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[Bearbox LLC v. Lancium LLC](#)

United States District Court for the District of Delaware

March 6, 2023, Decided; March 6, 2023, Filed

C.A. No.21-534-GBW

Reporter

2023 U.S. Dist. LEXIS 36554 *; 2023 WL 2367390

BEARBOX LLC and AUSTIN STORMS, Plaintiffs, v.
LANCIUM LLC, MICHAEL T. MCNAMARA, and
RAYMOND E. CLINE, JR., Defendants.

March 6, 2023

Wilmington, Delaware

Subsequent History: Appeal filed, 05/22/2023

/s/ Gregory B. Williams

Prior History: [Bear Box LLC v. Lancium LLC, 2022 U.S. Dist. LEXIS 8513, 2022 WL 605326 \(D. Del., Jan. 18, 2022\)](#)

GREGORY B. WILLIAMS

UNITED STATES DISTRICT JUDGE

Core Terms

matter of fact, Email, source code, conceived, load, clear and convincing evidence, miners, inventor, subject matter, mining, Diagram, communicated, grid, Sheet, computing, corroborates, energy, monitored, credibly, conditions, electrical, software, parties, fail to prove, threshold, patent, real-time, interval, consumption, datacenters

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Chad. S.C. Stover. Mark C. Nelson, Darrick J. Hooker, Adam M. Kaufmann, Dana Amato Sarros, David M. Lisch, BARNES & THORNBURG LLP, Wilmington, Delaware, Counsel for Defendants.

Judges: GREGORY B. WILLIAMS, UNITED STATES DISTRICT JUDGE.

Opinion by: GREGORY B. WILLIAMS

Opinion

The Court held a three-day bench trial on the issue of correction of inventorship brought by Plaintiffs BearBox LLC and Austin Storms (collectively, "Plaintiffs" or "BearBox").¹ See D.I. 103. Plaintiffs alleged at trial that (1) Storms is the sole inventor of United States Patent No. 10,608,433 ("the '433 patent") and, thus, the '433 patent must be corrected to list Austin Storms as the sole inventor; or (2) alternatively, Storms is a joint inventor of some claimed subject matter of the '433 patent and, thus, the '433 patent must be corrected to list Austin Storms as a joint inventor. The parties have submitted post-trial briefing, see, e.g., D.I. 256; D.I. 258; D.I. 260; [*2] D.I. 261, and proposed findings of fact, see, e.g., D.I. 257; D.I. 259.

The Court has separately set forth its findings of fact and conclusion of law as required by [Federal Rule of Civil Procedure 52\(a\)\(1\)](#).

¹In response to the Operative Complaint, see D.I. 103, Defendants filed counterclaims for declaratory judgment that Austin Storms is not an inventor of the '433 patent (Count I) and declaratory judgment that BearBox has no ownership rights in the '433 patent (Count II). See D.I. 145. Defendants' declaratory judgment counterclaims rise and fall with Plaintiffs' claims of sole and joint inventorship. for Great American Mining. Tr. 109:2-13. At the time this case was filed, Storms was a citizen of Louisiana. See D.I. 239-1, Ex. 1 at ¶ 2.

I. FINDINGS OF FACT²

A. The Parties

1) Plaintiff Austin Storms ("Storms") is the founder and sole employee of BearBox LLC. Tr. 106:22-107:2. Storms is a college graduate with a degree in geology and geographic information systems. Tr. 42:13-43:20; Tr. 110:10-12. Storms is currently employed by Galaxy Digital as the Vice President of Mining Operations, see Tr. 109:14-16, and has previously worked

2) Plaintiff BearBox LLC ("BearBox") was founded by Storms in late 2018 to design and develop mobile cryptocurrency datacenters. Tr. 46:16-47:24; Tr. 106:22-107:2. BearBox is a Louisiana limited liability company with a principal place of business at 4422 Highway 22, Mandeville, Louisiana 70471. See D.I. 239-1, Ex. 1 at ¶ 1. BearBox has only ever sold one of its BearBox mobile cryptocurrency datacenter containers and did not turn a profit. Tr. 132:7-11. Today, BearBox manufactures no products, has one employee, i.e., Storms, and has no assets. Tr. 110:1-7.

3) Defendant Michael McNamara ("McNamara") is the Chief Executive [*3] Officer and co-founder of Lancium LLC. Tr. 532:25-533:3. McNamara is a resident of Newport Beach, California. See D.I. 239-1, Ex. 1 at 14; Tr. 532:23-24.

4) Defendant Raymond Cline, Jr. ("Cline") is a co-founder of Lancium LLC. Tr. 435:23-25. Cline has a B.S. degree in chemistry and a Ph.D. in chemical physics, see Tr. 432:6-7; Tr. 432:12-16, and has experience with computer programming and smart grid technology. Tr. 432:17-434:2. Cline personally mined the cryptocurrency "Bitcoin" between 2015 and 2017. Tr. 434:3-435:22. Cline is a resident of Houston, Texas. See D.I. 239-1, Ex. 1 at ¶ 5.

5) Defendant Lancium LLC ("Lancium") was founded in November 2017. Tr. 436:12-14; Tr. 533:4-5. Lancium is a Delaware limited liability company with its principal place of business at 6006 Thomas Road, Houston, Texas 77041. See D.I. 239-1, Ex. 1 at ¶ 3. Lancium's operations predominately stem from its Thomas Road R&D Facility in Houston, Texas. Tr. 448:24-450:3-21.

B. The Parties' Witnesses

1. Plaintiffs' Witnesses

a. Fact Witnesses

6) Austin Storms.

b. Expert Witnesses

7) Dr. Stanley McClellan ("Dr. McClellan") is a professor of electrical and computer engineering at the Ingram School of Engineering, Texas [*4] State University. TX-19; Tr. 267:24-268:1. Dr. McClellan is an expert in distributed energy systems and smart grid technology. Tr. 271:7-274:24.

8) Frank McCamant ("McCamant") is an expert in electric utilities and ERCOT electricity markets. TX-983; Tr. 179:22-180:2. McCamant owns and operates McCamant Consulting, an Austin, Texas based firm that advises public and private entities on power development projects and the ERCOT market. Tr. 172:3-179:25.

2. Defendants' Witnesses

a. Fact Witnesses

9) Michael McNamara.

10) Raymond Cline, Jr.

11) Denis Labij ("Labij") is the current Vice President of Power Markets at GlidePath, and previously served as a GlidePath business development lead. Tr. 607:19-608:4. Labij was introduced to Storms through Benjamin Hakes, see Tr. 608:8-21, and discussed topics related to power markets with Storms. Tr. 608:14-622:5; TX-146.

12) Benjamin Hakes ("Hakes") was a project management consultant at GlidePath. Tr. 624:4-7. Hakes first contacted Storms through Twitter due to their mutual interest in Bitcoin. TX-15; Tr. 624:11-625:3. Hakes and Storms have never met in person, but have communicated via email, text message, and phone calls. Tr. 625:8-626:13.

b. Expert Witnesses [*5]

² The Court's Findings of Fact are cited as "FF ¶__."

13) Nikolaus Baer ("Baer") is an expert in software and source code development and analysis. Tr. 642:8-10. Baer holds a Bachelor of Science degree in computer engineering, has extensive experience in the computer code languages Python, C, C++, and JAVA, and is the founder of Baer Consulting, a firm which provides services for examining, analyzing, and developing software and source code. Tr. 638:7-642:7; TX-829.

14) Dr. Mark Ehsani ("Dr. Ehsani") is an expert in electrical engineering, including power control of datacenters and power markets. Tr. 678:12-15. Dr. Ehsani is currently the Robert M. Kennedy Professor of Electrical and Computer Engineering at Texas A&M University and is a distinguished lecturer at the Institute of Electrical and Electronics Engineers. Tr. 674:11-678:11; TX-831. Plaintiffs did not contest that, as related to the '433 patent, Dr. Ehsani is a person of ordinary skill in the art. Tr. 276:14-277:1.

C. The Invention at Issue

15) United States Patent No. 10,608,433 ("the '433 patent") is titled "Methods and Systems for Adjusting Power Consumption Based on a Fixed Duration Power Option Agreement," and was issued by the United States Patent and Trademark Office ("USPTO") on March [*6] 31,2020. See generally '433 patent³; see also D.I. 239-1, Ex. 1 at ¶ 6. The '433 patent lists Michael McNamara and Raymond Cline, Jr. as the inventors. See '433 patent at Cover.

16) The '433 patent issued from United States Patent Application No. 16/702,931, which was filed on December 4, 2019. See D.I. 239-1, Ex. 1 at 17; see '433 patent at Cover. The '433 patent claims priority to United States Provisional Patent Application No. 62/927, 119 ("the '119 Application"), which was filed on October 28, 2019. D.I. 239-1, Ex. 1 at ¶ 6; see '433 patent at Cover.

17) The '433 patent relates to a set of computing systems that are configured to perform computational operations using power from a power grid. See '433 patent at 5:48-49. The '433 patent also relates to a control system that monitors a set of conditions, receives power option data that is based, at least in part, on a power option agreement, which specifies minimum power thresholds associated with time intervals. See *id.* at 5:50-55. The set of computing

systems may also determine a performance strategy for a load based on a combination of the power option data and one or more monitored conditions. *Id.* at 5:55-60. The performance strategy may specify a power consumption target for the load for each time interval such that each power consumption [*7] target is equal to or greater than the minimum power threshold associated with each time interval. *Id.* at 5:60-6:13. More so, the computing systems may provide instructions the set of computing systems to perform one or more computational operations based on the performance strategy. See *id.* at 6:14-65.

18) The '433 patent has twenty (20) claims. See '433 patent at claims.

19) Plaintiffs contend, see D.I. 256 at 6, and Defendants do not dispute, see D.I. 258 at 9 n.4, that independent claims 1, 17, and 20 of the '433 patent contain substantially the same claim limitations, except that claims 17 and 20 do not require using power from a grid. See '433 patent at claim 17, 20. When discussing the independent claims of the '433 patent, rather than shift between claims 1,17, and 20, the Court will, unless otherwise indicated, substantively discuss only independent claim 1 of the '433 patent.

20) Claim 1 of the '433 patent reads:

1. A system comprising:

[a] a set of computing systems, wherein the set of computing systems is configured to perform computational operations using power from a power grid;

[b] a control system configured to:

[b1] monitor a set of conditions;

[b2] receive power option data based, at least in part, on a power option agreement, wherein the power option [*8] data specify: (i) a set of minimum power thresholds, and (ii) a set of time intervals, wherein each minimum power threshold in the set of minimum power thresholds is associated with a time interval in the set of time intervals;

[b3] responsive to receiving the power option data, determine a performance strategy for the set of computing systems based on a combination of at least a portion of the power option data and at least one condition in the set of conditions, wherein the performance strategy comprises a power consumption target for the set of computing systems for each

³ Although the '433 patent was admitted into evidence as TX-1, the Court will cite to the patent rather than the exhibit.

time interval in the set of time intervals, wherein each power consumption target is equal to or greater than the minimum power threshold associated with each time interval; and

[b4] provide instructions to the set of computing systems to perform one or more computational operations based on the performance strategy.

See '433 patent at claim 1.

21) For ease of reference, the Court will follow the parties' practice at trial and throughout the post-trial briefing by referring to each element of claim 1 by the associated label above, e.g., "[b1]," "[b2]," etc.

22) The parties do not dispute that a person of ordinary skill in the art [*9] ("POS A") is one who holds a degree in electrical engineering, computer science, or a similar field and has one to two years of experience in the field of software or an equivalent level of experience, or a bachelor's degree in electrical engineering, computer science, or a similar field, plus at least two years of experience designing and/or implementing power control systems for datacenters. Tr. 276:14-277:3.

D. Energy and ERCOT Markets⁴

23) The electrical grid is an interconnected system of generators, transmitters, and consumers that must be managed to ensure reliability. Tr. 180:8-25. A consumer of electricity is called a "load." Tr. 181:1-6. A manager of an electrical grid is called an "independent system operator," or "ISO." Tr. 181:15-25. ISOs manage the electrical grid by creating and managing energy markets to ensure a balance between supply and consumption (by the load) of power. A form of balance that ISOs utilize are called "ancillary services," which are a type of demand response that provide capacity reserves to ensure that the system capacity meets the system demand for electricity or power. Tr. 188:7-189:19, 206:7-10, 207:16-20.

24) The Electric Reliability Council of [*10] Texas ("ERCOT") is an ISO that operates a day-ahead energy market ("DAM") for buyers and sellers of energy that is voluntary, but financially binding. Tr. 202:8-11, 202:18-

20. If a load buys energy in the DAM, it must pay for that energy, but it does not have to use that energy. Tr. 203:4-24. Instead, the load could sell that power in the real-time energy market ("RTM"), which is called "sell-back." Tr. 203:15-20, 203:25-204:13.

