the first and second subsets of the plurality of wind turbine generators) and in the description, as discussed in detail above. Features P8, PG2 and PG3 correspond to original claims 5, 2 and 3,

respectively. The "common point of coupling" of feature P6 is disclosed on page 18, lines 12 to 14. Original claims 1 to 3 are disclosed in combination due to the dependencies between them. Original claims 5 and 8 are dependent only on original claim 1. However, the combination of features of original claims 1 to 3 with those of claims 5 and 8 can be directly and unambiguously derived from the description as filed on page 3, line 11 to page 4, line 19, as well as the passages discussed above. From the application as originally filed, the skilled person understands the options of a common active power set point reference (feature P8), the first and second subsets being within a single power plant, and a common point of coupling (feature P6) as general features applying to essentially all the embodiments. Contrary to the opponent's argument, the board could not identify in the paragraph bridging pages 3 and 4 any features that should be present in claim 1 to avoid an intermediate generalisation. With regard to the combination of feature P7' with those of original claims 2 and 3 (features PG2 and PG3), the board notes that the passages on pages 7 and 8 discussed above for feature P7' refer to both achieving a nearly constant power output and reducing power fluctuations. Original claims 2 and 3 specified the use of the selection algorithm and wind speed to reduce the power fluctuation of the aggregated active power mentioned in original claim 1. The skilled person thus derives from the application as filed the combination of feature P7' with features PG2 and PG3.

24. The board notes that in the light of the description (see paragraphs cited above) a controller "providing" a constant power output is to be interpreted as a

controller "regulating" the power output to a desired nearly constant value.

25. Therefore, claim 1 meets the requirements of Article 123(2) EPC, the same applying to independent claim 5.

26. **In the appeal proceedings, no objections for added subject-matter were raised against the dependent claims. The board is satisfied that the dependent claims fulfil the requirements of Article 123(2) EPC.**

Article 84 EPC - Clarity

27. As explained in point 4. above, in its communication pursuant to Article 15(1) RPBA the board raised three new clarity objections (1) to (3). For the reasons given in the following, at the oral proceedings, the board no longer maintained objections (1) and (3) for the then higher-ranking auxiliary request 4 and, implicitly, for the then auxiliary request 4A corresponding to the current claims. The board decided that objection (2) had been overcome by the amendment made via the current claims.

27.1 With regard to objections (1) to (3), the patent proprietor filed new claims and argued that each of the plurality of wind turbines was related to a controller and received an active power set point; there were only two subsets of wind turbine generators since each wind turbine generator was either unrestricted or not. In view of this, it was also clear that the aggregated power of the two subsets in P5c constituted the constant aggregated active power output in P7'. A skilled person reading claim 1 with a mind willing to understand would readily infer that the external power

set point constituted a reference power level which the wind power plant needed to supply to the electrical grid and that it therefore defined the constant power output which the power plant controller sought to provide, by appropriately instructing the individual wind turbine generators of the wind power plant. In support of its arguments, the patent proprietor cited paragraphs [0033], [0037] to [0039], [0072] and [0082] of the opposed patent.

27.2 The opponent concurred with the observations of the board with respect to objections (1) to (3) and argued that they had not been overcome by the amendment made by auxiliary request 4A. The term "given by" was still in claim 1. While it was true that, as known to the skilled person, all wind turbines comprise a wind turbine controller arranged or configured to receive a set point, this did not imply that such a set point was actually sent to, or received by, each wind turbine. It therefore remained unclear if the second subset of wind turbine generators included all the wind turbines in the plurality of wind turbine generators not included in the first subset of wind turbine generators. This lack of clarity was not solved by the passages of the description cited by the patent proprietor, which merely referred to the formation of the first and second subsets. The opponent further argued that to reduce power oscillations it was not mandatory to actively consider all the power generating units in the power plant. Since it was unclear whether the first and second subsets of wind turbine generators corresponded to all the wind turbine generators, it was also unclear whether the external set point was to be fulfilled by the power system as a whole or only by the aggregated power of the first and second subsets of wind turbine generators.

27.3 The board agrees with the proprietor's argument refuting objection (1). In claim 1, a wind turbine generator is either restricted or not and, therefore, the two sets constitute the plurality of wind turbine generators. This is how the skilled person naturally interprets the claim, also taking the description into account (see, for example, paragraph [0033], "aggregated power from all the wind turbine generators", and paragraphs [0037] to [0039] explaining that one subset compensates for the other subset). It is clear from feature P7' that the external power set point is to be fulfilled by the aggregated output of the two subsets. Objection (2) was overcome by the amendment, which clarifies that the power that is constant is the "aggregated active power output" of the two subsets. With regard to objection (3), the board agrees with the patent proprietor that the skilled person understands "given by" in the context of claim 1. Feature P7' expresses that the external power set point constitutes a reference power defining the constant power output which the power plant controller seeks to provide.

28. The opponent raised clarity objections which it considered to be caused by claim amendments based on the description of the patent. These amendments, including in particular features P1a’ and P7', were open for examination under Article 84 EPC.

28.1 According to the opponent, there was an apparent contradiction between features P5c and P7'. Feature P5c specified that power fluctuations were somewhat reduced, whereas feature P7' stated that the aggregated active power output was constant according to a received external power set point. In a power system

having a plurality of wind turbine generators, power fluctuations occurred due to wind fluctuations, as described in paragraph [0005] of the patent. However, these fluctuations would not occur if the grid operator sent an external power set point, and the power system is restricted to follow that external power set point.

28.1.1 The board concurs with the patent proprietor that when the grid operator specifies an external power set point of, for example 100, MWh in the power rated area, it allows fluctuations of, for example +/- 1 MWh around this value. The aim of the power system of claim 1 is to reduce these fluctuations.

28.1.2 The opponent argued that these fluctuations of, for example, +/- 1 MWh were not the fluctuations that were addressed in the application. Those fluctuations, which were not noise, were instead wind speed fluctuations. The power of the wind turbines increased or decreased due to an increase or decrease of the wind speed.

28.1.3 In the board's opinion, the fluctuations addressed by the invention are the power fluctuations resulting from the wind speed fluctuations (see paragraph [0005] of the patent: "A wind turbine generator operating at partial load (i.e. when the wind speed is below the nominal wind speed of the wind turbine generator considered) will normally transform these wind-speed fluctuations into corresponding fluctuations of the amount of real power produced and supplied to the electrical grid.").

