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Datasheet for the decision of 9 December 2025

Case Number: T 1596/22 - 3.5.01

Application Number: 19165208.0

Publication Number: 3547234

IPC: G06Q10/06, G06Q10/04, G06Q50/06

Language of the proceedings: EN

Title of invention:
BUILDING ENERGY OPTIMIZATION SYSTEM WITH CAPACITY MARKET PROGRAM (CMP) PARTICIPATION

Applicant:
Johnson Controls Tyco IP Holdings LLP

Headword:
Energy optimisation with Capacity Market Program/JOHNSON CONTROLS

Relevant legal provisions:
EPC Art. 56, 111(1)
RPBA 2020 Art. 11, 12(4), 12(6), 13(2)

Keyword:
Inventive step - optimising resource allocation in a facility participating in a Capacity Market Program (no - not technical)
Late-filed requests - admitted (no)
Remittal to the department of first instance (no)

Decisions cited:
G 0010/93, T 0641/00, T 0154/04, T 0677/09, T 2626/18

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Case Number: T 1596/22 - 3.5.01

D E C I S I O N
of Technical Board of Appeal 3.5.01
of 9 December 2025

Appellant: (Applicant)	Johnson Controls Tyco IP Holdings LLP 5757 N. Green Bay Avenue Milwaukee, WI 53209 (US)
Representative:	Meissner Bolte Nürnberg Patentanwälte Rechtsanwälte Partnerschaft mbB Bankgasse 3 90402 Nürnberg (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 21 January 2022 refusing European patent application No. 19165208.0 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	M. Höhn
Members:	I. Kürten
	D. Rogers

Summary of Facts and Submissions

I. This appeal is against the decision of the examining division refusing European patent application No. 19165208.0 for lack of inventive step (Article 56 EPC).

II. The examining division found that claim 1 of the main request and of auxiliary requests 1 to 4 did not involve an inventive step over a generally known computing system. The decision also referred, *inter alia*, to D1 (US 2017/103483 A1).

III. In the statement setting out the grounds of appeal, the appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of one of the requests refused by the examining division or, alternatively, on the basis of a newly filed auxiliary request 5.

IV. In the communication accompanying the summons to oral proceedings, the Board set out its preliminary opinion that the main request and auxiliary requests 1 to 4 lacked an inventive step over D1. The Board also indicated that it was minded not to admit auxiliary request 5 pursuant to Articles 12(4) and 12(6) RPBA.

V. By letter dated 5 December 2025, the appellant replied to the Board's communication and filed new auxiliary requests 6, 7, 7A, 8, and 9. The appellant also requested that the case be remitted to the examining division, arguing that issues not decided at first instance had become relevant in the appeal proceedings.

VI. The oral proceedings were held by videoconference on 9 December 2025. The appellant's final requests were

that the decision under appeal be set aside and that a patent be granted on the basis of the main request, or alternatively on the basis of one of auxiliary requests 6, 7, 7A, 8, 9, 1, 2, 3, 4, or 5, in that order. At the end of the oral proceedings, the Chairman announced the Board's decision.

VII. Claim 1 of the main request reads as follows:

An energy optimization system for participating by one or more systems of a facility in a capacity market program, CMP, based on a nominated capacity value, the system comprising one or more memory devices storing instructions, that, when executed on one or more processors, cause the one or more processors to:

- *receive the nominated capacity value, wherein the nominated capacity value is a curtailment value that a facility is on standby to reduce its load by in response to receiving a dispatch from a utility;*
- *generate an objective function and one or more CMP constraints, wherein the one or more CMP constraints cause an optimization of the objective function with the one or more CMP constraints to generate a resource allocation that reduces the load of the facility by the nominated capacity value in response to receiving the dispatch from the utility, wherein the optimization is based on a probability that the energy optimization system will receive the dispatch from the utility;*
- *receive the dispatch from the utility;*
- *optimize the objective function based on the nominated capacity value, the dispatch, and the one or more CMP constraints to determine the resource allocation; and*
- *control one or more pieces of building equipment based on the resource allocation.*

VIII. Claim 1 of auxiliary request 1 differs from claim 1 of the main request in that, before the step of receiving the nominated capacity value, it additionally comprises the following steps:

- *receive historic load data comprising historic load values of the load of the facility;*
- *generate a raw baseline based on the historic load data, wherein the raw baseline indicates a typical value for the load of the facility.*

Furthermore, it adds at the end of the feature concerning the generation of an objective function and one or more CMP constraints (hereinafter "the generating feature") the requirement that "*the one or more CMP constraints are based on the raw baseline*".