25) ERCOT's energy markets are different markets than ERCOT's ancillary services market. Tr. 201:19-21. ERCOT's ancillary services market gives ERCOT the ability to decrease the amount of energy being used by participating loads. Tr. 207:4-7. A qualified scheduling entity ("QSE")—which is a required entity in the ancillary services market that acts as an intermediary between ERCOT and the load—submits an ancillary services offer and is granted an "award," which specifies minimum amounts of power the load has to use during specific time intervals during the operating day. Tr. 189:24-190:13; Tr. 192:6-11. Thereafter, the load is obligated to use, i.e., it cannot "sell-back," the amount of energy that is subject to the award, even if it is unprofitable to use the [*11] energy. Tr. 208:9-209:22; see also Tr. 207:25-208:8. A load that receives an ancillary services award is compensated by a "capacity payment," regardless of whether the load's power consumption is curtailed by ERCOT. Tr. 207:8-11, 209:23-210:9, 212:5-16; see also Tr. 190:14-24. ERCOT's ancillary services market has existed since early 2000. Tr. 194:1-3.

26) A controllable load resource ("CLR") is a participant in the ancillary services market and can submit ancillary services offers in incremental amounts of power. Thus, a CLR can incrementally reduce its power consumption rather than simply shutting the load completely off when curtailed by ERCOT. Tr. 194:9-198:24:

E. Timeline of the Parties' Relationship and Communications

1. Storms - Pre-FCAT Mining Summit

27) In 2017, Storms designed and built a half-megawatt datacenter for Bitcoin mining in his father's karate studio, but Storms' implementation was unprofitable due to the price of electricity. Tr. 43:21-46:6.

28) By late-2018, Storms began developing shipping containers that would house cryptocurrency miners, with the intention that such containers could be placed anywhere and be controlled remotely. Tr. 47:14-52:4. Storms' development [*12] (the "BearBox System") led to the founding of BearBox LLC. Tr. 40:17-25; Tr. 47:3-

⁴McCamant testified about the general nature and functionality of energy grids and the ERCOT market. Tr. 179:22-180:2. The Court finds this testimony credible and, therefore, relies on it.

13.

29) Through late-2018 into early 2019, Storms began to design, build, and test a system of relays, power distribution units ("PDUs"), and a computer user interface that allowed a remote user to control individual relays so that miners could be turned on and off. Tr. 46:52-52:13; *see, e.g.*, TX-128; TX-129; TX-130; TX-131; TX-132; TX-134; TX-138. Storms developed the BearBox System in his apartment and in the workshop of Jason Hutzler, an electrician and friend of Storms. Tr. 52:3-4; *see also* Tr. 48:24-49:10.

30) Around November 26, 2018, Storms met Benjamin Hakes, a representative at GlidePath, through Twitter. Tr. 56:12-58:8; TX-15 at 4. GlidePath is a wind asset and battery asset-generated developer, not a Bitcoin mining company. Tr. 58:1-8. Storms and Hakes began discussing how GlidePath could develop a system that mined cryptocurrency when electricity prices are low but sold wind energy to the grid when prices are favorable. Tr. 58:9-60:4. By December 10, 2018, Storms had signed a non-disclosure agreement with GlidePath. *See* TX-932.

31) On November 28, 2018, Hakes explained to Storms the concept of **[*13]** "behind the meter," TX-932 at 10001043, which means that the load is connected directly to a power generation entity, i.e., a wind farm, and transmits power to the load before transmitting power to the grid. Tr. 439:17-440:1. Between November 2018 and April 2019, Hakes also explained the meaning of locational margin price ("LMP"), power purchase agreement ("PPA"), and day-ahead price. *E.g.*, TX-14 at 21-22. LMP correlates to the price that a generator receives for selling power to the grid in a specific location, *see* TX-14 at 21, which Storms agreed is "shorthand" for the price of power. Tr. 60:23-61:4.

32) On April 5, 2019, Hakes wrote to Storms:

It'll be super cool to write a little Python script that ran on the UPS at the mining site that looked at the LMP, locational marketing price, pricing at the wind farm feed and power on/off based on whether or not the LMP is above or below, so \$0.03 per kilowatt hour.

See TX-14 at 21; Tr. 59:7-18, 60:23-61:4.

33) Storms then began to write source code for his BearBox system, *see* Tr. 52:14-24, and brainstormed the functionality of his source code on whiteboards ("Storms' Source Code"). *See, e.g.*, TX-20; TX-24; TX-32; TX-46; TX-47; TX-48; TX-49; **[*14]** TX-139; TX-140;

TX-144. 34) On April 11, 2019, Storms wrote to Hakes:

Let's talk some about the LMP check when you get a chance - I think I can model profitability of mining with LMP logic over a week or so vs. just selling @ LMP. If so, that's a game changer and we can develop it together to sell the system or full IP to the highest bidder. And realistically, the model will use on-site minding data with price API data to dynamically calculate what LMP selling power back to the grid is more profitable than mining. That's the real [arbitrage].

See TX-14 at 25.

35) Storms testified that he "wanted to talk to [Hakes] about the LMP check, because [he] thought that there was a way that [he] figured out [the profitability] of mining with the LMP logic over a week or so versus just selling power at the LMP. So you could dynamically compare the two and that realistically the model that [he] was working on at the time would use the onsite mining data and the Bitcoin price API data to calculate that profitability threshold or that LMP number." Tr. 60:9-17. Storms further testified that he believed this was "the real arbitrage opportunity," *see* Tr. 62:13, because "it would allow units of electricity **[*15]** to be sold at the most opportunistic price. This would be the arbitrage, that is the units of electricity price in the Bitcoin that they would mine in dollars versus being able to sell that back to the grid in dollars." Tr. 62:19-24.

36) On April 19, 2019, Storms sent a text message to Hakes that included an annotated diagram titled "BearBox Automatic Miner Management System Version 1.0." TX-14 at 26-27. At trial, Storms explained that this annotated diagram illustrated his BearBox System, which embodied a scenario where the power entity would either use the generated power or sell that power to the grid at the real-time LMP price based on the price of power. Tr. 63:13-65:1; TX-14 at 27.

37) On April 23, 2019, Storms told Hakes that he "got the model running," and "[t]his is one of the coolest things I've ever put together FYI - thanks for the idea." TX-14 at 28. Storms explained to Hakes that his model compared "real time LMP vs. network hashrate profitability in 5 min increments." *Id.* At trial, Storms testified that the 5-minute intervals correlated to the frequency that the code would compare "mining versus what would be selling back power to the grid, if you were a generation asset **[*16]** owner." Tr. 67:3-11.

38) On April 24, 2019, Storms emailed Labij with questions related to energy markets, because Storms

"didn't understand a few things about the market." TX-146; Tr. 72:8-73:8. At the time, Labij was "one of the power market guys at GlidePath." Tr. 72:13-14.

39) Labij responded on April 25, 2019, and described how Storms' Source Code could analyze profitability for Bitcoin mining. TX-962. Labij explained to Storms the need to calculate a Bitcoin breakeven price, how to calculate the revenue that could be earned by selling back power in the real-time market, and how to compare the profitability of mining Bitcoin to selling-back power in the real-time market. See TX-962; Tr. 610:8-619:10.

40) Storms responded on April 26, 2019, thanked Labij for his explanations, and stated that "it helps tremendously in my understanding of how these markets work. I was able to build a workaround to the portal access issue and fetch both the day-ahead LMP data and the 5-minute RTBM LMP data." IX-149.

41) Storms' Source Code was completed by May 7, 2019. Tr. 67:19-68:21; Tr. 74:18-77:17. Neither party disputes that Storms' Source Code, including the whiteboard depictions, was never provided [*17] to Defendants. Tr. 115:18-22; Tr. 565:3-6; see also Tr. 418:21-419:3.

42) Both parties offered expert testimony related to the functionality and operation of Storms' Source Code. Plaintiffs' expert, Dr. McClellan, analyzed Storms' Source Code and concluded that, while never shown to Defendants, it corroborates that Storms conceived of each claim of the '433 patent. Tr. 281:8-307:8. Defendants' expert, Baer, analyzed Storms' Source Code and concluded that "the BearBox source code does not support the conception of the claims of the '433 patent." Tr. 642:13-18. Based on the experts' respective testimony and expert reports, the Court finds Baer's testimony related to the functionality and operation of Storms' Source Code to be more credible than Dr. McClellan's.

43) Baer testified that Storms' Source Code falls into three categories: (1) a user interface that would provide some manual control of a power distribution unit (PDU); (2) retrieving publicly available Bitcoin and power pricing data; and (3) simulations comparing profitability of mining Bitcoin versus selling power. Tr. 643:5-15.

44) The first category of Storms' source code is dated after May 3, 2019. Tr. 645:1-9. Baer testified that this category of [*18] Storms' Source Code allows a user to manually control the PDU relays attached to Bitcoin miners but is in no way associated with the other two

categories of Storms' Source Code. Tr. 643:16-645:9. Storms acknowledged that this category of source code did not have anything to do with Storms' Data File, see *infra* Section I.E.4.C. See Tr. 157:18-158:7. Based on Storms' concession and Baer's credible testimony, the Court finds as a matter of fact that the first category of Storms' Source Code did not relate to the subject matter claimed in the '433 patent.

45) The second category of Storms' Source Code comprises the files "DA_LMP_import.py," "DA_LMP_import_AEC.py," and "LMP_csv_import.py." See TX-20 at 25, 27; see also TX-49. Baer testified that this second category of Storms' Source Code retrieved publicly available information related to the price of Bitcoin and power. Tr. 645:10-646:24.

46) The third category of Storms' Source Code includes the files "denis_logic.py" (see TX-22; TX-20 at 13-19), "denis_logic_newgen.py" (see TX-20 at 4-10), "test_profit.py" (see *id.* at 29-32), "arb_main_AEC.py" (see TX-24), and "miner_amort_breakeven.py" (see TX-46). Baer credibly testified these source code files [*19] are simulations of the BearBox System that compare profitability of mining Bitcoin against selling power. See, e.g., Tr. 647:2-4; Tr. 648:2-6, 655:15-656:2.

47) Baer further testified that the third category Storms' Source Code generally follows the same logic-steps: first, Storms' Source Code retrieves publicly available Bitcoin information; second, Storms' Source Code retrieves the day-ahead and real-time energy prices; third, Storms' Source Code calculates a breakeven mining cost; and fourth, Storms' Source Code compares the breakeven cost to the day-ahead and real-time energy prices. If either energy price is greater than or equal to the breakeven cost, Storms' Source Code sends signals to turn off all miners connected to the BearBox System. If energy price is less than the breakeven cost, Storms' Source Code sends signals to turn on all miners connected to the BearBox System. Tr. 647:5-653:23, 658:23-659:3; see also TX-22. Baer conceded that Storms' Diagram, see *infra* Section I.E.4.b, demonstrates the functionality of this category of Storms' Source Code. Tr. 671:10-672:1.

48) Baer also credibly testified that the third category of Storms' Source Code runs on a cycle, meaning that [*20] the simulation re-runs every five (5) minutes. Tr. 654:13-25. Re-running the simulation of Storms' BearBox System every five minutes is a fixed value within Storms' Source Code, is not received, and is not associated with an amount of power. Tr. 655:1-11; Tr. 666:10-19.

49) Further, Baer credibly testified that the only concept of power usage in Storms' Source Code is the value "kW_load." Tr. 660:3-662:16. However, Baer explained, and Storms agreed, see Tr. 146:23-147:6, that the "kW_load" value is a single, hard-coded value, meaning the only way to modify that value is to physically change the code—such as through the code's interpreter. Tr. 660:3-661:16, 665:12-666:9; see also Tr. 661:17-662:16. The "kW_load" value is not received by the BearBox System or Storms' Source Code, and both Baer and Dr. McClellan testified that the "kW_load" value is an estimate of the amount of power that the BearBox System uses, which includes a 5% "fudge factor," i.e., an overestimate of the amount of power the BearBox System uses. Tr. 665:12-666:9; see also Tr. 282:19-283:9, 294:22-295:6, 297:14-22; TX-24 at 1; Tr. 420:12-18, 424:5-11.

50) Baer also credibly testified that the files in the third category [*21] of Storms' Source Code are all substantially similar. Tr. 656:3-9. For example, the only differences between "denis_logic.py" and "arb_main_AEC.py" are different values for some variables, such as the hard-coded "kWload" value, minor differences in how data is written to a spreadsheet similar to Storms' Data File, see *infra* Section I.E.4.C, and other minor differences that do not impact the logic or functionality. Tr. 656:10-658:22. Other files in this category, such as "test_profit.py," do not include all of the logic steps in "denis_logic.py." Tr. 658:23-659:18. None of the files that analyze whether to turn miners on or off by comparing the breakeven price of Bitcoin to the real-time and day-ahead energy prices pre-date the "denis logic" files. See, e.g., TX-20 at 1; TX-24 at 5; TX-46 at 5.

2. Lancium - Pre-FCAT Mining Summit

51) Lancium was formed in November 2017 with the intention of co-locating flexible data centers, such as Bitcoin miners, at windfarms to exploit the highly variable power output of windfarms. See, e.g., Tr. 436:12-14; Tr. 437:11-438:16; Tr. 533:4-5; see also TX-373; TX-374 at 00025182; Tr. 541:21-542:15; TX-266 at 00020054. Lancium sought to "ramp down" its flexible [*22] datacenters to allow the wind farm to sell that power to the grid when energy prices were high, but when power prices were low, Lancium would "ramp up" its flexible datacenters. Tr. 438:10-439:16; TX-266 at 00020049; TX-374 at 00025182; Tr. 533:22-534:16; TX-372 at 00025166; Tr. 539:9-540:21, 541:5-20. Lancium's co-location was "behind-the-meter," and Lancium would

agree to curtail its power usage based on real-time signals so that the windfarm could capture times when the price of power was high ("Lancium's Proposal"). Tr. 546:13-22.

