

NOTE: This disposition is nonprecedential.

**United States Court of Appeals
for the Federal Circuit**

**SUNOCO PARTNERS MARKETING & TERMINALS
L.P.,**
Plaintiff-Appellant

v.

**POWDER SPRINGS LOGISTICS, LLC, MAGELLAN
MIDSTREAM PARTNERS L.P.,**
Defendants-Cross-Appellants

2023-1218, 2023-1274

Appeals from the United States District Court for the
District of Delaware in No. 1:17-cv-01390-RGA, Judge
Richard G. Andrews.

Decided: January 16, 2026

JOHN R. KEVILLE, Sheppard, Mullin, Richter & Hampton LLP, Houston, TX, argued for plaintiff-appellant. Also represented by MICHAEL C. KRILL, MICHELLE REPLOGLE; RICHARD L. STANLEY, Law Office of Richard L. Stanley, Houston, TX.

NITIKA GUPTA FIORELLA, Fish & Richardson P.C., Wilmington, DE, argued for all defendants-cross-appellants.

Defendant-cross-appellant Magellan Midstream Partners L.P. also represented by MARTINA TYREUS HUFNAL, DOUGLAS E. McCANN; JOSEPH HERRIGES, JR., Minneapolis, MN.

DAVID SCOTT MORELAND, Miller & Martin PLLC, Atlanta, GA, for defendant-cross-appellant Powder Springs Logistics, LLC.

Before STOLL, CLEVINGER, and CUNNINGHAM, *Circuit Judges*.

STOLL, *Circuit Judge*.

This patent infringement case raises issues of eligibility, infringement, and damages and is related to systems and methods of blending butane with gasoline. Sunoco Partners Marketing & Terminals L.P. sued Magellan Midstream Partners L.P. and Powder Springs Logistics, LLC for patent infringement, which ultimately proceeded to a bifurcated jury trial. A final judgment was entered against Magellan for willfully infringing claim 3 of U.S. Patent No. 6,679,302, claims 31 and 32 of U.S. Patent No. 7,032,629, and claim 3 of U.S. Patent No. 9,207,686. A final judgment was entered against Powder Springs for willfully infringing claim 3 of the '686 patent.

Sunoco challenges on appeal several decisions by the district court that occurred pre-trial, during trial, and post-trial related to damages, as well as the district court's judgment as a matter of law that claims 16 and 17 of the '302 patent and claims 18 and 22 of the '629 patent were not infringed. Magellan and Powder Springs cross-appeal the district court's judgment under Federal Rule of Civil Procedure 52(c) that claims 3, 16, and 17 of the '302 patent, claims 18, 22, 31, and 32 of the '629 patent, and claim 3 of the '686 patent are eligible under 35 U.S.C. § 101, as well as the district court's decision to award

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supplemental damages to Sunoco. For the reasons discussed below, we affirm the district court's damages decisions, affirm the district court's JMOL of no infringement, and affirm-in-part and reverse-in-part the district court's eligibility decision.

BACKGROUND

I

The '302 and '629 patents are titled "Method and System for Blending Gasoline and Butane at the Point of Distribution." U.S. Patent No. 6,679,302 Title; U.S. Patent No. 7,032,629 Title. They are directed to "blending butane with gasoline at petroleum tank farms, immediately before distribution to tanker trucks," and share a common specification, as the '629 patent is a continuation of the '302 patent. '302 patent Abstract; '629 patent Abstract. The "Background of the Invention" explains that "[b]utane has historically been blended with gasoline at several points in the gasoline distribution chain." '302 patent col. 1 ll. 65–66. Butane is added to gasoline for two reasons: (1) because it is more volatile than gasoline, it is "commonly added as a RVP modifying agent," where RVP stands for Reid vapor pressure and is the measure of a petroleum product's ability to combust; and (2) because it "reduce[s] the cost of gasoline." *Id.* at col. 1 ll. 31–51. The Environmental Protection Agency has promulgated regulations on how much butane can be blended with gasoline. *Id.* at col. 1 ll. 52–64.

