

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

<i>In re</i> patent of Castelli <i>et al.</i>	§	Attorney Docket No.: GRA243
	§	
U.S. Patent 8,291,243	§	
	§	
Issue Date: Oct. 16, 2012	§	Customer No.: 165774
	§	
Filing Date: Oct. 24, 2008	§	
	§	
For: Adaptive Computing Responsive to	§	
Environmental Conditions	§	

**REQUEST FOR *EX PARTE* REEXAMINATION OF
U.S. PATENT 8,291,243**

Mail Stop “*Ex Parte* Reexam”
Attn: Central Reexamination Unit
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

Pursuant to the provisions of 35 U.S.C. §§ 301-307, Unified Patents, LLC (“Requester”) hereby requests an *ex parte* reexamination of claims 1, 3–6, 9–11, 15, 16, 18, and 19 (the “Challenged Claims”) of U.S. Patent 8,291,243 (the “’243 Patent, Ex. 1001), which issued on October 16, 2012 to Vittorio Castelli *et al.* from U.S. Patent Application 12/257,627 (the “’627 Application”), filed on October 24, 2008. The ’243 Patent is currently assigned to Graphite Charging Company LLC (“Graphite” or “Patent Owner”). The assignment is recorded in the U.S. Patent and Trademark Office (“USPTO”) at reel/frame 059877/0209.

Requester submits that this Request presents prior art references and analyses that are noncumulative of the prior art that was before the Examiner during the original prosecution of the ’243 Patent and that the Challenged Claims are invalid over these references. Requester therefore requests that an order for reexamination and an Office Action rejecting claims 1, 3–6, 9–11, 15, 16, 18, and 19 be issued.

Ex Parte Patent Reexamination Filing Requirements

Pursuant to 37 C.F.R. § 1.510(b)(1), statements pointing out at least one substantial new question of patentability based on material, non-cumulative reference patents and printed publications for the Challenged Claims of the '243 Patent are provided in Section II of this Request.

Pursuant to 37 C.F.R. § 1.510(b)(2), reexamination of the Challenged Claims of the '243 Patent is requested, and a detailed explanation of the pertinence and manner of applying the cited references to the Challenged Claims is provided in Section III of this Request.

Pursuant to 37 C.F.R. § 1.510(b)(3), copies of every patent or printed publication relied upon or referred to in the statement pointing out each substantial new question of patentability or in the detailed explanation of the pertinence and manner of applying the cited references are provided as Exhibits 1001-1015 of this Request.

Pursuant to 37 C.F.R. § 1.510(b)(4), a copy of the '243 Patent is provided as Exhibit 1001 of this Request, along with a copy of any disclaimer, certificate of correction, and reexamination certificate issued corresponding to the patent.

Pursuant to 37 C.F.R. § 1.510(b)(5), the attached Certificate of Service indicates that a copy of this Request, in its entirety, has been served on Patent Owner at the following address of record for Patent Owner, in accordance with 37 C.F.R. § 1.33(c):

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Intellectual Property Law Department
T.J. Watson Research Center
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YORKTOWN, NY 10598

Additionally, given that the current correspondence address of record appears to belong to the business location of a former assignee, the undersigned has also served courtesy copies of the Request on the attorney of record for Graphite Charging Company LLC via email in the co-pending litigations:

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Also submitted herewith is the fee set forth in 37 C.F.R. § 1.20(c)(1).

Pursuant to 37 C.F.R. § 1.510(b)(6), Requester hereby certifies that the statutory estoppel provisions of 35 U.S.C. § 315(e)(1) and 35 U.S.C. § 325(e)(1) do not prohibit Requester from filing this *ex parte* patent reexamination request.

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Ex. 1002	File History for U.S. Patent 8,291,243
Ex. 1003	Declaration of Scott Andrews
Ex. 1004	U.S. Publication 2006/0276938 to Miller
Ex. 1005	U.S. Patent 7,246,014 to Forth <i>et al.</i>
Ex. 1006	U.S. Publication 2003/0036820 to Yellepeddy <i>et al.</i>
Ex. 1007	U.S. Publication 2005/0143865 to Gardner
Ex. 1008	Steven Nadel and Howard Geller, <i>Smart Energy Policies: Saving Money and Reducing Pollutant Emissions through Greater Energy Efficiency</i> , American Council for an Energy-Efficient Economy, Report Number E012 (Sep. 2001)
Ex. 1009	Robert van Gerwen <i>et al.</i> , <i>Smart Metering</i> , Leonardo Energy (Jun. 2006)
Ex. 1010	U.S. Publication 2008/0046387 to Gopal <i>et al.</i> (filed July 23, 2006)
Ex. 1011	Albrecht Schmidt and Kristof Van Laerhoven, <i>How to Build Smart Appliances</i> , IEEE Personal Communications (Aug. 2001)
Ex. 1012	Michael C. Mozer, <i>The Neural Network House: An Environment that Adapts to its Inhabitants</i> , AAAI Technical Report SS-98-02 (1998)
Ex. 1013	U.S. Patent 6,185,483 to Drees (filed Jan. 27, 1998)
Ex. 1014	Thomas Myer, <i>No Nonsense XML Web Development with PHP</i> , SitePoint Pty. Ltd. (updated Apr. 2006), digitized by the Internet Archive 2018, available at https://archive.org/details/nonnonsensexmlweb0000myer
Ex. 1015	Microsoft Corporation, <i>Microsoft Computer Dictionary</i> , 5th Ed. (2002) (excerpt)

I. SUBSTANTIAL NEW QUESTIONS OF PATENTABILITY

Prior to describing the substantial new questions of patentability presented in this Request, provided below is an overview of the '243 Patent, a discussion of claim construction, and a summary of the prior art being discussed in the present Request.

A. U.S. Patent 8,291,243

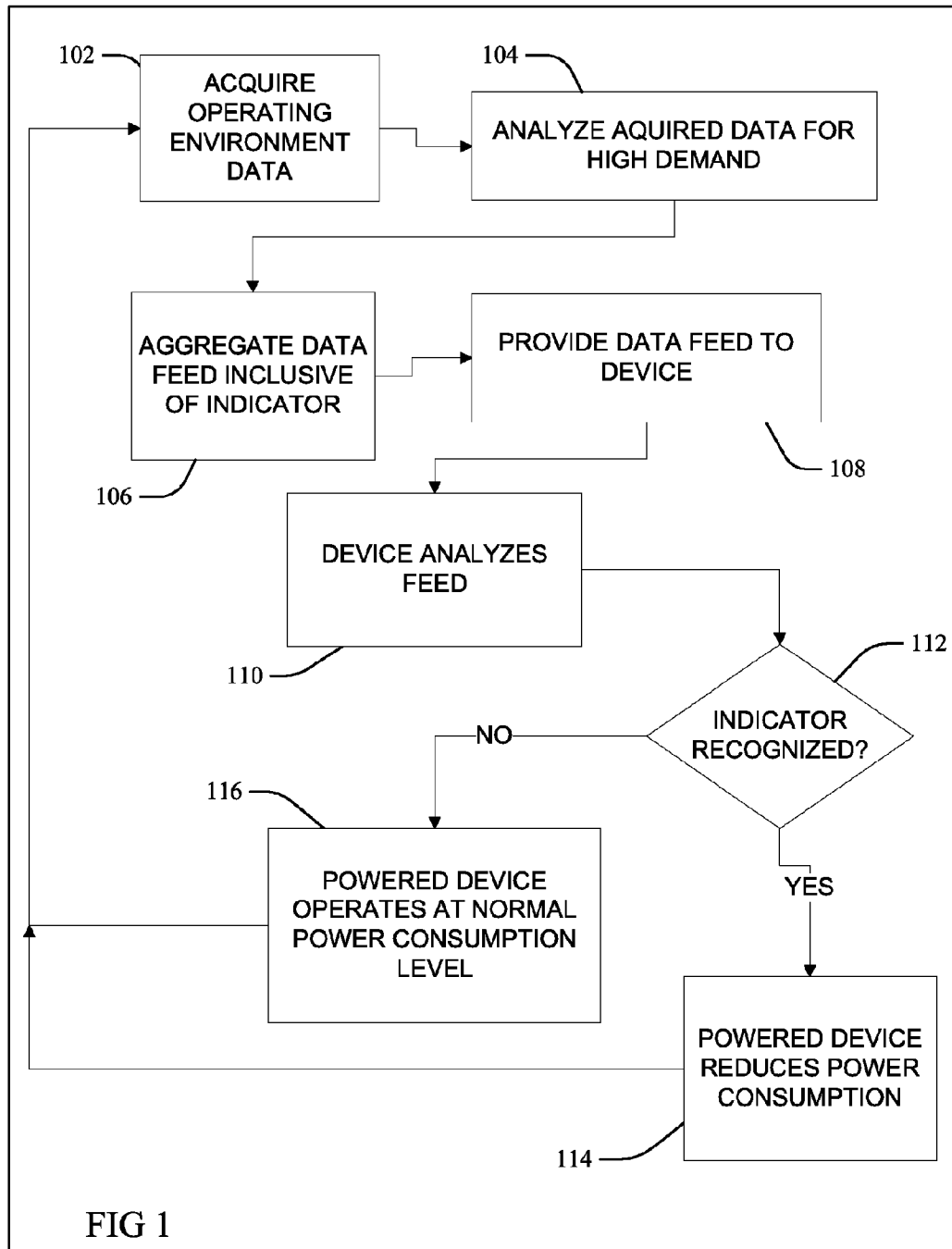
1. Summary

The '243 Patent is directed to “methods, systems, program products and devices for adapting the power consumption of a computational device in response to environmental conditions.” Ex. 1001, 1:6-9. The '243 Patent aimed to improve the field of “green computing,” that is, the study and practice of using computing resources efficiently. *Id.*, 1:13-14. As the '243 Patent recognizes, both the government and information technology industry understood the importance of efficient computing to reduce greenhouse gas emissions from energy or power consumption, and initiatives were “underway to identify environmentally conscious information technology programs and the most efficient computers.” *Id.*, 1:22-30. It was also known in existing systems to reduce energy usage, such as by adaptively reducing or stopping processor speeds when the processor is not in use or putting monitors and peripherals in a reduced power-consumption mode. *Id.*, 1:36-41.

But according to the '243 Patent, existing green computing systems were purportedly limited to reducing energy consumption based on local device conditions, such as in response to idle-state triggers set by a conscientious user or a heat monitor detecting a rise in internal temperature of a powered computer component. *Id.*, 1:41-49. Such device-centric considerations would generate insignificant savings in the grand scheme if the device's high-powered uses occurred during peak energy demand times, as it would result in requiring the “highest-cost or most environmentally-degrading energy” available. *Id.*, 1:49-55; *see also* 4:27-31.

Thus, the '243 Patent sought to create a system that would adapt the device's power consumption based on global environmental conditions obtained by an “operating environment feed.” *Id.*, 1:59-67; *see also* 2:56-62 (“The present invention teaches methods . . . for adapting the power consumption of a computer system to environmental conditions, **including local and global demands on a power grid**, by monitoring environmental conditions and appropriately adjusting the power demand of the computer system and/or of a physical infrastructure that houses the computer system.”) (emphasis added).

Figure 1 illustrates a flow chart for configuring the power consumption of a computational device in response to environmental conditions, which includes acquiring operating environment data and analyzing the data for some indicator of a high demand:



Id., Fig. 1; *see also* 2:62-3:7. If an indicator of high demand is recognized, the device reduces its demand on the power grid; however, if an indicator is not recognized, the device operates at a normal level. *Id.*, 3:8-20.

Examples of the kinds of data that would function as operating environmental data broadly include “a spot price of electricity, a rate of change of price of electricity, weather conditions, time of day, a facility . . . energy use, census data associated with a specified energy use or demand, as well as other data relevant to energy costs.” *Id.*, 4:50-57. For example, an increase in cost may indicate that less efficient energy sources, such as a small fossil fuel plant, have come on-line as part of auction-style process known as a “spot market,” to meet “demand peaks.” *Id.*, 3:42-67. Thus, the '243 Patent broadly describes many types of information that may qualify as the kind of indicators of a high demand on the electric power grid.

2. Claim and Written Description Index

Copies of the '243 Patent and its file history are provided as Exhibits 1001 and 1002, respectively. For the sake of reference, the claims for which reexamination is requested are reproduced below. Claims 1, 11, 15, and 18 are the independent claims, while the remaining challenged claims depend directly or indirectly from these claims.

1. A method for adapting the power consumption of a computational device in response to environmental conditions, comprising:

acquiring operating environmental condition data relevant to the generation of electric power in a power grid system from an operating environment feed input;

analyzing the operating environmental condition data to determine an indication of a high demand for electric power from the power grid system;
and

a computational device automatically reducing a current amount of consumption of electric power from the power grid system by the computational device if the analyzing determines the high electric power demand indication.

3. The method of claim 1, further comprising the computational device automatically increasing the current amount of consumption of electric power from the power grid system by the computational device from a current reduced electric power consumption level in response to not determining the indication of

the high demand for electric power from the power grid system by analyzing the operating environmental condition data.

4. The method of claim 1, wherein the operating environment feed is a really simple syndication feed from at least one of an electricity plant and a weather service.

5. The method of claim 1,

wherein the analyzing the operating environmental condition data determines indication of the high demand for electric power if the operating environmental condition data indicates an unusual weather condition that may result in heavy demand for power from the power grid system.

6. The method of claim 3, further comprising:

regularly updating the acquired the operating environmental condition data;

if changes are found in the updated environmental condition data, updating an internal state table with new downloaded data from the operating environment feed input; and

automatically reducing a present amount of consumption of electric power from the power grid system by the computational device if analyzing the updated state table data determines a high electric power demand indication, or increasing the present amount of consumption of electric power from the power grid system by the computational device if analyzing the updated state table data does not determine a high electric power demand indication.

9. The method of claim 1, further comprising determining the indication of the high demand for electric power from the power grid system in response to data in the operating environmental condition data that comprises at least one of:

a spot price value of electricity; and

a rate of change of a price of electricity.

10. The method of claim 9 wherein the step of the computational device automatically reducing the current amount of consumption of electric power from the power grid system by the computational device comprises running nonessential services only when the spot price value of electricity is low.

11. A service for adapting the power consumption of a computational device in response to environmental conditions, comprising:

providing a computer infrastructure configured to:

acquire operating environmental condition data relevant to the generation of electric power in a power grid system from an operating environment feed input;

analyze the operating environmental condition data to determine an indication of a high demand for electric power from the power grid system; and

cause a computational device to automatically reduce a current amount of consumption of electric power from the power grid system by the computational device if the analyzing determines the high electric power demand indication.

15. An article of manufacture, comprising:

a computer readable tangible storage medium having computer readable program code embodied therewith, the computer readable program code comprising instructions which, when executed on a computer system, cause the computer system to:

acquire operating environmental condition data relevant to the generation of electric power in a power grid system from an operating environment feed input;

analyze the operating environmental condition data to determine an indication of a high demand for electric power from the power grid system; and

cause a computational device to automatically reduce a current amount of consumption of electric power from the power grid system by the computational device if the analyzing determines the high electric power demand indication.

16. The article of manufacture of claim 15, the program code comprising instructions which, when executed on the computer system, causes the computer system to:

regularly update the acquired the operating environmental condition data;
if changes are found in the updated environmental condition data, update an internal state table with new downloaded data from the operating environment feed input; and

automatically reduce a present amount of consumption of electric power from the power grid system by the computational device if analyzing the updated state table data determines a high electric power demand indication.

18. A programmable device comprising:

a processing means;

a memory in communication with the processing means comprising a logic component; and

a network interface in communication with the processing means and the memory;

wherein the processing means is configured to:

acquire operating environmental condition data relevant to the generation of electric power in a power grid system from an operating environment feed input;

analyze the operating environmental condition data to determine an indication of a high demand for electric power from the power grid system; and

cause a computational device to automatically reduce a current amount of consumption of electric power from the power grid system by the computational device if the analyzing determines the high electric power demand indication.

19. The programmable device of claim 18, wherein processing means is configured to:

regularly update the acquired the operating environmental condition data; if changes are found in the updated environmental condition data, update an internal state table with new downloaded data from the operating environment feed input; and

automatically reduce a present amount of consumption of electric power from the power grid system by the computational device if analyzing the updated state table data determines a high electric power demand indication.

3. Prosecution History

During prosecution, the initial claims recited similar language to the issued claims, but they were rejected for non-enablement and indefiniteness based on the recitation of a “high electric power indication.” Ex. 1002, 66–67. Specifically, it was unclear whether this “indication” referred to a high demand generated by the power grid or the claimed system. *Id.*

The applicant amended the claims to clarify that a high demand from the power grid system is determined by analyzing operating environmental condition data from an operating environment feed input. *Id.*, 76–84. The applicant also clarified that it is the *computational device* that reduces its consumption in response to determining the high electric power demand indication. *Id.*, 85 (“Further, the claims are also amended to clarify that the *computational devices* and [sic] automatically reduce *their* amounts of consumption of electric power *from* the power grid system in response to said analyzing/determining the high electric power demand indication.”) (emphasis in original).

The claims were then allowed without any prior art rejections.

In a Notice of Allowance, the examiner elaborated that while the prior art taught devices reducing their power consumption based on user input, the device efficiency and device workload, as well as a systems that generally manage a power grid based on demand, the prior art allegedly did not teach a device reducing local power consumption based on an indication of high demand for electricity on the power grid. *Id.* The examiner then indicated that the independent claims were allowable “due to the limitations that **a computational device reduces its power based on an indication of high demand for electricity on the power grid.**” *Id.*, 95 (emphasis added).

Contrary to the '243 Patent's disclosure and file history, however, home systems capable of using environmental data to locally control computational devices, such as smart appliances, had been conceived and developed years before the time of the '243 Patent. *See* Ex. 1003, ¶¶ 41–46 (citing Ex. 1009–1013, discussing the background of adaptive power management systems in the context of device energy consumption). Indeed, the primary prior art cited in the grounds below disclose computational devices that reduce local power consumption (including the power consumption of the computational device itself) based on an indication of high demand for electricity on the power grid.

B. Claim Construction

Because the present Request relates to an unexpired patent, the claims should be construed under their broadest reasonable interpretation. Requester reserves the right to advocate a different claim interpretation in any other forum if necessary.

Requester submits that no formal construction is necessary for any term in the challenged claims, as the claims are obvious under any reasonable interpretation.

However, certain limitations of claims 18 and 19 use the word “means.” Requester submits that these limitations are not means-plus-function limitations governed by 35 U.S.C. § 112, ¶ 6 because they do not recite functions and, therefore, require no construction. Nevertheless, in an abundance of caution, Requester provides contingent constructions for each of these limitations to the extent the examiner disagrees that the claims are not governed by § 112, ¶ 6. The prior art renders the claims obvious whether or not any limitation of these claims is considered a means-plus-function claim.

1. Legal background regarding means-plus-function terms

35 U.S.C. § 112, ¶ 6 requires that claims that recite a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, be limited to the corresponding structure, material, or acts described in the specification and equivalents thereof. Where a claim recites a “means” for performing some function, there is a presumption that 35 U.S.C. § 112, ¶ 6 applies. *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015) (*en banc*).

Notably, the use of the word “means” alone is not enough to invoke the statute: if no corresponding function is recited, then § 112, ¶ 6 will not apply. *Rodime PLC v. Seagate Technology, Inc.*, 174 F.3d 1294, 1302 (Fed. Cir. 1999). Further, the presumption that 112, ¶ 6 applies is overcome “when the claim language specifies the exact structure that performs the function in question without need to resort to other portions of the specification or extrinsic evidence for an adequate understanding of the structure.” See *TriMed, Inc. v. Stryker Corp.*, 514 F.3d 1256, 1259-60, 85 USPQ2d 1787, 1789 (Fed. Cir. 2008) (“Sufficient structure exists when the claim language specifies the exact structure that performs the function in question without need to resort to other portions of the specification or extrinsic evidence for an adequate understanding of the structure.”).

Where a software-related claim does require a means-plus-function construction, there are special considerations regarding the sufficiency of the specification’s disclosure. The mere disclosure of a general purpose computer or generic computing components in the specification is insufficient structure because “general purpose computers can be programmed to perform very different tasks in very different ways.” *Aristocrat Techs. Australia Pty Ltd. v. Intern. Game Tech.*, 521 F.3d 1328, 1333 (Fed. Cir. 2008). Instead, the disclosed structure must be “not a general purpose computer, but rather the special purpose computer programmed to perform [a] disclosed algorithm.” *Id.*, (quoting *WMS Gaming, Inc. v. Int’l Game Tech.*, 184 F.3d 1339, 1349 (Fed. Cir. 1999)).

The disputes over software-related means-plus-function claims largely fall into two groups: (1) cases in which the specification discloses no algorithm, and (2) cases in which the specification does disclose an algorithm, and the parties dispute whether such an algorithm is adequate. *Noah Sys, Inc. v. Intuit Inc.*, 675 F.3d 1302, 1313 (Fed. Cir. 2012). Where the specification discloses no algorithm, the knowledge of a skilled artisan is irrelevant and will not save the claims from a

finding of indefiniteness. *Aristocrat Techs*, 521 F.3d at 1337.¹ However, where a specification arguably discloses some algorithm, the sufficiency of the disclosure in the specification is evaluated in light of the knowledge possessed by a skilled artisan. *Id.* For example, the explicit identification of a protocol in the specification may be adequate, but only if a skilled artisan would have appreciated that the protocol itself sufficiently discloses an understood algorithm corresponding to the means-plus-function limitation. *Sisvel Int’l S.A. v. Sierra Wireless, Inc.*, 82 F.4th 1355, 1369 (Fed. Cir. 2023).

Nevertheless, even if a software-related means-plus-function claim is indefinite for failure to disclose a sufficient (or any) corresponding algorithm, an examiner may still find the claims obvious if the prior art renders any possible corresponding structure in the specification obvious. *Intel Corp. v. Qualcomm Inc.*, 21 F.4th 801, 813 (Fed. Cir. 2021) (adjudicator is not precluded from reaching the question of obviousness unless such indefiniteness renders it “logically impossible” to reach a decision).

2. Claims 18 and 19 are not governed by § 112, ¶ 6

Claims 18 and 19 are **not** governed by § 112, ¶ 6 because the limitations recited do not recite corresponding functions. The limitations reciting “means” in claim 18 are reproduced below.

[18.pre] A programmable device comprising:

[18.1] a processing means;

...

[18.4] wherein the processing means is configured to:

¹ There is a “narrow exception” to the default rule that claims are indefinite when the specification fails to describe an algorithm for claimed software function. *Ergo Licensing, LLC v. Care-Fusion 303, Inc.*, 673 F.3d 1361, 1364–65 (Fed. Cir. 2012). Specifically, if the claimed function is “coextensive” with “otherwise unspecified functions,” such as processing, receiving, and storing, then a general purpose computer alone would be sufficient structure. *In re Katz Interactive Call Processing Patent Litigation*, 639 F.3d 1303, 1316 (Fed. Cir. 2011). Here, the narrow *Katz* exception would not apply because no step is “otherwise unspecified,” but instead, they each relate to the acquisition of specific information from a specific source and the analysis thereof.

- [18.4.1] acquire operating environmental condition data relevant to the generation of electric power in a power grid system from an operating environment feed input;
- [18.4.2] analyze the operating environmental condition data to determine an indication of a high demand for electric power from the power grid system; and
- [18.4.3] cause a computational device to automatically reduce a current amount of consumption of electric power from the power grid system by the computational device if the analyzing determines the high electric power demand indication.

Limitation 18.1 simply recites “a processing means.” By the plain language of the statute, there is no function that corresponds to the “processing means” in limitation 18.1, so § 112, ¶ 6 does not apply.

Further, the sub-limitations of limitation 18.4 ([18.4.1]-[18.4.3]) also are not functions, but programming steps of an algorithm that itself serves an unclaimed function (here, adapting the power consumption of a computational device in response to environmental conditions). In other words, these limitations, much like corresponding limitations of other independent claims, recite the steps carried out by a processing means. That they appear functional is due to the fact that “the specific structure of software code and applications is partly defined by its function.” *Dyfan, LLC v. Target Corp.*, 28 F.4th 1360, 1368 (Fed. Cir. 2022) (holding that functional limitations following “code configured to . . .,” such as displaying and receiving information, were not subject to § 112, ¶ 6). In other words, these claims do not recite functional language, but the steps of an algorithm, and, therefore, are not governed by § 112, ¶ 6.

Claim 19 similarly recites that the processing means is configured to perform additional steps in the algorithm, specifically, “regularly update the acquired the operating environmental condition data,” “update an internal state table with new downloaded data from the operating environment feed input” if changes are found, and “automatically reduce a present amount of consumption of electric power from the power grid system by the computational device if analyzing the updated state table data determines a high electric power demand indication.”