52) By at least October 2018, Lancium performed analyses of how much more value windfarms would receive under Lancium's Proposal, see, e.g., Tr. 546:17-547:2, 551:24-552:17; TX-176, including an analysis for GlidePath in November 2018. See TX-233; TX-234 at 00018300; TX-795; see also Tr. 547:15-548:1, Tr. 548:10-549:17; TX-478.

53) Around May 2018, Lancium became a market participant in ERCOT to enable Lancium to obtain data, such as power price data, that could allow it to make contemporaneous decisions on its energy usage. Tr. 544:6-545:7; see also TX-711; TX-712.

54) Lancium filed WO Patent Application No. 2019/139632 ("the '632 Application"), titled [*23] "Method and System for Dynamic Power Delivery to a Flexible Datacenter Using Unutilized Energy Sources," which names both McNamara and Cline as inventors and has a priority date of January 2018. TX-163 at Cover. Figure 6 of the '632 Application depicts the flexible data center (200) connected to the wind farm, as well as connections to the local power substation (690) and the grid (660). Tr. 441:13-442:7; TX-163 at Fig. 6; see also TX-163 at ¶¶ 53-54. Figure 2 of the '632 Application shows individual computing systems (100) of the flexible datacenter organized into racks and subsets (240), as well as a datacenter control system (220), which may be a computing system configured to "dynamically modulate power delivery to one or more computing systems (100)." Tr. 442:8-443:8; TX-163 at Fig. 2, ¶¶ 22, 30, 33, 38.

55) The '632 Application also describes that the flexible datacenter—based on an operational directive or via a determination based on monitored conditions, including economic conditions—would control its computing systems on a granular level, i.e., control on the individual computing system or collections of computing system level, to ensure that its systems consumed less power [*24] than the windfarm would generate. TX-163 at ¶¶ 22, 33, 44; Tr. 444:16-445:19. Thus, the flexible datacenter would monitor directives from the wind farm (and potentially the grid operator) indicating how much power the flexible datacenter could consume. TX-163 at ¶¶ 68, 90, Fig. 9; Tr. 445:2-446:10.

56) Cline credibly testified that, by the time the '632 Application was filed, Lancium monitored various

conditions including receiving information on forecasts affecting the price of power and "economic considerations," such as the real-time price of power, the price of Bitcoin, and other information enabling Lancium to determine whether it was profitable to mine. Tr. 446:11-448:6; see *also* Tr. 542:16-544:5; TX-594 at 00033410; see *also* TX-163 at Figs. 4, 9, ¶¶ 42, 44, 68-72.

57) No later than October 2018, Lancium was operating one-hundred and twenty (120) cryptocurrency miners at its Thomas Road R&D Facility in Houston, Texas. Tr. 448:24-450:21; TX-462, TX-463 at 00027993. To control its miners, Lancium modified off-the-shelf software from software companies ServiceNow and Tier44. Tr. 451:9-452:9. At its Thomas Road R&D Facility, Lancium's system was monitoring some of the information disclosed [*25] in the '632 Application, including power and Bitcoin price, to determine a performance strategy based on whether it was profitable to mine Bitcoin. Tr. 467:24-468:4. Based on such information and the information now available based on its status with ERCOT—including the network and global hashrate—, Lancium calculated the "breakeven price" for different types of miners, see, e.g., Tr. 469:13-470:11; TX-222; TX-223, and used this calculation to determine when to turn miners on or off. See, e.g., Tr. 470:12-471:1, 472:6-473:4, 477:18-20, 478:12-479:2 (citing TX-345 at 00024902). Calpine Energy Solutions ("Calpine") provided electricity for Lancium's Thomas Road R&D Facility, see Tr. 570:5-21, and Lancium maintained a "first power agreement" with Calpine until August 2019, meaning that Lancium paid the current market price for whatever power Lancium consumed. Tr. 574:7-12.

58) Lancium demonstrated its live system, including its 120 cryptocurrency miners, for an investor in September 2018. Tr. 459:16-461:14; TX-189 at 00015148-49; Tr. 464:14-465:4; TX-176 at 00014628-29; Tr. 465:5-468:4; TX-179; TX-180. At this time, Lancium also contemplated its system monitoring LMP, ERCOT parameters, [*26] and weather conditions, see, e.g., Tr. 471:2-472:5; TX-222; TX-223, and controlling its systems remotely from its Network Operating Center, see, e.g., Tr. 463:24-464:13; TX-176 at 00014629, or via a mobile computing device, see, e.g., TX-163 at ¶¶ 29-30; TX-189 at 00015148-149.

59) On January 11, 2019, Lancium filed United States Patent Application No. 16/245,532 ("the '532 Application") titled "Redundant Flexible Data Workload Scheduling." TX-165 at 00003135. The '532 Application lists McNamara and Cline as inventors. *Id.* at 00003137.

Among other disclosures, the '532 Application disclosed:

Some embodiments may involve identifying that a particular computational operation is a high priority operation. For instance, the enterprise funding the computational operation may emphasize the high priority status of the computational operation. In addition, the deadline for completing the computational operation may signal that the computational operation is high priority. As a result, a control system or another computing system may assign the high priority computational operation to multiple flexible datacenters. The assignment may specify for one or more flexible datacenters to initially support [*27] the computational operation and for one or more flexible datacenters to serve as a back-up in case of failure of the flexible datacenter(s) currently supporting the computational operation. The assignment of the computational operation may be based on power conditions and computational availability at the various flexible datacenters.

See TX-165 at ¶ 53.

60) Beginning in 2019, Lancium began to internally develop software as a primary platform for controlling its cryptocurrency miners. Tr. 477:18-478:11, 479:3-480:21; Tr. 481:12-482:16; TX-345 at 00024901. Around April 2019, Lancium investigated using an application program or interface to automatically retrieve LMP data directly from ERCOT. Tr. 480:22-481:11; TX-501. Cline credibly testified that, by May 1, 2019, Lancium's software was monitoring signals from a wind farm, ERCOT, Bitcoin price, real-time power price, hashrate, block height, and from the miners themselves—including the miners' actual power usage. Tr. 482:17-484:6; TX-320 at 00024330-32. Using that information, Lancium's software could determine a target power level that the miners should operate at and then send instructions to some or all of the miners to suspend or restart [*28] their hashing algorithms. Tr. 482:17-484:6; TX-320 at 00024330-32. Lancium's software eventually became known as "Lancium Smart Response," see, e.g., Tr. 484:7-17; TX-320 at 0024330-31, and would operate by receiving the "Load Limit Setpoint," i.e., the maximum amount of power Lancium could use, and then determining whether to use all, some, or none of that available power based on multiple variables or conditions. Tr. 484:18-487:7; TX-320 at 00024331-332. Lancium's Smart Response Software would also adjust to changes in the Load Limited Setpoint within an associated compliance period. See TX-320 at 00024333-34, Fig. 4-1.

61) Between 2018 and 2019, while Lancium was developing the software that became Lancium Smart Response, Lancium also worked with various companies to design and manufacture portable mining containers. Tr. 454:20-455:17; TX-371 at 00025037; Tr. 455:18-456:24, 457:7-17; *see also* TX-979. As of May 1, 2019, Lancium was considering purchasing forty (40) foot, two megawatt boxes holding approximately 1,428 cryptocurrency miners that met industry safety and security standards from manufacturer JV Driver/Ready Engineering, all for an estimated cost of approximately \$230,000. [*29] Tr. 475:5-24; TX-781 at 00021534; Tr. 552:23-553:24.

62) By at least May 2, 2019, Lancium was considering whether it could apply its developed technology to grid applications when, at lunch with two cryptocurrency business developers—including Jamie McAvity—, McNamara learned that participating in demand response programs within ERCOT could effectively discount the price of power from the grid. Tr. 556:22-558:13, 559:3-15; *see also* TX-748.

3. FCAT Mining Summit

63) On May 3, 2019, Storms attended the FCAT Mining Summit in Boston, Massachusetts to learn more about the cryptocurrency industry, what others in the industry were doing, and to meet potential customers for his BearBox containers. Tr. 77:18-78:18; Tr. 110:21-111:7; TX-52 at 2. Prior to attending the FCAT Mining Summit, Storms sent a text message to Hakes explaining that Storms was "going to poke around and figure out if anybody else is doing what we're doing." Tr. 118:5-8. Storms testified that "what we're doing" referred to his work with Hakes and GlidePath. Tr. 118:9-11.

64) During the FCAT Mining Summit, McNamara continued his discussion with Jamie McAvity about demand response programs within ERCOT. Tr. 559:19-560:2.

65) Both [*30] parties agree that, immediately following the FCAT Mining Summit, Storms met McNamara at a cocktail reception. Tr. 79:3-5. Before May 3, 2019, Storms had no knowledge of Lancium, and had never met or heard of McNamara. Tr. 116:13-17. Following the cocktail reception, a group of approximately eight people, including Storms and McNamara, went to dinner. Tr. 113:10-13; Tr. 216:12-14. Jon Cohen, the Chief Financial Officer of Lancium at the time, also attended this dinner, *see* Tr. 82:22-24, as well as Jamie McAvity. Tr. 113:10-114:12; Tr. 560:3-14.

66) The dinner lasted approximately two hours. Tr. 115:16-17. Storms sat across the table from McNamara. Tr. 115:7-15, 116:18-19. There is no dispute that Storms never showed McNamara or Jon Cohen any documents or source code at dinner. Tr. 115:18-116:4. Storms testified that he, McNamara, and Jon Cohen discussed the BearBox System, to which McNamara and Jon Cohen showed interest. Tr. 84:12-23. McNamara admits that Storms discussed his BearBox container, and that McNamara showed interest in its specifications and price. Tr. 563:3-12. McNamara and Storms did not discuss demand response programs or ancillary services. Tr. 562:25-563:2. Based on [*31] these facts, the Court finds as a matter of fact that Plaintiffs have failed to prove by clear and convincing evidence that Storms communicated the subject matter claimed in the '433 patent to McNamara, or anyone else employed by Lancium, during the May 3, 2019, dinner.

67) At dinner, Storms had at least two glasses of wine. Tr. 115:3-6. Following dinner, McNamara and Storms exchanged phone numbers. Tr. 84:24-85:2. Storms and McNamara never met again, and Storms never met or spoke to Cline or any other employee at Lancium. Tr. 116:8-12, 145:6-7. Ultimately, Storms never worked with Lancium. Tr. 144:25-145:7.

4. Storms' Email

68) On May 4, 2019, Storms contacted McNamara via text message. TX-742 at 00035256. The next day, Storms wrote: "I'll put some feelers out to some of my PM friends this week about what we talked about Fri night." *Id.* Neither party disputes that, at the time, Lancium was seeking product managers for their traditional computing business, and that Storms offered to contact possible product managers in his network. Tr. 92:5:12; Tr. 563:13-22.

69) On May 5, 2019, McNamara sent a text message to Storms stating: "I also think your boxes may have some benefits vs the ones we are doing [*32] with JB [sic] driver[.] Lots of stuff to collaborate on." TX-742 at 00035256. Storms responded: "Absolutely, I can send you specs on the boxes/PDUs/logic design - what's your email?" *Id.* McNamara then responded with his Lancium email address. *Id.*

70) On May 6, 2019, Storms sent a text message to Hakes, stating: "There are people doing what we're trying to do in ERCOT ISO in Texas. Met a few of big energy guys." TX-14 at 46; Tr. 118:13-20. A few minutes later, Storms sent Hakes a link to "Lancium.com,"

followed by a link to McNamara's LinkedIn profile. TX-14 at 46; Tr. 118:24-119:6. Minutes later, Storms sent another text message to Hakes, stating: "The guys at Lancium are doing what we are trying to do exactly, but they don't have a container builder or software team yet." TX-14 at 47; Tr. 119:7-14. Storms admits that he had no knowledge of what Lancium was doing with its software development. Tr. 121:14-25; TX-14 at 49.

71) Later that same day, Storms sent a text message to Hakes, stating: "And Michael McNamara wants me to bring some of my former product manager friends for his distributed computer service." TX-14 at 47; Tr. 119:23-120:6. Storms then wrote: "Plus they want my logic [*33] for curtailing miners on the DA and Real-Time LMP," and, "[a]ll over dinner Friday night and several bottles of wine, they told me they were looking into Digital Shovel." TX-14 at 48; Tr. 120:7-14. Both parties agree that Digital Shovel is a cryptocurrency container manufacturer, see Tr. 120:15-17, and that Lancium was concerned with the electrical hardware of Digital Shovel's containers and the potential liability stemming therefrom if Lancium were to purchase these containers. See Tr. 120:18-23; see also TX-14 at 48.