28.1.4 The patent proprietor argued that it was well established that a power output of a wind turbine generator or a wind power plant would never be strictly constant since the power output depended on the wind

conditions, and wind conditions tended to vary and fluctuate. Thus, when referring to "a constant power output" in this context, it was clear to a skilled person with a mind willing to understand that a certain level of the power output was aimed for but that this did not rule out that the actual power output fluctuated around this level. Feature P5c merely specified that these fluctuations were reduced, thus in fact resulting in a power output that was closer to being constant.

28.1.5 The board agrees with the decision under appeal and the patent proprietor that the skilled person understands that the "constant power output" of feature P7' is clear and does not refer to a strictly constant power output but to a "nearly constant power output" (see the description as filed, page 7, lines 21 to 24, or paragraph [0037] of the patent as granted).

28.2 The opponent further argued that feature P7' specified that the power plant controller provided a constant power output, whereas the controller did not have any power generation capability and according to the same claim (features P1c and P5a) merely communicated with the wind turbine generators.

28.2.1 The patent proprietor counter-argued that, regarding feature P7', a skilled person with a mind willing to understand would readily understand that what was meant by this feature was that the power plant controller was capable of causing the wind turbine generators of the wind power plant to produce a constant power output of the wind power plant which corresponded to the external power set point, and not that the power plant controller itself generated or produced the power output.

28.2.2 The board agrees with the patent proprietor and the decision under appeal that the skilled person understands what is meant by the wording "power plant controller is configured to ... and to provide a constant power output" in claim 1.

28.3 A further clarity issue was, according to the opponent, that features P1a' and P1b referred to a power system which comprised the wind turbines generators, whereas feature P6 referred to a wind power plant comprising these same wind turbines generators. The power system could comprise other power sources different from the wind power plant. It was therefore not clear whether the power system and the wind power plant were the same thing. For example, the power system might comprise nine wind turbine generators, and the first subset might be constituted by three of them, while the second subset be constituted by three of them. There could be instances where the first and second subsets corresponded to the total amount of wind turbine generators, but the claim covered other instances where this was not the case. It was not clear whether the "aggregated active power" of feature P7' was the same as the power provided by the plurality of wind turbine generators.

28.3.1 However, in the board's view, in this example, the three wind turbine generators which are not assigned to any of the first and second subsets (for example which are from another manufacturer as stated by the opponent) are operating at an active power output unrestricted of an active power set point, and thus are *de facto* part of the first subset (see also point 27.3 above).

28.3.2 The board does not find the opponent's arguments convincing. The skilled reader with a mind willing to understand considers feature P7' as implying that the power plant controller is configured to provide, via its control of and communication with the plurality of wind turbine generators of the power system (see features P1b and P1c), a nearly constant power output of the wind power plant (the first and second subsets of the plurality of wind turbine generators being located within the same single wind power plant, see features P3, P4 and P6). The power system comprises the plurality of wind turbine generators of the wind power plant (see feature P1b). The "same single wind power plant" of feature P6 corresponds to the wind power plant of feature P7'.

29. Therefore, claim 1 meets the requirements of Article 84 EPC. The same reasons apply *mutatis mutandis* to independent claim 5. No clarity objections were raised for the dependent claims.

Article 83 EPC - sufficiency of disclosure

30. At the oral proceedings, the parties were heard on the question of sufficiency of disclosure with respect to auxiliary request 1a then on file. With regard to the present sole request, the parties declared that they had no further arguments.

31. The opponent argued that feature P3 was in contradiction with features P2b and P2c. Feature P2a specified that each wind turbine generator was related to a wind turbine controller. Features P2b and P2c indicated that the wind turbine controller was configured to control the active power output of or "in" its related wind turbine generator according to

the active power set point, whereas feature P3 indicated that the wind turbine generators of the first subset operated without being restricted by the active power set point. It was not explained in the patent how the combination of P2 and P3 could be carried out. Some parts of the specification explained that the first subset operated without restriction and thus not in accordance with the received power set point. These embodiments contradicted features P2b and P2c and were thus outside of the scope of protection. Feature P8 further added to the problem.

32. The patent proprietor argued that the wind turbine generators of the first subset received the same active power set point as the wind turbine generators of the second subset (P2c) and that they were arranged to be controlled in accordance therewith (P2b⁄P2c), yet to be operated unrestricted by it (P3). Features P2b and P2c clearly specified that each wind turbine controller was arranged to control the active power output in its related wind turbine generator according to the active power set point received from the power plant controller, i.e. they were capable of doing so, but the wording of features P2b and P2c placed no obligation on the wind turbine controllers to actually carry out the command. Thus, this did not necessarily mean that they did so at all times. In addition, feature P5b clearly specified that the active power set point was in accordance with the active power output of the first subset and that it therefore took into account that these wind turbine generators would ignore the active power set point when received. It was within the capability of a person skilled in the art to program the wind turbine controllers to ignore or overrule a received active power set point, subject to certain conditions, such as the related wind turbine generator

being assigned to the first subset of wind turbine generators. Thus, there was no contradiction. At the oral proceedings, the patent proprietor further argued that the opponent's reasoning concerned clarity rather than Article 83 EPC.

33. The board notes that the features mentioned in the opponent's reasoning under Article 83 EPC are based only on features of the granted claims, which cannot be the basis for an objection under Article 84 EPC (G 3/14, order).

34. As regards sufficiency of disclosure, the board does not find the opponent's arguments convincing that the skilled person would not be able to carry out the invention due to a contradiction between features P3 and P2b and P2c. As the patent proprietor explained, features P2b and P2c place no obligation on the wind turbine controllers to carry out the command. In the first subset, the active power set point, even if received from the wind power plant controller, does not restrict the active power output. The skilled person understands from claim 1 that the active power set point communicated to at least the second subset of wind turbine generators restricts only the second subset and is set taking into account the active power output of the first subset of wind turbine generators (P5b) to reduce the power fluctuations and provide constant aggregated active power. The opponent did not identify concrete embodiments of the description that would be outside the scope of protection and how this was relevant. Feature P8 specifies that a common active power set point reference is received. Since the common active power set point reference is not further used in the claimed system, the skilled person would not face

any difficulties in implementing feature P8 in the context of the claimed invention.