3. Claims 18 and 19 are obvious even if governed by § 112, ¶ 6

In case patentee or examiner disagrees and instead finds that the *processing means* limitation and the sub-limitations of [18.4] and 19 are each separate functions that require individual constructions, Requester provides the below contingent constructions.

Requester also submits that claims 18 and 19 are obvious even if construed as means-plus-function because the prior art still renders any possible corresponding structure in the specification obvious. This is true even if some terms are indefinite for failure to disclose any corresponding algorithm, as a finding of indefiniteness for the lack of a sufficient algorithm will not preclude an examiner from reaching the question of obviousness unless such indefiniteness renders it “logically impossible” to reach a decision. *Intel Corp. v. Qualcomm Inc.*, 21 F.4th 801, 813 (Fed. Cir. 2021). Here, while some claim terms may be indefinite for failure to disclose an adequate algorithmic structure for performing means-plus-function claim limitations, Requester shows the prior art at least renders obvious what limited scope is disclosed in the specification. Therefore, the examiner may still reach the issue of obviousness as to these claims.

a. *a processing means (limitation 18.1)*

The first limitation of claim 18 recites a “processing means.” Since no function is claimed, this limitation is not governed by § 112, ¶ 6. However, if the use of the gerundive “processing” in this limitation causes it to be interpreted as the same as “means for processing,” such that the claim is governed by § 112, ¶ 6, then the claimed function would be, generally, “processing.” *See, e.g., Hastings v. U.S.*, 78 Fed. Cl. 729 (Fed. Cl. 2007) (applying § 112, ¶ 6 to claim reciting a “cavity sealing means,” where the function implied by the use of a gerundive was “sealing a cavity”). In such an event, the corresponding structure in the ’243 Patent specification is a central processing unit, or a processor. *See* Ex. 1001, Fig. 2; *see also* 5:13-19.

b. *a processing means configured to . . . (sub-limitations of 18.4, claim 19)*

Assuming *arguendo* that the sub-limitations of the *processing means* limitation are construed as discrete and separate functions of the processing means that would be governed by § 112, ¶ 6, Requester provides the below contingent constructions. In the sub-sections that follow, Requester cites the basis in the specification for each of these contingent constructions.

Claim Language	Function	Structure(s)
“wherein the processing means is configured to: acquire operating environmental condition data relevant to the generation of electric power in a power grid system from an operating environment feed input” (claim 18)	acquiring operating environmental condition data from an operating environment feed input	No definite structure— specification discloses generic computer components receiving web feeds in standard data formats
“wherein the processing means is configured to: . . . analyze the operating environmental condition data to determine an indication of a high demand for electric power from the power grid system” (claim 18)	analyzing the operating environmental condition data to determine an indication of a high demand for electric power from the power grid system	<ul style="list-style-type: none"> • Finding an indication based on the usage of certain types of energy producers, such as an environmentally-producer is near capacity or a small-size fossil fuel plant is coming online; • Finding an indication based on an unusual weather condition; • Finding an indication based on whether the building or company is using excessive power units; • Finding an indication based on whether a spot price of electricity is high; OR • (1) assigning weights to various sources or feeds, (2) applying those weights to a liner combination of values obtained from those sources or feeds, and (3) comparing

Claim Language	Function	Structure(s)
		the result of the linear combination to some threshold.
“wherein the processing means is configured to . . . cause a computational device to automatically reduce a current amount of consumption of electric power from the power grid system by the computational device if the analyzing determines the high electric power demand indication” (claim 18)	causing a computational device to automatically reduce a current amount of consumption of electric power from the power grid system by the computational device	<ul style="list-style-type: none"> • triggering immediate power savings operations, such as by reducing processor speeds and putting monitors and peripherals in a reduced power consumption mode; OR • postponing or otherwise scheduling power-consuming activities by a computational device.
“wherein the processing means is configured to . . . regularly update the acquired the [sic] operating environmental condition data” (claim 19)	regularly updating the acquired operating environmental condition data	<ul style="list-style-type: none"> • updated based on a timer on the provider side; • make updates driven by changes in data, where a data acquisition component may be configured to regularly check feed files for changes, and if changes are found or occur, then download the changed data; OR • periodically checking for updates in a known location referenced by a feed publisher or upon another

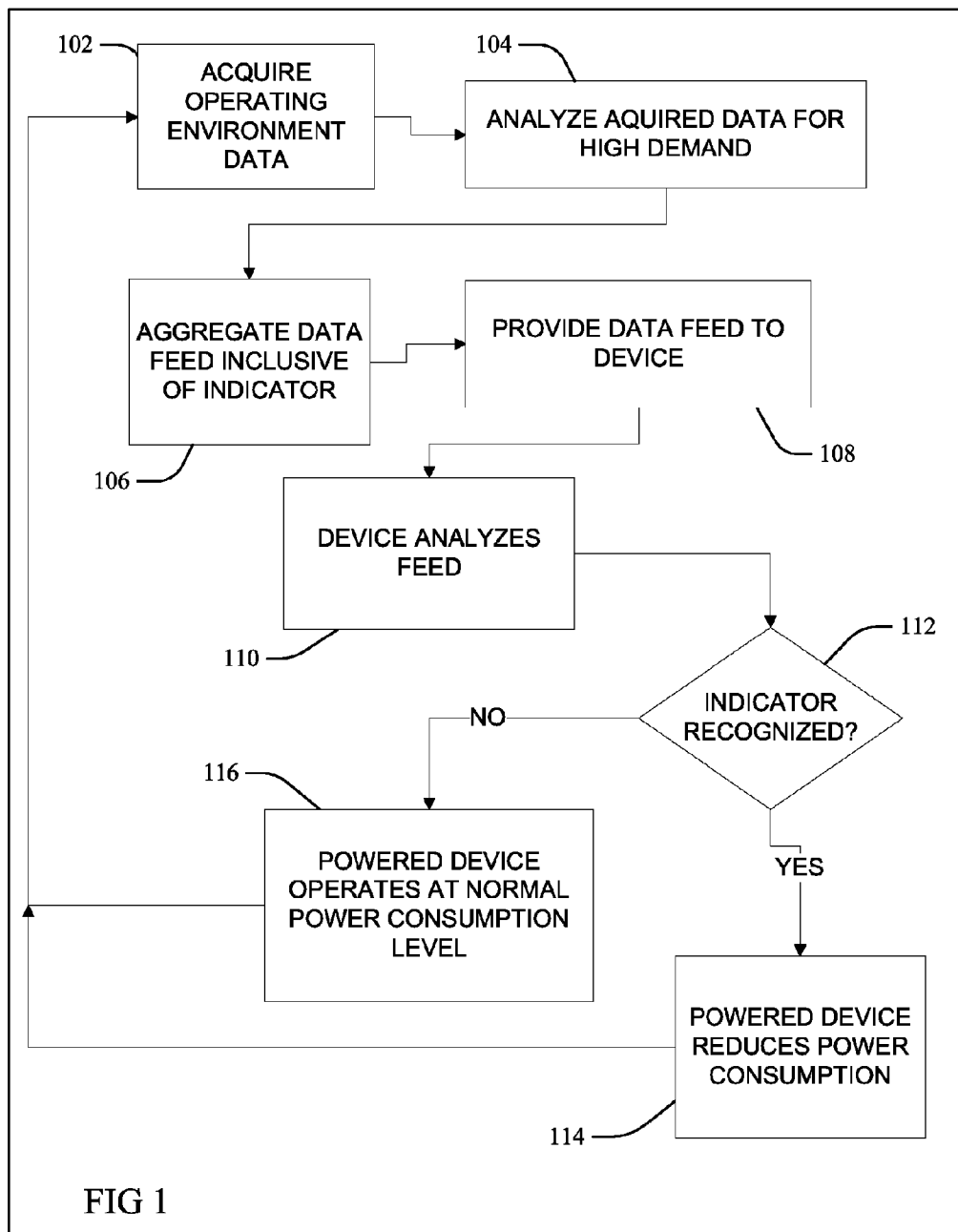
Claim Language	Function	Structure(s)
		location or service provider, for example using HTTP requests over TCP/IP.
“wherein the processing means is configured to . . . if changes are found in the updated environmental condition data, update an internal state table with new downloaded data from the operating environment feed input” (claim 19)	updating an internal state table with new downloaded data from the operating environment feed input if changes are found	No algorithm for updating an internal state table other than generic computer components performing the function itself, other than the steps already disclosed for regularly updating in the immediately preceding limitation.
“wherein the processing means is configured to . . . automatically reduce a present amount of consumption of electric power from the power grid system by the computational device if analyzing the updated state table data determines a high electric power demand indication” (claim 19)	automatically reducing a present amount of consumption of electric power from the power grid system by the computational device	<ul style="list-style-type: none"> • triggering immediate power savings operations, such as by reducing processor speeds and putting monitors and peripherals in a reduced power consumption mode; OR • postponing or otherwise scheduling power-consuming activities by a computational device.

“wherein the processing means is configured to: acquire operating environmental condition data relevant to the generation of electric power in a power grid system from an operating environment feed input” (18.4.1)

If the *acquire* language is construed as a function itself, then it would be presumed that limitation 18.4.1 is a software means-plus-function limitation governed by 35 U.S.C. § 112, ¶ 6 since the word “means” is used and only a generic computer component is identified in the claim. *Williamson*, 792 F.3d at 1348. The claimed function would be **“acquiring operating**

environmental condition data . . . from an operating environment feed input.” The claim also requires the data to be relevant to the generation of electric power in a power grid system. As discussed below, the specification lacks adequate algorithmic structure for performing this function; however, it is still possible to ascertain the obviousness of this limitation.

The specification does not disclose any algorithm for acquiring operating environmental condition data from an operating environment feed input. Instead, the specification includes this acquiring functionality as a black-box step of a larger algorithm:



Ex. 1001, Fig. 1 (step 102: acquire operating environment data). Simply providing a “black box recitation of structure for providing the same specified function” is insufficient as a matter of law to constitute an algorithm. *Williamson*, 792 F.3d at 1350.

The closest the '243 Patent's specification comes to describing the *acquiring* step is in the following paragraph:

According to the present invention a service provider or other entity or component may acquire data (for example at 102 of FIG. 1 above) in a standard data format (e.g. Extensible Markup Language, or XML) supplied via a Really Simple Syndication (RSS) feed from electricity plants, weather services, and other information providers to ascertain present power and environmental conditions. Such information providers (power plants, weather services, etc) need not continuously stream information to a service provider, and may instead update XML files using standard RSS notations. The service provider publishes or pushes an aggregated data feed (for example at 108 of FIG. 1 above), including aggregating feeds or data from any individual service providers, to a computational device, wherein one or more components within the receiving computational device are configured to await instructions to cause an element in the computational device to enter a power-reduction mode in response to an indicator within the aggregate feed.

Ex. 1001, 4:32-49. But this disclosure simply describes what is done at the publishing side to create the operating environmental condition data. Nothing in this paragraph describes an algorithm regarding how the claimed *processing means* of a recipient computer system acquires the data other than to say that the data exists.

At the local side, the only concept is disclosed is that a computational device broadly has “one or more components” that are “configured to await instructions” in response to an indicator within the feed. The disclosure of generic components and no steps in the acquisition side of the transaction is insufficient. *Williamson*, 792 F.3d at 1350. Although a POSA would have been familiar with ways of acquiring data from a service provider, what a POSA would have known is not relevant to the question of whether an algorithm is disclosed in the first place. *Aristocrat Techs*, 521 F.3d at 1337.

Because the '243 Patent does not disclose a specific algorithm for how a *processing means* acquires the published or pushed operating environmental condition data, claim 18 and its

dependents would be indefinite if these limitations are construed as means-plus-function limitations. However, despite their indefiniteness, it is not impossible to ascertain the obviousness of these claims or whether the prior art discloses these limitations, particularly since the '243 Patent confirms that the concepts related to publishing RSS feeds simply used “standard” notations and “standard” data formats known in the art. Ex. 1001, 4:32-41. Requester discusses below why claim 18 and its dependents that incorporate this limitation are still obvious over the prior art, which discloses or at least renders obvious the extent of the '243 Patent's specification's disclosure related to the acquiring functionality.

“analyze the operating environmental condition data to determine an indication of a high demand for electric power from the power grid system” (claim 18)

As discussed, this limitation is a subset of an algorithm being performed by a *processing means*, and it should not be construed as a means-plus-function limitation. However, if the *analyze* language is construed as a function itself, then it would be presumed that limitation 18.4.2 is a software means-plus-function limitation governed by 35 U.S.C. § 112, ¶ 6 since the word “means” is used and only a generic computer component is identified in the claim. *Williamson*, 792 F.3d at 1348. The claimed function would be **“analyzing the operating environmental condition data to determine an indication of a high demand for electric power from the power grid system.”**

The '243 Patent discloses multiple possible condition data to analyze—Requester identifies five examples below. Requester does not opine on whether the following examples in the specification describe an algorithm sufficient to avoid a finding of indefiniteness, but instead posits that the prior art discloses one or more of these examples, and, therefore, the examiner need not determine whether they are sufficient algorithms to ascertain whether the claims are obvious. *Intel.*, 21 F.4th at 813.

One way the '243 Patent describes the *analyzing* step being satisfied is by determining the usage of various energy producers. For example, if an environmentally friendly energy producer, such as a large nuclear plant, is near capacity, this may be considered an indication of high demand on the grid. *Id.*, 5:57-6:2. Alternatively, an indication of high demand may be the fact that an environmentally unfriendly producer, such as a small-size fossil fuel plant, has been brought on-line to meet demand. *Id.*, 3:42-67; *see also* claims 2, 12, 20.

Another way the '243 Patent describes analyzing a weather feed and triggering power consumption reduction is by taking “unusual” weather conditions into account. *Id.*, 6:3-7.

However, the '243 Patent does not go into detail about what constitutes an “unusual” weather condition that would warrant reducing power consumption, or how the system analyzes such weather condition feeds to identify such “unusual” weather conditions.

A further way the '243 Patent describes analyzing a household, building, or company-use feed and entering a power consumption reduction mode “if a building or company is utilizing excessive power units.” *Id.*, 6:7-11. Thus, in one embodiment, the *analyzing* step is satisfied by determining whether the building or company is using excessive power units.

Still another way the '243 Patent analyzes the spot price of electricity by determining whether it is high or low. The system triggers power savings operations as well as postpones or otherwise schedules power-consuming activities “**as a function of preferential spot prices**,” such as “running nonessential services only when a spot price is low.” *Id.*, 6:11-20. Thus, in one embodiment, the *analyzing* step is satisfied by “determining if a spot price is high or low.”

And yet another way the '243 Patent describes using a “data/feed analyzer logic component” that is “configured to determine high-demand energy conditions . . . from the feeds/data acquired.” *Id.*, 6:21-24. The '243 Patent then explains that the component “may” assign weights to different feed sources “according to an algorithm or some other function,” but it does not itself provide any specific examples of such an algorithm or function. *Id.*, 6:24-27. In one example, the patent suggests “generating a weighted function comprising a linear combination of values obtained from a plurality of different sources or feeds 280 with appropriate weights” and triggering power savings “if the linear combination is above a certain threshold.” *Id.*, 6:27-33.² Thus, in one embodiment, the *analyzing step* is satisfied by (1) assigning weights to various sources or feeds, (2) applying those weights to a linear combination of values obtained from those

² The '243 Patent also generally suggests using “machine learning techniques” to determine appropriate weights and thresholds and using “functions embedded in statistical classifiers” through computer learning algorithms based on historical data. *Id.*, 6:33-45. However, such a high-level disclosure depends on general knowledge “appreciated by one skilled in the art” to fill in gaps and, therefore, is not sufficient structure linked to the claimed function. *Id.*, 6:43-45; *see also Medical Instrumentation and Diagnostics v. Elekta*, 344 F.3d 1205, 1217 (Fed. Cir. 2003) (finding that disclosure of “known algorithms” or software that is “either commercially available or within the skill of practitioners in the programming arts” was not sufficient structure).

sources or feeds, and (3) comparing the result of the linear combination to some threshold.

“cause a computational device to automatically reduce a current amount of consumption of electric power from the power grid system by the computational device if the analyzing determines the high electric power demand indication” (claim 18)

As discussed, this limitation is a subset of an algorithm being performed by a *processing means*, and it should not be construed as a means-plus-function limitation. However, if the *cause* language is construed as a function itself, then it would be presumed that limitation 18.4.3 is a software means-plus-function limitation governed by 35 U.S.C. § 112, ¶ 6 since the word “means” is used and only a generic computer component is identified in the claim. *Williamson*, 792 F.3d at 1348. The claimed function would be **“cause a computational device to automatically reduce a current amount of consumption of electric power from the power grid system by the computational device.”**

The '243 Patent discloses multiple possible ways to reduce power consumption by a computational device. Requester does not opine on whether the following examples in the specification describe an algorithm sufficient to avoid a finding of indefiniteness, but instead posits that the prior art discloses one or more of these examples, and, therefore, the examiner need not determine whether they are sufficient to ascertain whether the claims are obvious. *Intel.*, 21 F.4th at 813.

In one embodiment, energy consumption is reduced by the computational device by “triggering immediate power savings operations.” *Id.*, 6:14-16. Specific examples of power savings operations known in the art and identified in the specification include, for example, adaptively reducing processor speeds and putting monitors and peripherals in a reduced power-consumption mode. *Id.*, 2:36-41.

In another embodiment, energy consumption is reduced by “postpon[ing] or otherwise schedul[ing] power-consuming activities” by a computational device. *Id.*, 6:16-20.

“regularly update the acquired the [sic] operating environmental condition data” (claim 19)

As discussed, this limitation is a subset of an algorithm being performed by a *processing means*, and it should not be construed as a means-plus-function limitation. However, if the *regularly update* language is construed as a function itself, then it would be presumed that limitation 18.4.3 is a software means-plus-function limitation governed by 35 U.S.C. § 112, ¶ 6 since the word “means” is used. *Williamson*, 792 F.3d at 1348. The claimed function would be “regularly updating the acquired operating environmental condition data.”

Requester does not opine on whether the following examples in the specification describe an algorithm sufficient to avoid a finding of indefiniteness, but instead posits that the prior art discloses one or more of these examples, and, therefore, the examiner need not determine whether they are sufficient algorithms to ascertain whether the claims are obvious. *Intel.*, 21 F.4th at 813.

The '243 Patent discloses that data may be updated regularly “by a timer on the provider side or updates driven by changes in data,” where the “data acquisition component may be configured to regularly check feed files for changes, and if changes are found or occur then download the changed data.” Ex. 1001, 5:35-40; *see also* 7:18-23 (“In a pull embodiment the aggregate feed acquirer 232 periodically checks for updates in a known location referenced by the feed publisher 208 on the module 200 (e.g. a location within the memory 203) or upon another location or service provider 284, for example using HTTP requests over TCP/IP.”).

“if changes are found in the updated environmental condition data, update an internal state table with new downloaded data from the operating environment feed input” (claim 19)

As discussed, this limitation is a subset of an algorithm being performed by a *processing means*, and it should not be construed as a means-plus-function limitation. However, if the *update an internal state table* language is construed as a function itself, then it would be presumed that limitation 18.4.3 is a software means-plus-function limitation governed by 35 U.S.C. § 112, ¶ 6 since the word “means” is used. *Williamson*, 792 F.3d at 1348. The claimed function would be “updating an internal state table with new downloaded data from the operating environment feed input.”

Outside of the steps already performed for the “regularly updating” concept above, the specification does not identify any algorithm for updating an internal state table with new downloaded data outside of the function itself. *Id.*, 5:39-43; 7:27-30. Therefore, if this limitation is construed as a means-plus-function limitation governed by § 112, ¶ 6, then it is likely indefinite, and, for the sake of obviousness, would be obvious over the general function of updating a table with downloaded data from an operating environment feed input. The prior art discloses this.

“automatically reduce a present amount of consumption of electric power from the power grid system by the computational device if analyzing the updated state table data determines a high electric power demand indication” (claim 19)

As discussed, this limitation is a subset of an algorithm being performed by a *processing means*, and it should not be construed as a means-plus-function limitation. However, if the *automatically reduce* language is construed as a function itself, then it would be presumed that

limitation 18.4.3 is a software means-plus-function limitation governed by 35 U.S.C. § 112, ¶ 6 since the word “means” is used. *Williamson*, 792 F.3d at 1348. The claimed function would be “automatically reducing a present amount of consumption of electric power from the power grid system by the computational device.” The structure in the specification, if any, would be the same structure identified for claim 18.4.3. As with that limitation, Requester does not opine on whether the examples in the specification describe an algorithm sufficient to avoid a finding of indefiniteness, but instead posits that the prior art discloses one or more of these examples, and, therefore, the examiner need not determine whether they are sufficient algorithms to ascertain whether the claims are obvious. *Intel.*, 21 F.4th at 813.

C. Listing of Prior Art Patents and Printed Publications

Reexamination of the Challenged Claims is requested in view of the following references:

- **Ex. 1004 (“Miller”)**: U.S. Publication 2006/0276938 to Miller was filed on June 6, 2005, and published on December 7, 2006. Miller later issued as U.S. Patent 7,274,975. Miller is prior art at least under 35 U.S.C. §§ 102(a), (b), and (e).
- **Ex. 1005 (“Forth”)**: U.S. Patent 7,246,014 to Forth *et al.* was filed on February 9, 2004, claims priority to provisional applications filed on February 7, 2003, and issued on July 17, 2007. Forth is prior art at least under 35 U.S.C. §§ 102(a), (b), and (e).
- **Ex. 1006 (“Yellepeddy”)**: U.S. Publication 2003/0036820 to Yellepeddy *et al.* was filed on August 16, 2001 and published on February 20, 2003. Yellepeddy is prior art at least under 35 U.S.C. §§ 102(a), (b), and (e).
- **Ex. 1007 (“Gardner”)**: U.S. Publication 2005/0143865 to Gardner was filed on December 29, 2004, and published on June 30, 2005. Gardner later issued as U.S. Patent 7,177,728. Gardner is prior art at least under 35 U.S.C. §§ 102(a), (b), and (e).

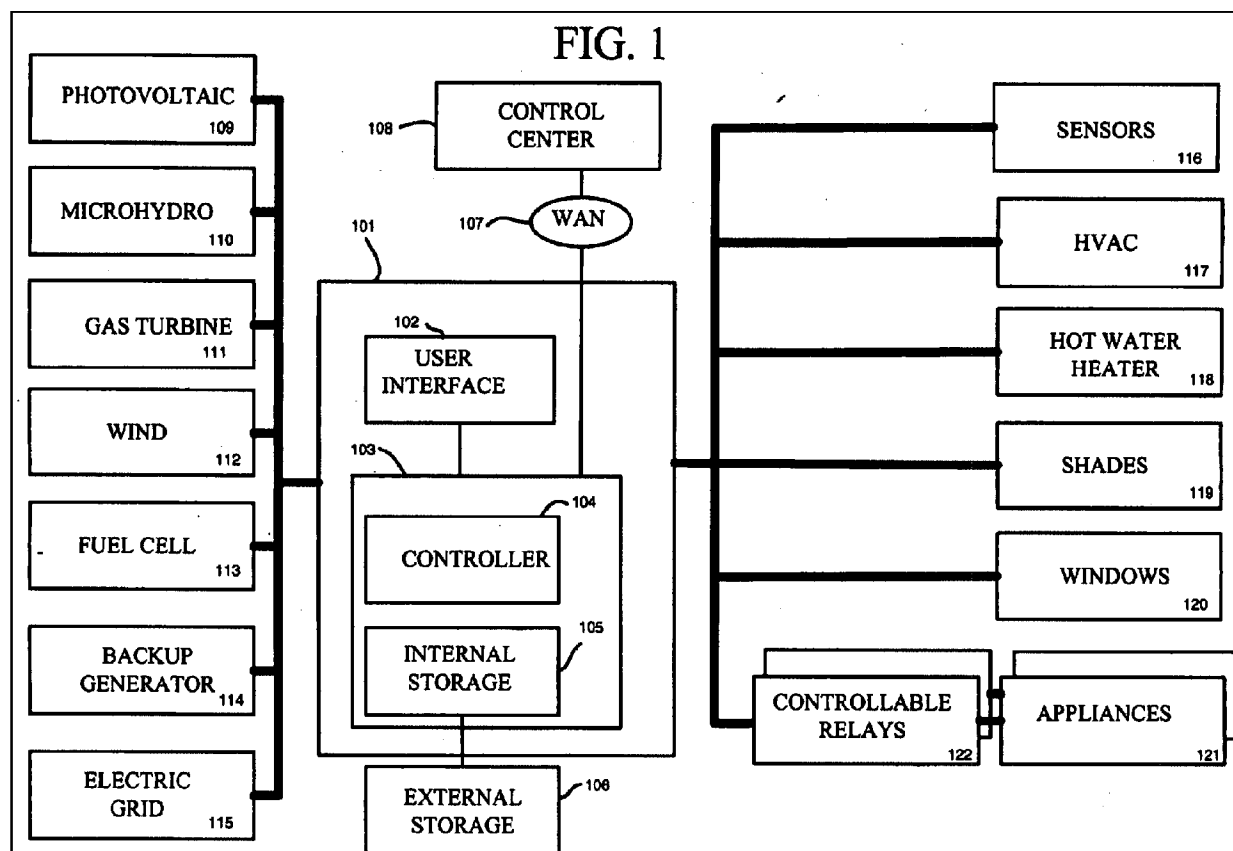
None of the references listed above were cited during prosecution of the '243 Patent. A Form SB-08 and copies of the cited references are submitted herewith. This Request is also supported by the declaration of Scott Andrews. Ex. 1003, *generally*. To the extent that additional references are discussed in Mr. Andrew's declaration, copies of these additional references are also being submitted, and are included on Form SB-08.