72) On May 8, 2019, McNamara sent a follow up text message to Storms, asking: "Storms, can you send me those box design specs please!" TX-742 at 00035257. Storms responded that he would later send over the specifications later that day, and then followed up with a text message to McNamara on May 9, 2019, stating: "Redoing one of the spec sheets for the newer Whatsminer models then emailing over to you." *Id.* Storms and McNamara did not communicate via text message after May 9, 2019. *Id.* Neither party disputes that Storms did not communicate any information related to the subject matter of the '433 patent through his text messages with McNamara. Tr. 126:20-22; Tr. 391:9-19. Accordingly, [*34] the Court finds as a matter of fact that Plaintiffs have failed to prove by clear and convincing evidence that Storms communicated the subject matter claimed in the '433 patent to McNamara, or anyone else employed by Lancium, through Storms' text messages with McNamara.

73) On May 9, 2019, Storms sent a single email to McNamara ("Storms' Email"). TX-157 at 1. The subject line of Storms' Email reads: "BearBox 20' product details and supporting documents." *Id.* The body of Storms' Email reads:

Hey Michael,
See attached for the 20' BearBox product details and some supporting docs. I've also attached some

recent modeling data from one of the Exelon wind sites (based on publicly available marketplace data) - I can model for any pricing node you guys might be interested in reviewing.

Let me know if you have any questions!

Talk soon,

A

Id.

74) Attached to Storms' Email were the following documents: (1) a one-page BearBox Product Specification Sheet ("BearBox Spec Sheet"), see TX-171; (2) an annotated diagram of BearBox's Automatic Miner Management System ("Storms' Diagram"), see TX-171; (3) specification sheets on fans and other hardware components, see TX-172 - TX-174; and (4) a data file modeling a simulation [*35] of the BearBox system ("Storms' Data File"), see TX-175. Storms agreed that McNamara did not ask for specifications on Storms' PDUs or logic design through their text message correspondence. Tr. 125:1-4. Storms and McNamara did not communicate following Storms' Email. Tr. 115:23-116:4; Tr. 565:3-6; see also Tr. 418:21-419:3. Storms admitted that nothing from the specification sheets on fans and other hardware components, see TX-172 - TX-174, related to the subject matter of the '433 patent. Tr. 128:9-129:8. Accordingly, the Court finds as a matter of fact that Plaintiffs have failed to prove by clear and convincing evidence that the specification sheets on fans and other hardware components attached to Storms' Email communicated the subject matter claimed in the '433 patent.

a. BearBox Spec Sheet

75) The BearBox Spec Sheet includes information related to BearBox's physical and electrical components, software management—including cgminer watchdog, PDU/relay mapping, and optional. real-time breakeven monitoring—, states that BearBox's containers could accommodate up to 272 Bitcoin miners, specifies different types of miners that could be used, and specifies that the maximum amount of power the BearBox container [*36] could accommodate was approximately 373kW. TX-171.

76) Storms admitted that the BearBox Spec Sheet does not indicate whether the BearBox System requires a certain amount of power to be used by the system, and similarly does not indicate that the system must use at least a specified amount of power for a specified period

of time. Tr. 145:14-146:5. Storms also admitted that the BearBox Spec Sheet does not indicate that the BearBox System measured the actual amount of power the system used. Tr. 135:22-136:1.

b. Storms' Diagram

77) Storms' Diagram is titled "BearBox Automatic Miner Management System Version 1.0." TX-171 at 2. Storms Diagram was not part of the BearBox Spec Sheet. Tr. 132:12-15.

78) Storms' Diagram illustrates a system wherein a BearBox container is connected to the electrical grid, depicted by a lightning bolt stemming from an illustration of six wind turbines. The lightning bolt is connected to a pipe, which immediately has a T-coupling. Off one end of the T-coupling, the electricity generated from the wind turbines transmits to the BearBox container. From the other end of the T-coupling, i.e., horizontally, stems two dotted lines, one labeled "Hourly," which is connected [*37] to a red bubble titled "Day-Ahead LMP for pricing node," and the other labeled "5-minute," which is connected to a red bubble titled "RTMB LMP for pricing node." See TX-171 at 2.

79) The parties dispute whether these two dotted lines represent the ability for the BearBox System to sell power back to the grid. See D.I. 256 at 7; D.I. 258 at 10-11. Baer credibly testified that the second category of Storms' Source Code—the "DA_LMP_import.py," "DA_LMP_import_AEC.py," and "LMP_csv_import.py." files—retrieved publicly available information related to the price of Bitcoin and power, see Tr. 645:10-646:24, which supports that the dotted lines represent retrieving price of power information. See FF ¶ 45. Further, based on the parties' respective testimony, the Court finds Dr. Ehsani's testimony, see Tr. 681:19-684:23, regarding how a person of ordinary skill in the art would interpret Storms' Diagram to be more credible than either Dr. McClellan's or Storms' testimony, see Tr. 96:5-97:7; Tr. 168:21-169:4; Tr. 312:25-313:16. Based on these findings, the Court finds as a matter of fact that the two dotted lines represent the transmission of energy pricing information from the Day-Ahead Market [*38] and the Real-Time Market, not the ability of the BearBox System to sell electricity to the Day-Ahead Market or the Real-Time Market.

80) Storms admitted that Storms' Diagram does not indicate whether the BearBox System requires a certain amount of power to be used by the system, and similarly does not indicate that the system must use at least a

specified amount of power for a specified period of time. Tr. 145:14-146:5. Storms also admitted that Storms' Diagram does not indicate that the BearBox System measured the actual amount of power the system used. Tr. 135:22-136:1.

c. Storms' Data File

81) Storms' Data File is a spreadsheet that represents a simulation of whether to mine Bitcoin or sell the power back to the grid. Tr. 140:13-16. The decision to mine or not mine was made by the load. Tr. 149:10-150:21.

82) Storms admitted that Storms' Data File does not indicate whether the BearBox System requires a certain amount of power to be used by the system, and similarly does not indicate that the system must use at least a specified amount of power for a specified period of time. Tr. 145:14-146:5. Storms also admitted that the information in columns A-B, D-E, G, and I-J is publicly available [*39] data. Tr. 137:4-24; TX-887 at 1.

83) Further, Storms admitted that, based on Storms' Data File, a person could not tell how much power a load consumed in each 5-minute interval "unless you know how it's calculated." Tr. 168:3-8. Storms also sent a similar spreadsheet to a separate individual, who then asked: "what do you factor into the 'breakeven_mining_cost'?" TX-919 at 909; TX-920; Tr. 151:10-17. Storms responded by sending portions of this source code. Tr. 151:23-152:2; TX-919 at 908.

5. After The FCAT Mining Summit

84) The Court finds McNamara's testimony related to his receipt of Storms' Email credible. McNamara testified that, upon receipt of Storms' Email, he spent no more than three minutes reviewing the attachments. Tr. 567:9-23; TX-770. McNamara also credibly testified that he considered the price of the BearBox System to be too high compared to other container manufacturers Lancium solicited, see Tr. 565:11-22, but forwarded Storms' Email, including all of the attachments, to other Lancium executives, including Cline. TX-770. In forwarding Storms' Email to Cline, McNamara wrote that he considered the BearBox System to be "very expensive," but did not comment on any of the [*40] attachments. TX-770.

85) The Court also credits Cline's testimony that, upon receiving the forwarded Storms' Email, Cline reviewed the BearBox Spec Sheet and believed the BearBox

System was expensive, small, and lacking industry safety features when compared to the box JV Driver was designing and manufacturing for Lancium. Tr. 488:17-491:5; *see also* FF ¶ 60. Cline also testified that he did not recall whether he opened Storms' Data File, *see* Tr. 518:4-12, but metadata shows that Cline did download Storms' Data File on May 9, 2019. TX-984.

86) McNamara and Cline both testified that they were not aware of any internal discussions within Lancium regarding Storms, Storms' Email, or its attachments, after May 9, 2019, until this lawsuit was filed. Tr. 491:22-25; Tr. 568:2-3. Plaintiffs failed to proffer any conflicting evidence. Tr. 393:20-23. Accordingly, the Court credits this testimony from McNamara and Cline.

87) Following the FCAT Mining Summit, McNamara continued his discussions with Jamie McAvity, *see* Tr. 569:3-10; TX-748 - TX-750. On May 10, 2019, Jon Cohen contacted Calpine, asking whether it had "any intro material on participating in EROT's [sic] [Emergency Response Service] program? [*41] We think [our] load is well suited, but were curious as to what the process and requirements are." Tr. 570:5-21; TX-626 at 00033800. Calpine then introduced Lancium to Jay Young—a consultant with expertise on ERCOT's Demand Response programs—who, on May 18, 2019, forwarded a slide deck explaining the function of QSEs in ERCOT's Demand Response Program. Tr. 570:21-571:24; *see also* TX-437; TX-438 at 00026309-311; Tr. 571:25-572:11; TX-740; TX-741. Through Jay Young, Lancium was introduced to MP2, which became Lancium's QSE when Lancium qualified as a "load resource" with ERCOT. Tr. 572:11-573:18; TX-496; TX-497 at 00030580.

88) On August 5, 2019, Calpine responded to an inquiry from Lancium regarding a fixed price power agreement given "how close we are to all time historical lows" for the price of power. Tr. 573:21-574:21; TX-758; TX-122. Calpine projected that Lancium could reduce its power price by \$10 per MWh. Tr. 574:13-575:4; TX-763; TX-764; *see also* Tr. 575:12-25. Based on this projection, on August 14, 2019, Lancium entered into a fixed price power addendum with Calpine. Tr. 576:1-3; TX-756; TX-757. Section 4.2.2 of this 2019 addendum contained a standard, non-negotiated sell-back [*42] provision, *see* Tr. 576:8-17; TX-757, which is the same provision contained in Lancium's 2018 "first power agreement," *see* Tr. 576:18-577:6; TX-122 at 00035638; *see also* FF at 157.

89) McNamara testified that Lancium had not appreciated its ability to sell-back power until it entered

into the 2019 fixed price power addendum with Calpine because Lancium was not pre-purchasing power and, thus, could not sell it back. *See, e.g.*, Tr. 577:7-13; Tr. 566:20-25, 577:10-15, 578:2-5, 578:23-579:5; *see also* FF at ¶ 57. On August 16, 2019, McNamara emailed Cline, explaining that Lancium had just entered into a fixed price power agreement with Calpine, and further stating: "This is cool. We now have two revenue sources: Bitcoin mining and selling power back to the grid." TX-567. The Court finds McNamara's testimony related to how Lancium learned of its ability to sell-back power credible and, thus, relies on it.

90) On August 26, 2019, Lancium received an "award" under ERCOT's Load Resource Ancillary Services Program, which specifies an "award" in megawatts for each 1-hour interval in a 24-hour period. TX-981; TX-982; Tr. 492:15-494:5. Cline credibly testified that, upon receiving this "award," he [*43] realized that "the award is essentially an obligation on [Lancium's] part, that we consume that amount of power that ERCOT COULD curtail." TX-526; Tr. 494:17-496:14.

91) Cline credibly testified that this led to his understanding that Lancium was obligated to consume the awarded power so that ERCOT could exercise its option to curtail Lancium's power consumption. Tr. 496:8-25; TX-526; TX-310. Cline also credibly testified that this led Lancium to develop strategies to ensure that its system used at least the awarded amount of power. Tr. 497:1-499:5; TX-526; TX-310; *see also* TX-595. By October 2019, Lancium was investigating its ability to qualify as a CLR, rather than simply a load resource, based on Lancium's Smart Response Software, and in June 2020, Lancium became the first load-only CLR within ERCOT. *See* TX-298; Tr. 499:21-501:3.

92) On October 28, 2019, Lancium filed the '119 Application, which ultimately issued as the '433 patent. D.I. 239-1, Ex. 1 at ¶ 6; *see* '433 patent at Cover.

F. Conception of the Elements of the '433 Patent

1. Independent Claims

a. Preamble [a], Elements [b] and [b1]

93) The parties do not dispute that Storms' Email meets preamble [a] and elements [b] and [b1] of claim 1 of the '433 patent. *See* D.I. 256 [*44] at 5-6; D.I. 258 at 9-10.

Additionally, the parties do not dispute that Storms' Email meets preamble [a] and elements [b] and [b1] of claims 17 and 20 of the '433 patent. *Id.*

94) However, Defendants dispute whether Storms' Email amounts to no more than a communication regarding what was already known in the art and, thus, cannot establish that Storms communicated preamble [a] and element [b] of claims 1, 17, and 20 of the '433 patent prior to Defendants' conception. D.I. 258 at 9. Specifically, Defendants assert that Lancium's '632 Application disclosed "flexible data centers consisting of a set of computing systems (computers) configured to perform computational operations (e.g., mining Bitcoin) using electrical power, including from the grid," prior to receiving Storms' Email. *Id.* Further, Defendants contend that, prior to receiving Storms' Email, Lancium's Thomas Road R&D Facility had already reduced to practice a system that was grid connected and using computer systems to mine Bitcoin. *Id.*

95) The Court finds as a matter of fact that Defendants had independently conceived of, and reduced to practice, preamble [a] and element [b] of claims 1, 17, and 20 of the '433 patent no later than January 2018. See FF at ¶¶ [*45] 51-62. Based on this finding, the Court also finds as a matter of fact that Plaintiffs have failed to prove by clear and convincing evidence that Storms communicated preamble [a] and element [b] of claims 1, 17, and 20 of the '433 patent prior to Defendants' conception.