35. Therefore, the board is satisfied that the claimed invention is disclosed in a manner sufficiently clear and complete for it be carried out by a person skilled in the art (Article 83 EPC).

Article 56 EPC – inventive step starting from document D2

36. The opponent argued that document D2 aimed to solve the same problem as the opposed patent. Paragraph [0010] of D2 disclosed that the aim of the described embodiments was "to provide wind-farm control with a better regulation ability, such as being able to increase or decrease the active power supplied to the grid in order to maintain the frequency stability of the grid which operates as an automatic global adjustment of power to control the frequency of the grid".

37. Document D2 discloses a wind farm with an active power reserve system having a plurality of wind turbines and a wind farm central control (WFCC), which can be located in the point of common coupling (PCC). An objective of this system is to follow a given set point of active power reserve for the wind-farm as a whole (paragraph [0028]). The wind-farm active power reserve set point (% Sp_Pres) can be received either from the electric utility or generated by the WFCC according to several criteria predefined in an optimisation algorithm (201) (paragraphs [0032] and [0033]). Each wind turbine generator has a turbine relative control (WRTC) (see also paragraphs [0028], [0029] and [0059]; Figure 1).

38. It is common ground that document D2 discloses a power system having a plurality of wind turbine generators and a power plant controller (the WFCC in D2), each wind turbine generator being related to a wind turbine controller (the WRTCs in D2) in accordance with features P1a', P1b, P1c, P2a and P2b of claim 1.

39. In the system of D2, the WFCC defines two operational modes for each wind-turbine: an active power observer mode (APOM) and an active power reserving mode (APRM) (paragraphs [0012] to [0014]). Commands for these settings are sent to each wind-turbine from the WFCC through a communication network (104-107) (paragraphs [0038] and [0054]).

When a wind-turbine is operated in APOM, the power output is controlled in accordance with the maximum power available with the actual wind conditions or, at least, without regard to maintaining an active power reserve. In this mode, the WFCC does not impose any constraint in the active power generated by the wind-turbine (paragraph [0015]).

When a wind-turbine is operated in APRM, the WFCC issues a command that limits the maximum active power output from the wind-turbine. Therefore, the wind farm's total active power production will be maintained below the maximum power output available based on actual wind conditions (paragraph [0016]).

The WFCC is in charge of satisfying the desired active power reserve of the wind farm. It receives or determines the "active power reserve setpoint" (%SP_Pres) from a variety of information. It then calculates the percentage of the rated power output (%Pwt_rated_res) which is not allowed to be

exceeded by the wind-turbines operating in APRM. The %Pwt_rated_res is sent to the WTRCs. The %Pwt_rated_res command is distributed to all the wind turbines and enforced by the WTRC in each turbine working in APRM (paragraphs [0032], [0033], [0048] and [0049]; Figures 1 and 2A).

39.1 It is common ground that D2 discloses two subsets of wind turbine generators located within a single farm and that a "common point of coupling" supplies power to the electric grid as specified in features P3, P4 and P6. The first subset of wind-turbines operating in APOM is unrestricted of the "active power set point" "Pwt_rated_res", while the second subset of wind-turbines operating in APRM operates according to the "active power set point" "Pwt_rated_res". Pwt_rated_res" is received from the WFCC (paragraphs [0048] and [0049], Figure 1).

39.2 The patent proprietor argued that document D2 did not disclose features P8 and PG3 and features **P2c** and **P5c** in combination with features **P5a** and **P5b**.

39.3 With regard to features **P2c** and **P5a**, it follows from the discussion above that the WTRCs control the active power of the turbine generators of the APRM (i.e. second subset) according to the %Pwt_rated_res, which can be seen as the "active power set point" of claim 1.

39.4 With regard to feature **P5b**, the board notes that, as explained in paragraphs [0046] to [0049] with reference to Figure 2a, the %Pwt_rated_res value is calculated as a function of the difference between the average active power generated by the wind turbines in APOM mode (the first subset in claim 1) and those in APRM mode (the second subset). According to these passages and

Figure 2A, the average active power (avgPu) generated by the wind turbines operating in the APRM mode as the second subset is calculated in unit (205) by dividing the total active power generated by all the turbines operating in the APRM mode (203) by the total number "u" of wind turbines operating in the APRM mode. Similarly, the average active power (avgPm) generated by the wind turbines operating in APOM mode (as the first subset) is calculated by dividing the total active power generated by all the turbines operating in the APOM mode (204) by the total number "m" of wind turbines operating in the APOM mode. Therefore, the value and command %Pwt_rated_res (corresponding to the "active power set point" of claim 1) is "in accordance" with the active power output of the APOM turbines (i.e. the first subset) as specified in **feature P5b**.

39.5 The opponent argued that document D2 did not disclose feature PG3. Feature **P5c** was at least implicitly disclosed in D2, in paragraphs [0051] and [0052], together with Figure 5. In the system of D2, keeping the power output within limits implied a reduction of the fluctuations, as could be read from paragraphs [0007] and [0010] of D2. Furthermore, when implementing a method mostly concerned with providing a power reserve (as in D2), some wind turbines were inevitably curtailed, and the active power fluctuations were reduced. The patent in dispute contained in paragraph [0040] an explicit reference to the concept of power reserve.

39.6 The patent proprietor argued that, regarding feature P5c, the control scheme of D2 was carried out to ensure a power reserve (reference was made to D2, paragraphs [0007], [0008] and [0010]), not to reduce active power fluctuation of the aggregated active power

output. Feature P5c (in combination with features P5a and P5b) specified that the active power set point was generated to reduce active power fluctuation of the aggregated active power output. This implied a control scheme which sought to reduce active power fluctuation. A control scheme aiming to ensure a power reserve (as described in paragraphs [0051] and [0052] and illustrated in Figure 5 of D2) therefore did not amount to disclosure of feature P5c, even if a reduction of active power fluctuation could be obtained as an unintended side effect. The description of the contested patent did not change what was disclosed in D2.

39.7 The board is of the opinion that the passages of document D2 cited by the opponent disclose updating the number of wind turbines operating in the APOM and APRM modes such that the ratio of generated active power between the two groups is maintained in a certain range, namely the APRM group should generate between 70% and 90% of the active power generated by the APOM group. However, the purpose of these features is to "prevent the wind-turbines in APRM from operating too far from the rated design conditions (e.g., wind turbine operating at 10% of power output in high wind speeds)" and "to ensure a reliable estimation of the power reserve" (paragraphs [0052] and [0053]). This is not the same as "reducing active power fluctuation of the aggregated active power output of the first and second subsets".