The specification explains that one of the locations in the gasoline distribution chain where butane has historically been added to gasoline is at tank farms, before the gasoline is dispensed to tanker trucks using a dispensing unit such as a rack. *Id.* at col. 1 ll. 65–66, col. 2 ll. 24–40, col. 5 ll. 13–20. The specification describes blending at the tank farm: "When delivery of gasoline is made to a large storage tank, the RVP of the tank is measured, and sufficient butane is added to the tank to attain a desired RVP."

Id. at col. 2 ll. 24–27. “However, blending butane at tank farms is not without its complications,” including that it is “labor intensive and imprecise.” *Id.* at col. 2 ll. 34–41. Additionally, “[e]ach time that gasoline is introduced to a tank, the RVP must again be measured, and butane must be added to the, [sic] tank to attain a desired RVP.” *Id.* at col. 2 ll. 34–37. But “[o]ften, gasoline will be dispensed to several tanker trucks before the butane can be blended, . . . losing the opportunity to blend butane in those shipments.” *Id.* at col. 2 ll. 37–40. Thus, after the butane is offloaded into the gasoline tank, the tank then takes “considerable stirring” to render the mixture homogeneous. *Id.* at col. 2 ll. 39–44. The specification explains that, because these conventional methods were imprecise, suppliers were unable to maximize the amount of butane blended with gasoline. *See id.* at col. 2 ll. 39–52, col. 2 l. 66–col. 3 l. 11.

The patented invention offers a solution: unlike prior manual blending methods where butane was added directly to the gasoline tank, “blending occurs downstream of the gasoline and butane storage tanks on the tank farm, after the gasoline and butane are drawn from their storage tanks for dispensing into a tanker truck, but before the gasoline is actually dispensed to the tanker truck at the rack.” *Id.* at col. 3 ll. 17–21. The invention uses a “blending apparatus” for blending the butane and gasoline streams at varying blend ratios to achieve a desired vapor pressure, and the apparatus is “under the continuous control of a process control unit, which can vary the ratio at which gasoline and butane are blended to attain a desired vapor pressure.” *Id.* at col. 3 ll. 21–31. The specification explains that these features offer “a number of significant advantages”: (1) “[t]he amount of butane blended with the gasoline can be more thoroughly controlled, yielding less RVP variability”; (2) “butane and gasoline can be blended to yield consistent optimal performance of motor vehicles that employ the blended gasoline”; (3) “[t]he ratio of butane

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and-gasoline [sic] blended can be easily varied and controlled to comply with regional and/or seasonal RVP requirements imposed by EPA or state regulations”; and (4) “tank farm operators are able to maximize the amounts of butane that they blend with gasoline, and minimize their cost basis for the gasoline sold.” *Id.* at col. 3 ll. 44–67.

Sunoco asserted claims 3, 16, and 17 of the ’302 patent and claims 18, 22, 31, and 32 of the ’629 patent at trial. Claim 3 of the ’302 patent, which depends from claims 1 and 2, provides:

1. A system for blending gasoline and butane at a tank farm comprising:
 - a) a tank of gasoline;
 - b) a tank of butane;
 - c) a blending unit, at the tank farm, downstream of and in fluid connection with the tank of gasoline and the tank of butane;
 - d) a dispensing unit downstream of and in fluid connection with the blending unit; and
 - e) a rack, wherein the dispensing unit is located at the rack and is adapted to dispense gasoline to gasoline transport vehicles.
2. The system of claim 1 further comprising a process control unit, wherein the process control unit generates a ratio input signal that controls the ratio of butane and gasoline blended by the blending unit.
3. The system of claim 2 wherein the ratio input signal is derived from a calculation of the ratio of butane and gasoline that will yield a desired vapor pressure.

Id. at col. 13 ll. 12–31. Claims 16 and 17 of the ’302 patent, which depend from claims 12, 13, and 14, provide:

12. A method for blending gasoline and butane at a tank farm comprising:

- a) drawing a gasoline stream from a tank of gasoline;
- b) drawing a butane stream from a tank of butane;
- c) blending the butane and gasoline streams, at the tank farm, to form a blend; and
- d) dispensing the blend to gasoline transport vehicles using a dispensing unit located at a rack.