96) Additionally, the parties dispute whether Storms' Email corroborates communication of element [b1] of the '433 patent prior to Lancium's independent conception. D.I. 256 at 17-18; D.I. 258 at 17. In other words, did Lancium conceive of element [b1] prior to receiving Storms' Email on May 9, 2019.

97) The Court finds as a matter of fact that Lancium independently conceived of element [b1] of the '433 patent prior to Storms' Email for three reasons. First, by at least January 2018, Lancium's system was monitoring conditions, including economic conditions, to control its computing systems on a granular level—as disclosed in the '632 Application. See FF at ¶¶ 54-55. Second, Cline credibly testified that, by the time the '632 Application was filed, Lancium monitored various conditions including receiving information on forecasts affecting the price of power and "economic considerations," such as the real-time price of power, the price of Bitcoin, and [*46] other information. See FF at ¶ 56. Third, Cline credibly testified that, by no later than October 2018, Lancium's system at its Thomas

Road R&D Facility was monitoring conditions including power price, Bitcoin price, network and global hashrate, LMP, ERCOT parameters, and weather conditions to determine a performance strategy based on whether it was profitable to mine Bitcoin. See FF at ¶¶ 57-58.

98) Accordingly, the Court finds as a matter of fact that Plaintiffs have failed to prove by clear and convincing evidence that Storms communicated element [b1] of the '433 patent prior to Defendants' independent conception.

b. Element [b2]

99) The parties dispute whether Storms' Diagram, the BearBox Spec Sheet, or Storms' Data File meets element [b2] of claim 1 of the '433 patent. D.I. 256 at 7-10; D.I. 258 at 10-12. The Court has previously construed "power option agreement" to mean "an agreement between a power entity associated with the delivery of power to a load and the load, wherein the load provides the power entity with the option to reduce the amount of power delivered to the load up to an agreed amount of power during an agreed upon time interval such that the load must use at least the amount of power [*47] subject to the option during the time interval unless the power entity exercises the option." See D.I. 219.

100) Plaintiffs contend that the lightning bolt between the six wind turbines and the pipe connected to the BearBox container, as depicted in Storms' Diagram, see TX-171 at 2, meets element [b2] of claim 1 of the '433 patent. Specifically, Plaintiffs argue Storms' Diagram meets element [b2] because "[t]he contractual arrangement between the load and the generator could vary, but the presence of the connection between the two implies that they have agreed on a contractual arrangement defining how power would be delivered, at what price, and the like." D.I. 256 at 7-8. Based on Storms' Diagram, Plaintiffs conclude that "the windfarm has the option of selling to the grid or providing power to the load to consumer for Bitcoin mining." D.I. 256 at 7. Neither party disputes that the six wind turbines are "a power entity associated with the delivery of power," and that the BearBox container is "a load."

101) The Court finds as a matter of fact that Storms' Diagram does not meet element [b2] of claim 1 of the '433 patent for three reasons. First, the Court has already found as a factual matter that the two [*48] dotted lines represent the transmission of energy pricing information from the Day-Ahead Market and the Real-

Time Market, not the ability of the power entity to sell electricity to the Day-Ahead Market or the Real-Time Market. See FF at ¶ 79. Second, there is no indication that a power option agreement, as construed by the Court, exists between the power entity and the load. In fact, Storms admitted that Storms' Diagram (i) does not indicate whether the BearBox System requires a certain amount of power to be used by the system, (ii) does not indicate that the BearBox System must use at least a specified amount of power for a specified period of time, and (iii) does not indicate that the BearBox System measured the actual amount of power the system used. See FF at ¶ 80. Third, the Court finds that Dr. McClellan's testimony related to the BearBox System operating under a power option agreement, or that a person of ordinary skill in the art would have understood this relationship, was not credible based on multiple inconsistencies between Dr. McClellan's expert reports, deposition testimony, and trial testimony. See, e.g., Tr. 266:18-267:4; D.I. 247 at 3; Tr. 334:3-5; Tr. 398:13-401:23, [*49] 403:10-404:9, 404:15-406:19, 408:11-414:25.

102) The parties also dispute whether the BearBox Spec Sheet meets element [b2] of claim 1 of the '433 patent. Plaintiffs contend that the BearBox Spec Sheet corroborates that Storms conceived of the BearBox System that was connected to a power generation facility, that the BearBox System had ability of the system to mine Bitcoin or not mine Bitcoin, and that the BearBox System could mine Bitcoin at a particular target. See D.I. 257 at ¶ 30 (citing Tr. 312:3-7; Tr. 322:4-327:14; TX-157).

103) The Court finds as a matter of fact that the BearBox Spec Sheet does not meet element [b2] of claim 1 of the '433 patent for two reasons. First, the BearBox Spec Sheet only discloses information related to the BearBox System's physical hardware components and software management. See FF at ¶ 75. Second, the BearBox Spec Sheet has no indication that a power option agreement, as construed by the Court, exists between the power entity and the load. In fact, Storms admitted that the BearBox Spec Sheet (i) does not indicate whether the BearBox System requires a certain amount of power to be used by the system, (ii) does not indicate that the BearBox System must use at least a specified [*50] amount of power for a specified period of time, and (iii) does not indicate that the BearBox System measured the actual amount of power the system used. See FF at ¶ 76.

104) Additionally, the parties also dispute whether

Storms' Data File meets element [b2] of claim 1 of the '433 patent. The Court has previously construed "minimum power threshold" to mean "a minimum amount of power a load must use during an associated time interval." See D.I. 219. Plaintiffs contend that Storms' Data File corroborates conception of element [b2] because it shows 5-minute intervals over which the BearBox System functions, describes the mining revenue indicating power utilization at about 31 kW during an associated 5-minute interval, and describes the sell-back revenue indicating a reduction in power usage in the full amount for that 5-minute interval. See D.I. 257 at ¶ 26 (citing Tr. 309:12-13, 311:17-21, 313:21-22, 316:10-15, 317:4-8, 323:10-324:24; TX-157). Furthermore, Plaintiffs contend that Storms' Data File is an illustration of the functionality of Storms' Source Code, which corroborates Storms' conception of element [b2] of claim 1 of the '433 patent. See D.I. 257 at ¶¶ 27, 32.

105) The Court finds as a matter of fact [*51] that Storms' Data File does not meet element [b2] of claim 1 of the '433 patent for four reasons. First, there is no indication that a power option agreement, as construed by the Court, exists between the power entity and the load. In fact, Storms admitted that the Storms' Data File does not indicate whether the BearBox System requires a certain amount of power to be used by the system and does not indicate that the BearBox System must use at least a specified amount of power for a specified period of time. See FF at ¶ 82. Second, Baer credibly testified that the 5-minute interval in Storms' Source Code functions to "re-run" the simulation every 5 minutes, but that value is fixed within the code, is not received, and is not associated with an amount of power. See FF at ¶ 48. Third, the "kW_load" value in Storms' Source Code does not represent the required amount of power that a load must use, i.e., a "minimum power threshold," but rather represents an estimation of the power usage of the miners with a 5% "fudge factor." See FF at ¶ 49. Fourth, Storms conceded that Storms' Data File was not concerned with maintaining the load above a certain power level because the intent of the BearBox System [*52] was that the load would run at 100% if it was profitable to mine and 0% if it was more profitable to sell power back. Tr. 148:25-149:5; see also Tr. 149:6-9.

106) Based on these findings, the Court finds as a matter of fact that Plaintiffs did not establish by clear and convincing evidence that Storms conceived of element [b2] of claim 1 of the '433 patent.

c. Element [b3]

107) The parties dispute whether Storms' Email, specifically Storms' Data File, meets element [b3] of claim 1 of the '433 patent. See D.I. 256 at 11-12; D.I. 258 at 12-13.

108) Plaintiffs contend that Storms' Data File meets element [b3] of claim 1 of the '433 patent because it "describes the operation of Storms' source code, showing for each of eight-hundred twenty-five (825) 5-minute intervals, that the system monitored conditions, determined a performance strategy using breakeven and revenue generation calculations, and instructed miners to utilize energy to mine or instructed the miners to stop mining when curtailment was required." D.I. 256 at 11 (citing D.I. 257 at ¶ 32). In other words, Plaintiffs assert that Storms' Data File corroborates that Storms conceived of a system that would continuously mine Bitcoin except for the limited instances [*53] when the miners were instructed to stop consuming power, which was determined for every 5-minute interval. *Id.* Further, Plaintiffs argue that Storms' Diagram also shows these alternating periods of mining (shown with Bitcoin symbols) and curtailment/sellback activities (shown with dollar signs). D.I. 256 at 11-12; see TX-171 at 2.

109) The Court finds as a matter of fact that neither Storms' Data File or Storms' Diagram meet element [b3] of claim 1 of the '433 patent for six reasons. First, Plaintiffs' reliance on Storms' Data File as corroborating the functionality of Storms' Source Code is belied by the fact that Plaintiffs' own expert, Dr. McClellan, testified that Storms' Data File provides "information upon which to embark on a reverse engineering exercise of what Mr. Storms' system did," see Tr. 374:21-375:12, but that such a reverse engineering exercise "would be fraught with trial and error," see Tr. 397:11-16. Second, Storms admitted that, based on Storms' Data File, a person could not tell how much power a load consumed in each 5-minute interval "unless you know how it's calculated." See FF at ¶ 83; Tr. 168:3-8. However, there is no dispute that Storms' Source Code was never provided [*54] to Defendants. See FF at ¶ 41. Third, Baer credibly testified that the 5-minute interval in Storms' Source Code functions to "re-run" the simulation every 5 minutes, but that value is fixed within the code, is not received, and is not associated with an amount of power. See FF at ¶ 48. Fourth, Storms' Data File does not demonstrate that, responsive to receiving power option data, the BearBox System determines a power consumption target that is equal or greater than the

minimum power threshold associated with each time interval because, as a matter of fact, Storms' Data File simulated whether to mine or not mine based on a comparison of the price of power versus the price of Bitcoin. See FF at ¶¶ 46-47. And, while Baer testified that Storms' Diagram illustrated the functionality of Storms' Source Code, see Tr. 671:10-672:1, there is no evidence establishing that Storms' Diagram determines a power consumption target that is equal or greater than the minimum power threshold associated with each time interval. In fact, Storms admitted that Storms' Diagram does not indicate that the BearBox System must use at least a specified amount of power for a specified period of time. See FF at ¶ [*55] 80. Fifth, any assertion that Storms' Data File corroborates that the BearBox System determined a power consumption target that is equal to or greater than the minimum power threshold associated with each time interval is belied by Storms' admission that the "kW_load" value is hard-coded, meaning the only way to modify that value is to physically change the code. Tr. 146:23-147:6; see also Tr. 665:12-666:9; see FF at ¶ 49. In fact, the "kW_load" value is not received by the BearBox System or Storms' Source Code. See FF at ¶ 49. Sixth, Storms conceded that Storms' Data File was not concerned with maintaining the load above a certain power level because the intent of the BearBox System was that the load would run at 100% if it was profitable to mine and 0% if it was more profitable to sell power back, see Tr. 148:25-149:5; see also Tr. 149:6-9, which belies any assertion that the BearBox System could determine a power consumption target equal to or greater than the minimum power threshold.

110) Accordingly, the Court finds as a matter of fact that Plaintiffs did not establish by clear and convincing evidence that Storms conceived of element [b3] of claim 1 of the '433 patent.

d. Element [b4]

111) [*56] The parties dispute whether Storms' Diagram, the BearBox Spec Sheet, or Storms' Data File meets element [b4] of claim 1 of the '433 patent. See D.I. 256 at 12; D.I. 258 at 13; see also D.I. 257 at ¶¶ 36-37.

112) Plaintiffs contend that Storms' Diagram, the BearBox Spec Sheet, and Storms' Data File all corroborate that Storms conceived of element [b4] of claim 1 of the '433 patent because each describe "control systems' remotely controllable PDU, which

enabled fine-grain load control of the systems 272 miners of varying types." D.I. 256 at 12 (citing D.I. 257 at ¶ 37). In one example, Plaintiffs assert that "each miner consumed about 1.3 kW per hour, for a maximum amount of power consumption of about 373kw per hour, or about 31 kW per 5-minute interval (about .1 kW per miner)." *Id.* Plaintiffs further aver that Storms' Data File describes "the 5-minute intervals over which the system functions, describing mining revenue indicating power utilization at about 31 kW during an associated 5-minute interval and the sell-back revenue indicating a reduction in power usage in the full amount for that 5-minute interval." D.I. 257 at ¶ 37 (citing Tr. 309:12-13; Tr. 311:17-21; Tr. 313:21-22; Tr. 316:10-15; Tr. 317:4-8; [*57] Tr. 323:10-324:24).