40. The board thus concludes that document D2 does not disclose feature P5c.

41. The board agrees with both parties that document D2 does not disclose feature PG3, since the first and

second subsets are not selected based on the actual wind speed at each wind turbine generator. **Therefore, the features distinguishing claim 1 from the disclosure of D2 include at least features P5c and PG3.**

42. With regard to distinguishing features P5c and PG3, the patent proprietor argued that the active power set point for the second subset was defined to reduce fluctuations in the first subset. According to the patent proprietor, this deliberate definition was neither disclose nor envisaged in D2, which was about ensuring that the wind farm could provide power reserve in case of grid instability.

42.1 According to the patent proprietor, the objective technical problem could be formulated as "how to handle active power fluctuations in case of changing wind conditions". The skilled person, starting from document D2 and faced with this problem would not be motivated to modify the system of D2 to include distinguishing features P5c and PG3 because the entire focus of D2 was to provide a power reserve, and the skilled person would therefore not consider the reduction of active power fluctuation within the context of D2. Moreover, document D2 (paragraph [0049]) specifically taught away from dispatching a common active power set point to all the wind turbines. A more direct input could be gathered from the wind speed. The technical effect was a better handling of the variations that the wind turbine generators were facing. This was reflected in paragraph [0015] of the granted patent reading "An advantage of this embodiment of present invention is that by using wind speed there is a direct correlation to the produced power, and thus which turbine will produce power below rated power i.e. with fluctuating power". A wind turbine generator was a

highly complex element. It was non-linear and involved mechanical and electrical losses as well as "chopper(s)", rendering it impossible to conclude that an increase in wind speed would necessarily result in an increase in power output. There was no close correlation between wind speed and power variations, and no indication in document D2 that power fluctuations were based on wind speed.

43. The opponent argued that features P5c and PG3 did not result in a synergistic effect, and that, even if they were considered together as providing a better handling of wind speed variations, they did not involve an inventive step. Feature P5c was not inventive. The skilled person was fully aware of the desire to reduce fluctuations, which was well known from wind power plants. A wind sensor was a standard component of wind turbines. There was a correlation between power fluctuations and wind speed. Even though power fluctuations were not due to wind speed, they were due to turbulence, which was reflected in wind speed. Starting from D2, the skilled person would, based on their common general knowledge or the disclosure of D3, consider treating individual turbines differently, as done in D2. There was no reason to assume that wind was constant in D2.

44. The board is of the opinion that features P5c and PG3 have to be considered together and that the skilled person would not normally consider changing the selection algorithm of D2 to select the wind turbine generators of the subsets in accordance with an actual wind speed (feature PG3). The selection algorithm in the system of document D2 consists in choosing a number u of wind turbines to operate in the restricted mode APRM and m (= n-u) to work in the unrestricted

mode APOM. The number u is determined based on the average active power generated by wind turbines in the restricted mode APRM and the unrestricted mode APOM, avgPu and avgPm, and the goal of preventing wind turbines from operating far from the rated design conditions (paragraphs [0046] to [0054] and [0057], Figures 5 and 6). The skilled person would not take into account wind speed in this scheme, which does not take into account different wind speeds across the wind turbines. Furthermore, taking into account wind speed would require major changes to the well-defined scheme of document D2 that go beyond the routine task of the skilled person.

45. Therefore, claim 1 is inventive over the disclosure of document D2 (Article 56 EPC), the same applying to independent claim 5 and the dependent claims.

Article 56 EPC - inventive step starting from document D1

46. Document D1 illustrates in Figure 1 a power generation facility 101 in a power system. The power generation facility is connected to loads 102 such as factories and homes and, in the example of Figure 1, to two wind farms (WF1, WF2) (but it can also be connected to three or more wind farms). Electric power from the power generation facility 101 is transmitted using a power transmission line 103. In Figure 1, P1 and P2 represent, respectively, the power generated by the wind farms WF1 and WF2, whereas P1lim and P2lim represent, respectively, power limit values (limit on output power) required from wind farms WF1 and WF2 (paragraphs [0011], [0012] and [0065]). As illustrated in Figure 2, wind farm WF1 is composed of a plurality of wind power generation devices (or wind turbine generators) 202, each of which is electrically

connected to a transmission line 204 within wind farm WF1, and is connected to the power grid via the transmission line 204 and a step-up transformer 201. The same applies to wind farm WF2. Each wind farm has a farm controller 104 (105). The output power of the wind turbine generator 202 of each wind farm is restricted to the power generation upper limit value Pm (Figure 2, paragraphs [0015] and [0016]). Each wind power generation device 202 of document D1 is composed of a generator 1104, a blade 1105, a wind turbine controller 1106, a power converter 1103, and a converter controller 1107 (paragraphs [0018] and [0019] together with Figure 5).

47. The combination of wind farms WF1 and WF2 of document D1 (see Figure 1) can be equated to a "power system having a plurality of wind turbine generators" (i.e. the plurality of wind turbine generators of wind farms WF1 and WF2), as specified in features P1a', P1b and P2a of claim 1. A wind turbine controller 1106 of D1 corresponds to a wind turbine controller within the meaning of claim 1.

48. **It is common ground that document D1 does not disclose features P6, P8, PG2 and PG3.** The patent proprietor argued that, in addition to these commonly recognised distinguishing features, document D1 did not include at least features P1c, P2c, P4, P5a, P5b and P7' of claim 1. Claim 1 was limited to the presence of individual wind turbine controllers at each wind turbine generator, corresponding to the controllers 104 and 105 sending, directly or indirectly, the power generation upper limit value Pm to sub-controllers 1106, 1107 and 1103 of Figures 5 and 6 (reference was made to paragraphs [0018] to [0024] of document D1). The controller 104 of WF1 received information on a

power limit value P2lim and an output power P2 of WF2 from controller 105, but there was in the power system of D1 no common plant controller which dispatched an active power set point to controllers 104 and 105. The two wind farms communicated with each other, but they received no input from an overall plant controller.