13. The method of claim 12, further comprising:

- a) determining a blend ratio of butane and gasoline in the butane and gasoline streams that will yield a desired vapor pressure, and
- b) blending the gasoline and butane streams at the blend ratio.

14. The method of claim 13, wherein the blend ratio is determined from a vapor pressure of the gasoline stream and a vapor pressure of the butane stream.

16. The method of claim 14, wherein the step of determining the blend ratio comprises:

- a) setting a predetermined value for the vapor pressure of the blend;
- b) transmitting the predetermined value for the vapor pressure of the blend to a processing unit;
- c) transmitting the gasoline vapor pressure and the butane vapor pressure to the processing unit;

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- d) calculating the blend ratio from the gasoline vapor pressure, the butane vapor pressure, and the predetermined value for the vapor pressure of the blend.
- 17. The method of claim 16, further comprising:
 - a) transmitting a signal that corresponds to the vapor pressure of the blend from the processing unit to a programmable logic control; and
 - b) adjusting the ratio of butane and gasoline blended in the blending unit with the programmable logic control.

Id. at col. 14 ll. 3–21, col. 14 ll. 33–50.

Claims 18 and 22 of the '629 patent, which depend from claim 17, provide:

- 17. A computer-implemented method for blending a butane stream with a gasoline stream comprising the steps of:
 - receiving a first measurement indicating a vapor pressure of the gasoline stream;
 - receiving a second measurement indicating a vapor pressure of the butane stream;
 - calculating a blend rate at which the butane stream can be blended with a gasoline stream; and
 - transmitting an instruction to a programmable logic controller for adjusting the butane stream to the calculated blend rate for blending with the gasoline stream and distributing at a rack.
- 18. The computer-implemented method of claim 17, wherein the blend rate is based on a predetermined vapor pressure for the blended gasoline and butane.

22. The computer-implemented method of claim 17, further comprising the steps of:

receiving a third measurement indicating a vapor pressure of the blend of the gasoline stream and the butane stream; and

generating a report comprising the third measurement.

'629 patent col. 14 ll. 38–52, col. 14 ll. 62–67. Claims 31 and 32 of the '629 patent provide:

31. A computer-implemented method for blending a butane stream and a gasoline stream comprising the steps of:

receiving a first measurement indicating a vapor pressure of the gasoline stream;

calculating a blend rate at which the butane stream can be blended with the gasoline stream;

transmitting an instruction to a programmable logic controller for adjusting the butane stream to the calculated blend rate for blending with the gasoline stream and distributing at a rack; and

receiving a second measurement indicating a vapor pressure of the blended gasoline stream and butane stream.

32. The computer-implemented method of claim 31, further comprising the step of generating a report comprising the second measurement.

Id. at col. 16 ll. 8–24.

II

The '686 patent is titled “Versatile Systems for Continuous In-line Blending of Butane and Petroleum,” is

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directed to “in-line processes of blending butane into gasoline streams, and for blending butane into a gasoline stream at any point along a petroleum pipeline,” and is a continuation-in-part of the ’629 patent. U.S. Patent No. 9,207,686 Title, Abstract. The “Background of the Invention” explains that “[s]everal methods have been attempted to improve the precision of butane blending and the predictability of Reid vapor pressure in the final product.” *Id.* at col. 3 ll. 1–3. The specification explains that “[b]y combining the advantages of in-line vapor pressure monitoring both upstream and downstream of a butane blending operation,” the patented invention is “a tightly controlled butane blending system with surprising versatility that can be used to blend butane with petroleum products at practically any point along a petroleum pipeline, regardless of variations in the flow rate of gasoline . . . , the time of year . . . , or the ultimate destination.” *Id.* at col. 3 ll. 15–23. The invention allows “petroleum vendors and distributors . . . to take optimum advantage of the many cost saving and performance benefits that butane blending offers, and to do so without regard to the location where the blending occurs along the pipeline.” *Id.* at col. 3 ll. 24–28.