113) The Court finds as a matter of fact that Storms' Email does not meet element [b-4] of claim 1 of the '433 patent for two reasons. First, while both the BearBox Spec Sheet and Storms' Diagram describe the BearBox System as capable of custom remote control of the PDUs, Plaintiffs did not otherwise proffer evidence establishing that the BearBox System could individually control the system of 272 miners. TX-171. In fact, as Baer credibly testified, the first category of Storms' Source Code allows users to manually control the PDU relays attached to Bitcoin miners, but there is no indication that the BearBox System could remotely control individual miners. Tr. 643:16-645:9; see FF at ¶ 44. Rather, Storms' Source Code "only ever instructs ... all the relays of the PDUs to turn on or off." See Tr. 662:18-664:10. Although Dr. McClellan testified that Storms' Source Code had the functionality to turn individual miners on or off, see Tr. 280:10-281:2,295:4-296:2, the Court finds Baer's testimony more credible and, thus, does not rely on Dr. McClellan's testimony. Second, even if Storms' Email did meet element [b4] of claim 1 of the '433 patent, the Court finds as a matter of fact that Storms [*58] did not communicate element [b4] prior to Defendants' independent conception. As disclosed in the '632 Application filed in January 2018, Defendants had conceived of a system where a set of computer systems issued instructions to perform computational operations based on a performance strategy derived from monitored conditions, see FF at ¶¶ 54-56, and reduced the system to practice by October 2018. See FF at ¶¶ 57-58.

114) Accordingly, the Court finds as a matter of fact that Plaintiffs did not establish by clear and convincing evidence that Storms conceived of element [b4] of claim 1 of the '433 patent.

1. Dependent Claims

a. Claims 2, 3, and 5

115) The parties dispute whether Storms' Email corroborates that Storms conceived of and communicated the subject matter of dependent claims 2, 3, and 5 of the '433 patent to Defendants prior to Defendants' independent conception. See D.I. 256 at 12-13; D.I. 258 at 13-14. Specifically, Plaintiffs assert that "[a]s explained above with respect to claim 1, Storms' system monitored real-time and day-ahead power prices and various parameters associated with Bitcoin mining computational operations[,]" which is corroborated by Storms' Diagram, Storms' Data File, and Storms' [*59] Source Code. D.I. 256 at 12-13.

116) Claim 2 depends from claim 1 and adds specific monitored conditions, i.e., the "price of power from the power grid" and "a plurality of parameters associated with one of more computational operations..." See '433 patent at claim 2. Claim 3 and claim 5 depend from claim 1, and further limit the control systems' determination of a performance strategy. See, e.g., '433 patent at claim 3,5.

117) The Court finds as a matter of fact that Storms' Email does meet claim 2 of the '433 patent because Plaintiffs have established by clear and convincing evidence that Storms did conceive of a system that monitored the price of power from the power grid and a plurality of parameters associated with one or more computational operations. Both Storms' Diagram and the second category of Storms' Source Code corroborate that Storms conceived of the BearBox System as monitoring both the price of power and other various parameters associated with one or more computational operations. See FF at ¶¶ 45-47, 79; TX-171 at 2; see also Tr. 349:17-354:19. The Court also finds as a matter of fact that Storms communicated the concept of claim 2 of the '433 patent to Defendants on May 9, 2019, when Storms emailed Storms' Data [*60] File and Storms' Diagram to McNamara. See FF at ¶¶ 73-74. However, the Court also finds as a matter of fact that Storms did not communicate the concept of claim 2 of the '433 patent to Defendants prior to Defendants' independent conception. By at least January 2018, Lancium's system was monitoring conditions, including economic conditions, to control its computing systems on a granular level— as disclosed in the '632 Application. See FF at ¶¶ 54-56. And, by no later than

October 2018, Lancium's system at its Thomas Road R&D Facility was monitoring conditions including power price, Bitcoin price, network and global hashrate, LMP, ERCOT parameters, and weather conditions to determine a performance strategy based on the profitability of mining Bitcoin. See FF at ¶¶ 57-58.

118) Accordingly, the Court finds as a matter of fact that Plaintiffs have failed to prove by clear and convincing evidence that Storms communicated the subject matter of claim 2 of the '433 patent prior to Defendants' independent conception. Based on this finding, the Court also finds as a matter of fact that Plaintiffs have failed to prove by clear and convincing evidence that Storms' Email significantly contributed to claim 2 of the '433 patent because [*61] Defendants had independently conceived of the subject matter more than one year before receiving Storms' Email. See FF at ¶¶ 54-56.

119) The Court finds as a matter of fact that Storms' Email does not meet claim 3 of the '433 patent because the Court has already found as a matter of fact that Plaintiffs have failed to establish by clear and convincing evidence that Storms conceived of a system configured to receive power option data based, at least in part, on a power option agreement, which specifies a set of minimum power thresholds and associated time intervals, i.e., element [b2] of claim 1 of the '433 patent. See FF at ¶ 106.

120) The Court also finds as a matter of fact that Storms' Email does not meet claim 5 of the '433 patent for the same reasons the Court found as a matter of fact that Storms' Email does not meet element [b3] of claim 1 of the '433 patent. See FF at ¶ 109.

121) Accordingly, the Court finds as a matter of fact that Plaintiffs have failed to prove by clear and convincing evidence that Storms conceived of the subject matter of claim 3 or claim 5 of the '433 patent. Based on this finding, the Court also finds as a matter of fact that Plaintiffs have failed to establish by clear and convincing evidence that Storms' Email [*62] significantly contributed to the subject matter of claim 3 or claim 5 of the '433 patent.

b. Claim 4

122) The parties dispute whether Storms' Email corroborates that Storms conceived of and communicated the subject matter of dependent claim 4 of the '433 patent to Defendants prior to Defendants'

independent conception. D.I. 256 at 12-13; D.I. 258 at 13-14; see also D.I. 257 at 139.

123) Claim 4 of the '433 patent depends from claim 1, and recites:

4. The system of claim 3, wherein the performance strategy further comprises:

an order for the set of computing systems to follow when performing the one or more computational operations, wherein the order is based on respective priorities associated with the one or more computational operations.

See '433 patent at claim 4.

124) Plaintiffs assert that Storms' Data File, Storms' Diagram, and the BearBox Spec Sheet corroborate that Storms conceived of a system that "monitored and used this particular data in the manner recited in the claims." D.I. 257 at ¶ 39. Specifically, Plaintiffs' expert, Dr. McClellan, testified that Storms' Diagram and the BearBox Spec Sheet corroborate that the BearBox System "could individually instruct and remotely control PDU[s]," and "could individually instruct [*63] miners to turn on or off based on prioritization received from or imputed from Bitcoin mining - Bitcoin network data, power market data, and so on." Tr. 349:17-354:19. Dr. McClellan also testified that "[o]rdering of operations is a well known and conventional feature in computer operations," but that Storms' Data File also corroborates conception of this claim. Tr. 351:22-352:22.

125) The Court finds as a matter of fact that Storms' Email does not meet dependent claim 4 of the '433 patent for three reasons. First, the Court has already found as a matter of fact that, while both Storms' Spec Sheet and Storms' Diagram describe the BearBox System as capable of custom remote control over the PDUs, Plaintiffs did not otherwise proffer evidence establishing that the BearBox System could individually control the system of 272 miners. TX-171. The Court also found Baer's testimony that Storms' Source Code "only ever instructs... all the relays of the PDUs to turn on or off to be more credible than Dr. McClellan's testimony. Tr. 643:16-645:9; see FF at ¶ 113. Second, the Court finds Cline's testimony that Lancium was considering "configurable algorithms" to permit its software to prioritize computing [*64] workloads by no later than April 11, 2018, credible. Tr. 452:10-453:13; see also TX-199; TX-200 at 00016282. Third, by at least January 11, 2019, Defendants had conceived of a system that performed computational operations based on respective priorities—as disclosed in the '532 Application. See TX-165 at ¶ 53; see FF at ¶ 59. Thus,

even if Storms' Email did meet dependent claim 4 of the '433 patent, the Court finds as a matter of fact that Defendants' independent conception of claim 4 of the '433 patent precedes Storms' Email.

126) Accordingly, the Court finds as a matter of fact that Plaintiffs have failed to prove by clear and convincing evidence that Storms conceived of the subject matter of claim 4 of the '433 patent. Based on this finding, the Court also finds as a matter of fact that Plaintiffs have failed to establish by clear and convincing evidence that Storms' Email significantly contributed to the subject matter of claim 4 of the '433 patent.

c. Claims 6-8,13-14, and 19

127) The parties dispute whether Storms' Email corroborates that Storms conceived of and communicated the subject matter of dependent claims 6-8, 13-14, and 19 of the '433 patent to Defendants prior to Defendants' independent conception. D.I. 256 at 13 (citing D.I. [*65] 257 at ¶ 40); D.I. 258 at 14.

128) Claims 6-8 depend from claim 1, and recite additional limitations related to power option data, minimum power thresholds, and power consumption targets, such that the system determines and implements a revised performance strategy. See '433 patent at claim 6, 7, 8. Claim 13 depends from claim 1, and recites that the second time interval associated with a minimum power threshold is subsequent to the first time interval associated with a minimum power threshold. *Id.* at claim 13. Claim 14 depends from claim 1, and adds that the performance strategy comprises a first power consumption target equal to or greater than the first minimum power threshold, and a second power consumption target equal to or greater than the second minimum power threshold. *Id.* at claim 14. Claim 19 depends from claim 17, and recites additional limitations related to power option data, minimum power thresholds, and reduced power consumption targets, so that the system determines and implements a modified performance strategy. *Id.* at claim 19.

129) Plaintiffs rely on the same evidence offered to establish that Storms conceived of the subject matter of claim 1 of the '433 patent—including Storms' Data File, [*66] the BearBox Spec Sheet, Storms' Diagram, and Storms' Source Code—to support its contention that Storms conceived of a "system [that] used monitored conditions and power option data over multiple, consecutive intervals in the manner recited in the claims." D.I. 256 at 13; see also D.I. 257 at 140 (citing

Tr. 354:20-359:15; TX-24; TX-157; TX-46).

130) The Court finds as a matter of fact that Storms' Email does not meet the elements of dependent claims 6-8, 13-14, and 19 of the '433 patent. The Court has already found as a matter of fact that Plaintiffs did not establish by clear and convincing evidence that Storms communicated preamble [a] of claims 1, 17, and 20 or elements [b] and [b1] of claim 1 of the '433 patent prior to Defendants' independent conception. See FF at ¶¶ 95, 98. The Court has also found as a matter of fact that Plaintiffs have failed to establish by clear and convincing evidence that Storms conceived of elements [b2], [b3], or [b4] of claim 1 of the '433 patent. See FF at ¶¶ 106, 110, 114. Based on these findings, and because Plaintiffs rely on identical evidence proffered in support of conception of the elements of claim 1 of the '433 patent, the Court finds as a matter of fact that Plaintiffs have failed to [*67] prove by clear and convincing evidence that Storms conceived of the subject matter of claims 6-8, 13-14, and 19 of the '433 patent. Based on this finding, the Court also finds as a matter of fact that Plaintiffs have failed to establish by clear and convincing evidence that Storms' Email significantly contributed to the subject matter of claims 6-8, 13-14, and 19 of the '433 patent.

d. Claims 9-12 and 18

131) The parties dispute whether Storms' Email corroborates that Storms conceived of and communicated the subject matter of dependent claims 9-12 and 18 of the '433 patent to Defendants prior to Defendants' independent conception. D.I. 256 at 13-14 (citing D.I. 257 at ¶ 41); D.I. 258 at 14.

132) Claims 9-12 depend from claim 1, while claim 18 depends from claim 17. See '433 patent at claim 9, 10, 11, 12, 18. Claim 9 recites that "the control system is a remote master control system positioned remotely from the set of computing systems." *Id.* at claim 9. Claim 10 recites that "the control system is a mobile computing device," *id.* at claim 10, while claim 11 adds that "the control system is configured to receive the power option data while monitoring the set of conditions." *Id.* at claim 11. Claim 12 recites that the control system [*68] is configured to request and receive power option data from a qualified scheduling entity ("QSE"). *Id.* at claim 12. Claim 18 adds that the performance strategy further comprises instructions so that the computing systems can operate at an increased frequency based on a combination of power option data and information about

the set of computing systems. *Id.* at claim 18.

133) Plaintiffs assert that claims 9-12 and 18 add "conventional features well-known in the art, each of which was incorporated into Storms' [BearBox System] and communicated to Lancium" through Storms' Email. D.I. 256 at 13; *see also* D.I. 257 at ¶ 41. For example, Plaintiffs contend that Storms conceived of the subject matter of claim 9 of the '433 patent because Storms' Diagram and the BearBox Spec Sheet corroborate that the BearBox System could remotely control PDUs. *Id.*; Tr. 359:20-362:7. Similarly, Plaintiffs assert that the BearBox Spec Sheet demonstrates that the BearBox System ran on a mobile computing device, i.e., Storms' laptop, Tr. 362:8-23, which meets claim 10 of the '433 patent. D.I. 257 at ¶ 41. Claim 11 is purportedly met because the BearBox Spec Sheet and Storms' Data File show that the BearBox System was retrieving conditions [*69] associated with the power markets and Bitcoin in 5-minute intervals. Tr. 362:24-365:5. Finally, Plaintiffs contend that the subject matter of claim 12 of the '433 patent was a "functionality that existed in ERCOT for 20 years." D.I. 257 at ¶ 41 (citing Tr. 365:6-18; Tr. 193:18-197:7).