49. The board notes that the wind controller 104 of wind farm WF1 monitors and controls the state of each wind turbine generator of wind farm WF1. It calculates the power generation upper limit value Pm of each wind power generation device of wind farm WF1 in accordance with the power limit value P1lim (limit on output power) required by the power grid for wind farm WF1. It then commands each wind power generation device 202 to change the upper limit value of its power curve to the power generation upper limit value Pm (paragraphs [0012] to [0016] together with Figures 2 to 5).

50. The farm controller 104 of wind farm WF1 transmits the generated power P1 and the power limit value P1lim of wind farm WF1 to the farm controller 105 of wind farm WF2. The farm controller 105 of wind farm WF2 also transmits the generated power P2 and the power limit value P2lim of wind farm WF2 to the farm controller 104 of wind farm WF1 (paragraphs [0012], [0026] and [0039] and Figure 1). Wind farm WF1 changes the power limit P1lim if the power P2 generated by wind farm WF2 is lower than P2lim, so that the sum of the power limit values of wind farms WF1 and WF2 does not exceed P1lim + P2lim (paragraph [0027] to [0030]).

As in the decision under appeal, the board is of the opinion that the combination of the farm controllers 104 and 105 of the two wind farms WF1 and WF2 of Figure 1 of D1 corresponds to a "power plant controller

arranged to communicate with the plurality of wind turbine generators", as specified in **feature P1c** of claim 1.

Wind farm WF1 constitutes the "second subset of wind turbine generators" of feature P4 of claim 1 of the main request operating at an active power output according to an active power set point, **as specified in feature P4**. The opponent argued that the active power set point of claim 1 could be mapped to either P1lim or Pm, which was dependent on P1lim and was received by the wind turbine controller (1106) from the power plant controller (104). Both interpretations would lead to the same result. The board considers **P1lim** to correspond to the active power set point.

51. The wind turbine controller 1106 detects the wind speed and receives the power generation upper limit value Pm from the farm controller 104 in accordance with the power limit value for the wind farm (i.e. P1lim for WF1 or P2lim for WF2). This wind turbine controller 1106 of document D1 is arranged to calculate and output an active power command value Pref to be generated by the wind power generation device 202 and, via the converter control device 1107, to control the power (active and reactive power) exchanged between the generator 1104 and the power system (paragraphs [0020] to [0022], Figure 5).

Therefore, document D1 also discloses **features P2b and P2c**.

52. The farm controller 104 of wind farm WF1 (forming part of the combination of the two farm controllers of the two wind farms WF1 and WF2) monitors the state of each wind turbine generator constituting the wind farm WF1,

calculates the power generation upper limit value Pm for each wind power generation device in the wind farm in accordance with the power limit value P1lim required by the power grid for wind farm WF1, and issues the calculated power generation upper limit value Pm to each wind power generation device (paragraph [0012]). The wind turbine controller 1106 controls an active power output in its related wind turbine generator according to the power generation upper limit value Pm. Pm is calculated in accordance with the power limit value for the wind farm (i.e. P1lim for WF1 or P2lim for WF2) (see points 51. and 49. above).

53. In the embodiment described starting from paragraph [0036], the power limit value P1lim of wind farm WF1 is increased further taking into account the power that can be generated by wind farm WF2 (paragraph [0037]). The power limit value of wind farm WF1, P1lim, which corresponds to the "active power set point" of claim 1 of the main request, is received from the farm controller 104 of wind farm WF1, i.e. from the power plant controller being the combination of the farm controllers 104 and 105 (see point 47. above).

54. Wind farm WF2 constitutes the "first subset of wind turbine generators" of feature P3 of claim 1 of the main request. It operates at the active power output **unrestricted of the active power set point P1lim** (but according to the active power set point P2lim).

55. The farm controller 104 of wind farm WF1 transmits the generated power P1 and the power limit value P1lim of wind farm WF1 to the farm controller 105 of wind farm WF2. The farm controller 105 of wind farm WF2 also transmits the generated power P2 and the power limit value P2lim of wind farm WF2 to the farm controller 104

of wind farm WF1 (paragraphs [0012], [0026] and [0039] and Figure 1).
Therefore, document D1 discloses **features P3 and P5a.**

56. With reference to Figures 11 and 12, document D1 describes a situation in which the generated power P2 of the wind farm WF2 is below the night time power limit value P2lim=P2B. If the wind is strong at wind farm WF1 at night and the generated power is greater than the power limit value P1lim=P1B, the night time power limit value P1lim of wind farm WF1 is corrected by the amount by which the generated power P2 of the wind farm WF2 falls short of the night time power limit value, i.e. by the amount of (P2B-P2) (paragraphs [0036] to [0039]).

In summary, when the generated power P2 of the wind farm WF2 falls short of or is below the night time power limit value P2lim=P2B, the wind farm WF1 changes its power limit value P1lim to the value P1lim': P1lim'=P1lim+(P2lim-P2).

When controlled in this manner, the sum of the power limit values, or aggregated power, of wind farms WF1 and WF2 does not exceed P1lim+P2lim (paragraphs [0028] to [0030] and [0039]). In addition, the farm controller of wind farm WF1 communicates the active power set point P1lim to at least the second subset of wind turbine generators WF1, and P1lim is in accordance with the active power output of the first subset WF2 of the plurality of wind turbine generators, P2.

Therefore, P1lim is "in accordance with" P2, the active power output of the first subset of the plurality of wind turbine generators WF2.

Therefore, document D1 discloses **feature P5b**.

57. Document D1 also discloses **feature P5c**, i.e. reducing active power fluctuation of the aggregated active power output of the first and second subsets of the plurality of wind turbine generators (paragraphs [0004], [0005], [0009] and [0039]).

58. The opponent argued that feature P7' was disclosed in paragraph [0012] of document D1 but acknowledged that document D1 did not disclose feature P6. The board notes that the power plant controller of document D1 (constituted by the combination of the farm controllers of the two wind farms WF1 and WF2) is configured to receive an external power set point (P1lim+P2lim) and to provide a constant power output of the wind power plant given (or limited) by the external power set point (P1lim+P2lim) (see also point 56. above).

Therefore, document D1 discloses **feature P7'**.

59. For the reasons given above, the board does not agree with the patent proprietor that features P1c, P2c, P4, P5b and P7' are distinguishing features. The board agrees with both parties that document D1 does not disclose features **P6, P8, PG2 and PG3**.

60. The patent proprietor argued that the objective technical problem, when starting from D1, could be seen as how to reduce active power fluctuations of the aggregated active power output of a single wind power plant in a fast, accurate and reliable manner, and regardless of changing wind conditions across the site of the wind power plant.