Sunoco asserted only claim 3 at trial. Claim 3 depends from claim 1 and provides:

1. A method for in-line blending of gasoline and a volatility modifying agent comprising:
 - a) providing a continuously flowing gasoline stream that comprises:
 - i) a plurality of batches of different gasoline types;
 - ii) a gasoline flow rate that varies over time; and
 - iii) a plurality of gasoline vapor pressures;

- b) providing an allowable vapor pressure;
 - c) providing a stream of said agent that comprises an agent vapor pressure;
 - d) periodically determining said gasoline vapor pressure;
 - e) periodically determining said gasoline flow rate;
 - f) calculating a blend ratio based upon said agent vapor pressure, said gasoline vapor pressure, and said allowable vapor pressure; and
 - g) blending said agent stream and said gasoline stream at a blending unit at said blend ratio to provide a blended gasoline stream having a blended vapor pressure less than or equal to said allowable vapor pressure.
3. The method of claim 1, further comprising:
- a) providing a first information processing unit (IPU) on which said calculating is performed;
 - b) providing a second IPU which generates pulses of flow rate data;
 - c) transmitting said flow rate data to said first IPU; and
 - d) calculating a blend rate on said first IPU based upon said flow rate data from said second IPU.

Id. at col. 15 l. 62–col. 16 l. 13, col. 16 ll. 16–23.

III

Sunoco purchased the asserted patents from Texon LP in 2010, when it acquired all of Texon's butane blending business. After the purchase, Sunoco adopted Texon's method of licensing its patents as part of Butane Supply

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Agreements (“BSAs”). Under the BSAs, Sunoco (1) constructs and operates its patented system at a licensee’s gasoline terminal, (2) supplies butane needed for the system, and (3) grants a limited license to its patents, all in exchange for sharing the licensee’s profits from selling the extra gasoline created using the patented inventions. Also under the BSAs, Sunoco performs services related to (1) making and using the patented inventions, such as designing, engineering, constructing, and maintaining the blending systems; and (2) providing regulatory oversight support, maintenance and support services, risk management, customer services, and financial services related to butane hedging, among others. Additionally, Sunoco’s BSAs include the use of its proprietary blending algorithm with its patented system. Generally, the parties to the BSAs share the resulting profits 40/60 or 50/50 with Sunoco only being compensated for its share of the profit on the gasoline gallons created, not on the sale of all gallons blended with the patented technology. The difference in profit-share depends on which party provides construction capital for building the blending system: Sunoco gets a 40 percent profit-share when the licensee provides the construction capital and a 50 percent profit-share when it provides the capital.

Sunoco has granted rights to its patents under an arrangement other than the above described BSA methodology only once. When Sunoco acquired Texon’s butane blending business, a preexisting licensee of Texon, Buckeye Terminals, LLC, wanted to continue its BSA with Texon rather than Sunoco. Sunoco agreed to allow Texon to continue to use the patented inventions for Buckeye, and under the “Buckeye License,” Texon paid Sunoco \$0.02/gallon for patented blending at all Buckeye terminals for ten years and 60 percent of Texon’s profits at any future Buckeye terminals. Buckeye and Texon used a 50/50 profit-share, so Sunoco’s 60 percent share from Texon’s profit was

30 percent of the total profits from the use of the patented inventions at Buckeye terminals.

In 2013, Colonial Pipeline Company sought an automated blending system for the Colonial Pipeline, which is the largest refined products pipeline system in the country. Sunoco and Magellan competed for the project, with Sunoco proposing use of its patented blending technology with a 50/50 profit-share under its established BSA methodology. Colonial, however, chose Magellan's proposal, under which Magellan would construct, operate, and maintain the system, as well as supply butane and provide other services, in exchange for a 40/60 profit-share. Colonial and Magellan jointly formed Powder Springs, which began blending on the pipeline in 2017. Sunoco still operates its own patented systems at 25 terminals on the Colonial Pipeline downstream of Powder Springs's terminals.

IV

In 2017, Sunoco filed suit for patent infringement in the District of Delaware, initially suing Magellan and Powder Springs (or, collectively, "Defendants-Cross-Appellants") for infringing multiple claims across five patents. Sunoco requested a damages award based on its BSA profit-sharing methodology. Several stages of the underlying lawsuit—which ultimately proceeded to a bifurcated trial on (1) liability, where the jury found claims 3, 16, and 17 of the '302 patent, claims 18, 22, 31, and 32 of the '629 patent, and claim 3 of the '686 patent valid and willfully infringed; and (2) damages, where the jury awarded Sunoco approximately \$12 million—are relevant to this appeal.