134) The Court finds as a matter of fact that Storms' Email does meet claim 9 of the '433 patent because Plaintiffs have established by clear and convincing evidence that Storms did conceive of a system that could remotely control PDUs. Both Storms' Diagram and the BearBox Spec Sheet corroborate that Storms conceived of the BearBox System as being capable of remotely controlling the system's PDUs. Tr. 359:20-362:7; *see* TX-171 at 1-2. The Court also finds as a matter of fact that Storms communicated the concept of claim 9 of the '433 patent to Defendants on May 9, 2019, when Storms emailed Storms' Diagram and the BearBox Spec Sheet to McNamara. *See* FF at ¶¶ 73-74. However, the Court also finds as a matter of fact that Storms did not communicate the concept of claim 9 of the '433 patent to Defendants prior to Defendants' independent conception. By at least October 2018, Lancium's control system operated remotely from its flexible datacenters. Tr. [*70] 463:24-464:13; TX-176 at 00014629; *see also* FF at ¶¶ 57-58.

135) Accordingly, the Court finds as a matter of fact that Plaintiffs have failed to prove by clear and convincing evidence that Storms communicated the subject matter of claim 9 of the '433 patent prior to Defendants' independent conception. Based on this finding, the Court also finds as a matter of fact that Plaintiffs have failed to prove by clear and convincing evidence that

Storms' Email significantly contributed to claim 9 of the '433 patent because Defendants had independently conceived of, and reduced to practice, the subject matter prior to receiving Storms' Email. *See* FF at ¶¶ 57-58.

136) The Court finds as a matter of fact that Storms' Email does meet claim 10 of the '433 patent because Plaintiffs have established by clear and convincing evidence that Storms did conceive of a control system that is a mobile computing device. Both Storms' Diagram and the BearBox Spec Sheet corroborate that Storms conceived of the BearBox System as operating via a mobile computing device, such as Storms' laptop. Tr. 362:8-23; *see* TX-171 at 1-2. The Court also finds as a matter of fact that Storms communicated the concept of claim 10 of the '433 patent to Defendants on May 9, [*71] 2019, when Storms emailed Storms' Diagram and the BearBox Spec Sheet to McNamara. *See* FF at ¶¶ 73-74. However, the Court also finds as a matter of fact that Storms did not communicate the concept of claim 10 of the '433 patent to Defendants prior to Defendants' independent conception. By at least January 2018, Lancium conceived of its control system operating via a mobile computing device. *See* TX-163 at ¶¶ 29-30; TX-189 at 00015148-149); *see also* FF at ¶ 58.

137) Accordingly, the Court finds as a matter of fact that Plaintiffs have failed to prove by clear and convincing evidence that Storms communicated the subject matter of claim 10 of the '433 patent prior to Defendants' independent conception. Based on this finding, the Court also finds as a matter of fact that Plaintiffs have failed to prove by clear and convincing evidence that Storms' Email significantly contributed to claim 10 of the '433 patent because Defendants had independently conceived of the subject matter prior to receiving Storms' Email. *See* FF at ¶ 58.

138) The Court finds as a matter of fact that Storms' Email does not meet dependent claim 11 of the '433 patent. The Court has already found as a matter of fact that Plaintiffs have failed to establish by clear [*72] and convincing evidence that Storms conceived of element [b2] of claim 1 of the '433 patent. *See* FF at ¶ 106. Accordingly, the Court finds as a matter of fact that Plaintiffs have failed to prove by clear and convincing evidence that Storms conceived of the subject matter of claim 11 of the '433 patent. Based on this finding, the Court also finds as a matter of fact that Plaintiffs have failed to establish by clear and convincing evidence that Storms' Email significantly contributed to the subject

matter of claim 11 of the '433 patent.

139) The Court finds as a matter of fact that Storms' Email does not meet dependent claim 12 of the '433 patent for three reasons. First, there is no dispute that Storms' Email, including Storms' Diagram and Storms' Data File, never refers to a QSE. TX-171; TX-175; Tr. 365:13-18. Second, there is no dispute that requesting and receiving power option data from a QSE was well-known and conventional within ERCOT for nearly two decades. See, e.g., Tr. 365:6-18; Tr. 193:18-197:7. Third, Baer credibly testified that Storms' Source Code does not "provide a request to a qualified scheduling entity (QSE)," or receive power option data in response to such a request. Tr. 665:12-666:18. In fact, Storms' Source [*73] Code does not receive power option data because the "kW_load" value is hard-coded, meaning the only way to modify that value is to physically change the code. See Tr. 665:12-666:9; see also FF at ¶ 49. Accordingly, the Court finds as a matter of fact that Plaintiffs have failed to prove by clear and convincing evidence that Storms conceived of, or communicated, the subject matter of claim 12 of the '433 patent. Based on this finding, the Court also finds as a matter of fact that Plaintiffs have failed to establish by clear and convincing evidence that Storms' Email significantly contributed to the subject matter of claim 12 of the '433 patent.

140) The Court finds as a matter of fact that Storms' Email does not meet dependent claim 18 of the '433 patent. Plaintiffs assert that Storms' Diagram corroborates that the BearBox System used "the cgminer software... [to] provide [] the ability to increase the frequency at which the miner's operate." D.I. 256 at 14; see TX-171. However, neither party disputes that cgminer software is open-source software that has been publicly available since 2015. See, e.g., Tr. 371:21-372:15; Tr. 668:21-669:12. Moreover, Defendants contend, and Plaintiffs do not dispute, that the cgminer [*74] software was not written by Storms and that it is not an instruction used in Storms' Source Code. Tr. 669:9-670:12. That the cgminer software was not written by Storms, or even incorporated into Storms' Source Code, belies Storms' assertion that the BearBox System could increase the frequency at which the miners operate. Accordingly, the Court finds as a matter of fact that Plaintiffs have failed to prove by clear and convincing evidence that Storms conceived of the subject matter of claim 18 of the '433 patent. Based on this finding, the Court also finds as a matter of fact that Plaintiffs have failed to establish by clear and convincing evidence that Storms' Email significantly contributed to

the subject matter of claim 18 of the '433 patent.

e. Claim 16

141) The parties dispute whether Storms' Email—specifically, Storms' Data File—corroborates that Storms conceived of and communicated the subject matter of dependent claim 16 of the '433 patent to Defendants prior to Defendants' independent conception. D.I. 256 at 14 (citing D.I. 257 at ¶ 42); D.I. 258 at 14-15.

142) Claim 16 depends from claim 1 and reads:

16. The system of claim 1, wherein the set of conditions monitored by the control system further comprise:

a price [*75] of power from the power grid; and a global mining hash rate and a price for a cryptocurrency; and wherein the control system is configured to: determine the performance strategy for the set of computing systems based on a combination of at the portion of the power option data, the price of power from the power grid, the global mining hash rate and the price for the cryptocurrency, wherein the performance strategy specifies for at least a subset of the set of computing systems to perform mining operations for the cryptocurrency when the price of power from the power grid is equal to or less than a revenue obtained by performing the mining operations for the cryptocurrency.

See '433 patent at claim 16.

143) Plaintiffs assert that Storms' Data File corroborates Storms' conception of a system that "compared mining profitability and instructed miners to mine Bitcoin when mining revenue was greater than the price of power from the power grid as recited in claim 16." D.I. 256 at 14 (citing D.I. 257 at ¶ 42). Specifically, Storms' Data File purportedly corroborates that the BearBox System "compared the revenue obtained by performing mining operations for Bitcoin," i.e., column H of Storms' Data File, "and [*76] mined Bitcoin in circumstances in which the price of power from the grid," i.e., column J of Storms' Data File, "was equal or less than the revenue obtainable from mining Bitcoin." *Id.* (citing D.I. 257 at ¶ 43); see also Tr. 309:12-13; Tr. 311:17-21, 313:21-22; Tr. 316:10-15, 317:4-8; Tr. 323:10-324:24.

144) The Court finds as a matter of fact that Storms' Email, including Storms' Data File, does not meet dependent claim 16 of the '433 patent for four reasons. First, the Court has already found as a matter of fact that, while both Storms' Spec Sheet and Storms' Diagram describe the BearBox System as capable of custom remote control over the PDUs, Plaintiffs did not otherwise proffer evidence establishing that the BearBox System could individually control the system of 272 miners. TX-171. The Court also found Baer's testimony that Storms' Source Code "only ever instructs ... all the relays of the PDUs to turn on or off" to be more credible than Dr. McClellan's testimony. Tr. 643:16-645:9; see FF at 1 113. Second, the Court finds Baer's testimony that Storms' Source Code does not instruct miners to turn on, i.e., mine, when the price of power is equal to the mining revenue to be credible. See FF [*77] at ¶ 47. Baer testified that Storms' Source Code compares the breakeven cost to the day-ahead and real-time energy prices, and then (i) sends signals to turn off all miners connected to the BearBox System if either the energy price is greater than or equal to the breakeven cost, or (ii) sends signals to turn on all miners connected to the BearBox System if the energy price is less than the breakeven cost. Tr. 647:5-653:23, 658:23-659:3; TX-22; see FF at ¶ 47. Third, Storms admitted that he was not the first person to consider the energy cost to mine Bitcoin versus the revenue that could be earned mining Bitcoin, and based on that data, decide whether to mine or not based on profitability. See Tr. 144:11-16; Tr. 613:5-615:1. Storms' admission is corroborated by Plaintiffs' expert, McCamant, who testified that comparing the real-time energy market price to the day-ahead energy price to decide whether to sell power back was a well-known form of arbitrage before May 2019. Tr. 204:14-23. McCamant also agreed that curtailing consumption of energy when the price of power exceeds a certain threshold was well known before May 2019 and may even be the most common form of energy arbitrage. Tr. [*78] 204:24-205:12. Fourth, the Court has already found as a matter of fact that Defendants independently conceived of a system that monitored the price of power from the power grid, global mining hash rate, and the price of Bitcoin prior to receiving Storms' Email. See FF at ¶¶ 97-98.

145) Accordingly, the Court finds as a matter of fact that Plaintiffs have failed to prove by clear and convincing evidence that Storms conceived of, or communicated, the subject matter of claim 16 of the '433 patent. Based on this finding, the Court also finds as a matter of fact that Plaintiffs have failed to establish by clear and convincing evidence that Storms' Email significantly

contributed to the subject matter of claim 16 of the '433 patent.

II. PLAINTIFFS' SOLE INVENTORSHIP CLAIM

A. Legal Standard

"Patent issuance creates a presumption that the named inventors are the true and only inventors." [*Caterpillar Inc. v. Sturman Industries, Inc.*, 387 F.3d 1358, 1377 \(Fed. Cir. 2004\)](#) (citing [*Hess v. Advanced Cardiovascular Sys., Inc.*, 106 F.3d 976,980 \(Fed. Cir. 1997\)](#)). However, a party may rebut this presumption by proving, through clear and convincing evidence, that he is entitled to be named as an inventor and, thus, should have been included on the patent. See [*Eli Lilly & Co. v. Aradigm Corp.*, 376 F.3d 1352, 1358 \(Fed. Cir. 2004\)](#); [*Checkpoint Systems, Inc. v. All-Tag Sec. S.A.*, 412 F.3d 1331, 1338 \(Fed. Cir. 2005\)](#). Although failure to include an actual inventor on a patent is ordinarily grounds for invalidating that patent, [*35 U.S.C. § 256*](#) explicitly [*79] permits a court to order the patent's correction. See [*Checkpoint Sys., Inc.*, 412 F.3d at 1338](#) ("If a patentee can demonstrate that inventorship can be corrected as provided by [[*35 U.S.C. § 256*](#)], a district court must order correction of the patent, thus saving it from being rendered invalid." (quoting [*Pannu v. Iolab Corp.*, 155 F.3d 1344,1350 \(Fed. Cir. 1998\)](#))).

A claim of sole inventorship is predicated on proving that the proposed inventor conceived of the total patented invention. [*Ferring B. V. v. Allergan, Inc.*, 166 F. Supp. 3d 415, 424 \(S.D.N.Y. 2016\)](#); see also [*Univ. of Pittsburgh of Commonwealth Sys. of Higher Educ. v. Hedrick*, 2008 U.S. Dist. LEXIS 112031, 2008 WL 8627085, at *7 \(CD. Cal. June 9,2008\)](#) ("Plaintiffs must show that they conceived of every claim of the patent and that any contribution by [the named inventors] to the conception of each and every claim was insignificant."). "Conception is the touchstone of inventorship, the completion of the mental part of invention," and is generally understood to be "a definite and permanent idea of the complete and operative invention, as it is hereafter to be applied in practice." [*Burroughs Wellcome Co. v. Barr Labs., Inc.*, 40 F.3d 1223, 1227-28 \(Fed. Cir. 1994\)](#) (internal quotations omitted). A party may demonstrate conception "only when the idea is so clearly defined in the inventor's mind that only ordinary skill would be necessary to reduce the invention to practice, without extensive research or experimentation." [*Id.* at 1228](#). Notably, "an inventor

need not know that his invention will work for conception to be complete," but rather "need [*80] only show that he had the idea; the discovery that an invention works is part of its reduction to practice." *Id.* (citations omitted). Further, the proposed inventor "must also show that the person to be removed did not contribute to the invention of any of the allowed claims." *Beriont v. GTE Labs., Inc.*, 601 F. App'x 937, 940 (Fed. Cir. 2015) (quoting *Univ. of Pittsburgh of Commonwealth Sys. of Higher Educ. v. Hedrick*, 573 F.3d 1290, 1297 (Fed. Cir. 2009)) (internal quotations omitted).