As shown below, Requester submits that the prior art references raise new “substantial question[s] of patentability” because “the teaching of the (prior art) patents and printed publications is such that a reasonable examiner would consider the teaching to be important in

deciding whether or not the claim is patentable.” *See* MPEP 2242. For example, the references discussed below, when considered as an ordered combination, teach each limitation of the Challenged Claims, including the idea of a computational device reduces its power based on an indication of high demand for electricity on the power grid, which the examiner believed was missing in the art during the original prosecution. Further, they are new; the “same question of patentability as to the claim has not been decided by the Office in an earlier concluded examination or review of the patent” at least because none of the art referenced in this request was before the Office during prosecution of the ’243 Patent or during a prior post-grant proceeding challenging any claim of the ’243 Patent, any of which that are known to Requester have been listed below in Section III, *infra*.

D. Grounds 1–2: Miller Presents Substantial New Questions of Patentability

Miller (Ex. 1004, U.S. Publication U.S. Publication 2006/0276938) relates to an optimized energy management system that schedules the control of energy consumption devices based on variables related to forecast energy supply and demand. Ex. 1004, Abstract. For example, devices for which energy consumption can be deferred, such as dishwashers, are activated during periods of cheapest energy use. *Id.*; *see also* 1:67-2:3. These energy consuming devices are managed by an integrated control device, apparatus 101:



Id., Fig. 1; *see also* Abstract, [0005].

An apparatus 101, also referred to as an energy control unit, includes a controller 104 and an internal storage device 105. *Id.*, [0024]. The internal storage device 105 comprises storage batteries and/or large capacitors and is itself charged through power sources 109–115, including the electric grid. *Id.*; *see also*, [0031]. In this sense, the apparatus 101 is itself an energy consuming device, as it requires power to charge the batteries and/or capacitors of internal storage device 105 so that it may power other devices during a power outage or peak demand times. *Id.*; *see also* [0120] (storage allowed “shifting demand from time of high cost to low cost”); [0121] (“‘Buying’ storage refers to putting energy into storage from any source, and ‘selling’ storage [is] discharging from storage to meet demand, sell[ing] to the grid, sell[ing] on the wholesale market, or transfer[ing] to another form or storage”); *see also* Ex. 1003, ¶ 52.

Miller teaches that apparatus 101 reduces both its own consumption of power from the grid and the consumption by other devices when it receives some indication that the overall demand on the grid is high. At peak demand times, indicated when “electrical grid costs exceed certain thresholds,” solar panels or storage devices 105/106 are used instead of power from the electric

grid 115 to power other devices, and it may even sell electricity back to the power grid. Ex. 1004, [0024]; *see also* [0057] (describing peak demand and its correlation with electric grid prices); [0061]–[0075] (describing how the system in Figure 1 meets energy demand, including when alternative energy sources such as internal storage are used to power other devices).

Miller is analogous art to the '243 Patent. Ex. 1003, ¶ 59. The '243 Patent is in the field of adapting the power consumption of devices in response to environmental conditions. Ex. 1001, Abstract, 1:6-9. Just like the '243 Patent, Miller is in this field; for example, it relates to methods and systems for optimizing the control of energy supply and demand, including adapting the consumption of energy consumption devices on the basis of environmental conditions like forecast energy supply and demand. Ex. 1004, Abstract, [0001]. Further, Miller is reasonably pertinent to problems concerning the inventor of the '243 Patent, such as addressing environmental concerns and the need for energy conservation and alternative energy sources. *Id.*, [0002]; *see also* Ex. 1001, 1:24-55 (explaining that one object of the invention is to provide environmentally conscious information technology and improve the energy and environmental savings of existing technology).

As shown in more detail below, Miller anticipates claims 1, 3, 5, 9–11, and 15. Additionally, or alternatively, Miller renders obvious claims 1, 3–5, 9–11, 15, and 18 obvious. For these reasons, Miller presents a substantial new question of patentability. A reasonable examiner would consider the teachings of Miller important in determining whether claims 1, 3–5, 9–11, 15, and 18 are patentable because Miller discloses each limitation of these challenged claims and because Miller was never cited or otherwise considered during prosecution. Section II.B below provides greater detail regarding how Miller discloses or renders obvious each and every element of claims 1, 3–5, 9–11, 15, and 18. Requester also cites the testimony of Mr. Andrews, who provides background knowledge regarding the state of the art and discusses possible variations of Miller's disclosure that would have been apparent to a POSA, as discussed in greater detail below. *See* Ex. 1003, ¶¶ 50–66.

E. Ground 3: Miller in view of Forth Presents Substantial New Questions of Patentability

1. Overview of Forth

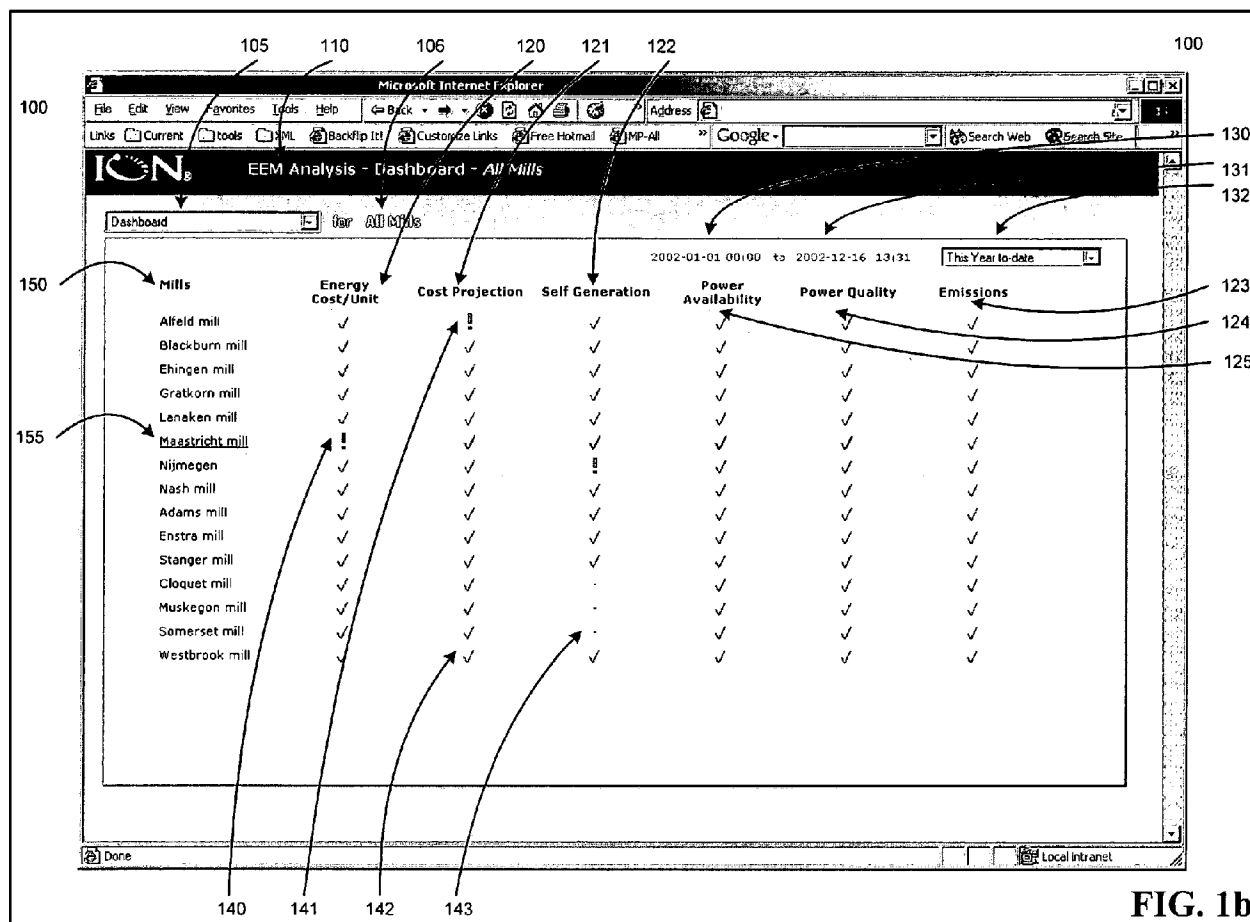
Forth (Ex. 1005, U.S. Patent 7,246,014) relates to an Enterprise Energy Management (EMM) software system that “displays EEM data and allows a user to interact with the data to better understand and manage their electrical system.” Ex. 1005, Abstract; *see also*, 2:50-57. The

EEM works by collecting “real-time, near real-time and historical input data from various data sources.” *Id.* As Forth, explains, the “evolving global energy environment is more closely connecting the needs of large industrial, commercial and institutional energy consumers with those of the power utilities and energy services companies,” including by “introduc[ing] consumer choice, competition amongst energy suppliers, and significant demands on the electrical industry.” *Id.*, 1:55-61. Forth also recognizes that “being able to predict and control the use of energy” is an “excellent” way to reduce energy costs. *Id.*, 2:22-24. Forth is cited in this Request for its disclosures regarding how a software system allows a user or computer to receive and analyze data relevant to energy management systems.

A user may access EEM software via “any platform with a physical user interface, such as a desktop display, a browser, a hand-held device, a wireless device, and Windows Management Console, and Intelligent Energy Device (“IED”) and so forth.” *Id.*, 3:1-5. The user may use the interface to view a composite analysis of loads and costs to “understand their loads and identify areas of high cost, to distinguish between controllable cost and fixed energy cost” and “identify how much of their bill can be moved around to reduce their total cost.” *Id.*, 8:50-59. Through the user interface, the user can “set limits, thresholds, or set points,” to trigger automatic actions; alternatively, the system may monitor operating conditions over time to learn what the average for the system is and automatically react to adjust or fine tune operations or conditions. *Id.*, 3:41-50.

In one embodiment, Forth describes the use of a web-based “Aggregation GUI” that uses RSS feeds “serialized as XML 1.0” data formats to compile data from various sources. *Id.*, 18:26-36. As Forth explains, RSS is a “method of describing news, events, or other web content that is available to web users.” *Id.*, 18:41-42. The Aggregation GUI “allows users to subscribe to feeds, which in turn provide summaries of recent changes on sites or loads the user is interested in” in one place, without having to navigate to different web sites. *Id.*, 18:43-61. As Forth explains, a service provider may provide the RSS feeds to customers. *Id.*, 20:4-11. One type of data that may be included in the aggregated data is financial data, such as energy costs and billing data. *Id.*, 6:33-47 (listing various types of data that may be compiled by an EEM system).

Forth also discloses that the EEM data is kept in an “Analysis GUI” that includes a “table 119 that sets forth various types of EEM data.” *Id.*, 7:1-2; *see also* 6:49-54.



Id., Fig. 1b (including costs per unit, cost projections, and emissions in an analysis table, among other information); *see also* Fig. 4, 10:14-26 (user may filter through various queries, such as energy cost over a designated time period, to view data).

Forth is analogous art to the '243 Patent. Ex. 1003, ¶ 71. As noted above, the field of endeavor of the '243 Patent includes “adapting the power consumption of devices in response to environmental conditions.” The '243 Patent explains that such environmental conditions may include energy costs and weather, and Forth explains how to consider conditions such as market energy costs to “optimize the use of energy assets to meet the goals of the user.” Ex. 1005, 2:33-35; *see also* 2:22-24 (“Purchasing energy to cover short falls can be expensive, so being able to predict and control the use of energy is an excellent way to reduce costs.”); 2:3-18 (users require tools to take advantage of opportunities in a “market based pricing system,” including by considering factors like “occupancy, temperature, weather and other variables” and determining “where future efficiencies can be realized”). Further, Forth is reasonably pertinent to at least one problem concerning the inventor of the '243 Patent. For example, one object of the '243 Patent is

to provide service methods for “deploying applications for adapting the power consumption of a computational device in response to environmental conditions” by a service provider. Ex. 1001, 2:1-6. Relevant to this goal, Forth discloses various techniques for providing an Enterprise Energy Management software system to aid them in making changes in their system to meet their energy goals. Ex. 1005, Abstract; *see also* 20:4-11 (a service provider may provide RSS feeds or “channels tuned to specific customers” to aid them in their energy management goals).

2. Miller in view of Forth Presents Substantial New Questions of Patentability

Miller was introduced in Section I.D above. The combination of Miller and Forth renders claims 4, 6, 16, 18, and 19 obvious and, therefore, presents a substantial new question of patentability. A reasonable examiner would consider the combined teachings of these references important in determining whether claims 4, 6, 16, 18, and 19 are patentable because they disclose each limitation of these claims. Additionally, the ground for consideration is new: neither reference was considered during prosecution of the '243 Patent. Section II.C shows in greater detail how the combination of Miller and Forth renders claims 4, 6, 16, 18, and 19 obvious. Further, a POSA would have been motivated to, and would have had a reasonable expectation of success in combining, the teachings of Miller with various teachings of Forth. *See* Sec. II.C; *see also* Ex. 1003, ¶¶ 67–81.

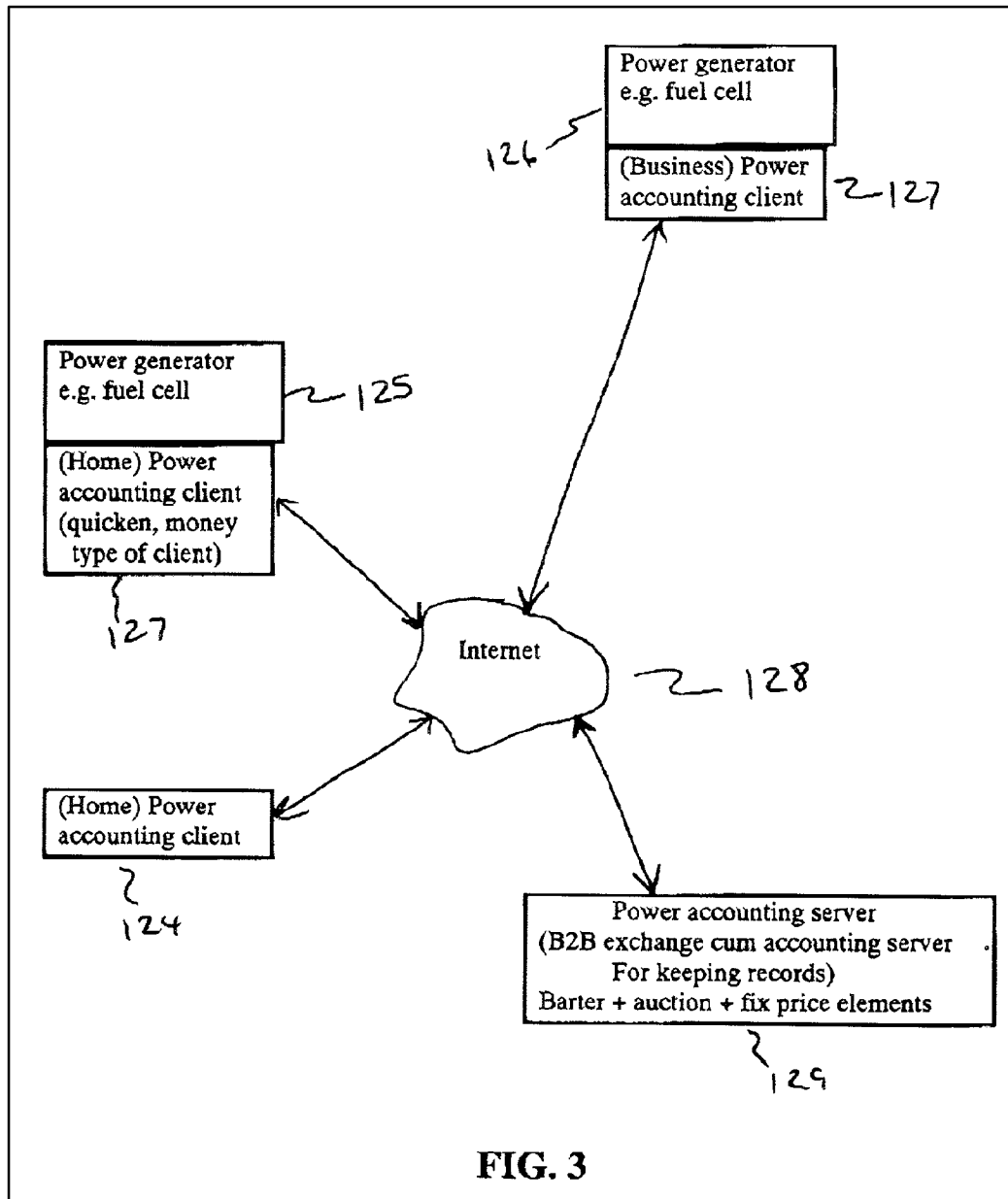
F. Grounds 4–6: Yellepeddy, alone or in view of Gardner, Presents Substantial New Questions of Patentability

1. Overview of Yellepeddy

Yellepeddy (Ex. 1006, U.S. Publication 2003/0036820) relates to systems and methods to enable a facility (e.g., a home or business) “to optimize the consumption of energy in the facility.” Ex. 1006, Abstract. Power companies that supply energy “provide information to its client facilities on the cost and availability of energy from that company on a real-time basis.” *Id.*, The client facilities have access to a power accounting server, which stores and processes this information to predict when the rates will be least expensive for a particular task or to operate a particular appliance. *Id.*

In Yellepeddy’s system, the power accounting server maintains real-time information about energy prices and availability. *Id.*, [0045]; *see also* [0029]; [0059]. Energy suppliers and

residential end-users locally execute a “power accounting program” (also referred to as power accounting “software,” “power accounting client,” and “control program”) to allow these entities to connect to the power accounting server over the internet:

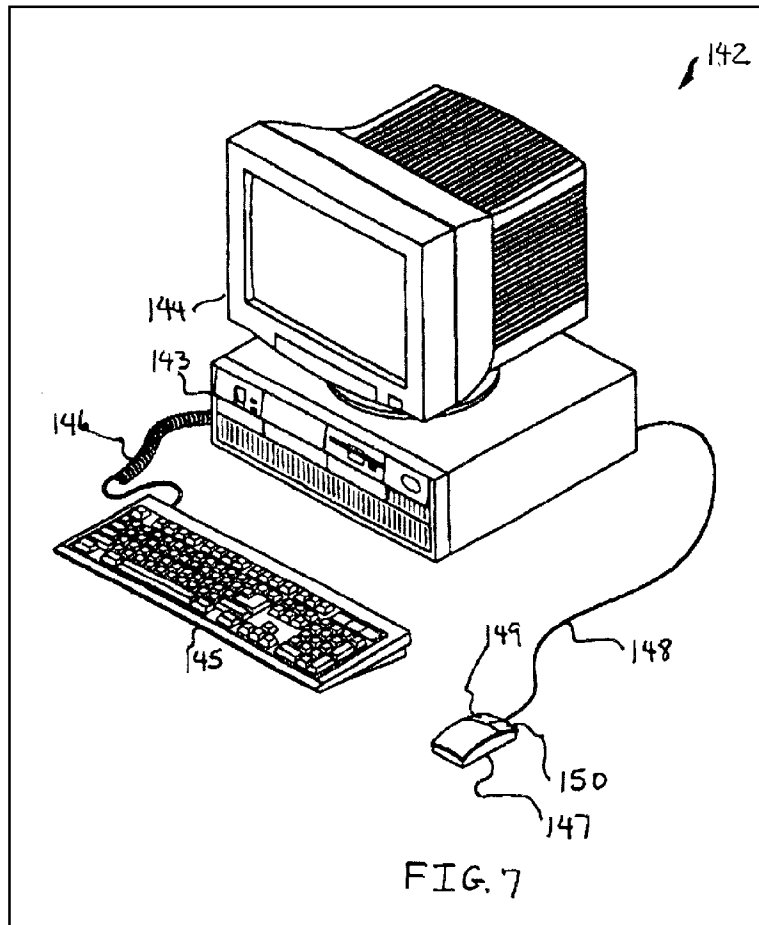


Id., Fig. 3.

The end-user power accounting program retrieves energy supplier information, determines which energy suppliers can supply the appropriate energy to the user, and implements a pre-programmed operation of appliances or applications using energy from the selected supplier. *Id.*, [0051]; *see also* [0046]. For example, a homeowner can program appliances, such as a dishwasher

or laundry machine, to turn on when the energy price falls below some threshold. *Id.*; *see also* [0030]. Alternatively, the user can program their system to use their own generated energy, and even sell that energy, when such would be more economically efficient. *Id.*, Abstract; *see also* [0046].

The end-user power accounting program runs on a general-purpose processing system, such as a computer:



Id., Fig. 7; *see also* [0053].³

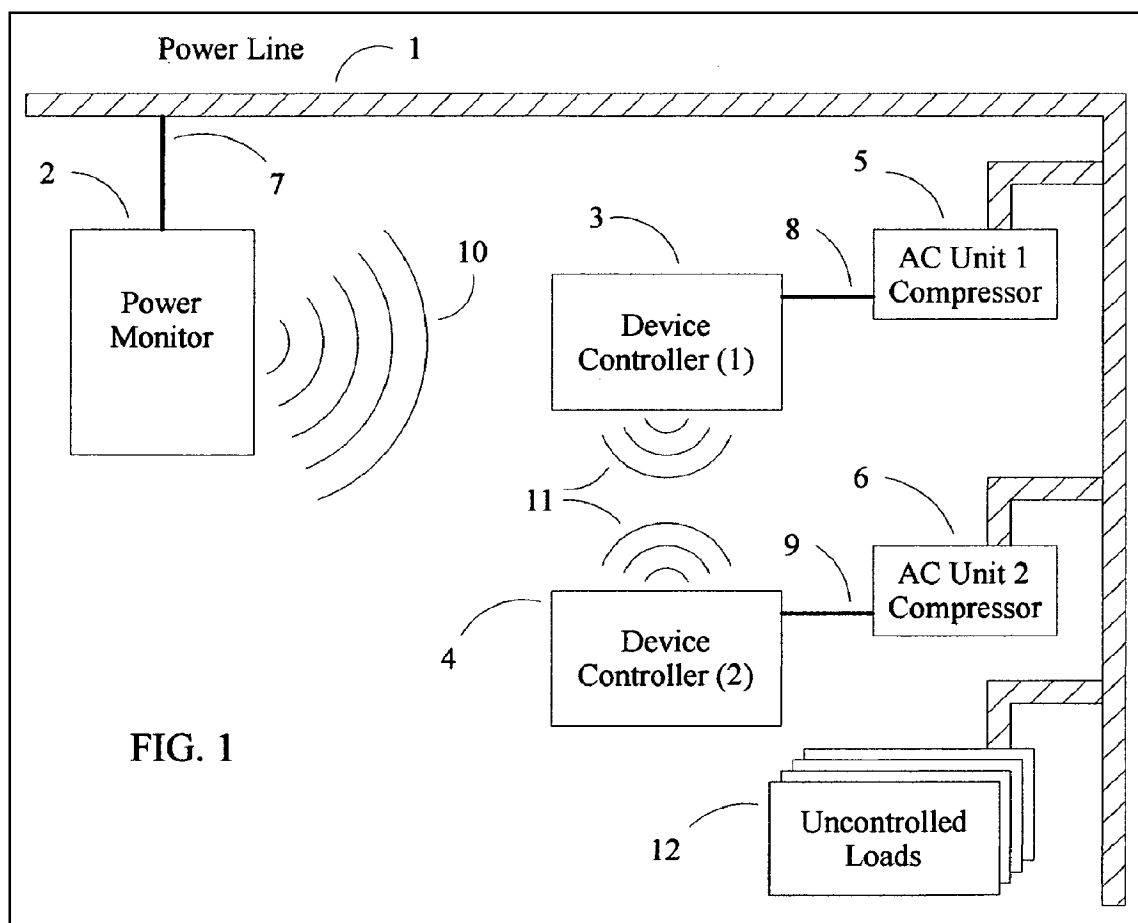
Yellepeddy is analogous art to the '243 Patent. Ex. 1003, ¶ 86. Just like the '243 Patent, Yellepeddy is in the field of adapting the power consumption of devices in response to environmental conditions, such as energy prices, to “optimiz[e] energy consumption and energy cost at an end-user facility.” Ex. 1006, claim 1; *see also* Abstract (“[P]ower companies . . . supply energy provide information to its client facilities on the cost and availability of energy from that

³ Figure 7 is mislabeled as Figure 8 in the written portion of Yellepeddy’s detailed description.

company on a real-time basis.”); [0001]. Further, Yellepeddy is reasonably pertinent to at least one problem concerning the inventor of the ’243 Patent, such as meeting “environmental restraints” and power quality demands while allowing users to employ “new or unexploited energy sources,” such as solar, geothermal, and nuclear energy. *Id.*, [0020], [0015].