A

Before trial, Defendants-Cross-Appellants sought to exclude the opinions of Sunoco's damages expert, Dr. Keith Ugone, as unreliable under *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993), because Dr. Ugone

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failed to apportion Sunoco’s BSAs to reflect only the value of the patented inventions. After allowing Sunoco an opportunity to supplement Dr. Ugone’s opinions to show apportionment, the district court struck his supplemental opinions for failing to apportion appropriately.

In so doing, the district court first determined that the “entire market value analysis in Dr. Ugone’s supplemental report is unreliable.” J.A. 22. The court found that Dr. Ugone did “not identify reliable evidence to allow Sunoco to ‘meet its burden to show that the patented feature was the *sole driver* of consumer demand, i.e., that it alone motivated consumers to buy the accused the [sic] products or substantially creates the value of the component parts.” *Id.* (quoting the entire market value standard set forth in *Power Integrations, Inc. v. Fairchild Semiconductor Int’l, Inc.*, 904 F.3d 965, 979–80 (Fed. Cir. 2018)). The district court also noted that it does not “follow[] that the ‘sole driver’ requirement is satisfied” merely because the non-patented features offered as part of Sunoco’s BSAs are not sold separately from the patented features. J.A. 23 (citing *LaserDynamics, Inc. v. Quanta Comput., Inc.*, 694 F.3d 51, 68 (Fed. Cir. 2012)). Further, the district court determined that Sunoco had not provided evidence to meet its burden to show that its patented features substantially create the value of the component parts of the BSA, “especially given the undisputed evidence that Sunoco’s services are valued for their non-patented features, such as their expertise and algorithm.” J.A. 23–24 (citations omitted).

Turning to Dr. Ugone’s purported apportionment analysis, the district court determined that his analysis was unreliable because Dr. Ugone did not analyze the value of certain unpatented features of Sunoco’s BSAs. This included Sunoco’s blending algorithm, which the district court did not view as “part of the patented system” because of testimony that the algorithm was “proprietary and a Sunoco trade secret.” J.A. 24–25 (citations omitted). As to

Dr. Ugone’s opinions on lost opportunity cost, the district court determined that those too were unreliable because he “failed to apportion the value lost due to non-infringing manual blending.” J.A. 25. Thus, the district court struck all of Sunoco’s damages expert’s opinions.¹

B

At trial, Sunoco requested jury instructions regarding lost profits based on evidence it elicited from fact witnesses, such as (1) testimony that the patents drove demand for Sunoco’s BSAs, and (2) testimony about the 30 percent profit sharing arrangement between Sunoco and Texon from the Buckeye License. The district court, however, rejected the proposed instruction and precluded Sunoco from arguing for damages based on “some value that’s intermediate” to the “full value” of the 40 or 50 percent rates in the BSAs or the 30 percent rate in the

¹ Sunoco filed several other suits that involve the asserted patents, including a suit against U.S. Venture, Inc. in the Northern District of Illinois for infringing different claims of the ’302 and ’629 patents. *Sunoco P’ship Mktg. & Terminals L.P. v. U.S. Venture, Inc.*, 436 F. Supp. 3d 1099, 1107 (N.D. Ill. 2020) (“*U.S. Venture I*”). Notably, in *U.S. Venture I*, Sunoco sought damages based on its BSAs relying on the testimony of the same expert, Dr. Ugone. After a bench trial, the Illinois district court determined that Dr. Ugone’s failure to apportion the BSAs to reflect only the value of the asserted and infringed patent claims prohibited Sunoco from recovering lost profits or reasonable royalty damages based on the full value of the BSAs. *Id.* at 1127–30. Sunoco appealed that decision to this court, arguing the district court erred in rejecting BSA-based damages, and we affirmed the Illinois district court’s damages decision. *Sunoco Partners Mktg. & Terminals L.P. v. U.S. Venture, Inc.*, 32 F.4th 1161, 1179–81 (Fed. Cir. 2022) (“*U.S. Venture II*”).