60.1 According to the patent proprietor, since all wind turbine generators received the same active power set point (see feature P8), it was not necessary to dispatch new active power set points to the wind turbine generators if the subsets were redefined due to changing wind conditions. It sufficed to dispatch a message to any wind turbine generator being moved from one subset to another to either ignore the active power set point or not, depending on which subset the wind turbine generator was moved to. This provided a simple control scheme which could react fast and reliably to changes in wind conditions to reduce active power fluctuations of the aggregated active power output. Moreover, basing the selection of the subsets of wind turbine generators on the actual wind speed at the wind turbine generators allowed for very accurate targeting of the active power fluctuation.

60.2 According to the patent proprietor, starting from document D1 and faced with the problem stated above, the skilled person would find no incentive in D1 to consider placing the respective wind farms WF1 and WF2 together and would not readily arrive at the claimed invention. Document D1 taught fixed subsets of wind turbine generators, in the form of the two distinct and geographically separated wind farms (WF1 and WF2). According to D1, it was essential that the two wind farms were located at a significant distance from each other to ensure that the wind conditions in the wind farms were sufficiently different from each other to enable the described compensation in power generation (reference was made to D1, paragraphs [0004] and [0035] to [0040] and [0059]). Thus, D1 taught away from applying the teaching of D1 to wind turbines arranged within a single wind power plant (see feature P6). The skilled person would thus understand that it was

fundamental in the disclosure of D1 that the wind farms were placed remotely from one another at such a large distance between them that the wind input characteristics were different.

61. The opponent stated that PG2 and PG3 were related to each other in that they both related to the selection algorithm for the first and second subsets of wind turbine generators. However, features P6 and P8 had no synergistic effect with each other or with PG2 and PG3. There was no technical effect provided by **feature P8**. A partial problem approach was therefore appropriate.

61.1 According to the opponent, a technical effect provided by **feature P6** was that power fluctuations within a single wind farm could be reduced, rather than for an aggregate of wind farms. Document D1 already included the teaching of receiving a set point and providing a constant power output by curtailing some wind turbine generators in a wind farm, while allowing others to generate power freely. The curtailment of the selected wind farm depended on the production of power of the other wind farm. Starting from document D1, it would have been obvious for a skilled person to implement the same teaching for a single wind farm, e.g. for a large wind farm spread out over a large geographical area. Such wind farms were widely known at the priority date. At the oral proceedings, the opponent also argued that the technical effect of P6 would be a simplification of the overall connection to the power grid. Adding a point of common point to D1 would be obvious for the skilled person.

61.2 The opponent further argued that **features PG2 and PG3** provided one possible way of dividing the plurality of wind turbines into a first subset and a second subset.

A technical effect provided by these differences could be regarded as providing an alternative distribution of power curtailment between different wind turbines. PG2 and PG3 did not prescribe a specific distribution, i.e. they left open whether the wind turbines with a higher wind speed or those with a lower wind speed would belong to the first or the second subset.

62. The board does not agree with the opponent that feature P6 is directed to a partial problem separate from that of features PG2 and PG3 since the wind turbines mentioned in features PG2 and PG3 are, by virtue of feature P6, in the same wind power plant with a common point of coupling to the electric grid. The board notes that, contrary to the opponent's statement, document D1 does not disclose "curtailing some wind turbine generators in a wind farm, while allowing others to generate power freely". Document D1 discloses only curtailing all wind turbine generators in a wind farm or not at all. The solution disclosed in D1 pre-supposes a fixed allocation of subsets (paragraphs [0035], [0040] and [0059]). In view of this, the board does not agree with the opponent's formulation of the objective technical problems in points 61.1 and 61.2 above and finds that the first formulation contains a pointer to the solution.

62.1 The board agrees with the patent proprietor's formulation of the objective technical problem. Furthermore, the board is of the opinion that the skilled person starting from document D1 would not merge the two wind farms WF1 and WF2 into a single wind power plant with a common point of coupling for supplying power to the electric grid. The system of D1 relies on two wind farms located at remote locations and for which the wind at one wind farm WF1 is

different from the wind at the other wind farm WF2. This difference in wind speed between the two farms is used to compensate the power generated by one wind farm with the power generated by the other wind farm. As the decision under appeal concluded, changing the solution of document D1 to the selection algorithm of PG3 would have required a fundamental change in the control strategy of document D1, which only deals with fixed subsets (wind farms). Such a fundamental change would require inventive skills.

63. **Therefore, claim 1 is inventive over the disclosure of document D1 (Article 56 EPC), the same applying to corresponding claim 5 and the dependent claims.**

Article 56 EPC – inventive step starting from document D3

64. **Document D3** discloses a power system having a plurality of wind power generation devices adapted to suppress the output fluctuation of the wind power generator group. The system includes a wind turbine selection control device 15 and an output control device 3, 6 for each of the wind power generation devices 1, 4. The output control device controls the output of the respective wind power generation devices. The control is performed so as to suppress fluctuations of the entire group of wind turbine generators (Abstract; paragraphs [0015], [0025] and [0026]; Figure 1).

64.1 Document D3 therefore discloses **features P1a', P1b, P1c, P2a, P2b and P5c**, where the wind turbine selection control device 15 and the output control device 3, 6 of each wind power generation device 1, 4 correspond respectively to the power plant controller and wind turbine controller of claim 1.

64.2 The patent proprietor did not dispute the disclosure of these features in document D3 but argued that document D3 did not disclose features P2c, P4, P5a and P5b.

65. The patent proprietor argued that, in document D3, the suppression amount was not based on the output of a first subset of wind power generators, distinct from the wind power generators of a second subset which operated in a curtailed mode according to a power set point. No subset of wind power generators was defined in the disclosure of document D3 on the basis of whose output the active power set point of another subset of generators was determined. Rather, the data collection device 10 and computing device 11 took into account the output of all of wind power generators.