IX. Claim 1 of auxiliary request 2 is based on claim 1 of auxiliary request 1 and further adds, at the end of the generating feature, that "*the probability that the energy optimization system will receive the dispatch from the utility is based on historic weather data and/or weather schedules, historic dispatch hours and/or predicted regional peak loads*".

X. Claim 1 of auxiliary request 3 is based on claim 1 of auxiliary request 2 and additionally specifies, at the end of the generating feature, that "*the one or more CMP constraints are based on the probability that the energy optimization system will receive the dispatch form [sic] the utility for a particular time*".

XI. Claim 1 of auxiliary request 4 further differs from claim 1 of auxiliary request 3 in that it adds, at the end of the claim, the following feature:

"*wherein the one or more CMP constraints cause the one or more processors to optimize the objective function to generate a resource allocation that causes the load of the facility to be reduced by a value greater than the nominated capacity value, wherein a constraint value of each of the one or more CMP constraints is based on the probability that the energy optimization system will receive the dispatch from the utility for a particular time.*"

XII. Claim 1 of auxiliary request 5 is amended with respect to claim 1 of auxiliary request 4 as follows (additions are underlined and deletions are struck through):

An energy optimization system for participating by one or more systems of a facility in a capacity market program, CMP, based on a nominated capacity value, the system comprising a planner including one or more memory devices storing instructions, that, when executed on one or more processors, cause the one or more processors to:

- *receive historic load data comprising historic load values of the load of the facility;*
- *generate a raw baseline based on the historic load data, wherein the raw baseline indicates a typical value for the load of the facility;*
- ~~*receive the*~~ *generate a first objective function comprising a nominated capacity* ~~*value*~~ *term, wherein the nominated capacity term is based on a capacity market rate, the raw baseline, a dispatch probability, predicted loads and predicted rates and indicates the optimal nominated capacity value, wherein the optimal nominated capacity value is a curtailment value that* ~~*a*~~ *the facility is on standby*

to reduce its load by in response to receiving a dispatch from a utility;

- ~~*generate*~~ *at an unknown time in the future, the dispatch probability being generated based on historic weather data and/or weather schedules, historic dispatch hours, and/or predicted region peak loads;*
- *optimize the first objective function to determine the optimal nominated capacity value for a program operating period; and*
- *transmit the optimal nominated capacity value to the one or more systems associated with the CMP to participate in the CMP,*

wherein optimizing the first objective function to determine the optimal nominated capacity value comprises optimizing the first objective function with one or more constraints;

wherein the one or more constraints cause the optimal nominated capacity value to be a value that the facility is capable of reducing the load of the facility by;

wherein the nominated capacity term of the first objective function and the one or more constraints are based on the raw baseline, and

wherein the energy optimization system further comprises a model predictive controller as one of the one or more systems associated with the CMP, the model predictive controller including one or more memory devices storing instructions, that, when executed on one or more processors, cause the one or more processors to:

- *receive the nominated capacity value;*
- *generate a second objective function and one or more CMP constraints, wherein the one or more CMP constraints cause an optimization of the second objective function with the one or more CMP*

constraints to generate a resource allocation that reduces the load of the facility by the nominated capacity value in response to receiving the dispatch from the utility, wherein the optimization is based on a probability that the energy optimization system will receive the dispatch from the utility, wherein the one or more CMP constraints are based on the raw baseline, wherein the probability that the energy optimization system will receive the dispatch from the utility is based on historic weather data and/or weather schedules, historic dispatch hours and/or predicted regional peak loads, and wherein the one or more CMP constraints are based on the probability that the energy optimization system will receive the dispatch form [sic] the utility tor a particular time;

- *receive the dispatch from the utility;*
- *optimize the second objective function based on the nominated capacity value, the dispatch, and the one or more CMP constraints to determine the resource allocation; and*
- *control one or more pieces of building equipment based on the resource allocation,*

wherein the one or more CMP constraints cause the one or more processors to optimize the second objective function to generate a resource allocation that causes the load of the facility to be reduced by a value greater than the nominated capacity value, wherein a constraint value of each of the one or more CMP constraints is based on the probability that the energy optimization system will receive the dispatch from the utility for a particular time.