As a claim of sole inventorship requires proof by clear and convincing evidence, the party seeking to be added as an inventor "must prove his conception by corroborating evidence, preferably by showing a contemporaneous disclosure." *Id.* at 1228. This is so because of "the temptation for even honest witnesses to reconstruct, in a manner favorable to their own position, what their state of mind may have been years earlier." *Hess*, 106 F.3d at 980 (internal quotations and citations omitted). Therefore, "[a]n alleged co-inventor's testimony, or the testimony of the inventor himself, standing alone, cannot provide clear and convincing evidence of conception." *Univ. of Pittsburg*, 2008 U.S. Dist. LEXIS 112031, 2008 WL 8627085, at *9 (citing *Caterpillar Inc.*, 387 F.3d at 1377). Instead, the inventor must independently corroborate its alleged conception through "testimony of a witness ... to the actual reduction to practice," or "evidence of surrounding facts and circumstances independent of information received [*81] from the inventor." *Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1171 (Fed. Cir. 2006). Documentary or physical evidence made contemporaneously with the inventive process generally provides the most reliable proof of corroboration. See *Sandt Tech., Ltd. v. Resco Metal & Plastics Corp.*, 264 F.3d 1344, 1350-51 (Fed. Cir. 2001). Ultimately, the Court evaluates the sufficiency of the corroborating evidence under a "rule of reason" analysis, which requires evaluating all pertinent evidence so that a sound determination of credibility of the alleged inventor's story may be reached. *Ethicon, Inc. v. U.S. Surgical Corp.*, 135 F.3d 1456, 1464 (Fed. Cir. 1998).

B. Discussion

Plaintiffs argue that, because Storms solely conceived of all the claimed subject matter of the '433 patent, the inventorship of the '433 patent should be corrected to reflect that Austin Storms is the sole inventor. D.I. 256 at 2; D.I. 260 at 9. The Court has already found as a

matter of fact that Plaintiffs have failed to establish by clear and convincing evidence that Storms conceived of elements [b2], [b3], or [b4] of claim 1 of the '433 patent. See FF at ¶¶ 106, 110, 114. Moreover, the Court has also found as a matter of fact that Plaintiffs did not establish by clear and convincing evidence that Storms communicated preamble [a] of claims 1, 17, and 20 or elements [b] and [b1] of claim 1 of the '433 patent prior to Defendants' independent conception. See FF at ¶¶ 95, 98. Accordingly, as a [*82] matter of law, Plaintiffs have not established that Storms is the sole inventor of the claimed inventions of the '433 patent.⁵

III. PLAINTIFFS' JOINT INVENTORSHIP CLAIM

A. Legal Standard

A purported joint inventor who was erroneously omitted from a patent may seek the correction of the patent in federal court. See *35 U.S.C. § 256*. However, the purported joint inventor must overcome the presumption that the named inventors of a patent are correct by meeting the heavy burden of proving his case by clear and convincing evidence. *Hess*, 106 F.3d at 980. To satisfy this standard, the claimed joint inventor must provide evidence corroborating his testimony concerning conception of the invention, including contemporaneous documentary or physical evidence, oral testimony of others, and circumstantial evidence. See *Ethicon, Inc.*, 135 F.3d at 1461; *Trovan, Ltd.*, 299 F.3d at 1303. The Court evaluates the sufficiency of the claimed joint inventor's corroborating evidence under a "rule of reason" analysis, whereby the Court views all evidence before making a sound determination as to the credibility of the claimed inventor's story. See *Trovan*,

⁵ Throughout its post-trial briefing, Plaintiffs continually criticize Defendants for not presenting testimonial evidence regarding McNamara and Cline's independent conception of the claimed inventions of the '433 patent. See, e.g., D.I. 256 at 18-20; D.I. 260 at 5-6. This, however, is a red herring. "Patent issuance creates a presumption that the named inventors are the true and only inventors." *Caterpillar Inc.*, 387 F.3d at 1377 (citing *Hess*, 106 F.3d at 980). It is Plaintiffs' burden to prove, by clear and convincing evidence, that Storms conceived of the claimed inventions of the '433 patent. *Burroughs Wellcome*, 40 F.3d at 1227-28. While McNamara and Cline's actions inform the Court's analysis under the "rule of reason," see *Ethicon, Inc.*, 135 F.3d at 1464-65, the burden to establish, through corroborating evidence, that Storms conceived of each claim of the '433 patent remains with Plaintiffs.

Ltd., 299 F.3d at 1295.

Joint inventorship differs from sole inventorship in that "[a] joint invention is the product of a collaboration between two or more persons working together [*83] to solve the problem addressed." Burroughs Wellcome, 40 F.3d at 1227 (citing 35 U.S.C. § 116; Kimberly-Clark Corp. v. Procter & Gamble Distrib. Co., 973 F.2d 911, 917 (Fed. Cir. 1992)). People may be joint inventors "even though they do not physically work on the invention together or at the same time, and even though each does not make the same type or amount of contribution." *Id.* However, the "individual must make a contribution to the conception of the claimed invention that is not insignificant in quality, when that contribution is measured against the dimension of the full invention." Fina Oil & Chem. Co. v. Ewen, 123 F.3d 1466, 1473 (Fed. Cir. 1997); see also Eli Lilly & Co., 376 F.3d at 1358; Ethicon Inc., 135 F.3d at 1460. There is no "lower limit on the quantum or quality of the inventive contribution required for a person to qualify as a joint inventor," and a meaningful contribution to the conception of even one claim in a patent can suffice to establish inventorship. *Id.* (citation and quotation marks omitted); Cook Biotech Inc. v. Acell, Inc., 460 F.3d 1365, 1373 (Fed. Cir. 2006); Eli Lilly & Co., 376 F.3d at 1358-59 (referring to the inventors having "some open line of communication during or in temporal proximity to their inventive efforts."). That is to say that joint inventors need not (1) "physically work together or at the same time," (2) "make the same type or amount of contribution," or (3) "make a contribution to the subject matter of every claim of the patent." Vanderbilt Univ. v. ICOS Corp., 601 F.3d 1297, 1302 (Fed. Cir. 2010) (citation omitted); Kimberly-Clark, 973 F.2d at 917 (joint behavior may include "collaboration or [*84] working under common direction, one inventor seeing a relevant report and building upon it or hearing another's suggestion at a meeting."). However, a joint inventor must "do more than merely explain to the real inventors well-known concepts and/or the current state of the art," Magnetar Techs. Corp. v. Six Flags Theme Parks, Inc., No. 07-127-LPS-MPT, 2017 U.S. Dist. LEXIS 35271, 2017 WL 962760, at *7 (D. Del. Mar. 13, 2017) (quoting Pannu, 155 F.3d at 1351), and cannot "merely suggest[] an idea of a result to be accomplished, rather than means of accomplishing it..." Natron Corp. v. Schukra U.S.A., Inc., 558 F.3d 1352, 1359 (Fed. Cir. 2009) (quoting Garrett Corp. v. United States, 422 F.2d 874, 881, 190 Ct. Cl. 858 (Ct.Cl. 1970)).

Ultimately, "[t]he determination of whether a person is a joint inventor is fact specific, and no bright-line standard

will suffice in every case." Fina Oil & Chem., 123 F.3d at 1473.

B. Discussion

Plaintiffs argue that, at a minimum, Storms conceived of some of the claimed subject matter of the '433 patent and, thus the inventorship of the '433 patent should be corrected to reflect that Storms is a joint inventor. D.I. 256 at 15; D.I. 260 at 8-9. Specifically, Plaintiffs assert that Storms' Email satisfies the collaboration requirement for joint inventorship, see D.I. 256 at 16-17, while Storms' contribution to the conception of some of the claims of the '433 patent— specifically, the "monitored conditions" limitation recited in each claim, and claim 16—was significant in both quantity and quality. *Id.* at 17-18.

Plaintiffs assert that "Storms' [*85] contribution of monitored conditions, as recited in all 20 claims, was a significant contribution that forms a basis upon which the other aspects of the claim are built," which, together with communicating this concept to Defendants through Storms' Email, entitles Storms to be named a joint inventor of the '433 patent. *Id.* at 17-18. The Court has already found as a factual matter that Plaintiffs have failed to prove by clear and convincing evidence that Storms communicated the "monitored conditions" limitation, i.e., element [b1], of claims 1, 17, and 20 of the '433 patent prior to Defendants' independent conception. See FF at ¶¶ 98. Accordingly, as a matter of law, Plaintiffs have not established that Storms is a joint inventor with respect to the "monitored conditions" limitations recited in each claim of the '433 patent.

Additionally, Plaintiffs assert that "Storms [] made a significant contribution in the form of his profitability analysis embodied in claim 16," because, as shown in Storms' Data File, the BearBox System "compared the revenue obtained by performing mining operations for Bitcoin (mining_rev, column H), and mined Bitcoin in circumstances in which the price of power from the grid (real_time_LMP, column [*86] J) was equal or less than the revenue obtainable from mining Bitcoin." D.I. 256 at 18. The Court has already found as a matter of fact that Plaintiffs have failed to prove by clear and convincing evidence that Storms conceived of, or communicated, the subject matter of claim 16 of the '433 patent. See FF at ¶ 145. Further, the Court also found as a factual matter that Plaintiffs failed to establish by clear and convincing evidence that Storms' Email significantly contributed to the subject matter of claim 16 of the '433

patent. See FF at ¶ 145. Accordingly, as a matter of law, Plaintiffs have not established that Storms is a joint inventor with respect to claim 16 of the '433 patent.

Storms' purported contribution to the other claims of the '433 patent fare no better. The Court has already found as a matter of fact that Plaintiffs have failed to establish by clear and convincing evidence that Storms conceived of elements [b2], [b3], or [b4] of claim 1 of the '433 patent. See FF at ¶¶ 106, 110, 114. Moreover, the Court has also found as a matter of fact that Plaintiffs did not establish by clear and convincing evidence that Storms communicated preamble [a] of claims 1, 17, and 20 or elements [b] and [b1] of claim 1 of the '433 patent prior to Defendants' [*87] independent conception. See FF at ¶¶ 95, 98. Accordingly, as a matter of law, Plaintiffs have not established that Storms is a joint inventor of claim 1 of the '433 patent.

As to dependent claims 3-8, 11-14, 18, and 19 of the '433 patent, the Court has already found as a matter of fact that Plaintiffs failed to establish by clear and convincing evidence that Storms conceived of the subject matter of dependent claims 3-8, 11-14, 18, and 19. See FF at ¶¶ 121, 126, 130, 138-140. Based on these findings, the Court also found as a matter of fact that Plaintiffs failed to establish by clear and convincing evidence that Storms significantly contributed to the conception of dependent claims 3-8, 11-14, 18, and 19. See FF at ¶¶ 121, 126, 130, 138-140. Accordingly, as a matter of law, Plaintiffs have not established that Storms is a joint inventor of claims 3-8, 11-14, 18, and 19 of the '433 patent. Finally, as to dependent claims 2, 9, 10, and 12 of the '433 patent, the Court has already found as a matter of fact that Plaintiffs failed to establish by clear and convincing evidence that Storms communicated of the subject matter of dependent claims 2, 9, 10, and 12 prior to Defendants' independent conception. See FF at ¶¶ 118, 135, 137, [*88] 139. Given these findings, the Court also found as a matter of fact that Plaintiffs failed to prove by clear and convincing evidence that Storms' Email significantly contributed to dependent claims 2, 9, 10, and 12 of the '433 patent because Defendants had independently conceived of the subject matter prior to receiving Storms' Email. See FF at ¶ 118, 135, 137, 139. Accordingly, as a matter of law, Plaintiffs have not established that Storms is a joint inventor of claims 2, 9, 10, and 12 of the '433 patent.

IV. CONCLUSION

For the reasons discussed above, the Court finds that Plaintiffs have not met their burdens to establish their sole and/or joint inventorship claims. Accordingly, the Court will enter judgment in favor of Defendants.

The Court will issue an Order directing the parties to submit a proposed order by which the Court may enter final judgment consistent with this Opinion.

ORDER

At Wilmington on this 6th day of March, 2023:

For the reasons set forth in the Memorandum Opinion issued this day, **IT IS HEREBY ORDERED** that the parties shall submit, by no later than March 27, 2023, a proposed order by which the Court may enter final judgment consistent with the Opinion issued this day.

/s/ Gregory B. Williams [*89]

GREGORY B. WILLIAMS

UNITED STATES DISTRICT JUDGE

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