2. Overview of Gardner

Gardner (Ex. 1007, U.S. Publication 2005/0143865) relates to a power management system that includes a monitor for the total power usage of a facility to monitor a history or power consumption during a set time interval. Ex. 1007, Abstract. Based on this historical information, the system sets an allocation and controls the energy usage of an electric load to avoid exceeding the allocation. *Id.* The power monitor sends the usage information to device controllers, which in turn determine how much electricity they can allow their loads and maintain usage at or below that allocation. *Id.*, [0010].



Id. Fig. 1. The types of controllable devices may include, for example, a water heater, an HVAC

system linked to a thermostat, or a heated pool and Jacuzzi. *Id.*, [0149], [0154], [0025]; *see also* Fig. 9. Gardner indicates that controllers can be “used on or with virtually any device that can have its run cycle adjusted.” *Id.*, [0154]. Further, Gardner discloses that device controllers may be integrated into a control system of a device or operate remotely from the device. *See also*, [0134], [0136]; *see also* [0115], [0027].

Gardner is analogous art to the '243 Patent. Ex. 1003, ¶ 92. It is within the field of endeavor of the '243 Patent because it is in the field of adapting the power consumption of devices in response to environmental conditions, such as based on a load allocation during a given usage period. Ex. 1007, [0010]; *see also* Abstract. Further, it is reasonably pertinent to at least one problem concerning the inventor of the '243 Patent, such as reducing the demand for electricity during peak demand periods. *Id.*, [0006]–[0007].

3. Yellepeddy, alone or in view of Gardner, Presents Substantial New Questions of Patentability

As shown below, Yellepeddy anticipates claims 1, 3, 6, 9–11, 15, and 16. Additionally, Yellepeddy renders claims 1, 3, 4, 6, 9–11, 15, 16, 18, and 19 obvious. Alternatively, Yellepeddy in view of Gardner renders claims 1, 3, 4, 6, 9–11, 15, 16, 18, and 19 obvious.

For these reasons, Yellepeddy, alone or in combination with Gardner, presents a substantial new question of patentability. A reasonable examiner would consider Yellepeddy (alone or in view of Gardner) important in determining whether claims 1, 3, 4, 6, 9–11, 15, 16, 18, and 19 are patentable because it teaches every limitation of these claims, and Yellepeddy and the additional combination with Gardner are new. Moreover, neither reference was cited or otherwise considered during prosecution. Section II.D below provides greater detail regarding how Yellepeddy, alone or in view of Gardner, discloses or renders obvious each and every element of claims 1, 3, 4, 6, 9–11, 15, 16, 18, and 19. Requester also cites the testimony of Mr. Andrews, who provides background knowledge regarding the state of the art and discusses possible variations of Yellepeddy's disclosure that would have been apparent to a POSA and motivations to combine/reasonable expectations of success, as discussed in greater detail in Section II.D below. *See* Ex. 1003, ¶¶ 82–96.

G. Grounds 7–8: Yellepeddy, alone or combined with Gardner, in view of Forth Presents Substantial New Questions of Patentability

Yellepeddy, Gardner, and Forth were introduced in Sections I.F.1, I.F.2, and I.E.1, respectively. As shown below, Yellepeddy in view of Forth, or Yellepeddy in view of Gardner and Forth, renders obvious each of claims 4, 18 and 19. Forth is cited in these grounds for its disclosure related to the use of RSS feeds to aggregate data analyzed in an energy management program, which is relevant to particular limitations recited in claims 4 and 18.

For these reasons, Yellepeddy, alone or combined with Gardner, in further view of Forth presents substantial new questions of patentability. A reasonable examiner would consider the teachings of Yellepeddy in combination with these secondary references important in determining whether claims 4, 18 and 19 are patentable because they teach every limitation of these claims, and the combinations are new: none of Yellepeddy, Gardner, or Forth were cited or otherwise considered during prosecution. Section II.E below provides greater detail regarding how Yellepeddy (alone or in view of Gardner) in view of Forth discloses or renders obvious each and every element of claims 4 18, and 19. Requester also cites the testimony of Mr. Andrews, who provides background knowledge regarding the state of the art and discusses possible variations of Yellepeddy's disclosure that would have been apparent to a POSA and motivations to combine/reasonable expectations of success, as discussed in greater detail in Section II.D below. *See* Ex. 1003, ¶¶ 67–71, 97–100.

II. DETAILED APPLICATION OF THE PRIOR ART TO EVERY CLAIM FOR WHICH REEXAMINATION IS REQUESTED

A. Overview of Grounds for Which Reexamination is Requested

Requester requests *ex parte* reexamination based on the following grounds⁴:

Ground	Claims	Statute	Prior Art
1	1, 3, 5, 9–11, 15	§ 102	Miller
2	1, 3–5, 9–11, 15, 18	§ 103	Miller
3	4, 6, 16, 18, 19	§ 103	Miller in view of Forth
4	1, 3, 6, 9–11, 15, 16	§ 102	Yellepeddy
5	1, 3, 4, 6, 9–11, 15, 16, 18, 19	§ 103	Yellepeddy
6	1, 3, 4, 6, 9–11, 15, 16, 18, 19	§ 103	Yellepeddy in view of Gardner
7	4, 18, 19	§ 103	Yellepeddy in view of Forth
8	4, 18, 19	§ 103	Yellepeddy in view of Gardner and Forth

B. Grounds 1-2: Miller (§102, § 103)

1. Claim 1

1.pre.⁵ A method for adapting the power consumption of a computational device in response to environmental conditions, comprising:

To the extent it is limiting, Miller discloses, or at least renders obvious, the preamble. For example, Miller discloses “various systems and **methods** for optimizing the control of energy supply and demand in residences and businesses.” Ex. 1004, [0001]⁶; *see also* [0005].

Further, Miller’s method includes reducing or increasing the consumption of power (*adapting the power consumption*) by apparatus 101 and/or certain smart appliances (*of a*

⁴ All challenges are based on pre-AIA statutory grounds.

⁵ A preamble is “‘generally not limiting,’” and should not be considered so for claim 1. *Symantec Corp. v. Computer Assoc. Intern.*, 522 F.3d 1279 (Fed. Cir. 2008) (quoting *Catalina Mktg. Int’l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002)). The body of claim 1 provides a structurally complete invention, while the preamble simply provides the background context for the claimed method. *Id.*, 522 F.3d at 1289.

⁶ Unless otherwise indicated, **bold** indicates emphasis added, while *italics* denote claim language.

computational device), in response to various factors, such as energy price and weather forecasts (*in response to environmental conditions*). *Id.*, [0005]; *see also*, e.g., [0024], [0120]–[0121] (explaining that internal storage devices of apparatus 101 buy or sell energy from/to the grid depending on certain conditions); Abstract, [0108] (deferring energy consumption by certain smart appliances until periods of cheap energy usage); *see also* Ex. 1001, 4:50-57 (describing electricity price, weather conditions, and time of day, *inter alia*, as environmental data).

Miller discloses a computational device in at least two ways: (1) apparatus 101 and (2) “smart” appliances coupled to apparatus 101. Apparatus 101 is a *computing device* because it comprises a controller 104, which itself comprises a **“computer and memory programmed with computer software for controlling the operation of apparatus 101** in order to receive electrical power from power sources 109 through 115” and distributing such power. Ex. 1004, [0026]. Apparatus 101 also comprises a user interface for controlling the controller 104 and an internal storage 105, which is a set of batteries and/or capacitors that provides power to other devices or sells energy back to the grid. *Id.*, [0024]; *see also* Abstract, [0005].

In other embodiments, Miller’s *computational device* may take the form of a “smart” appliance coupled to apparatus 101, such as a dishwasher, laundry machine, or hot water heater:

One or more power-consuming devices 116 through 122 may also be controlled by and receive power from apparatus 101. These include one or more sensors 116 (e.g., thermostats, occupancy sensors, humidity gauges and the like); heating/ventilation/air-conditioning units 117; hot water heaters 118; window shades 119; windows 120 (e.g., open/close and/or tint controls); and one or more appliances 121 (e.g., washing machines; dryers; dishwashers; refrigerators; etc.).

Some appliances may be so-called “smart” appliances that can receive control signals directly from apparatus 101.

Id., [0033]; *see also* [0099]. A smart appliance is a kind of *computational device* because it includes a processor for executing programming functions. *See, e.g., id.*, [0098], [0099] (thermostat and smart HVAC systems include processors); *see also* Ex. 1003, ¶ 43 (citing Ex. 1011, explaining that smart appliances generally included at least a basic computer processor configured to carry out programming instructions).

Further, as will be shown in greater detail regarding the limitations that follow, Miller’s power adapting is *in response to environmental conditions*, such as conditions indicating the

demand on the electric power grid, such as “the dynamic price of electricity” and “weather forecasts.” *Id.*, [0006]. For example, in peak demand periods, indicated by “grid costs exceed[ing] certain thresholds,” an internal storage device 105 of apparatus 101 may reduce its and other devices’ power consumption on the grid by powering those appliances itself or even selling power back to the electrical utility from internal storage 105. *Id.*, [0024]. Alternatively, for some smart appliances, such as dishwashers and laundry machines, apparatus 101 causes the appliance to defer operation until after peak demand periods. *Id.*, Abstract (“Devices for which energy consumption can be scheduled or deferred are activated during periods of cheapest energy usage.”); *see also* [0101]–[0104] (providing examples of smart appliances that are considered “deferrable loads”); [0108], Fig. 10.

Thus, Miller teaches a method for adapting the power consumption of a computational device in response to environmental conditions.

1.1. acquiring operating environmental condition data relevant to the generation of electric power in a power grid system from an operating environment feed input;

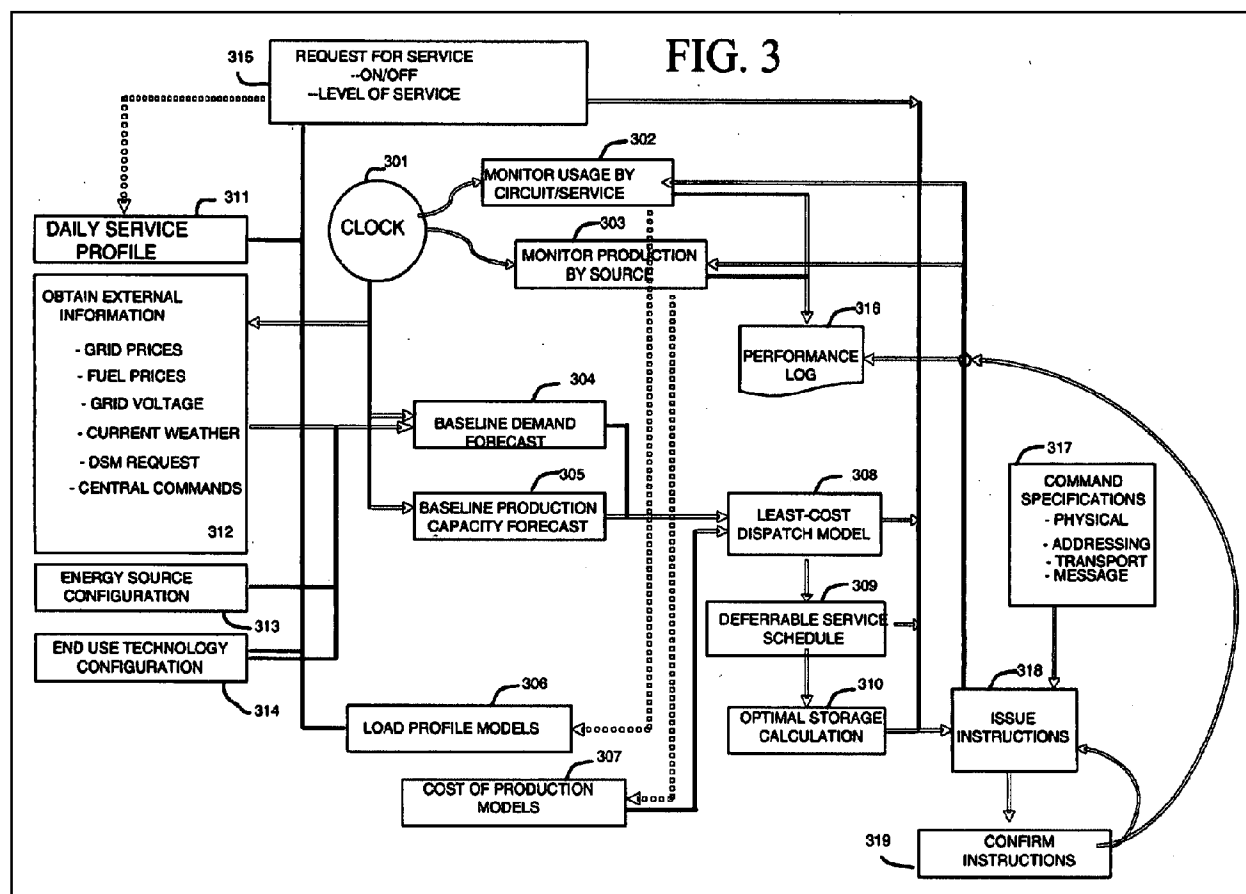
Miller discloses this limitation, or at least renders it obvious. Miller discloses that the controller 104 acquires external information such as current grid prices, fuel prices, and current/forecasted weather information (*acquire operating environmental condition data relevant to the generation of electric power in a power grid system*), and it receives such environmental data via communications from control center 108 (*from an operating environment feed input*).

For example, Miller discloses that “**control center 108 may transmit pricing information (e.g., current price of electricity) so that controller 104 may make decisions regarding the control and distribution of electricity according to various principles of the invention.**” Ex. 1004, [0029]. This information may be transmitted through a network, such as the Internet. *Id.* This information is provided as, for example, current grid prices, grid voltage, and current/forecasted weather:

FIG. 3 shows a process and data/control flow for controlling energy production and usage in accordance with certain aspects of the present invention. A clock 301 acts as a control loop for the process. In step 302, energy usage is monitored by circuit or services, and in step 303, energy production is monitored by source. **In step 312, external information regarding such variables as current grid prices; fuel prices; grid voltage; current/forecasted weather, demand-side management (DSM) requests (e.g., a request from a utility under an established demand**

response program for subscribing customers to reduce demand or supply power from a user controlled source at a specific hour), and commands received from central control center 108 are monitored.

Id., [0043]; *see also* Ex. 1001, 4:50-62 (“Examples of feeds, information and data appropriate to function as environmental data inputs . . . include a spot price of electricity, a rate of change of price of electricity, weather conditions . . . as well as other data relevant to energy costs.”).



Id., Fig. 3 (step 312: “OBTAIN EXTERNAL INFORMATION – GRID PRICES . . .”).

1.2. analyzing the operating environmental condition data to determine an indication of a high demand for electric power from the power grid system; and

Miller discloses this limitation, or at least renders it obvious. Miller discloses that the controller 104 analyzes the external information, such as electricity price (*analyzing the operating environmental condition data*), to determine if the price indicates when the grid is experiencing a “peak demand” period during a given day (*to determine an indication of a high demand for electric power from the power grid system*).

For example, regarding the Figure 3 discussion cited above for limitation 1.1, Miller continues that the controller solves an “optimization” problem to minimize the cost of meeting a user’s local demand:

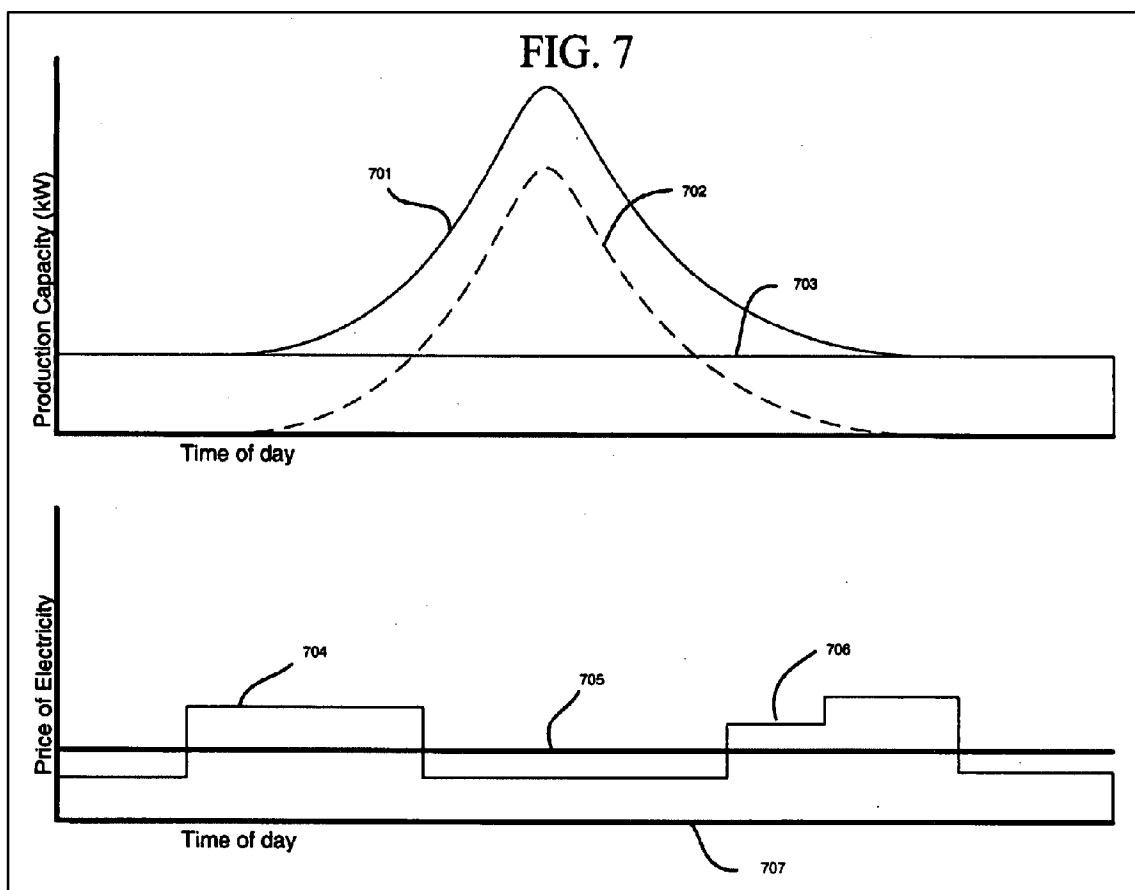
In step 312, external information regarding such variables as current grid prices; fuel prices; grid voltage; current/forecasted weather; demand-side management (DSM) requests (e.g., a request from a utility under an established demand response program for subscribing customers to reduce demand or supply power from a user controlled source at a specific hour), and commands received from central control center 108 are monitored. The current energy source configuration is determined (step 313), including such things as what power sources are available and how much energy is stored in storage devices.

...

The baseline demand forecast 304 and baseline production capacity forecast 305 provide a detailed picture of the potential supply of power by source and demand by use of energy. **Essentially these frame an optimization problem which can be solved. Embodiments of the invention can determine how to modify demand by turning off unneeded services and/or delaying others, how to deploy various sources to meet demand, and how to distribute power to the grid to achieve the lowest possible cost of service** (which may be negative if the home or business is able to produce more power than it consumes in a time period).

Id., [0043]–[0047]. The “controller performs an instantaneous calculation of comparative cost” and selects the “optimal order of dispatch” of energy from the various potential sources of energy. *Id.*, [0076].

Miller explains that time-of-day prices are a reliable indicator of a high demand on the power grid because they “reflect the marginally **higher cost of power production at the peak demand periods** of morning and early evening” because during such peak demand periods, “**utilities must dispatch power from their least efficient units, while, when cost is lower, they need power only from the most efficient units.**” *Id.*, [0057]. Figure 7 illustrates this effect:



Id., Fig. 7 (showing price of electricity of the grid relative to time of day—the price of electricity is lower when the available production capacity, based on lower demand, is higher). For this reason, Miller’s system assumes that high prices “are based on peak consumption” on the power grid and, therefore, interprets higher time-of-day grid prices as indicative of a high demand on the grid. *Id.*, [0120].

Thus, Miller teaches *analyzing the operating environmental condition data to determine an indication of a high demand for electric power from the power grid system*.

1.3. a computational device automatically reducing a current amount of consumption of electric power from the power grid system by the computational device if the analyzing determines the high electric power demand indication.

Miller discloses this limitation, or at least renders it obvious, in two ways.

First, of the many features of apparatus 101, one is to discharge and even sell energy back to the grid from its internal storage device 105 to help meet demand when the current grid prices are high based on supply and demand calculations. Thus, Miller discloses that controller 104 causes apparatus 101 to discharge energy from internal storage 105 back to the power grid rather than consume energy from the power grid, as it would during normal operation (*a computational*

device automatically reducing a current amount of consumption of electric power from the power grid system by the computational device), when supply-demand calculations indicate a high electric power demand exceeding some *threshold (if the analyzing determines the high electric power demand indication)*.

During normal operation, power from one or more of the power sources can be used to charge storage units 105 and 106 and/or to meet demand in addition to electric grid 115. During power outages or brownouts from grid 115, these additional power sources (as well as storage units 105 and 106) can be used to meet energy demand. **Additionally, surplus power can be sold back to the power grid based on optimization of supply and demand calculations** as explained in more detail herein.

Ex. 1004, [0031]; *see also* [0038] (“[B]atteries could alternatively be recharged later in the day from the power grid, when electrical costs are lower.”).

Miller provides examples of how the system allocates its energy resources based on the different demand periods, which it describes as “zones.” For example, in the earliest part of the day, Zone 1, where there is no solar production and the price of alternative sources of energy exceed the grid price, any demand “is met entirely with purchases from the grid.” *Id.*, [0061]–[0062]; *see also* Fig. 8. As discussed, during times of “normal operation,” internal storage 105 is charged by available power sources, including the electric grid. *Id.*, [0031]. Therefore, a POSA would have understood from Miller’s disclosure that a user’s demand from the grid includes the consumption required to charge internal storage device 105. Ex. 1003, ¶¶ 52–53. Further, a POSA would have understood that when the system uses non-grid sources to charge internal storage 105, such as by drawing power from solar panels or external storage 106, the user *reduce[s] a current amount of consumption of electric power from the power grid system*, as any energy the system consumes from local sources is energy the system is not consuming from the grid. *Id.*, ¶ 53.

However, when the morning peak period occurs, beginning at Zone 2, the price of electricity from the grid increases due to the increased demand, so the system will switch to powering appliances using the alternative energy source, such as internal storage device 105, to offset any demand from the grid. Ex. 1004, [0063]. At this time, the user would not power the internal storage device using the grid, as it would be more efficient to wait until the price of power decreases. *Id.*, [0120]–[0121]; Ex. 1003, ¶ 53.

In other zones with high grid prices, as much of the user's energy demand as possible is met using local sources, such as solar panels; indeed, where solar can meet all of a user's demand and the cost of electricity from the power grid is high, solar panels may be used to charge internal storage, and the internal storage may be used to sell energy back to the grid. Ex. 1004, [0064]–[0075]; *see also* [0031]. Thus, Miller discloses that apparatus 101 itself *automatically reduc[es] a current amount of consumption of electric power from the power grid system* through its own internal storage when there is an indication of high demand (e.g., high prices).

Second, smart appliances, such as dishwashers and laundry machines, constitute *computation devices*. In additional embodiments, Miller discloses that apparatus 101 causes one or more smart appliances to *automatically reduc[e] a current amount of consumption of electric power from the power grid system by the smart appliance* by deferring their operation until periods “of cheapest energy usage.” *Id.*, Abstract. For example, if a user originally scheduled to operate their dishwasher in the morning, which is often a peak demand period as indicated by grid price, the system will automatically defer operation until a cheaper “zone” of operation is available:

FIG. 10 shows the energy and load impact of deferring energy use from these controllable loads. FIG. 10 shows an energy process (e.g. dish washing) which is initiated in the morning. **In FIG. 10, element 1001 is the originally scheduled time for a service (e.g., washing the breakfast dishes). . . . This is a relatively expensive time, as utility rates are high and solar production is low. Element 1002 is a better time—solar production exceeds the ability to sell to the grid, so the marginal value of the power is zero. Performing the service in zone 7 gets it done at no cost, but still in time for the family's arrival home after work.**

Id., [0108]–[0109]. Accounting for a user's preferences (e.g., dishes must be clean in time for dinner; *see id.*, [0111]), the system performs a calculation to determine which zones are candidates for a deferrable service and chooses the zone “when the services can be performed at the lowest cost.” *Id.*, [0115]; *see also* [0112]–[0114]; Figs. 10, 12.