XIII. Claim 1 of auxiliary request 6 appends the following wording to the optimisation feature in claim 1 of the

main request: "*wherein the one or more CMP constraints ensure that the nominated capacity value can be curtailed while still meeting all facility loads*".

XIV. Claim 1 of auxiliary request 7 further amends the optimisation feature of claim 1 of auxiliary request 6 by adding, at its end, the following specification: "*and comprise a resource balance constraint that requires balance between a total amount of each resource supplied and a total amount of each resource consumed*".

XV. Claim 1 of auxiliary request 7A deletes the feature introduced into claim 1 by auxiliary request 6.

XVI. Claim 1 of auxiliary request 8 adds to claim 1 of auxiliary request 7, at the end of the step directed to receiving the dispatch from the utility, the following specification: "*wherein the dispatch is a command to reduce the load of the facility*".

XVII. Claim 1 of auxiliary request 9 reads as follows (additions relative to the main request are underlined and deletions are struck through):

An energy optimization system for participating by one or more systems of a facility in a capacity market program, CMP, based on a nominated capacity value, the system comprising one or more memory devices storing instructions, that, when executed on one or more processors, cause the one or more processors to:

- *receive the nominated capacity value, wherein the nominated capacity value is a curtailment value that a facility is on standby to reduce its load by in response to receiving a dispatch from a utility;*

- *generate an objective function and one or more CMP constraints, wherein the one or more CMP constraints cause an optimization of the objective function with the one or more CMP constraints to generate a resource allocation that reduces the load of the facility by the nominated capacity value in response to receiving the dispatch from the utility, wherein the one or more CMP constraints are ~~optimization is~~ based on a probability that the energy optimization system will receive the dispatch from the utility;*
- *receive the dispatch from the utility, wherein the dispatch is a command to reduce the load of the facility;*
- *optimize the objective function based on the nominated capacity value, the dispatch, and the one or more CMP constraints to determine the resource allocation, wherein the one or more CMP constraints allow the load of the facility to be reduced by an amount that underperforms the nominated capacity value, wherein the amount of underperformance allowed by the one or more CMP constraints is (i) high if the probability that the energy optimization system will receive the dispatch from the utility is low and (ii) low if the probability that the energy optimization system will receive the dispatch from the utility is high; and*
- *control one or more pieces of building equipment based on the resource allocation.*

Reasons for the Decision

1. *The invention*

1.1 The invention pertains to controlling the energy usage of a facility or building participating in a "capacity market program" (CMP), see [0002] of the application as filed. In a CMP, a utility company rewards facility owners for being on standby to reduce their load by a predetermined amount ("nominated capacity value" in claim 1) upon receiving a dispatch notice, typically at an unknown time ([0003]).

1.2 In claim 1 (of all requests), the energy usage is controlled based on a resource allocation for the facility's equipment, which is determined by optimising an objective function. Constraints on this function ensure that the optimal resource allocation reduces the facility's load by the nominated capacity value. However, the claim does not describe the calculations performed by the objective function, even at an intuitive level. It only states that the function depends on the probability of receiving a dispatch.

1.3 According to the description, the objective function calculates the facility's operating cost during CMP participation. This cost is the difference between the expenses of operating the facility's equipment and the potential revenue from the CMP (e.g. [0199], [0200]). The revenue depends on factors such as the facility's historical load ("raw baseline"), predicted future load, dispatch probability, standby rewards, and penalties for not delivering the agreed capacity (e.g.

[0286]). The optimal resource allocation may specify which equipment should reduce its capacity and by how much to meet the agreed nominal capacity (e.g. [0138]).