66. The board notes that in the method of document D3 the outputs from the wind power generation devices 1 and 4 are detected by output detectors 2 and 5 and collected by a data collection device 10 (Figure 1, paragraph [0021]). System data such as frequency fluctuations and voltage fluctuations are collected from the power system 7 by the data collection device 10. Additionally, wind speed data from the anemometer 8 is also collected by the data collection device 10. Then, using the system data, the next calculation device 11 calculates the extent to which the total output fluctuation of the wind power generation group must be suppressed to maintain the power quality of the power system and sets the output of the output suppression amount setting device 14. On the other hand, another calculation device 12 uses the wind speed data to perform a correction calculation of the output suppression amount based on the average wind speed and outputs a correction signal to an output suppression

amount setting device 14 (paragraphs [0022] to [0024] and [0027]).

The wind turbine selection control device 15 uses the signal from the output suppression amount setting device 14 and the wind turbine output signals from each wind power generation device 1, 4 to determine the selection of the wind power generation device to be controlled and the output setting value and outputs an output setting signal to the output control device 3, 6 of each wind power generation device 1, 4 (paragraph [0025]).

67. The patent proprietor argued that it was not apparent from the disclosure of document D3 that the so-called suppression amount in fact provided an active power set point. The wind turbine selection control device 15 could in fact be used merely for the selection of wind turbine generators for control but not necessarily for setting an active power set point of any subset of wind turbines.

67.1 The board is, however, of the opinion that the "output setting value" sent to each output control device 3, 6 of each wind power generation device 1, 4 by the wind turbine selection control device 15 corresponds to the "active power set point" of feature P2c. This being in accordance with the active power output of both wind turbine generators.

Therefore, document D3 discloses **features P2c and P5b.**

68. When the output of a wind power generation device with small output fluctuations, as in Figure 2(1), is combined with the output of a wind power generation device with large output fluctuations as, in

Figure 2(2) in which the output fluctuations in a second half of Figure 2(2) are suppressed, the total output also becomes a state in which output fluctuations are suppressed, as in the second half of Figure 2(3). The method of document D3 is intended to obtain a relatively stable total output as described in the latter half of Figure 2(3) (paragraphs [0019] and [0020]).

68.1 The wind power generation device with small output fluctuations is operating at the active power output unrestricted of the active power set point (or output setting value), while the wind power generation device with large output fluctuations operates in the second half of Figure 2(2) according to the active power set point (or output setting value).

Therefore, document D3 discloses **features P3, P4, P5a and P5c**.

69. The opponent acknowledged that document D3 did not disclose feature P7' but argued that feature P6 was not new over D3 since paragraph [0021] and Figure 1 disclosed that the wind turbines belonged to the same wind power plant.

69.1 The board agrees that document D3 discloses a single power plant and, implicitly, a "common point of coupling" within the meaning of **feature P6**. The board agrees with both appellants and the decision under appeal that document D3 does not disclose **feature P7'**.

70. The board agrees with both appellants that document D3 does not disclose **feature P8**.

71. Regarding feature PG3, the patent proprietor argued that paragraph [0032] of D3 disclosed that wind turbines having large output fluctuations were automatically selected and that their output was suppressed, thus suppressing the fluctuation amount of the total output of the wind power generator group. Accordingly, the subsets of wind turbine generators were defined based on fluctuation in the power output of the wind turbine generators, not on the actual wind speed at each of the wind turbine generators.

71.1 Even though there could be a correlation between variations in wind speed and variations (i.e. fluctuation) in power output of a wind turbine generator, there was not a one-to-one correspondence. For instance, at wind speeds above the rated wind speed, the power output was maintained at the rated power output, and variations in the wind speed would therefore not result in corresponding fluctuations in the power output. Thus, D3 failed to disclose feature PG3.

72. The opponent argued that paragraph [0032] of D3 disclosed the use of a selection algorithm to select which turbines were to be curtailed. Therefore, feature PG2 was disclosed by document D3. The board is of the view that document D3 discloses **feature PG2** (paragraphs [0025] and [0032]).

72.1 Regarding feature PG3, the opponent changed its opinion in the appeal proceedings. Although in the opposition proceedings it had acknowledged PG3 as a potentially distinguishing feature, it later came to the conclusion that PG3 was known from document D3. Feature PG3 did not require a direct measurement of wind speed. Document D3 disclosed that wind turbines with the most

power fluctuations were curtailed. According to paragraph [0003], power fluctuations occurred due to varying wind speed. So, if the wind turbines were selected based on power fluctuations, they were (in a way) selected based on wind speed as well. It could therefore be argued that document D3 also disclosed feature PG3. Only features P7' and P8 should be acknowledged as potentially distinguishing features.

73. The board does not concur with the opponent's analysis. In the system of document D3, system data from the power system 7 and wind speed data from the anemometer 8 are also collected by the data collection device 10 (paragraph [0022]). Furthermore, document D3 discloses that the wind speed data is used "to perform a correction calculation of the output suppression amount based on the average wind speed" (paragraph [0024]). However, the actual wind speed at each of the plurality of wind turbine generators is not used for selecting the wind turbines to restrict.

74. Document D3 discloses using the wind speed data to calculate the output suppression amount based on the average wind speed (paragraphs [0022] to [0024] and [0027]). However, document D3 does not disclose that this wind speed data includes an "actual wind speed at each of the ... wind turbine generators", let alone that the wind power generation devices are selected in accordance with the actual wind speed at each of them. The board thus concludes that **document D3 does not disclose feature PG3. Taking also the above into account, the features distinguishing claim 1 from the disclosure of document D3 are features P7', P8 and PG3.**

75. In the decision under appeal, the opposition division found that there was a close correlation between wind

speed and output power in the torque-control region of the power curve. However, once the wind turbine had achieved rated power, the wind turbine power was held at this level even as the wind speed increased. It could be said that in the rated-power region of the power curve, the power output was independent of wind speed. Nevertheless, the wind speed at each wind turbine was the most accurate criterion to select the most suitable candidates for the second subset of wind turbines (i.e. the ones being curtailed). The claimed invention solved over D3 the objective technical problem of providing a more accurate way to stabilise the output of the wind farm.

75.1 The patent proprietor formulated the objective technical problem, when starting from D3, as how to efficiently handle active power fluctuations of the aggregated active power output of the wind power plant in a fast, convenient, accurate and reliable manner, and regardless of changing wind conditions across the site of the wind power plant.

75.2 The opponent argued that even if PG3 were considered a distinguishing feature, the subject-matter of claim 1 would not be inventive. It argued that features P7', P8 and PG3 aimed to solve unrelated technical problems.