As mentioned above, the controller “performs an instantaneous calculation” based on the information received from the control center 108 at any point in time; therefore, the controller 104 causes the apparatus 101 or certain smart appliances (the *computational device*) to reduce its consumption *automatically* based on an indication of high demand on the power grid. *Id.*, [0076]; *see also* claims 14, 27, 38 (system reduces demand “automatically” by deferring consumption for

which consumption can be deferred and selling power to the grid when it is cost-effective to do so).

Thus, Miller discloses, or at least renders obvious, each limitation of claim 1.

2. Claim 3

3. The method of claim 1, further comprising the computational device automatically increasing the current amount of consumption of electric power from the power grid system by the computational device from a current reduced electric power consumption level in response to not determining the indication of the high demand for electric power from the power grid system by analyzing the operating environmental condition data.

As discussed, claim 1 is anticipated by, or at least obvious over, Miller. Miller also teaches, or at least renders obvious, the additional limitation of claim 3. For example, for the same reasons discussed regarding limitation 1.3, Miller discloses *automatically increasing the current amount consumption of electric power from the grid* by all devices, including the apparatus 101 (the *computational device*) when the controller recognizes that the price of electricity has dropped below some threshold, such as the cost of obtaining electricity by some other means. Miller discloses that when such prices are low, the batteries are charged “from the power grid,” that is, they consume power from the grid. Ex. 1004, [0038] (“**[B]atteries could alternatively be recharged later in the day from the power grid, when electrical costs are lower.**”). And, as discussed regarding limitation 1.2 above, just as a high price indicates a high demand on the grid, so does a low price indicate that there is not a high demand on the grid. Therefore, this increase in consumption from batteries, such as internal storage 105, is *in response to not determining the indication of the high demand for electric power from the power grid system by analyzing the operating environmental condition data*. Ex. 1003, ¶¶ 53–56.

For example, Miller discloses that during the final part of the day (Zone 13), when individuals are sleeping, the price of power from the grid eventually becomes “lower than the marginal cost of production from alternative source[s],” at which point, “[a]ll power is purchased from the grid.” *Id.*, [0068]–[0074] (describing the transition of power consumption between zone 7, when solar sources can meet any demand, zones 11 and 12, when peak evening demand occurs, and zone 13, the end of day when peak demand has ended); *see also* Figure 8. Such increases happen “automatically.” *Id.*, [0076]; *see also* claims 14, 27, 38.

3. Claim 4

4. The method of claim 1, wherein the operating environment feed is a really simple syndication feed from at least one of an electricity plant and a weather service.

As discussed, claim 1 is anticipated by, or at least obvious over, Miller. Miller also renders obvious the additional limitation of claim 4.

Miller discloses that apparatus 101 considers various data for the operating environment, including “**the dynamic price of electricity, weather forecasts**, and others.” Ex. 1004, [0006]; *see also* [0043] (“[E]xternal information regarding such variables as **current grid prices; fuel prices; . . . current/forecasted weather** . . . and commands received from central control center 108 are monitored.”). Controller 104 of apparatus 101 receives such information via a communication function 204 that “interfaces to a web server in order to provide external communication facilities” to, for example, the control center. *Id.*, [0035]; *see also* [0029] (control center 108 transmits commands and pricing information through a wide area network to the apparatus 101, such as the Internet). Miller discloses that the system updates its energy estimates as frequently as every 15 minutes. *Id.*, [0161]. The control center also transmits weather forecasts to the apparatus 101. *Id.*, [0163].

As a POSA would have recognized, real-time pricing information would have originated from the utility, or *electricity plant*, that set the prices, and current/forecasted weather information is typically provided by a *weather service*; indeed, because it provides forecast data, the control center is a weather service. Ex. 1003, ¶¶ 61–62. Thus, given the types of information (i.e., electricity pricing information and weather forecasts) that are compiled by the control center 108, Miller at least renders obvious that *the operating environment feed* is from *at least one of an electricity plant and a weather service*. *Id.*

Claim 4 adds that the operating environment feed is provided by a “really simple syndication feed.” As a POSA would have recognized, “really simple syndication,” typically abbreviated “RSS,” is simply the name of a well-known web data format that provides users the ability to monitor websites they do not have time to visit regularly. *Id.*, ¶ 48 (citing EX1014), 63–64. RSS feeds are provided in an extensible markup language (XML) format used for distributing or syndicating content. *Id.*, ¶ 48. They were a common format for list-oriented content and were useful for content that would be expected to change frequently. *Id.* While Miller does not expressly disclose using an RSS feed, it does disclose that the information received by the

controller 104 is received from a web server, such as over the Internet, and a POSA would have recognized that RSS feeds were a common method of sending updated information over the Internet. Ex. 1004, [0035], [0029]; *see also* Ex. 1003, ¶ 65; *see also* ¶ 61.

Notably, the '243 Patent itself indicates that this concept was already known in the art. For example, it describes data is received “in a **standard data format**, (e.g., Extensible Markup Language, or XML) **supplied via a Really Simple Syndication (RSS) feed** from electricity plants, weather services, and other information providers” and goes on to state that such providers may update such files using “**standard RSS notations**.” Ex. 1001, 4:32-41.

Thus, because (1) Miller discloses receiving information like prices and weather data, (2) this data is received from a web server over the internet, and (3) pricing and weather information was (and is) the kind of content that is expected to change frequently, such as daily or even hourly, a POSA would have found it obvious that Miller’s controller 104 receives the disclosed pricing and weather data (the *operating environment feed*) as an RSS feed (*a really simple syndication feed*). Ex. 1003, ¶ 66. In other words, because RSS feeds were a standard data format for providing changing information over the web, and because Miller discloses that its apparatus 101 receives such changing information (e.g., weather updates and updated pricing updates) over the web, a POSA would have been motivated to, and would have had a reasonable expectation of success in, employing RSS feeds as Miller’s operating environment feeds. *Id.* Such formatting would have been a matter of simple design choice. *Id.* Additionally, a POSA would appreciate that this information is at least indirectly received via the control center from *at least one of an electricity plant and a weather service*, as these would have been the services from which pricing and weather data would originate. *Id.*, ¶ 62.

4. Claim 5

5. The method of claim 1, wherein the analyzing the operating environmental condition data determines indication of the high demand for electric power if the operating environmental condition data indicates an unusual⁷ weather condition that may result in heavy demand for power from the power grid system.

As discussed, claim 1 is anticipated by, or at least obvious over, Miller. Miller also renders

⁷ The term “unusual” is vague, and the specification of the '243 Patent provides no examples of what constitutes an “unusual” weather condition. Ex. 1001, 6:1-11. Based on the context provided

obvious the additional limitation of claim 5.

Miller discloses that in addition to price data, the system may analyze weather forecasts as *operating environmental condition data* and determine and *indication of the high demand for electric power if the operating environmental data indicates an unusual weather condition*, such as a sunny day in June, which *may result in heavy demand for power from the power grid system* in general. Ex. 1004, [0038]. For example, when the forecast calls for sunny weather, Miller's system recognizes that prices will be high and that it will be able to offset demand on the grid using solar panels, allowing the user to sell energy back to the grid during those times:

In one variation, the system can determine based on the date (e.g., June 21) and the weather forecast (e.g., sunny) that likely production from solar panels will be high, and decide to sell power from the batteries to the grid (when the rate is high) with the expectation that the batteries can be recharged later in the day when the family is not home and energy usage is minimal. The batteries could alternatively be recharged later in the day from the power grid, when electrical costs are lower.

Certain variations of the invention consider weather when forecasting demand for electrical power and the supply from energy sources whose production capacity is weather dependent, such as PV panels.

Id., [0038]-[0039].

Miller also discloses that the system's demand profile will develop a demand estimate based on these different forecast patterns:

The daily service profile is an estimate of load over the course of the forecasting period.

...

In preparing the daily service profile, demand (measured in kW) can be estimated at 15 minute intervals for the forecast period. There are two preferred methods for doing this. The first method is based on past usage patterns. This is shown in FIG.

by the '243 Patent, this appears to refer to a weather condition that is notable or generally affects demand for power. *Id.* Therefore, although this claim may be indefinite, it is still possible to find it obvious.

13. . . . In addition, **patterns will be defined for sunny days, cloudy days, partly cloudy days, and rainy days**. Using engineering principles, (e.g. a building energy model like DOE-2) an estimate can be made of the load for 15 minute intervals for the next 24 hours (step **1302**). . . .

The next step is to select a pattern for use for the next 24 hours (step **1303**). **If the day is a weekday and sunny, for example, a sunny weekday pattern should be elected.**

Id., [0160]-[0162]; *see also* Fig. 13. As a POSA would have recognized, particularly sunny summer days were known to result in higher demands on a power grid because more homes in the affected area will run HVAC systems; therefore, a forecast for a sunny day in June *may result in heavy demand for power from the power grid system*. Ex. 1003, ¶ 55. Thus, by shifting the user's consumption to sell energy back to the grid on sunny days, Miller renders claim 5 obvious.

5. Claim 9

9. The method of claim 1, further comprising determining the indication of the high demand for electric power from the power grid system in response to data in the operating environmental condition data that comprises at least one of: [a] a spot price value of electricity; and [2] a rate of change of a price of electricity.

As discussed, claim 1 is anticipated by, or at least obvious over, Miller. Miller also teaches the additional limitation of claim 9. Therefore, claim 9 is anticipated by Miller; alternatively, claim 9 is at least obvious over Miller.

As discussed regarding claim 1, Miller discloses that the determination step may take into account, for example, “current grid prices,” that is, *a spot price value of electricity*. Ex. 1004, [0043]; *see also*, [0006] (“the algorithm takes into account such factors as . . . the dynamic price of electricity . . .”); [0057] (plotting the price of electricity from the grid over the course of a day); *see also* Ex. 1001, 6:14 (a “spot price” of electricity refers to a price of electricity for a given time period, such as the following day).

Claim 9 only requires disclosure of *at least one of* the two types of data; therefore, Miller need not also disclose accounting for a *rate of change of a price of electricity*. However, Miller also discloses that the number of load zones in a given period reflects “**changes in the grid rate schedule** or the relative rank of costs of the grid and alternative sources” and, therefore, at least in part takes into account the rate of change of prices when determining which zones constitute peak

demand period. *Id.*, [0159]; *see also* [0085]–[0092] (describing a “least cost dispatch calculation,” where the cost of electricity is calculated over a given time interval, and stating that “where cost is increasing, the least cost dispatch solution can be obtained using precisely the same algorithm as for the constant price case . . .”); [0061]. Therefore, Miller also discloses that the environmental condition data also comprises *a rate of change of a price of electricity*.

6. Claim 10

10. The method of claim 9 wherein the step of the computational device automatically reducing the current amount of consumption of electric power from the power grid system by the computational device comprises running nonessential services only when the spot price value of electricity is low.

As discussed, claim 9 is anticipated by, or at least obvious over, Miller. Miller also teaches the additional limitation of claim 10. Therefore, claim 10 is anticipated by Miller; alternatively, claim 10 is at least obvious over Miller.

As discussed in claim 1, Miller discloses that the step of *the computational device automatically reducing the current amount of consumption of electric power from the power grid system by the computational device* (e.g., by the apparatus 101 and/or certain smart appliances) includes, for example (1) postponing charging of internal storage 105 (i.e., *running nonessential services*) to a non-peak demand period (i.e., (i.e., *only when the spot price value of electricity is low*; *see e.g.*, Ex. 1004, [0038]), and (2) running deferrable smart appliances (i.e., *running nonessential services*) only “**when the services can be performed at the lowest cost**” (i.e., *only when the spot price value of electricity is low*). *Id.*, [0115]; *see also* Abstract, [0108]–[0114], [0048].

Regarding the smart appliances, these devices are considered “deferrable loads” because their immediate operation at any given time is *non-essential*. *Compare id.*, [0101]–[0105] (describing dishwashers, clothes washers and dryers, and hot water heaters as “deferrable” loads because these services can be rescheduled to reduce energy costs) *with* [0106] (refrigerators are not “typically” useful from an energy management perspective as a deferrable load because maintaining a “more or less constant low temperature is essential for preserving food safety and maintaining its quality.”).

Therefore, Miller discloses that the *reducing* step comprises *running nonessential services*, such as charging a battery of apparatus 101 or running a dishwasher or washing machine, *only*

when the spot price value of electricity is low.

7. Claim 11

11P.⁸ A service for adapting the power consumption of a computational device in response to environmental conditions, comprising:

To the extent it is limiting, Miller discloses, or at least renders obvious, the preamble. For example, Miller discloses “various systems and methods for optimizing the control of energy supply and demand in residences and businesses.” Ex. 1004, [0001]; see also [0005]. Claim 11 is similar to claim 1, but claims a “service” as opposed to a “method.” However, as Miller explains, its teachings are provided in the context of an energy management system that allows “energy usage [to] be optimized to deliver power in the most efficient way.” *Id.*, [0036]. For the reasons discussed regarding claim 1, Miller discloses that this power management *service adapt[s] the power consumption of a computational device* (e.g., apparatus 101 and/or various smart appliances) *in response to environmental conditions* (e.g., in response to conditions such as energy price and weather forecasts). See Sec. II.B.1, *supra* (1P).

11.1. providing a computer infrastructure configured to:

Miller discloses *providing a computer infrastructure* in its disclosure of apparatus 101, which is in communication with a control center 108. *Id.*, [0024]; see also [0029]. As discussed regarding claim 1, the apparatus 101 includes a controller 104, which “may comprise **a computer and memory programmed with computer software** for controlling the operation of apparatus 101 in order to receive electrical power from power sources 110 through 115 and to distribute electrical power to devices 116 through 122.” *Id.*, [0026].

11.1.1. acquire operating environmental condition data relevant to the generation of electric power in a power grid system from an operating environment feed input;

Limitation 11.1.1 is substantively identical to limitation 1.1. As discussed regarding limitation 1.1, Miller’s controller 104 *acquires operating environmental condition data relevant to the generation of electric power in a power grid system*, such as the price of electricity, *from an*

⁸ As with claim 1, the preamble should not be considered limiting for claim 11, as the body of the claim provides a structurally complete invention, while the preamble simply provides the background context for the claimed method.

operating environment feed input, such as a web feed received from control center 108. *See* Sec. II.B.1, *supra* (1.1).

11.1.2. analyze the operating environmental condition data to determine an indication of a high demand for electric power from the power grid system; and

Limitation 11.1.2 is substantively identical to limitation 1.2. As discussed regarding limitation 1.2, Miller's controller 104 analyzes the external information, such as electricity price (*analyze[s] the operating environmental condition data*), to determine if the price indicates when the grid is experiencing a "peak demand" period (*to determine an indication of a high demand for electric power from the power grid system*). *See* Sec. II.B.1, *supra* (1.2).

11.1.3. cause a computational device to automatically reduce a current amount of consumption of electric power from the power grid system by the computational device if the analyzing determines the high electric power demand indication.

Limitation 11.1.3 is substantively identical to limitation 1.3. As discussed regarding limitation 1.3, Miller discloses that controller 104 causes apparatus 101 to discharge energy back to the power grid rather than consume energy from the power grid, as it would during normal operation (*a computational device automatically reducing a current amount of consumption of electric power from the power grid system by the computational device*), when supply-demand calculations indicate a high electric power demand exceeding some *threshold* (*if the analyzing determines the high electric power demand indication*). *See* Sec. II.B.1, *supra* (1.3).

In additional embodiments, Miller also discloses that controller 104 causes other computational devices, such as smart appliances, to defer operation (*to automatically reduce a current amount of consumption of electric power from the power grid system by the computational device*) if the analyzing determines a peak demand from the grid, based on the cost of electricity (*if the analyzing determines the high electric power demand indication*). *See id.*

Thus, Miller discloses, or at least renders obvious, each limitation of claim 11.

8. Claim 15

15.pre.⁹ An article of manufacture, comprising:

To the extent it is limiting, Miller discloses, or at least renders obvious, the preamble. For example, as discussed regarding claim 1, Miller discloses an article of manufacture, such as apparatus 101. *See* Sec. II.B.1, *supra* (1P).

15.1. a computer readable tangible storage medium having computer readable program code embodied therewith, the computer readable program code comprising instructions which, when executed on a computer system, cause the computer system to:

Miller discloses this limitation, or at least renders it obvious. Miller discloses that apparatus 101 is a computer system that includes *a computer readable tangible storage medium having computer readable program code embodied therewith, the computer readable program code comprising instructions*, such as code that *when executed on a computer system* (i.e., on apparatus 101) *cause[s] the computer system* to perform functions such as carrying out the local energy management and optimization services described throughout Miller's specification. *Id.*, [0024]; *see also* [0029]. For example, as discussed regarding claim 1, the apparatus 101 includes a controller 104, which "may comprise a computer and memory programmed with computer software for controlling the operation of apparatus 101 in order to receive electrical power from power sources 110 through 115 and to distribute electrical power to devices 116 through 122." *Id.*, [0026].

15.1.1. acquire operating environmental condition data relevant to the generation of electric power in a power grid system from an operating environment feed input;

Limitation 15.1.1 is substantively identical to limitations 1.1 and 11.1. As discussed regarding limitation 1.1, Miller's controller 104 *acquires operating environmental condition data relevant to the generation of electric power in a power grid system*, such as the price of electricity, *from an operating environment feed input*, such as a web feed received from control center 108. *See* Sec. II.B.1, *supra* (1.1).

15.1.2. analyze the operating environmental condition data to determine an indication of a high demand for electric power from the power grid system; and

⁹ As with claim 1, the preamble should not be considered limiting for claim 15, as the body of the claim provides a structurally complete invention, while the preamble simply provides the background context for the claimed method.

Limitation 15.1.2 is substantively identical to limitation 1.2. As discussed regarding limitation 1.2, Miller's controller 104 analyzes the external information, such as electricity price (*analyze[s] the operating environmental condition data*), to determine if the price indicates when the grid is experiencing a "peak demand" period (*to determine an indication of a high demand for electric power from the power grid system*). See Sec. II.B.1, *supra* (1.2).

15.1.3.¹⁰ cause a computational device to automatically reduce a current amount of consumption of electric power from the power grid system by the computational device if the analyzing determines the high electric power demand indication.

Limitation 15.1.3 is substantively identical to limitation 1.3. As discussed regarding limitation 1.3, Miller discloses that controller 104 causes apparatus 101 to cause internal storage 105 to discharge energy from internal storage 105 back to the power grid rather than consume energy from the power grid, as it would during normal operation (*a computational device automatically reducing a current amount of consumption of electric power from the power grid system by the computational device*), when supply-demand calculations indicate a high electric power demand exceeding some *threshold* (*if the analyzing determines the high electric power demand indication*). See Sec. II.B.1, *supra* (1.3).

In additional embodiments, Miller also discloses that that controller 104 of apparatus 101 causes other computational devices, such as smart appliance, to defer operation (*to automatically reduce a current amount of consumption of electric power from the power grid system by the computational device*) if the analyzing determines a peak demand from the grid, based on the cost of electricity (*if the analyzing determines the high electric power demand indication*). See *id.*

Thus, Miller discloses, or at least renders obvious, each limitation of claim 15.

¹⁰ The lack of indentation for limitation 15.3.1 appears to be a grammatical typo. Although a first level limitation, it does not make sense for "an article of manufacture comprising . . . cause a computational device to . . ." Requester has therefore interpreted this element as a sub-limitation of limitation 15.1, in which case, the element would read, "instructions which, when executed on a computer system, cause the computer system to . . . cause a computational device to . . ."

9. Claim 18

18.pre.¹¹ A programmable device comprising:

To the extent it is limiting, Miller discloses, or at least renders obvious, the preamble. For example, as discussed regarding claim 1, Miller discloses a *programmable device*, such as apparatus 101. *See* Sec. II.B.1, *supra* (1P).

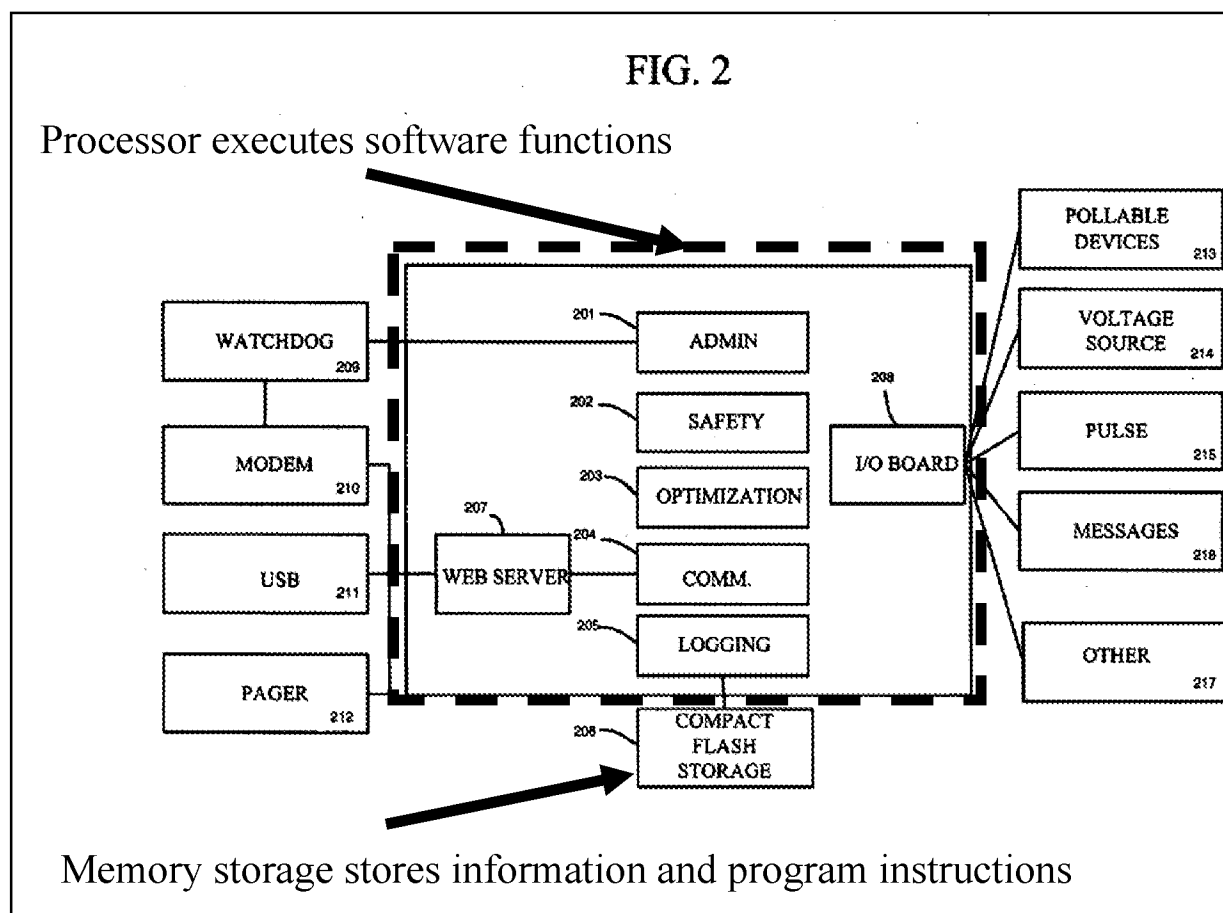
18.1. a processing means:

Miller discloses this limitation, or at least renders it obvious. Miller discloses that apparatus 101 includes a controller 104 (i.e., a *processing means*), which “may comprise a computer and memory programmed with computer software for controlling the operation of apparatus 101 in order to receive electrical power from power sources 110 through 115 and to distribute electrical power to devices 116 through 122.” *Id.*, [0026]; *see also* [0024], [0034]-[0035]. Thus, apparatus 101 with its controller 104 provides the means for processing the computer software. Indeed, Miller explains that “[t]he concept of using computers or microprocessors to manage electrical loads is not new.” *Id.*, [0095]; *see also* [0159] (the controller includes “a processor” that performs processing functions such as basic safety monitoring.).