2. *Fourth auxiliary request, inventive step*

2.1 The Board finds it convenient to start with the fourth auxiliary request, as it provides the most specific definition of the invention among the admitted requests.

2.2 Document D1 is regarded as a suitable starting point for the assessment of inventive step. Like the present invention, D1 concerns the determination of an optimal resource allocation for a facility and the corresponding control of its equipment (e.g. [0053]). In D1, the optimisation is performed with respect to an objective function that balances operating costs against potential revenues from participating in incentive-based demand-response (IBDR) programmes (see [0151]). Constraints ensure that the facility meets its obligations under such programmes (e.g. [0222]).

2.3 Claim 1 differs from D1 in that the objective function and the constraints are specifically adapted to participation in a capacity market programme (CMP). In particular, the objective function depends on the probability of receiving a dispatch from the utility, and the constraints ensure that the facility reduces its load by at least the nominated capacity value.

2.4 As explained in point 1.2 above, claim 1 does not define the calculations performed by the objective function. Merely specifying an input to the objective function, namely a probability of receiving a dispatch from the utility, does not indicate what is being

optimised or for what purpose. The constraints merely define the framework of the optimisation problem, reflecting the requirements of the capacity market programme, but do not provide any information about the objective function itself.

Within the framework of the same capacity market programme, a variety of different optimisation objectives could be pursued, such as minimising operating costs, maximising expected revenues, maximising the probability of meeting dispatch obligations, minimising disruption to facility operations, or optimising a trade-off between several such factors. The presence of programme-specific constraints therefore does not imply any particular optimisation criterion.

According to the description, the objective function calculates the facility's cost during CMP participation, defined as the difference between the expenses incurred in operating the facility's equipment and the potential revenues obtained from the capacity market programme (e.g. [0199], [0200], and [0291]). The Board has taken this disclosure into account in its assessment of inventive step.

2.5 In view of this, the Board agrees with the examining division that the distinguishing features, namely the particular objective function and the CMP-specific constraints, are non-technical. They relate to mathematical formulations driven by economic and financial considerations relating to the facility's operational costs, expected revenues and contractual obligations under the CMP (see also point 1.8 of the decision).

2.6 As the appellant pointed out, non-technical features may contribute to the technical character of an invention if they produce a technical effect. However, this is not the case here. The purpose of optimising the objective function within the CMP constraints is to maximise the facility's economic profit while fulfilling contractual obligations to the utility provider. This is not a technical effect.

2.7 In line with the COMVIK approach (*T 641/00 - Two identities/COMVIK*), the non-technical features may be incorporated into the formulation of the objective technical problem as constraints to be met. The corresponding technical problem is therefore how to implement these non-technical optimisation requirements within the system of D1. The claimed implementation amounts to a straightforward automation, which would have been obvious to the skilled person (see also points 1.9 and 1.10 of the decision).

2.8 The appellant presented several arguments in favour of technicality and inventive step.

2.9 Firstly, the appellant argued that claim 1 had technical character as a whole because the resource allocation was used to control building equipment.

The Board agrees that the claimed invention, taken as a whole, has technical character. However, this does not mean that every feature contributes to that technical character. While the overall result involves controlling energy usage, this control is driven by a resource allocation aimed to maximising economic profit, which is non-technical. Consequently, the objective function and its optimisation, which

determine this resource allocation, do not contribute to the technical character of the invention.

2.10 Secondly, the appellant argued that the resource allocation was based on technical considerations, because it ensured that the building equipment was controlled to satisfy both the building's load demand and the curtailment capacity agreed with the utility company. In their view, the CMP optimisation was a technical solution to a technical problem because it determined an optimal resource allocation balancing the competing interests of the facility and the energy utility.

The Board is not persuaded.

To begin with, claim 1 contains no features that ensure that the building's load demand is met. The only mandatory requirement is that the facility reduces its load by the nominated capacity value. This reduction, however, is not a technical constraint but an administrative one, arising solely from contractual obligations towards the utility.

Regarding the balancing of interests, the Board notes that facility's "interest" is embodied by the optimisation function, which reflects the total cost of operating the facility under the CMP, with the optimal resource allocation being the one that maximises profit. The utility's "interest" is reflected by the CMP constraints requiring a predetermined capacity reduction.