75.3 According to the opponent, feature P7' had to be regarded obvious based on the common general knowledge alone. The feature was disclosed and rendered obvious e.g. by document D2 (paragraph [0033] and [0043]), document D1 (paragraph [0012]), and was also disclosed in document D8 (e.g. page 13, second paragraph; page 16, lines 11 to 13), document D9 (section 2.3; page 5, fourth paragraph and Figure 2b), document D10

(abstract, page 944) and document D11 (e.g. abstract, paragraphs [0015] and [0024]).

75.4 The board agrees with the opponent that providing a constant power output on the basis of a received external power set point and using a common point of coupling belong to the common general knowledge.

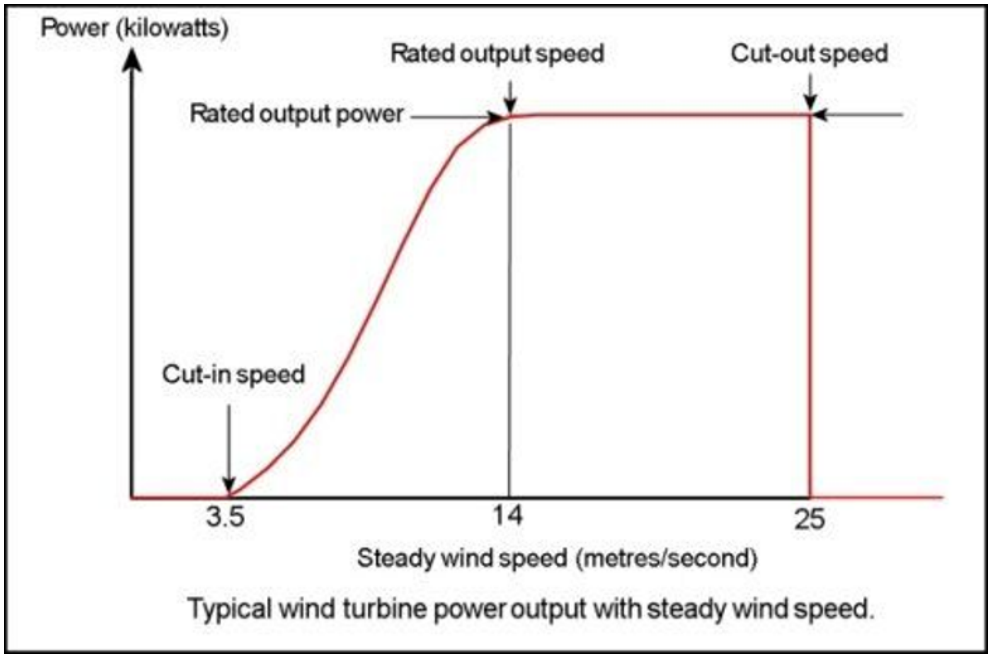
75.5 The board is, however, of the opinion that features P7' and PG3 should not be dealt with separately since the selection of the first and second subsets in PG3 has the purpose, in the context of claim 1, of providing a constant power output given by the external power set point as specified in feature P7'. In the board's opinion, distinguishing features P7' and PG3 solve the objective technical problem formulated in the decision under appeal of **providing a more accurate way of stabilising the output of the wind farm**.

76. The patent proprietor argued that there was no close correlation between either power output or fluctuations and wind speed. A correlation between wind speed and power output existed only during partial load. In the system of D3, only the average wind speed for the whole farm was taken into account. The wind turbine generators were selected based on power fluctuations of the whole wind farm. Defining subsets of wind turbine generators based on actual wind speed, instead of the high power output fluctuation, at the wind turbine generators was a completely different approach. The patent proprietor further argued that it was not obvious to modify D3 to include a constant aggregated active power output as specified in P7' since the solutions to reduce fluctuation in D3 lowered the power output, as could be seen in Figure 2.

77. The opponent argued that each of features P7', P8 and PG3 was not inventive. Feature PG3 was an improvement but not inventive. The skilled person was well aware of the relationship between wind speed and power output, both below nominal wind speed and above nominal wind speed. Most of the time, wind turbines operated in partial load when such a correlation was present. Document D3 explicitly mentioned this correlation in paragraph [0003]. If the skilled person were faced with finding a better selection algorithm, the skilled person would have considered wind speed the most obvious option. It was known that a wind farm should comply with an external power set point as an external request to be satisfied. It was common general knowledge that each wind turbine had an anemometer.

77.1 The patent proprietor argued that defining subsets of wind turbine generators based on actual wind speed, instead of the high power output fluctuation, at the wind turbine generators was a completely different approach. The skilled person would therefore not be motivated to make such a fundamental change to the control method of document D3. It furthermore made little sense to provide the same active power set point to all of the wind turbine generators within the context of document D3.

77.2 The board agrees with the patent proprietor that it is incorrect to assume that when power fluctuates the wind necessarily fluctuates. The patent proprietor referred to section 3.23 of the statement of grounds of appeal (source https://theroundup.org/wind-turbine-power-curve/):



Typical wind turbine power output with steady wind speed.

77.2.1 This chart demonstrates that when the wind speed is steady and between the "cut-in speed" (here 3.5 metres/second) and the "rated output speed" (here 14 metres/second), the power (in kilowatts) increases when the wind speed increases. However, when the rated output power (the power limit that the electrical generator is capable of) is reached at the rated output speed, this output power does not increase when the wind speed increases above the rated output speed.

78. The board is of the opinion that the skilled person facing the problem formulated above would not, based solely on their common general knowledge, consider changing the solution of document D3 to include a selection of wind turbine generators based on the actual wind speed at each wind turbine generator. Paragraph [0003] of document D3 merely mentions that "output fluctuations occur in a wind turbine generator due to fluctuations in wind speed". This does not constitute a pointer to the solution of features PG3 and P7', namely considering the wind speed at each wind

turbine generator to select the wind turbine generators whose power output should be restricted to provide a constant aggregated power output. As explained above, neither of documents D1 and D2 discloses feature PG3.

79. **Therefore, claim 1 is inventive over the disclosure of document D3 (Article 56 EPC), the same applying to corresponding independent claim 5 and the dependent claims.**

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the opposition division with the order to maintain the patent with the following claims and a description to be adapted thereto, if necessary:
   Claims 1 to 6 according to auxiliary request 4a (new main request) filed with the letter dated 16 January 2026.

The Registrar: The Chair:

G. Nachtigall P. San-Bento Furtado

Decision electronically authenticated