18.2. a memory in communication with the processing means comprising a logic component; and

Miller discloses this limitation, or at least renders it obvious. Miller discloses that apparatus 101 includes a controller 104 that comprises “a computer and memory programmed with computer software for controlling the operation of apparatus 101 in order to receive electrical power from power sources 110 through 115 and to distribute electrical power to devices 116 through 122.” *Id.*, [0026]; *see also* [0024]. Figure 2 illustrates controller 104. The memory is coupled to a processing means that acts to carry out various software functions:

¹¹ As with claim 1, the preamble should not be considered limiting for claim 18, as the body of the claim provides a structurally complete invention, while the preamble simply provides the background context for the claimed method.



Id., Fig. 2 (annotated); *see also* [0024], [0035].

18.3. a network interface in communication with the processing means and the memory;

Miller discloses this limitation, or at least renders it obvious. Specifically, Miller discloses that the controller 104 (*the processing means and the memory*) includes a communication function 204, which “interfaces to a web server 207 in order to provide external communications facility” as well as a modem 210 (*a network interface in communication with the processing means and the memory*). *Id.*, [0034]–[0035].

18.4. wherein the processing means is configured to:

As discussed regarding limitation 18.1, Miller discloses a *processing means*.

18.4.1. acquire operating environmental condition data relevant to the generation of electric power in a power grid system from an operating environment feed input;

As discussed in Section I.B.2, limitation 18.4.1 is not a means-plus-function limitation. This limitation is substantively identical to limitations 1.1, 11.1.1, and 15.1.1. For the same reasons discussed with respect to those claims, Miller teaches this limitation, or at least renders it obvious. *See* Sec. II.B.1, II.B.7, and II.B.8.

However, if this language is governed by § 112, ¶ 6, Miller at least renders this limitation obvious because a POSA would have understood, both based on Miller's disclosure and their general knowledge and skill, that generic computer components were capable of acquiring data from a source via standard data feeds, such as RSS feeds. Ex. 1003, ¶¶ 61, 63–66.

For example, as discussed regarding limitation 1.1, Miller's controller 104 (*processing means*) *acquire[s] operating environmental condition data relevant to the generation of electric power in a power grid system*, such as the price of electricity, *from an operating environment feed input*, such as a web feed received from control center 108. See Sec. II.B.1, *supra* (1.1). Further, as discussed regarding claim 4, it would have been obvious to a POSA to use RSS feeds for the acquisition of such data, as it was well known that such a technique was appropriate for circulating information subject to frequent change over the web, including the kind of data disclosed in Miller. See Sec. II.B.3, *supra* (4). Thus, Miller at least renders this limitation obvious.

18.4.2. analyze the operating environmental condition data to determine an indication of a high demand for electric power from the power grid system; and

As discussed in Section I.B.2, limitation 18.4.2 is not a means-plus-function limitation. This limitation is substantively identical to limitations 1.2, 11.1.2, and 15.1.2. For the same reasons discussed with respect to those claims, Miller teaches this limitation, or at least renders it obvious. See Sec. II.B.1, II.B.7, and II.B.8.

However, if this language is governed by § 112, ¶ 6, Miller discloses this limitation, or at least renders this limitation obvious. As mentioned in Section I.B.3, one means of analyzing described by the specification of the '243 Patent is determining whether a spot price of electricity is high or low. Specifically, the system triggers power savings operations as well as postpones or otherwise schedules power-consuming activities “as a function of preferential spot prices,” such as “running nonessential services only when a spot price is low.” *Id.*, 6:11-20. Thus, in one embodiment, the *analyzing* step is satisfied by a processor “determining if a spot price is high or low.”

As discussed regarding limitation 1.3 and claims 9 and 10, Miller discloses that controller 104 causes apparatus 101 to cause internal storage 105 to discharge energy from internal storage 105 back to the power grid rather than consume energy from the power grid, as it would during normal operation (*a computational device automatically reducing a current amount of consumption of electric power from the power grid system by the computational device*), when supply-demand calculations indicate a high electric power demand exceeding some *threshold* (*if*

the analyzing determines the high electric power demand indication) based on the price of electricity. See Sec. II.B.1, *supra* (1.2); II.B.5 (9), II.B.6 (10). And in additional embodiments, Miller also discloses that that controller 104 of apparatus 101 causes other computational devices, such as smart appliance, to defer operation (*to automatically reduce a current amount of consumption of electric power from the power grid system by the computational device*) if the analyzing determines a peak demand from the grid, based on the cost of electricity (*if the analyzing determines the high electric power demand indication*). See *id.*

Thus, Miller at least renders this limitation obvious.

18.4.3.¹² *cause a computational device to automatically reduce a current amount of consumption of electric power from the power grid system by the computational device if the analyzing determines the high electric power demand indication.*

As discussed in Section I.B.2, limitation 18.4.3 is not a means-plus-function limitation. This limitation is substantively identical to limitations 1.3, 11.1.3, and 15.1.3. For the same reasons discussed with respect to those claims, Miller teaches this limitation, or at least renders it obvious. See Sec. II.B.1, II.B.7, and II.B.8.

However, if this language is governed by § 112, ¶ 6, Miller discloses this limitation or at least renders this limitation obvious. One means that the specification of the '243 Patent describes performing this function is by “postpon[ing] or otherwise schedul[ing] power-consuming activities” by a computational device. *Id.*, 6:16-20; see also Sec. I.B.3. And as discussed regarding limitation 1.3 and claim 10, Miller’s controller 104 does the same thing with the internal storage 105 and smart appliances, which Miller refers to as “deferrable loads,” such as in postponing operation until later in the day or running a dishwasher during a non-peak demand period. See Sec. II.B.1, *supra* (1.3); Sec. II.B.6 (10).

¹² The lack of indentation for limitation 18.4.3 appears to be a grammatical typo. Although a first level limitation, it does not make sense for “programmable device comprising . . . cause a computational device to . . .” Requester has therefore interpreted this element as a sub-limitation of limitation 18.4.

C. Ground 3: Miller in view of Forth (§ 103)

1. Claim 4

4. The method of claim 1, wherein the operating environment feed is a really simple syndication feed from at least one of an electricity plant and a weather service.

As discussed, claim 1 is anticipated by, or at least obvious over, Miller. Sec. II.B.1, *supra*. Claim 4 is obvious over Miller in view of Forth.

“Really simple syndication,” is the expanded form of “RSS,” which, as the ’243 Patent acknowledges, was a standard web feed. Ex. 1001, 4:32-41; *see also* Ex. 1003, ¶ 48 (citing Ex. 1014). Above, Requester explained that claim 4 was obvious over Miller in view of the knowledge of a POSA. Sec. II.B.3, *supra*. Forth confirms that a POSA would have found it obvious for Miller’s control center 108 to aggregate and deliver an operating environment feed, such as pricing and weather data, to controller 104 of apparatus 101 over the web via a *really simple syndication feed from at least one of an electricity plant and a weather service*, as claimed. Forth discloses a “Enterprise Energy Management (‘EEM’) software system” that “collects real-time, near real-time and historical input data from various data sources.” *Id.*, Abstract. Regarding the use of RSS feeds to aggregate data, Forth explains:

An Aggregation GUI 960, which may be web based, Is also capable of being generated by the EES software application. The Aggregation GUI 960 may be a RSS aggregation view. RSS can stand for RDF Site Summary, Rich Site Summary, or Really Simple Syndication. All are similar file formats for the same basic purpose and RSS processors generally support all flavors of RSS. Most RSS software supports all of these. RDF Site Summary is the best version because RDF provides richer and more interoperable metadata. All RSS formats are currently serialized as XML 1.0. It will be appreciated that an equivalent system to RSS based aggregation can be built with Channel Definition Format, Microsoft Web Parts, Atom, and so forth. Sample PC based RSS aggregators include AGGIE and Amphetadesk. Newsisfree.com provides a web based RSS aggregation service. **An RSS is a method of describing news, events or other web content that is available to web users.**

Ex. 1005, 18:26-42.

Forth also confirms that it would have been appropriate for a service provider to compile

an RSS aggregation feed:

[A] service provider can provide channels tuned to specific customers, which include energy management system events, consultants interpretation or comments on energy management events, bills, shadow bills, and relevant energy management news headlines or interesting items the service provider has deemed interesting to their subscriber. **Providing these RSS feeds can be part of their financially compensated service.**

Id., 20:4-11.

Combined with Forth, Miller's controller 104 would acquire data from control center 108 over the web using RSS feeds. A POSA would have been motivated to incorporate Forth's teachings of using an RSS feed to provide data to Miller's apparatus 101 for two reasons. First, the proposed combination merely amounts to combining prior art elements (Miller's energy optimization system with Forth's software techniques for acquiring such data) according to known methods (the use of RSS syndication feeds to acquire web data) to yield predictable results. Ex. 1003, ¶ 72. Miller merely states that information is acquired over the web, and as Froth indicates (and as a POSA would have recognized), RSS feeds were already a well-known technique for compiling data from sources that update the data frequently. *Id.*, ¶ 73.

Second, the proposed combination would involve the simple application of a known technique (Forth's use of RSS feeds to acquire web data from various information sources) to a known system (Miller's energy optimization system) ready for improvement to yield predictable results, namely, the efficient compilation of data from various sources, such as energy plants and weather services. *Id.*, ¶ 74. Indeed, Forth envisions that the kind of data provided in the EEM software system includes the same kind of data collected and analyzed by Miller's apparatus 101, such as weather and plant pricing data. Ex. 1005, 14:14-23 (noting that "[a]ny measure can be graphed, such as occupancy, **weather**, related data and so forth," and that charts can "display any measure such as consumption, **cost**, **weather** and so forth over a common dimension such as date-time"); 15:9-11 ("**real time pricing**" may be included in plot for energy usage); *see also* Ex. 1004, [0043] (external information such as "current grid prices; . . . weather" are received from control center 108).

Finally, a POSA would have had a reasonable expectation of success in making the combination. Ex. 1003, ¶ 75. Miller discloses that any of its methods may be provided in software

and stored as computer-executable instructions on one or more computer-readable media; Forth merely provides details on how such a software system may operate. *Id.* ¶ 75; *see also* 72 n.4. Further, because Miller and Forth describe similar systems with similar goals, and the proposed changes would, at most, require minor modifications in software that would have yielded predictable results regarding Forth’s use of common methods of acquiring data over the web for analysis by a client software program. *Id.*, ¶ 75.

Thus, claim 4 is obvious over the combination of Miller and Forth.

2. Claim 6

6.pre. The method of claim 3, further comprising:

As discussed, Miller anticipates, or at least renders obvious, claim 3. Sec. II.B.2. Claim 6 is obvious over the combination of Miller and Forth.

6.1. regularly updating the acquired the [sic] operating environmental condition data;

Miller at least renders this limitation obvious. Miller discloses that the information from the control center 108 is “monitored” and that a clock 301 acts as a “control loop” for the process of collecting data. Ex. 1004, [0043]; *see also* claim 31 (the step of determining a cost for each of a plurality of energy sources is repeated “continuously in a computer controlled loop.”). Miller also discloses that the system’s home’s service profile is created on a daily basis, where energy usage and patterns are selected on a 24-hour basis. *Id.*, [0159]; *see also* [0161] (routine for selecting a service pattern is executed “every 15 minutes”).

Because Miller discloses that information such as energy price is monitored on a continuous basis using a clock loop and at least at regular time intervals, it is *regularly updating* such *acquired operating environmental condition data*.

6.2. if changes are found in the updated environmental condition data, updating an internal state table with new downloaded data from the operating environment feed input; and

The combination of Miller and Forth discloses this limitation. Miller discloses that the system acquires *new downloaded data from the operating environmental feed input* with *updated environmental condition data* given its disclosure regularly monitoring operating environment feed inputs from the control center and continuously repeating steps related to determining, for example, the cost of electricity. Ex. 1004, [0043]; *see also* claim 31.

Miller also discloses that such updates are *if changes are found in the updated environmental condition data*, as it discloses estimating a routine based on information received

“every 15 minutes or more frequently **if new data are received from the network indicating a change in ambient conditions, utility rates, or other factors.**” *Id.*, [0161].

Additionally, Miller discloses arranging a given 24-hour period into different “zones,” where zones “delineate different modes of operation, stemming either from a change in the relative prices of the different sources of energy or changes in demand relative to the capacity of the different sources.” *Id.*, [0061]; *see also* Fig. 8. Given these disclosures related to regularly monitoring and updating changes to environmental condition data from the control center 108 to establish its power management zones, and given that these zones establish how controller 104 affects the modes of operation for various devices, such as apparatus 101 and certain deferrable smart appliances, Miller’s system necessarily tracks system state information, such as whether a device is running and when it will be running, or whether internal storage is buying or selling energy. Ex. 1003, ¶ 77. Therefore, consistent with the ’243 Patent’s use of this term, a POSA would have recognized that such “modes of operation” based on the information acquired from external sources constitute a system *state*. Ex. 1001, 1:41-49, 4:11-19 (describing standby as one form of “state”); Ex. 1003, ¶ 77.

However, Miller does not expressly state that data is stored in an *internal state table*. Such would have been obvious over Forth’s disclosure, which does disclose the use of tables to maintain information, including operational (*state*) data:

The **EEM Analysis GUI 115 may include a table 119 that sets forth various types of EEM data. The first column of the table 119 may set forth a plurality of operational units of interest 150**, which could be departments, branches, physical locations, and so forth. Each row of the table 119 relates to a respective one of these operational units of interest 150, **indicating the status of several categories or key performance indicators 120–125**. The key performance indicators 120–125 can be energy cost/unit 120, cost projection 121, self generation 122, power availability 125, power quality 124, emissions 123, or other values based on the user needs and the set-up of the EEM software system 100.

Ex. 1005, 7:1-12. The tables may also reflect other related data, such as weather. *Id.*, 7:34-38.

A POSA would have been motivated to update and store the relevant operating environment data disclosed by Miller, including the costs, demand, and operation zone information, in the form of an *internal state table*, as taught by Forth, for two reasons. Ex. 1003,

¶ 78. First, the proposed combination merely amounts to combining prior art elements (Miller's method of tracking information to analyze it and generate zones of operation with Forth's software techniques for storing such data for analysis) according to known methods (compiling operating data in a table format) to yield predictable results. *Id.*, ¶ 79. The organization of state data into a table format was a basic and well-known software concept because it provides an intuitive means of processing data, both by a processor and by individuals wishing to view the data. *Id.*

Second, the proposed combination would involve the simple application of a known technique (Forth's use of tables to store and display data) to a known system (Miller's energy optimization system) ready for improvement to yield predictable results, namely, the storage of operating information in a state table. *Id.*, ¶ 80.

Finally, a POSA would have had a reasonable expectation of success in making the combination. Miller discloses that any of its methods may be provided in software and stored as computer-executable instructions on one or more computer-readable media (Ex. 1004, [0170]); Forth merely provides details on how such a software system may operate. And as Miller and Forth describe similar systems with similar goals, and the proposed changes would at most require minor modifications in software that would have yielded predictable results regarding Forth's use of common methods of storing and analyzing data by a client software program. Ex. 1003, ¶ 81.

6.3. automatically reducing a present amount of consumption of electric power from the power grid system by the computational device if analyzing the updated state table data determines a high electric power demand indication, or increasing the present amount of consumption of electric power from the power grid system by the computational device if analyzing the updated state table data does not determine a high electric power demand indication.

As discussed regarding claims 1 and 3, Miller discloses *automatically reducing a present amount of consumption of electric power from the power grid system by the computational device* if the controller 104's analysis *determines a high electric power demand indication, or increasing the present amount of consumption of electric power from the power grid system by the computational device* if the analysis *does not determine a high electric power demand indication*. See Sec. II.B.1 (1.3); Sec. II.B.2 (3). For the same reasons discussed regarding limitation 6.2, a POSA would have found it obvious for Miller's controller 104 to store data to and analyze it from an *internal state table* to make its determinations in light of Forth's teachings. Ex. 1003, ¶¶ 78–81.

3. Claim 16

16. The article of manufacture of claim 15, the program code comprising instructions which, when executed on the computer system, causes the computer system to:

16.1. regularly update the acquired the operating environmental condition data;

16.2. if changes are found in the updated environmental condition data, update an internal state table with new downloaded data from the operating environment feed input; and

16.3. automatically reduce a present amount of consumption of electric power from the power grid system by the computational device if analyzing the updated state table data determines a high electric power demand indication.

As discussed, claim 15 is anticipated by, or at least obvious over, Miller. Sec. II.B.8, *supra*. Claim 16 is nearly identical to claim 6, with the exception of the final limitation, which is broader due to the exclusion of *increasing the present amount of consumption of electric power from the power grid system by the computational device if analyzing the updated state table data does not determine a high electric power demand indication*. See Sec. II.C.2. For the same reasons discussed regarding claim 6, the broader claim 16 is obvious over the combination of Miller and Forth.

4. Claim 18

18. A programmable device comprising:

18.1. a processing means:

18.2. a memory in communication with the processing means comprising a logic component; and

18.3. a network interface in communication with the processing means and the memory;

18.4. wherein the processing means is configured to:

18.4.1. acquire operating environmental condition data relevant to the generation of electric power in a power grid system from an operating environment feed input;

18.4.2. analyze the operating environmental condition data to determine an indication of a high demand for electric power from the power grid system; and

18.4.3. cause a computational device to automatically reduce a current amount of consumption of electric power from the power grid system by the computational device if the analyzing determines the high electric power demand indication.

As discussed, claim 18 is at least obvious over Miller. Sec. II.B.9, *supra*. However, to the extent limitation 18.4.1 is construed to require the use of RSS feeds to acquire data, such as in an XML format, claim 18 is also obvious over the combination of Miller and Forth, which discloses RSS as one way data is made available over the Internet. Ex. 1004, 18:26-36 (“[A]n Aggregation

GUI 960, which may be web based, is also capable of being generated by the EES software application. The Aggregation GUI 960 may be a RSS aggregation view. . . . All RSS formats are currently serialized as XML 1.0.”); *see also* 20:1-11 (a service provider may provide the RSS-acquired data to the client software system). For the same reasons discussed regarding claim 4, a POSA would have been motivated to combine, and would have had a reasonable expectation of success in making the combination. Sec. II.C.1, *supra* (4).

5. Claim 19

19. The programmable device of claim 18, wherein processing means is configured to:

Claim 19 is at least obvious over Miller in view of Forth. As discussed in Section I.B.2, claim 19 does not recite means-plus-function limitations. Further, claim 19 is substantively identical to claim 16 and nearly identical to claim 6, but slightly broader. *See* Sec. II.C.2 (6); Sec. II.C.3 (16). For the same reasons discussed regarding claims 6 and 16, claim 19 is obvious over Miller in view of Forth.

However, to the extent the limitations of claim 19 are governed by § 112, ¶ 6, claim 19 is still obvious over the combination of Miller and Forth. In addressing the following limitations, Requester shows that the limitations of claim 19 are taught by the prior art even if read as means-plus-function limitations.

19.1. regularly update the acquired the [sic] operating environmental condition data;

As discussed in Section I.B.3, if this limitation is read as a means-plus-function limitation, the function is updating the acquired the [sic] operating environmental condition data, the '243 Patent discloses one example where the regular updates in the acquired data are “driven by changes in data,” where the “data acquisition component may be configured to regularly check feed files for changes, and if changes are found or occur then download the changed data.” Ex. 1001, 5:35-40; *see also* 7:18-23 (“In a pull embodiment the aggregate feed acquirer 232 periodically checks for updates in a known location referenced by the feed publisher 208 on the module 200 (e.g. a location within the memory 203) or upon another location or service provider 284, for example using HTTP requests over TCP/IP.”). As discussed regarding claim 6, Miller discloses that controller 104 regularly checks the network for changes, such as every 15 minutes, and downloading the changed data if changes occur. Ex. 1004, [0161]; *see also* Sec. II.C.2, *supra*.

Therefore, Miller discloses that controller 104 performs the function of updating in the same way as the '243 Patent.

Forth confirms that feeds from the web were “retrieved using a universal resource identifier (e.g., ‘HTTP URI’),” that is, *in a known location using HTTP requests*.¹³ For the same reasons discussed regarding claim 4, a POSA would have been motivated to combine, and would have had a reasonable expectation of success in combining, Miller with Forth’s teachings regarding the use of RSS web feeds for acquiring data. Sec. II.C.1, *supra*.

19.2. if changes are found in the updated environmental condition data, update an internal state table with new downloaded data from the operating environment feed input; and

As discussed in Section I.C.3, if this limitation were a means-plus-function, the specification of the '243 Patent does not disclose an algorithm for the function of *update[ing] an internal state table* that would distinguish it from limitation 19.1. However, the indefiniteness here would not render claim 19 logically impossible to interpret for the sake of ascertaining obviousness. *Id.* This limitation is still obvious over the combination of Miller and Forth for the reasons discussed regarding claim 6, as the prior art teaches generic computing components programmed to perform the claimed function. See Sec. II.C.2, *supra* (6).

19.3. automatically reduce a present amount of consumption of electric power from the power grid system by the computational device if analyzing the updated state table data determines a high electric power demand indication.

As discussed in Section I.C.3, if governed by § 112, ¶ 6, the structure for this limitation would be the same as that identified for limitation 18.4.3. And as discussed in Section II.B.9, Miller discloses, or at least renders obvious the *reduce* function and the corresponding structure that is disclosed in the specification of the '243 Patent.

¹³ TCP/IP was a well-known internet protocol and the *de facto* standard by the time of the '243 Patent. Ex. 1003, ¶ 49 n.3.

D. Grounds 4–6, Yellepeddy (§ 102, § 103); Yellepeddy and Gardner (§ 103)**1. Claim 1**

1.pre.¹⁴ A method for adapting the power consumption of a computational device in response to environmental conditions, comprising:

To the extent limiting, Yellepeddy discloses, or at least renders obvious, the preamble. For example, Yellepeddy discloses a “method for optimizing energy costs in a home and in particular to a method for implementing the most economical energy usage through the determination of the best time to use energy and the best source of that energy.” Ex. 1006, [0001]. The method is carried out on a “power accounting program of the particular end-user” that is in communication with the user’s devices and a power accounting server that compiles information from energy suppliers. *Id.*, [0051]; *see also* [0045]. The software for the program may be installed on a general purpose processing system, which Yellepeddy sometimes describes as a “program controller.” *Id.*, [0051]; *see also* [0054].

Further, Yellepeddy’s method includes reducing or increasing the consumption of power (*adapting the power consumption*) by various computational devices, including smart appliances (*of a computational device*), in response to various factors, such as energy price (*in response to environmental conditions*). *Id.*, [0029]–[0030], [0046], Abstract; *see also* Ex. 1003, ¶¶ 44–46 (smart appliances, already known in the power management space, generally included at least a basic computer processor configured to carry out programming instructions).

As will be shown in greater detail regarding the limitations that follow, Yellepeddy’s power adapting is *in response to environmental conditions*, such as conditions indicating peak demand on various energy sources. Ex. 1006, [0046]; *see also* Abstract.

Thus, Yellepeddy teaches a method for adapting the power consumption of a computational device in response to environmental conditions.