Thus, the invention merely determines the most financially advantageous allocation of resources for the facility while ensuring compliance with its

contractual curtailment obligation. Contrary to the appellant's view, such balancing is not technical.

2.11 Thirdly, the appellant argued that, unlike conventional demand response programmes, a capacity market programme did not provide a time schedule for the load reduction. Instead, the facility could be asked to reduce its load at any time. The claimed invention addressed this challenge by incorporating a dispatch probability into the optimisation, thereby reducing the risk of underperformance. The appellant further contended that the probability depended on factors such as historic weather data, which involved technical considerations about energy generation (e.g. solar or wind energy).

The Board notes, however, that claim 1 does not specify how the dispatch probability is determined or how it is used within the optimisation. Merely including it as an input does not produce a technical effect. According to the description, the probability is used to estimate potential penalties for underperformance (see, for example, [0291]), so that the objective function balances these penalties against potential revenues. This demonstrates that the probability parameter is employed purely to optimise the financial outcome, not to achieve a technical effect (see also point 1.12 of the decision under appeal).

The Board is also unconvinced by the argument that determining the probability requires technical considerations, such as accounting for weather-dependent energy generation, since the claim does not define any such calculation, nor does it use the probability for any technical purpose.

2.12 Fourthly, the appellant submitted that participation in a capacity management programme contributed to maintaining a stable and reliable grid, which was a technical effect.

The Board agrees that reducing a facility's load can help lower the overall grid load. However, in the present case, this reduction arises from fulfilling contractual obligations under the CMP, not from any technical considerations related to resource management or grid stability. In particular, the claimed optimisation in claim 1 does not itself produce any effect on the grid; it merely allocates the available capacity among the facility's equipment according to a financial optimisation. Any contribution to grid stability results solely from the reduction of load, which is already generally known and explicitly disclosed in D1 (see, for example, [0222]). Therefore, the effect on grid stability is not achieved by the distinguishing features over D1 and cannot contribute to technical character.

2.13 Finally, the appellant argued that the objective function was not based on business considerations. Even if the description disclosed financially motivated embodiments, claim 1 itself did not include such financial aspects. The appellant further noted that the optimisation relied on physical parameters, such as the facility's historical load, which involved technical considerations.

However, claim 1 does not define the objective function or its optimisation, apart from specifying a few input parameters. Leaving these aspects undefined does not make them technical; they still encompass embodiments

driven by profit optimisation. Indeed, the description discloses only financially motivated embodiments.

A method that serves no technical purpose cannot gain technical character just because it processes technical data. Exploiting information about the physical world is inherent to any business-related activity. Accepting such features as sufficient for establishing technical character would undermine the exclusion of business methods under Article 52(2)(c) EPC (see e.g. T 154/04 - *Estimating sales activity/DUNS LICENSING*, point 20; T 0677/09 - *Smart manual/CONTINENTAL AUTOMOTIVE SYSTEMS*, point 8; T 2626/18 - *Insurance risk prediction/SWISS RE*, points 4.8 and 4.10).

Thus, the Board concurs with the examining division that merely specifying physical input parameters, such as historic load data, is insufficient to impart technical character to the generation and optimisation of the objective function (see point 1.13 of the decision).

2.14 Accordingly, the Board judges that claim 1 does not involve an inventive step (Article 56 EPC).

3. *Main request and auxiliary requests 1 to 3 - inventive step*

Since claim 1 of each of these requests is broader than claim 1 of auxiliary request 4, they likewise lack an inventive step (Article 56 EPC).

4. *Auxiliary requests 6, 7, 7A, 8, and 9 - admittance*

4.1 The Board did not admit auxiliary requests 6, 7, 7A, 8, and 9 under Article 13(2) RPBA. These requests were

filed only with the appellant's letter dated 5 December 2025, more than fourteen months after the Board's preliminary opinion and less than two working days before the scheduled oral proceedings.

4.2 The appellant submitted that the amendments were prompted by the Board's observations in points 4.10 and 4.11 of the communication. They further explained that the late filing was due to the time needed to identify and agree on suitable amendments. The appellant also contended that, since the communication did not set a deadline for filing amendments and Article 13(2) RPBA does not distinguish between early and late filings, the timing should not be objectionable.