1.1. acquiring operating environmental condition data relevant to the generation of electric power in a power grid system from an operating environment feed input;

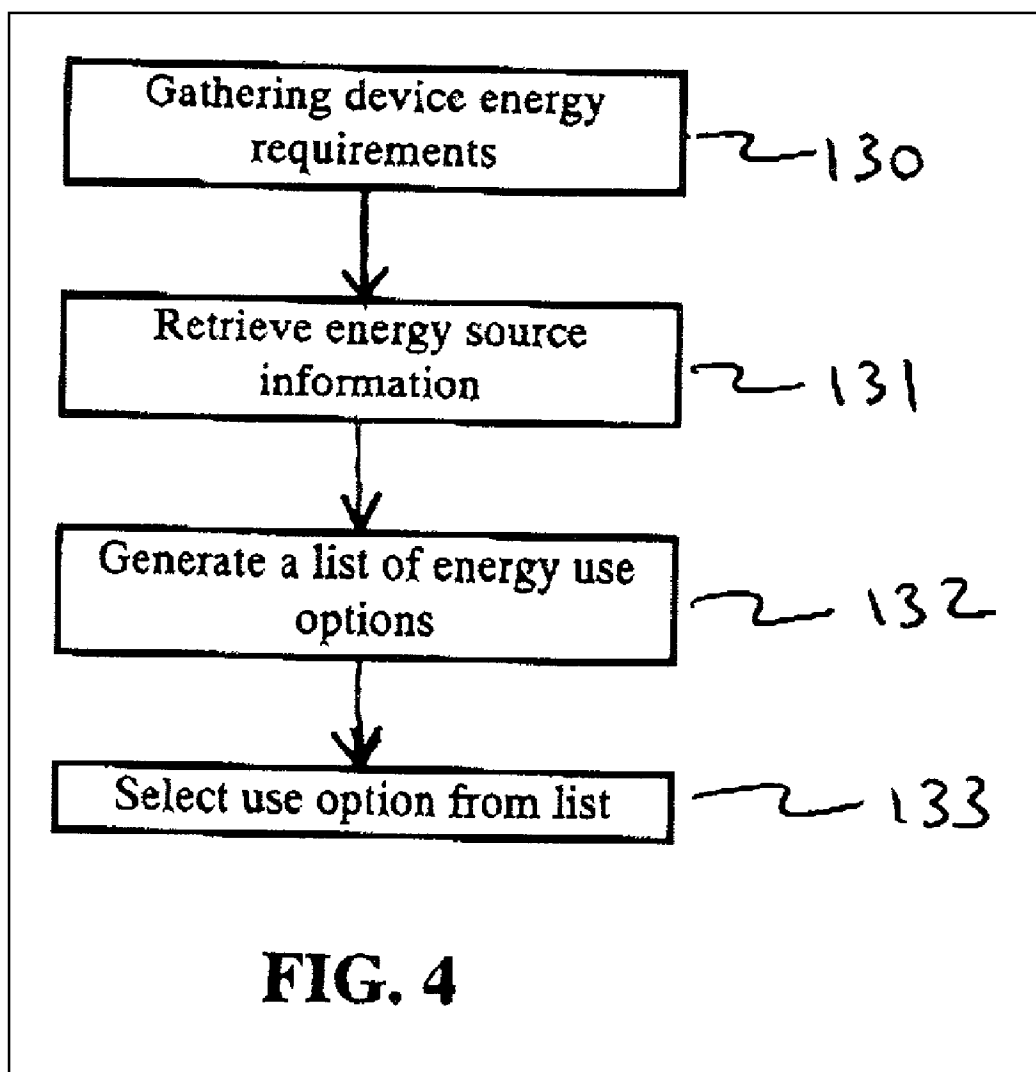
Yellepeddy discloses this limitation, or at least renders it obvious. Yellepeddy discloses that a user’s power accounting program acquires real-time information about an electric grid, such

¹⁴ The preambles of the independent claims are not limiting; however, Yellepeddy discloses them, or at least renders them obvious.

as the identity of the power suppliers or the real-time price of electricity (*acquire operating environmental condition data relevant to the generation of electric power in a power grid system*), from a power accounting server 129 over the internet 128, where the power accounting server aggregated this information from various energy suppliers 131 (*from an operating environment feed input*):

The next step is to retrieve **information concerning the availability of energy from the energy suppliers 131**. This information would be typically located in the power accounting server 129. **This information would consist of the quantity of energy that is available at various times and the price of the energy at the various times. For example, energy at a peak time such as the early evening hours could have a higher rate than energy at non-peak hours such as early morning hours. Once the accounting program 127 has retrieved the energy supplier information, the accounting program generates a list 132 of the optimum energy alternatives based on the appliance's energy requirements and the available energy by the suppliers.** The next step 133 would be to select a desirable energy option from the list. This selection could be based on an end-user energy policy, which contains conditions under which the accounting program will buy energy. An example of an energy policy would be to not buy energy priced over an established threshold price. The end-user may decide that it is optimal to use energy generated by the end-user, if available, instead of purchasing the energy from an alternate source. This process can apply to multiple appliances seeking energy from one energy source.

Ex. 1006, [0046]; *see also* [0047] (“FIG. 5 [] illustrates a display of information on the availability of energy from various energy suppliers. As shown, this information includes categories such as type of energy, quantity of energy, price of energy, time range of availability and date of availability for each energy supplier in the particular system.”).



Id., Fig. 4 (step 131); *see also* Fig. 6 (step 137, similar).

1.2. analyzing the operating environmental condition data to determine an indication of a high demand for electric power from the power grid system; and

Yellepeddy discloses this limitation, or at least renders it obvious. Yellepeddy discloses the user's power accounting program *analyzing* data regarding the availability of energy from energy suppliers, such as energy price (*operating environmental condition data*) by determining whether the price exceeds some threshold based on the user's energy policy (*to determine an indication of a high demand for electric power from the power grid system*).

The next step is to retrieve information concerning the availability of energy from the energy suppliers 131. This information would be typically located in the power accounting server 129. **This information would consist of the quantity of energy that is available at various times and the price of the energy at the various**

times. For example, energy at a peak time such as the early evening hours could have a higher rate than energy at non-peak hours such as early morning hours. Once the accounting program 127 has retrieved the energy supplier information, the accounting program generates a list 132 of the optimum energy alternatives based on the appliance's energy requirements and the available energy by the suppliers. **The next step 133 would be to select a desirable energy option from the list. This selection could be based on an end-user energy policy, which contains conditions under which the accounting program will buy energy. An example of an energy policy would be to not buy energy priced over an established threshold price.** The end-user may decide that it is optimal to use energy generated by the end-user, if available, instead of purchasing the energy from an alternate source. This process can apply to multiple appliances seeking energy from one energy source.

Ex. 1006, [0046].

The various forms of energy could include solar, gas, and electric energy. These enduser [*sic*] facilities will gather and process this information **to determine when the rates for using the energy will be the least expensive** for a particular task or to operate a particular appliance. A homeowner for example can program appliances such as a dishwasher or laundry machine to turn on at a time **when the cost of energy of a supplier is below a particular threshold price** and receive energy from that particular supplier to operate the appliance.

Id., [0030]; *see also* Abstract.

Thus, Yellepeddy teaches *analyzing the operating environmental condition data to determine an indication of a high demand for electric power from the power grid system.*

1.3. a computational device automatically reducing a current amount of consumption of electric power from the power grid system by the computational device if the analyzing determines the high electric power demand indication.

Yellepeddy discloses this limitation, or at least renders it obvious. Alternatively, this limitation is taught by the combination of Yellepeddy and Gardner.

Yellepeddy discloses that an end-user's power accounting program causes a connected appliance such as a dishwasher or laundry machine (*cause a computational device*) to either automatically not run during peak-rate hours or use the user's own energy sources (*to*

automatically reduce a current amount of consumption of electric power from the power grid system by the computational device) when the price of electricity exceeds some threshold (*if the analyzing determines the high electric power demand indication*). Further, Yellepeddy confirms that the program instructions for a given appliance are “automatically” implemented according to the user’s policy. Ex. 1006, [0051].

For example, Yellepeddy discloses that the system will not purchase energy from a given supplier, including the power grid, when their energy policy, which is based on price, indicates a “peak time” of energy usage. *Id.*, [0046]. In such circumstances, the user may reduce their *consumption of power from the power grid system* by opting to “use energy generated by the end-user.” *Id.* Additionally, Yellepeddy discloses causing smart appliances, such as dishwashers, only when the energy price is below a certain threshold. *Id.*, [0030]; *see also* Abstract.

Yellepeddy discloses that the power accounting program runs on a user’s client computer that is both in communication with a power accounting server and with the appliances it is regulating. *See, e.g., id.*, [0051]; *see also* [0046]; [0048]. To the extent it claim 1 is construed such that the entire method must be performed by a computational device itself, such would have been obvious over Yellepeddy in view of Gardner. Gardner discloses that a device controller for managing the functionality of a device based on external factors to optimize energy usage may be integrated into that device, such as an air compressor. Ex. 1007, [0115].

A POSA would have been motivated to incorporate a device controller for managing the power consumption as an integrated device with Yellepeddy’s appliances for at least two reasons. First, such would have merely required combining prior art elements according to known methods to yield predictable results (e.g., a pre-programmed “smart” appliance able to communicate with a power accounting server over the internet). Ex. 1003, ¶¶ 93–94.

Second, the combination would have at most required applying a known technique (Gardner’s disclosure of integrating device controller functionality into an appliance, combined with Yellepeddy’s special-purpose software) to a known device (Yellepeddy’s smart appliances) ready for improvement to yield predictable results. *Id.*, ¶ 95. Indeed, Yellepeddy itself discloses that the power accounting software is executed by a controller. *Id.* (citing Ex. 1006, [0051]). And as a POSA would have recognized, a manufacturer of smart appliances would appreciate the increased marketability of a device with a controller capable of executing software to lower a user’s energy costs over time. *Id.*

Finally, a POSA would have had a reasonable expectation of success in making the combination, which at most involve the predictable application of software functionality to implement Yellepeddy's policies (e.g., reducing consumption based on a high energy price) to an already sophisticated smart appliance controller. *Id.*, ¶ 96. That is, the modification merely incorporates the software locally on the appliance instead of in a separate connected device, and including additional software in a smart device would have required, at most, minimal modifications to the device's hardware and would have been well within a POSA's capabilities. *Id.* Indeed, like Yellepeddy's power accounting program, Gardner discloses that a device controller is capable of receiving and storing electricity rates to present to customers; therefore, a POSA would recognize that integrating the functionality of the power accounting program into a smart appliance would not result in an unusable device. *Id.* (citing Ex. 1007, [0055]).

Thus, Yellepeddy alone discloses, or at least renders obvious, each limitation of claim 1. Alternatively, Yellepeddy in view of Gardner renders obvious claim 1.

2. Claim 3

3. The method of claim 1, further comprising the computational device automatically increasing the current amount of consumption of electric power from the power grid system by the computational device from a current reduced electric power consumption level in response to not determining the indication of the high demand for electric power from the power grid system by analyzing the operating environmental condition data.

As discussed, claim 1 is anticipated by, or at least obvious over, Yellepeddy; alternatively, claim 1 is obvious over Yellepeddy in view of Gardner. *See* Sec. II.D.1, *supra*. Likewise, claim 3 is anticipated by, or at least obvious over, Yellepeddy; alternatively, claim 3 is obvious over Yellepeddy in view of Gardner.

For example, for the same reasons discussed regarding limitation 1.3, Yellepeddy discloses *automatically increasing the current amount consumption of electric power from the grid* by the user's smart appliances (the *computational device*) by running devices such as dishwashers or laundry machines when the power accounting program recognizes that the price of electricity has dropped below some threshold. Ex. 1005, [0030]; *see also* Abstract. As discussed regarding limitation 1.2, Yellepeddy explains that such a low price point is an *indication* of a non-peak demand period, that is, that the *demand for electric power from the power grid system* is not high. *Id.*, [0046]. And as mentioned above, such increases happen *automatically* based on the user's energy policy. *Id.*, [0051].

Further, to the extent claim 3 is construed to require the computational device itself perform the analysis regarding whether there is an indication of high demand (e.g., incorporating the power accounting program on a smart appliance controller), then this additional limitation is obvious over Yellepeddy in view of Gardner for the same reasons discussed regarding limitation 1.3. *See* Sec. II.D.1 (1.3).

3. Claim 4

4. The method of claim 1, wherein the operating environment feed is a really simple syndication feed from at least one of an electricity plant and a weather service.

As discussed, claim 1 is anticipated by, or at least obvious over, Yellepeddy; alternatively, claim 1 is obvious over Yellepeddy in view of Gardner. *See* Sec. II.D.1, *supra*. Likewise, claim 4 is anticipated by, or at least obvious over, Yellepeddy; alternatively, claim 4 is obvious over Yellepeddy in view of Gardner.

Yellepeddy discloses that the end-user's device executing a power accounting program connects to a power accounting server 129 over the internet. Ex. 1006, [0045] ("A power accounting server 129 connects to each end-user via the internet. This server can contain information about energy availability, energy type, price, and supplier name."). One of the users is a business that uses and generates energy, such as an energy supplier or utility company (i.e., *an electricity plant*). *See id.*, [0047]; *see also* [0036]; *see also* Fig. 5. Yellepeddy also discloses that this information is provided "on a real-time basis." *Id.*, [0029].

Claim 4 adds that the operating environment feed is provided by a "really simple syndication feed." As a person having ordinary skill would have recognized, "really simple syndication," typically abbreviated "RSS," is simply the name of a well-known web data format that provides users the ability to monitor websites they do not have time to visit regularly. Ex. 1003, ¶ 48 (citing EX1015). RSS feeds are often provided in an extensible markup language (XML) format used for distributing or syndicating content. *Id.* RSS was a common format for list-oriented content and was useful for content that would be expected to change frequently. *Id.*

While Yellepeddy does not expressly disclose using an RSS feed, it does disclose that the information is received over the Internet. A POSA would have recognized that RSS feeds were a well-known, common method of sending updated information over the Internet and, at the very least, would have been obvious to try given the changing nature of information obtained (e.g., pricing information). Ex. 1006, [0035], [0029]; *see also* Ex. 1003, ¶¶ 87–89. Indeed, such would

have been a matter of simple design choice. *Id.*, ¶ 88.

Notably, the '243 Patent itself indicates that this concept was already known in the art. For example, it describes acquiring data “in a **standard data format**, (e.g., Extensible Markup Language, or XML) **supplied via a Really Simple Syndication (RSS) feed** from electricity plants, weather services, and other information providers” and goes on to state that such providers may update such files using “**standard RSS notations**.” Ex. 1001, 4:32-41.

Thus, because Yellepeddy discloses receiving information like energy prices from utilities over the internet, and because a POSA would have known that pricing is the kind of content that is expected to change frequently, such as daily or even hourly, a POSA would have been motivated to use, and would have had a reasonable expectation of using, an RSS feed (*a really simple syndication feed*) to receive the disclosed pricing and weather data (the *operating environment feed*) in Yellepeddy's system. Ex. 1003, ¶ 89. Additionally, this information is at least indirectly received via the power accounting server from *at least one of an electricity plant and a weather service*, as Yellepeddy discloses that utility companies are one source of information on the power accounting server. Ex. 1006, [0029], [0036].

4. Claim 6

6.pre. The method of claim 3, further comprising:

As discussed, claim 3 is anticipated by, or at least obvious over, Yellepeddy; alternatively, claim 3 is obvious over Yellepeddy in view of Gardner. *See* Sec. II.D.2, *supra*. Likewise, claim 6 is anticipated by, or at least obvious over, Yellepeddy; alternatively, claim 6 is obvious over Yellepeddy in view of Gardner.

6.1. regularly updating the acquired the operating environmental condition data;

Yellepeddy discloses this limitation, or at least renders it obvious. As Yellepeddy explains, the *operating environmental condition data*, such as energy price and availability, is acquired from the power accounting server is “on a real-time basis,” that is, it is *regularly update[ed]*. Ex. 1005, [0029]; *see also* Abstract, [0059] (similar); *see also* [0045] (the power accounting server enables the “dynamic updating of information such as price, supplier, etc.”); [0055] (a resource manager or library service may be responsible for “updating all resource objects associated therewith.”); *see also* Ex. 1003, ¶ 45 (citing Ex. 1013, stating that spot pricing as used in the '243 Patent was also referred to as real-time pricing, or RTP).

6.2. if changes are found in the updated environmental condition data, updating an internal state table with new downloaded data from the operating environment feed input; and

Yellepeddy discloses this limitation, or at least renders this limitation obvious. Yellepeddy explains that information such as supplier and price are dynamically updated in a table format (*if changes are found in the updated environmental condition data, updating an internal state table with new downloaded data from the operating environment feed input*):

FIG. 5 is [sic] illustrates a display of information on the availability of energy from various energy suppliers. As shown, this **information includes categories such as type of energy, quantity of energy, price of energy, time range of availability and date of availability for each energy supplier** in the particular system. This arrangement is an example of a way to represent energy information from the various energy suppliers in one location. **In this table representation of data, each energy supplier 134 could have an entry record 135 containing fields that would hold information about the various energy characteristic categories. This type of format can allow for easy data retrieval, sorting and analysis.** The accounting program generates a list **132** of the optimum energy alternatives based on the appliance's energy requirements and the available energy by the supplier. The accounting program could generate the list in step **132** by searching the “Energy Type” field in table. A search of this field would quickly produce a list of all energy suppliers with a specific type of energy such electricity this is available for purchase by consumers.

Ex. 1006, [0047]; *see also* [0045] (a server enables the “dynamic updating” of the information reflected in the end-user’s energy program); [0029] (information about price and availability is provided on a “real-time basis.”).

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Source	Energy Type	Available Quantity	Price	Time Range	Date Available
ES1	Natural Gas			11 p.m. – 5 a.m.	6/20
ES2	Electricity			1 a.m. – 6 a.m.	6/20
ES3	Electricity			11 p.m. – 6 a.m.	6/20
ES4	Electricity			1 a.m. – 5 a.m.	6/20
ES5	Solar Energy			12 noon – 7 p.m.	6/20
ES6	Natural Gas			1 a.m. – 7 a.m.	6/20
ES7	Electricity			12:30 a.m. – 6 a.m.	6/20

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FIG. 5

Id., Fig. 5 (example table providing operating environmental data).

6.3. automatically reducing a present amount of consumption of electric power from the power grid system by the computational device if analyzing the updated state table data determines a high electric power demand indication, or increasing the present amount of consumption of electric power from the power grid system by the computational device if analyzing the updated state table data does not determine a high electric power demand indication.

As discussed regarding claims 1 and 3, Yellepeddy, alone or in view of Gardner, teaches *automatically reducing a present amount of consumption of electric power from the power grid system by the computational device if the system's analysis determines a high electric power demand indication, or increasing the present amount of consumption of electric power from the power grid system by the computational device if the analysis does not determine a high electric power demand indication. See Sec. II.D.1 (1.3); Sec. II.D.2 (3).*

Thus, Yellepeddy, alone or in view of Gardner, discloses or renders obvious each limitation of claim 6.

5. Claim 9

9. The method of claim 1, further comprising determining the indication of the high demand for electric power from the power grid system in response to data in the operating environmental

condition data that comprises at least one of: [a] a spot price value of electricity; and [2] a rate of change of a price of electricity.

As discussed, claim 1 is anticipated by, or at least obvious over, Yellepeddy; alternatively, claim 1 is obvious over Yellepeddy in view of Gardner. *See* Sec. II.D.1, *supra*. Likewise, claim 9 is anticipated by, or at least obvious over, Yellepeddy; alternatively, claim 9 is obvious over Yellepeddy in view of Gardner.

As discussed regarding claim 1, Yellepeddy discloses that the determination step may take into account, for example, energy prices on a “real-time basis,” that is *a spot price value of electricity*. Ex. 1006, [0029]; *see also* Abstract; *see also* Ex. 1003, ¶ 45.

6. Claim 10

10. The method of claim 9 wherein the step of the computational device automatically reducing the current amount of consumption of electric power from the power grid system by the computational device comprises running nonessential services only when the spot price value of electricity is low.

As discussed, claim 9 is anticipated by, or at least obvious over, Yellepeddy; alternatively, claim 9 is obvious over Yellepeddy in view of Gardner. *See* Sec. II.D.5, *supra*. Likewise, claim 10 is anticipated by, or at least obvious over, Yellepeddy; alternatively, claim 10 is obvious over Yellepeddy in view of Gardner.

As discussed in claim 1, the step of *the computational device automatically reducing the current amount of consumption of electric power from the power grid system by the computational device* comprises running services like dishwashing and laundry machines (i.e., *running nonessential services*) “at a time when the cost of energy of a supplier is **below a certain threshold price**” (i.e., *only when the spot price value of electricity is low*). Ex. 1006, [0030]; *see also* Abstract.

7. Claim 11

11P.¹⁵ A service for adapting the power consumption of a computational device in response to environmental conditions, comprising:

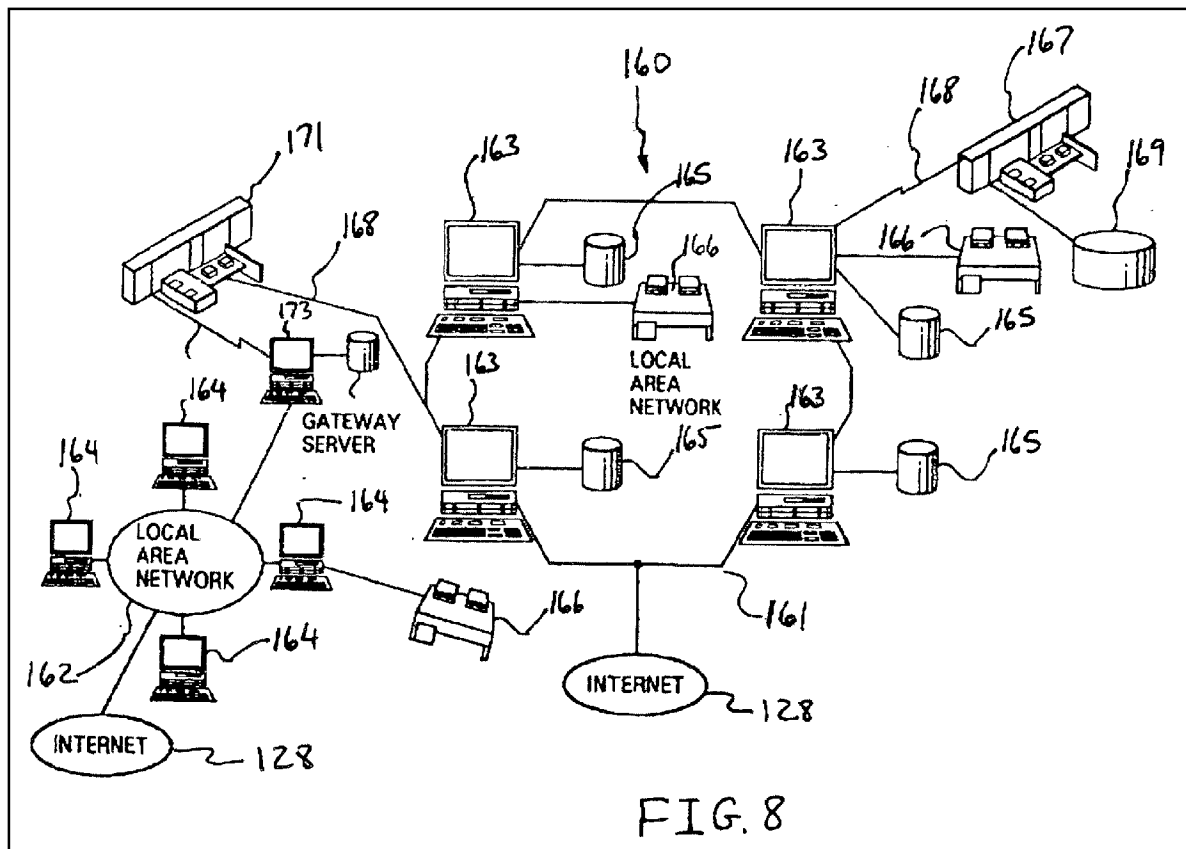
Yellepeddy discloses, or at least renders obvious, the preamble. For example, Yellepeddy discloses “a method to optimize the consumption of energy at a facility,” such as a residential

¹⁵ As with claim 1, the preamble should not be considered limiting for claim 11.

home or an office building. Ex. 1006, [0043]; *see also* [0001]. Claim 11 is similar to claim 1, but claims a “service” as opposed to a “method.” However, as Yellepeddy explains, its teachings are provided in the context of an energy management system that allows users to participate in a distributed power generation system. *Id.*, [0044]. The users are able to implement the method through the use of power accounting software (a *service*) executing on an end-user general purpose processing system or controller that grants users access to and analyzes information acquired from a power accounting server. *Id.*, [0045]. For the reasons discussed regarding claim 1, Yellepeddy discloses that this service *adapt[s] the power consumption of a computational device* (e.g., various smart appliances) *in response to environmental conditions* (e.g., in response to conditions such as energy price). *See* Sec. II.D.1, *supra* (1P).

11.1. providing a computer infrastructure configured to:

Yellepeddy discloses *providing a computer infrastructure* that implements a power accounting software to allow end users with access to a power accounting server over the internet. Ex. 1006, [0045]; *see also* [0053]–[0055]. Yellepeddy illustrates various computing environments that may implement the service:



Id., Fig. 8.¹⁶

11.1.1. acquire operating environmental condition data relevant to the generation of electric power in a power grid system from an operating environment feed input;

Limitation 11.1.1 is substantively identical to limitation 1.1. As discussed regarding limitation 1.1, Yellepeddy's power accounting program *acquires operating environmental condition data relevant to the generation of electric power in a power grid system*, such as the price of electricity, *from an operating environment feed input*, such as from a power accounting server over the internet. *See* Sec. II.D.1, *supra* (1.1).

11.1.2. analyze the operating environmental condition data to determine an indication of a high demand for electric power from the power grid system; and

Limitation 11.1.2 is substantively identical to limitation 1.2. As discussed regarding limitation 1.2, Yellepeddy's power accounting program analyzes the external information, such as electricity price (*analyze[s] the operating environmental condition data*), to determine if the price indicates when an energy supplier is experiencing a "peak demand" period (*to determine an indication of a high demand for electric power from the power grid system*). *See* Sec. II.D.1, *supra* (1.2).

11.1.3. cause a computational device to automatically reduce a current amount of consumption of electric power from the power grid system by the computational device if the analyzing determines the high electric power demand indication.

Limitation 11.1.3 is substantively identical to limitation 1.3. As discussed regarding limitation 1.3, Yellepeddy discloses that the power accounting software causes certain appliances not to operate or causes the home to select an alternative source of energy (*to automatically reduce a current amount of consumption of electric power from the power grid system by the computational device*) if the analyzing determines a peak demand from the grid, based on the cost of electricity (*if the analyzing determines the high electric power demand indication*). *See* Sec. II.D.1, *supra* (1.3).

Further, to the extent claim 11 could be construed such that the smart appliance itself must run the power accounting software, such would have been obvious over Yellepeddy in view of Gardner for the same reasons discussed regarding limitation 1.3. *See id.*

Thus, Yellepeddy discloses, or at least renders obvious, each limitation of claim 11.

¹⁶ It appears that Figure 8 is mislabeled as Figure 9 in Yellepeddy's detailed description.

8. Claim 15

15.pre.¹⁷ An article of manufacture, comprising:

Yellepeddy discloses, or at least renders obvious, the preamble. For example, as discussed regarding claim 1, Yellepeddy discloses an *article of manufacture*, such as an end-user “special purpose system” comprising a general purpose data processing system running power accounting software. Ex. 1006, [0054]; *see also* Fig. 7.¹⁸

15.1. a computer readable tangible storage medium having computer readable program code embodied therewith, the computer readable program code comprising instructions which, when executed on a computer system, cause the computer system to:

Yellepeddy discloses this limitation, or at least renders it obvious. Yellepeddy discloses that apparatus 101 is a computer system that includes *a computer readable tangible storage medium having computer readable program code embodied therewith, the computer readable program code comprising instructions*, such as code for carrying out the energy optimization software described throughout Yellepeddy’s specification:

As is common in such data processing systems, **each individual computer may be coupled to a storage device 165 and/or a printer/output device 166. One or more such storage devices 165 may be utilized, in accordance with the method of the present invention, to store the various data objects or documents which may be periodically accessed and processed by a user within distributed data processing system 160, in accordance with the method and system of the present invention.** In a manner well known in the prior art, each such data processing procedure or document may be stored within a storage device 165 which is associated with a Resource Manager or Library Service, which is responsible for maintaining and updating all resource objects associated therewith.

Id., [0055]; *see also* [0056]. As Yellepeddy explains, “the processes of the present invention are capable of being distributed in the form of instructions in a computer readable medium and a variety of other forms, regardless of the particular type of medium used to carry out the distribution.” *Id.*, [0063].

¹⁷ As with claim 1, the preamble should not be considered limiting for claim 15.

¹⁸ Figure 7 appears to be mislabeled in the description as a flow diagram when it actually depicts a computer system for implementing the invention. *Id.*, [0051]–[0053].

15.1.1. acquire operating environmental condition data relevant to the generation of electric power in a power grid system from an operating environment feed input;

Limitation 15.1.1 is substantively identical to limitations 1.1 and 11.1. As discussed regarding limitation 1.1, Yellepeddy's program *acquire[s] operating environmental condition data relevant to the generation of electric power in a power grid system*, such as the price of electricity, *from an operating environment feed input*, such as over the internet from a power accounting server. See Sec. II.D.1, *supra* (1.1).

15.1.2. analyze the operating environmental condition data to determine an indication of a high demand for electric power from the power grid system; and

Limitation 15.1.2 is substantively identical to limitation 1.2. As discussed regarding limitation 1.2, Yellepeddy's program analyzes the external information, such as energy price (*analyze[s] the operating environmental condition data*), to determine if the price indicates when the grid is experiencing a "peak demand" period (*to determine an indication of a high demand for electric power from the power grid system*). See Sec. II.D.1, *supra* (1.2).

15.1.3.¹⁹ cause a computational device to automatically reduce a current amount of consumption of electric power from the power grid system by the computational device if the analyzing determines the high electric power demand indication.

Limitation 15.1.3 is substantively identical to limitation 1.3. As discussed regarding limitation 1.3, Yellepeddy discloses that the power accounting program causes devices to reduce their demand from the grid by not operating or by selecting alternative energy sources (*a computational device automatically reducing a current amount of consumption of electric power from the power grid system by the computational device*), when the energy policy indicates peak demand, such as when the energy price from a utility company exceeds some threshold (*if the analyzing determines the high electric power demand indication*). See Sec. II.D.1, *supra* (1.3).

As discussed regarding claim 1, to the extent claim 15 requires that the various steps be performed by the computational device itself, such would have been obvious over Yellepeddy in combination with Gardner. Sec. II.D.1, *supra* (1.3).

¹⁹ The lack of indentation for limitation 15.3.1 appears to be a grammatical typo. Although a first level limitation, it does not make sense for "an article of manufacture comprising . . . cause a computational device to . . ." Requester has therefore interpreted this element as a sub-limitation of limitation 15.1, in which case, the element would read, "instructions which, when executed on a computer system, cause the computer system to . . . cause a computational device to . . ."

Thus, Yellepeddy discloses, or at least renders obvious, each limitation of claim 15.

9. Claim 16

16. The article of manufacture of claim 15, the program code comprising instructions which, when executed on the computer system, causes the computer system to:

16.1. regularly update the acquired the operating environmental condition data;

16.2. if changes are found in the updated environmental condition data, update an internal state table with new downloaded data from the operating environment feed input; and

16.3. automatically reduce a present amount of consumption of electric power from the power grid system by the computational device if analyzing the updated state table data determines a high electric power demand indication.

As discussed, claim 15 is anticipated by, or at least obvious over, Yellepeddy; alternatively, claim 15 is obvious over the combination of Yellepeddy and Gardner. Sec. II.D.8, *supra*. Claim 16 is nearly identical to claim 6, with the exception of the final limitation, which is broader due to the exclusion of increasing consumption if the analyzing step does not determine a high electric power demand indication. For the same reasons discussed regarding claim 6, claim 16 is obvious over Yellepeddy; alternatively, claim 16 is obvious over the combination of Yellepeddy and Gardner.

10. Claim 18

18.pre.²⁰ A programmable device comprising:

Yellepeddy discloses, or at least renders obvious, the preamble. For example, as discussed regarding claim 1 and 15, Yellepeddy discloses a *programmable device*, such as a general data processing system implementing special-purpose power accounting software. *See* Sec. II.D.1, *supra* (1P), Sec. II.D.8 (15P).

18.1. a processing means:

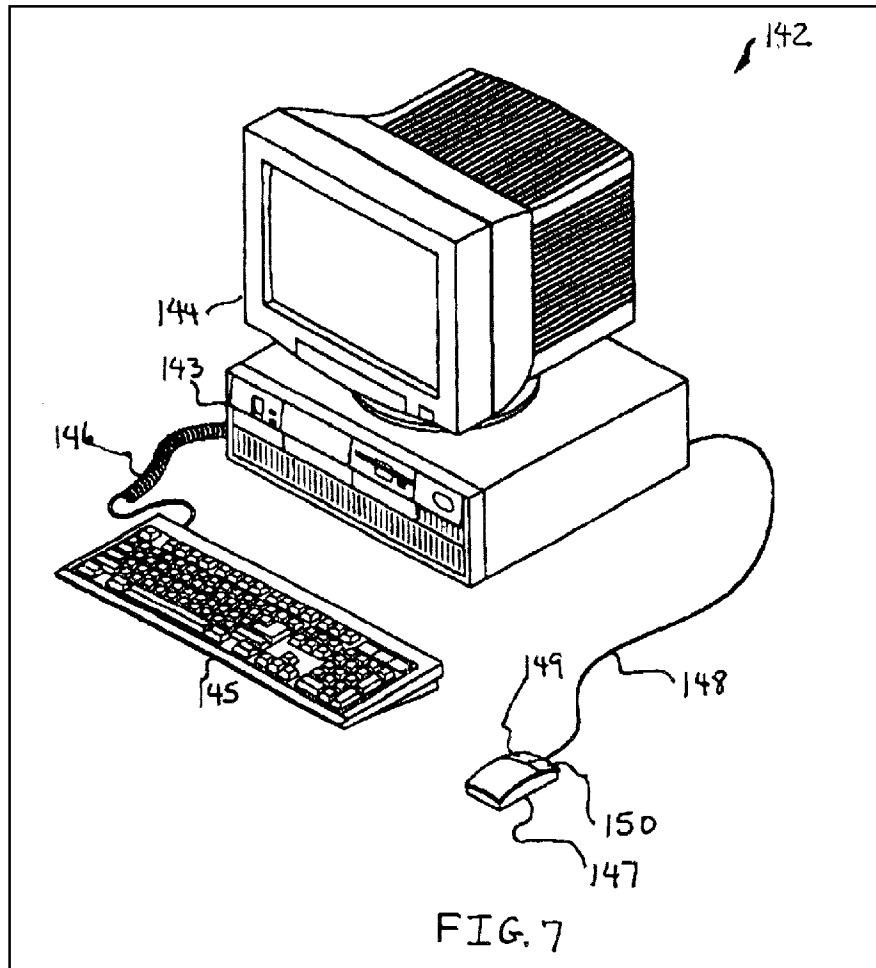
Yellepeddy discloses this limitation, or at least renders it obvious, including if this term is construed as a means-plus-function term. Just like the '243 Patent, Yellepeddy discloses that a data processing system includes a **processor** for performing processing functions. *Id.*, [0053]; *see also*, Fig. 7.²¹

²⁰ As with claim 1, the preamble should not be considered limiting for claim 18.

²¹ In the description portion of the specification, it appears that Figure 7 is mislabeled as Figure 8.

18.2. a memory in communication with the processing means comprising a logic component; and

Yellepeddy discloses this limitation, or at least renders it obvious. Yellepeddy discloses that the processor for implementing the power accounting program “includes a memory device and central processor.” *Id.*, [0053]; *see also* claim 17; *see also* Ex. 1003, ¶ 46 (citing Ex. 1011, computer processors typically included a memory for storing logic to be executed by the processor).



Id., Fig. 7.

18.3. a network interface in communication with the processing means and the memory;

Yellepeddy discloses this limitation, or at least renders it obvious. Specifically, Yellepeddy discloses that the end-user system that executes the power accounting software connects to the power accounting server in a “global computer network environment such as the Internet 128” in order obtain information relevant to implementing the power accounting software, such as energy prices, from the power accounting server. Ex. 1006, [0055]; *see also* [0056] (describing available

networks); [0045] (explaining that end users obtain information from the power accounting server over the internet); Figs. 8–9. Thus, Yellepeddy discloses that the special purpose computer comprises a *network interface in communication with the processing means and the memory*.

18.4. wherein the processing means is configured to:

As discussed regarding limitation 18.1, Yellepeddy discloses a *processing means*.

18.4.1. acquire operating environmental condition data relevant to the generation of electric power in a power grid system from an operating environment feed input;

As discussed in Section I.B.2, limitation 18.4.1 is not a means-plus-function limitation. This limitation is substantively identical to limitations 1.1, 11.1.1, and 15.1.1. For the same reasons discussed with respect to those claims, Yellepeddy teaches this limitation, or at least renders it obvious. *See* Sec. II.D.1, II.D.7, and II.D.8.

However, to the extent this language is governed by § 112, ¶ 6, Yellepeddy at least renders this limitation obvious. The '243 Patent only cites generic computing components acquiring data over the web for serving this function. Sec. I.B.3. A POSA, both based on Yellepeddy's disclosure and their general knowledge and skill, would have understood that generic computer components acquired data from energy suppliers via standard data feeds provided over the Internet, such as RSS feeds. Ex. 1003, ¶¶ 87–89; *see also* Sec. I.B.3. For example, as discussed regarding limitation 1.1, Yellepeddy discloses that a general-purpose processing system executing a special-purpose power accounting program causes the processing means to *acquire operating environmental condition data relevant to the generation of electric power in a power grid system*, such as the price of electricity, *from an operating environment feed input*, such as over the internet from a power accounting server. *See* Sec. II.D.1, *supra* (1.1). Further, as discussed regarding claim 4, it would have been obvious to a POSA to use RSS feeds for the acquisition of such data, as it was well known that such a technique was appropriate for circulating information subject to frequent change over the web, including the kind of data disclosed in Yellepeddy. *See* Sec. II.D.3, *supra* (4). Thus, Yellepeddy at least renders this limitation obvious.

18.4.2. analyze the operating environmental condition data to determine an indication of a high demand for electric power from the power grid system; and

As discussed in Section I.B.2, limitation 18.4.2 is not a means-plus-function limitation. This limitation is substantively identical to limitations 1.2, 11.1.2, and 15.1.2. For the same reasons discussed with respect to those claims, Yellepeddy teaches this limitation, or at least renders it obvious. *See* Sec. II.D.1, II.D.7, and II.D.8.

However, to the extent this language is governed by § 112, ¶ 6, Yellepeddy at least renders this limitation obvious. As discussed in Section I.B.3, one means of analyzing described by the specification of the '243 Patent is determining whether a spot price of electricity is high or low. Specifically, the system triggers power savings operations as well as postpones or otherwise schedules power-consuming activities “**as a function of preferential spot prices,**” such as “running nonessential services only when a spot price is low.” Ex. 1001, 6:11-20. Thus, in one embodiment, the *analyzing* step is satisfied by “determining if a spot price is high or low.”

As discussed regarding limitation 1.3 and claims 9 and 10, Yellepeddy discloses that its processing system analyzes real-time energy pricing information (i.e., a spot price of electricity) to assess whether suppliers are experiencing peak demand and analyzes these real-time energy prices against some threshold. *See* Sec. II.D.1, *supra* (1.2); II.D.5 (9), II.D.6 (10). Thus, Yellepeddy at least renders this limitation obvious.

18.4.3. cause a computational device to automatically reduce a current amount of consumption of electric power from the power grid system by the computational device if the analyzing determines the high electric power demand indication.

As discussed in Section I.B.2, limitation 18.4.3 is not a means-plus-function limitation. This limitation is substantively identical to limitations 1.3, 11.1.3, and 15.1.3. For the same reasons discussed with respect to those claims, Yellepeddy teaches this limitation, or at least renders it obvious. *See* Sec. II.D.1, II.D.7, and II.D.8. Alternatively, Yellepeddy in view of Gardner renders this limitation obvious. *Id.*

However, if this language is governed by § 112, ¶ 6, Yellepeddy, alone or in view of Gardner, at least renders this limitation obvious. For example, one means that the specification describes performing this function is by “postpon[ing] or otherwise schedul[ing] power-consuming activities” by a computational device. Ex. 1001, 6:16-20. And as discussed regarding limitation 1.3 and claim 10, Yellepeddy discloses this concept through its disclosure of postponing operation of certain smart appliances, such as running a dishwasher or laundry machine during a non-peak demand period, only after the energy price drops below some threshold. *See* Sec. II.D.1, *supra* (1.3); II.D.6 (10).

Further, to the extent claim 18 requires that the computational device itself comprise the processing means for acquiring or analyzing data, such would have been obvious over Yellepeddy in view of Gardner for the same reasons discussed regarding claim 1.

11. Claim 19

19. The programmable device of claim 18, wherein processing means is configured to:

Claim 19 is at least obvious over Yellepeddy, alone or in view of Gardner. As discussed in Section I.B.2, claim 19 does not recite means-plus-function limitations. Further, claim 19 is substantively identical to claim 16 and nearly identical to claim 6, but slightly broader. *See* Sec. II.D.4 (6); Sec. II.D.9 (16). For the same reasons discussed regarding claims 6 and 16, claim 19 is obvious over Miller in view of Forth.

However, to the extent the limitations of claim 19 are governed by § 112, ¶ 6, claim 19 is still obvious over Yellepeddy, alone or in view of Gardner. In addressing the following limitations, Requester shows that the limitations are taught by the prior art even if read as means-plus-function limitations.

19.1. regularly update the acquired the operating environmental condition data;

As discussed in Section I.B.3, the '243 Patent discloses one example where the regular updates in the acquired data are “driven by changes in data,” where the “data acquisition component may be configured to regularly check feed files for changes, and if changes are found or occur then download the changed data.” Ex. 1001, 5:35-40. Yellepeddy discloses that one objective of its system is to “monitor energy costs and prices over various **periods of time**” and generates energy consumption options for an appliance “over a particular time period.” Ex. 1006, [0028]; [0030]. Yellepeddy also explains that in conventional energy trading systems, calls related to the prices and quantities of energy available for upcoming hours were known to occur “many times a day, sometimes hourly.” *Id.*, [0058]. Thus, even if governed by § 112, ¶ 6, this limitation is at least obvious over Yellepeddy’s disclosure with its processor (*processing means*) programmed to provide the *regular update[ing]* function “many times a day,” such as “hourly.”

19.2. if changes are found in the updated environmental condition data, update an internal state table with new downloaded data from the operating environment feed input; and

As discussed in Section I.B.3, the specification of the '243 Patent does not disclose an algorithm for this limitation that would distinguish it from limitation 19.1. However, the indefiniteness here would not render claim 19 logically impossible to interpret for the sake of ascertaining obviousness. Sec. I.B.3, *supra*. This additional limitation is therefore still obvious over Yellepeddy for the reasons discussed regarding claim 6, as Yellepeddy teaches the use of

generic computing components programmed to perform the claimed *update* function. *See* Sec. II.D.4, *supra* (6).

19.3. automatically reduce a present amount of consumption of electric power from the power grid system by the computational device if analyzing the updated state table data determines a high electric power demand indication.

As discussed in Section I.B.3, if governed by § 112, ¶ 6, the structure for this limitation would be the same as that identified for limitation 18.4.3. As discussed in Section II.D.10, Yellepeddy discloses, or at least renders obvious the *reduce* function and its associated structure that is disclosed in the specification of the '243 Patent. For example, one means that the '243 Patent describes is “postpon[ing] or otherwise schedul[ing] power-consuming activities” by a computational device. Ex. 1001, 6:16-20. And as discussed regarding limitation 1.3 and claim 10, Yellepeddy discloses this concept through its disclosure of postponing operation of certain smart appliances, such as running a dishwasher or laundry machine during a non-peak demand period, only after the energy price drops below some threshold. *See* Sec. II.D.1, *supra* (1.3); II.D.6 (10). Thus, Yellepeddy at least renders this limitation obvious. Alternatively, to the extent this limitation requires that the computing device itself automatically reduce its consumption based on the acquiring and analyzing steps, this limitation is obvious over Yellepeddy in view of Gardner. Sec. II.D.1, *supra*.

E. Grounds 7–8: Yellepeddy in view of Forth (§ 103); Yellepeddy in view of Gardner and Forth (§ 103)

1. Claim 4

4. The method of claim 1, wherein the operating environment feed is a really simple syndication feed from at least one of an electricity plant and a weather service.

As discussed, claim 1 is anticipated by, or at least obvious over, Yellepeddy; alternatively claim 1 is obvious over Yellepeddy in view of Gardner. Sec. II.D.1, *supra*. Claim 4 is obvious over these grounds in further view of Forth.

“Really simple syndication,” is the expanded form of “RSS,” which, as the '243 Patent acknowledges, was a standard web feed. Ex. 1001, 4:32-41; *see also* Ex. 1003, ¶ 48 (citing Ex. 1014). Above, Requester explained that claim 4 was obvious over Yellepeddy in view of the knowledge of a POSA. Sec. II.D.3, *supra*.

Further, as discussed above regarding Ground 3, Forth confirms that a POSA would have

found it obvious for Yellepeddy's system to aggregate and deliver an operating environment feed, such as pricing and weather data, from the power accounting server to an end-user's power accounting software via a *really simple syndication feed from at least one of an electricity plant and a weather service*, as claimed. *See* Sec. II.C.1 (discussing Forth's disclosure regarding RSS feeds for data aggregation, citing Ex. 1005, 18:26-42, 20:4-11).

A POSA would have been motivated to incorporate Forth's teachings of using an RSS feed to provide data to Yellepeddy's power accounting software from the power accounting server for two reasons. First, the proposed combination merely amounts to combining prior art elements (Yellepeddy's energy optimization system with Forth's software techniques for acquiring such data) according to known methods (the use of RSS syndication feeds to acquire web data) to yield predictable results. Ex. 1003, ¶¶ 97–98. Yellepeddy merely states that information is acquired over the internet, and as Froth indicates (and as a POSA would have recognized), RSS feeds were already a well-known technique for compiling data from online sources that update the data frequently. *Id.*, ¶ 98.

Second, the proposed combination would involve the simple application of a known technique (Forth's use of RSS feeds to acquire web data from various information sources) to a known system (Yellepeddy's energy optimization system) ready for improvement to yield predictable results, namely, the real-time compilation of data from different energy plants. *Id.*, ¶ 99. Indeed, Forth envisions that the kind of data provided in the EEM software system includes the same kind of data collected and analyzed by Yellepeddy's power accounting software such as plant pricing data. Ex. 1005, 14:14-23 (noting that charts can “display any measure such as consumption, **cost**, weather and so forth over a common dimension such as date-time”); 15:9-11 (“**real time pricing**” may be included in plot for energy usage); *see also* Ex. 1006, [0029], [0045] (energy prices obtained from power accounting server, among other information).

Finally, a POSA would have had a reasonable expectation of success in making the combination. Yellepeddy discloses that any of its methods may be provided in software and stored as computer-executable instructions on one or more computer-readable media; Forth merely provides details on how such a software system may operate. Further, the proposed changes would at most require minor modifications in software that would have yielded predictable results regarding Forth's use of common methods of acquiring data over the web for analysis by a client software program. Ex. 1003:100.

Thus, claim 4 is obvious over the combination of Yellepeddy in view of Forth; alternatively, claim 4 is obvious over Yellepeddy in view of Gardner and Forth.

2. Claim 18

18. A programmable device comprising:

18.1. a processing means;

18.2. a memory in communication with the processing means comprising a logic component; and

18.3. a network interface in communication with the processing means and the memory;

18.4. wherein the processing means is configured to:

18.4.1. acquire operating environmental condition data relevant to the generation of electric power in a power grid system from an operating environment feed input;

18.4.2. analyze the operating environmental condition data to determine an indication of a high demand for electric power from the power grid system; and

18.4.3. cause a computational device to automatically reduce a current amount of consumption of electric power from the power grid system by the computational device if the analyzing determines the high electric power demand indication.

As discussed, claim 18 is at least obvious over Yellepeddy or Yellepeddy in view of Gardner. *See* Sec. II.D.10. However, to the extent limitation 18.4.1 is construed to require the use of RSS feeds to acquire data, such as in an XML format, such is obvious in further view of Forth, which does disclose this means of acquiring data. Ex. 1005, 18:26-36 (“[A]n Aggregation GUI 960, which may be web based, is also capable of being generated by the EES software application. The Aggregation GUI 960 may be a RSS aggregation view. . . . All RSS formats are currently serialized as XML 1.0.”); *see also* 20:1-11 (a service provider may provide the RSS-acquired data to the client software system). For the same reasons discussed regarding claim 4, a POSA would have been motivated to combine, and would have had a reasonable expectation of success in making the combination of Yellepeddy (alone or as modified by Gardner) and Forth. Sec. II.E.1, *supra* (4).

3. Claim 19

19. The programmable device of claim 18, wherein processing means is configured to:

19.1. regularly update the acquired the operating environmental condition data;

19.2. if changes are found in the updated environmental condition data, update an internal state table with new downloaded data from the operating environment feed input; and

As discussed, claim 18 is obvious over Yellepeddy (alone or as modified by Gardner) and Forth. Sec. II.E.2, *supra*. And for the reasons discussed in Section II.D.11, Yellepeddy, alone or as modified by Gardner, teaches the additional limitations of claim 19. Forth also provides additional implementation details, such as providing information via RSS feeds over HTTP web requests, relevant to claim 19 if it is governed by § 112, ¶ 6. *See* Sec. II.C.5. Therefore, claim 19 is also obvious over Yellepeddy (alone or as modified by Gardner) and Forth.

III. SECONDARY CONSIDERATIONS

This Request demonstrates that the Challenged Claims of the '243 Patent are unpatentable as obvious in view of the prior art references. The Applicant did not identify any evidence of secondary considerations during prosecution. Further, the clear teachings in the prior art cannot be overcome by any supposed "secondary considerations." *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 36 (1966).

IV. DISCLOSURE OF CONCURRENT LITIGATION, REEXAMINATION, AND RELATED PROCEEDINGS

Based on information available to Requester, the '243 Patent is the subject of one prior District Court litigation, provided below. Requester is unaware of any prior reexaminations or other post-grant proceedings in which the '243 Patent is or has been involved.

- *Graphite Charging Company v. Tesla, Inc.*, 1:23-cv-00925 (W.D. Tex.).

V. CONCLUSION

The Commissioner is hereby authorized to charge Deposit Account 50-6990 under Docket No. GRA243 the *Ex Parte* Reexamination fee of \$12,600 under 37 C.F.R. § 1.20(c)(1). Requester believes no other fee is due with this submission, however the Commissioner is hereby authorized to charge any fee deficiency or credit any over-payment to Deposit Account 50-6990.

Please direct all correspondence in this matter to the undersigned.

Dated: 11/21/23

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