4.3 The Board is not persuaded.

A preliminary opinion is not an invitation to file further submissions (see the Case Law of the Boards of Appeal, 11th edition, V.A.4.5.4 a)(i)). Points 4.10 and 4.11 of the Board's communication did not introduce new objections; they merely highlighted that certain technical effects invoked by the appellant were not derivable from the claim wording because the corresponding features were not claimed. The appellant should have expected that effects relying on unclaimed features would not be persuasive. Consequently, the Board's observations do not justify the late filing.

Moreover, none of auxiliary requests 6, 7, 7A, 8 or 9 addresses the central deficiency in the main request - namely, that the optimised objective function is broadly defined and encompasses financial optimisation. As a result, these requests are not suitable to overcome the previously raised inventive step objections.

Finally, the convergent approach embodied in Articles 12(4), 13(1) and 13(2) RPBA places a clear responsibility on parties to present their case as early as possible to cooperate in ensuring an efficient conduct of the proceedings. Filing new requests fourteen months after the preliminary opinion - and only days before the oral proceedings - does not demonstrate such cooperation.

For these reasons, the Board finds that there are no exceptional circumstances justified by cogent reasons for admitting auxiliary requests 6, 7, 7A, 8 and 9 (Article 13(2) RPBA).

5. *Auxiliary request 5 - admittance*

5.1 The Board did not admit auxiliary request 5 into the appeal proceedings under Article 12(4) and (6) RPBA.

5.2 This request was first filed with the statement setting out the grounds of appeal. However, contrary to the requirements of Article 12(4) RPBA, the appellant did not provide any reasons for the late filing. The Board, for its part, could not identify any circumstances that would warrant its admittance.

Claim 1 of auxiliary request 5 adds to claim 1 of auxiliary request 4 features related to determining an optimal nominal capacity value, taken from the description. The appellant did not indicate, and it is not apparent to the Board, which objections these amendments are intended to address. All objections in the decision had already been raised and discussed during the examination proceedings, providing the appellant with an opportunity to file such amendments

at that stage. By failing to do so, the applicant effectively prevented the examining division from taking a decision on this request that could be reviewed by the Board.

5.3 Moreover, the added features relate to determining an optimal nominated capacity in order to maximise the facility's financial profit under the CMP, which is non-technical. Consequently, using such a capacity value to allocate resources does not overcome the inventive-step objections discussed for auxiliary request 4. The resource allocation in this request remains based on an undefined objective function, as in claim 1 of auxiliary request 4.

6. *Request for remittal*

6.1 The appellant requested that the case be remitted to the examining division for further prosecution, arguing that the examining division had relied on a comparison with a generic computer system, whereas the Board referred to D1. They further contended that the examining division had not applied the problem-and-solution approach to the features missing from the prior art, and that the Board's choice of D1 allegedly raised new issues not considered at first instance.

6.2 Under Article 111(1) EPC, the Board may either exercise the powers of the examining division or remit the case. Pursuant to Article 11 RPBA, remittal is appropriate only if there are special reasons related to the first-instance proceedings.

6.3 The Board sees no such reasons in the present case.

Although the examining division primarily assessed inventive step starting from a generic computing system, it explicitly referred to D1 in point 1.14 of the decision and concluded that the differences over D1 did not contribute to the technical character of the invention. The Board's reliance on D1 therefore does not introduce new issues.

Moreover, the examining division did apply the problem and solution approach in line with the Guidelines for Examination, addressing non-technical features within the framework of the established COMVIK approach. Under this approach, also applied by the Board in this decision, non-technical features are incorporated into the objective technical problem, as a requirements to be implemented in the system of the closest prior art.

6.4 The Board further notes that under the EPC a party has no absolute right to have every aspect of its case examined by two instances. The Board may rule on issues not dealt with by the first instance (see G 10/93, points 3 and 4; Case Law of the Boards of Appeal, 11th edition, V.A.9.2.1).

6.5 For these reasons, the Board refused the appellant's request for remittal.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

T. Buschek M. Höhn

Decision electronically authenticated