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Buckeye License. See J.A. 23229–31 (Trial Tr. 1461:5–1463:15). The district court had warned Sunoco prior to trial that such a theory “is no more proper . . . coming from fact witnesses than it would have been coming from Dr. Ugone” and that “someone must apportion” the BSAs. J.A. 14509 (Hearing Tr. 95:18–97:7). Thus, the royalty rate that Sunoco could seek from the jury in its closing argument was limited to the \$0.02/gallon rate that Defendants-Cross-Appellants’ expert, Dr. Robert Maness, proposed based on the Buckeye License.

C

During post-trial proceedings, the district court issued three orders relevant to this appeal: (1) an order addressing patent eligibility as to each asserted claim, (2) an order addressing JMOL of no infringement and of no willful infringement, and (3) an order addressing enhanced and supplemental damages.

1

The district court denied Defendants-Cross-Appellants’ renewed motion under Federal Rule of Civil Procedure 52(c) that all asserted claims are ineligible under 35 U.S.C. § 101. Defendants-Cross-Appellants argued that the asserted claims of the ’302 and ’629 patents are directed to “the abstract idea of gathering and transmitting blend data and using generic computer components to calculate a blend ratio and add butane to gasoline,” with the focus of the claims on “using a computer to automate aspects of butane blending that have long been done manually.” *Sunoco Partners Mktg. & Terminals L.P. v. Powder Springs Logistics, LLC*, 624 F. Supp. 3d 484, 489 (D. Del. 2022) (“101 Order”) (citations omitted). The district court, however, disagreed and determined that Defendants-Cross-Appellants had “failed to show that the claimed invention simply automates this prior manual blending,” and instead the court determined “that claims 3, 16, and 17 of the ’302 patent and claims 18, 22, 31, and 32 of the

'629 patent are directed to improved systems and methods for blending butane.” *Id.* at 490.

The district court explained that the specification described improvements over conventional methods of butane blending:

Specifically, “[b]y blending gasoline and butane immediately before the gasoline is dispensed to a tanker truck, and by continuously controlling the ratio of gasoline and butane blended by the blending apparatus, a number of significant advantages are attained, including,” among other things, that “[t]he ratio of butane and[] gasoline blended can be easily varied and controlled” and “operators are able to maximize the amounts of butane that they blend.”

Id. at 491 (second and third alteration in original) (quoting '302 patent col. 3 ll. 44–67). The district court determined that the patents' claims capture these improved blending methods. The district court further analogized this case to *EcoServices, LLC v. Certified Aviation Services, LLC*, 830 F. App'x 634 (Fed. Cir. 2020), and *CardioNet, LLC v. InfoBionic, Inc.*, 955 F.3d 1358 (Fed. Cir. 2020), to conclude that the “claims are not simply directed to the automation of the prior manual blending methods in which an operator would measure the RVP of samples from a gasoline tank, add the appropriate amount of butane into the tank, stir the tank, and then measure the RVP of the blend.” *101 Order* at 492. Instead, the district court held that “the claims are directed to specific technical systems and methods that ‘allow[] a distributor to blend more gasoline than would be possible with the prior art.’” *Id.* (alteration in original) (quoting '302 patent col. 11 ll. 53–55). As the district court determined the claims were not directed to ineligible subject matter under *Alice* step one, the court did not proceed to *Alice* step two.

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As to the '686 patent, Defendants-Cross-Appellants argued that claim 3 is directed to the “abstract idea of receiving blending data and using a generic computer to make calculations based on those measurements,” which “is simply the automation of the well-known methods for manual blending along a pipeline.” *Id.* at 493 (citation omitted). The district court, however, determined that Defendants-Cross-Appellants had not met their burden to show that “claim 3 is directed simply to the automation of these prior manual blending methods,” holding that “[c]laim 3 is instead directed to a specific method for in-line blending.” *Id.* The district court concluded that claim 3 captures unconventional methods of in-line blending by reciting (1) “periodically determining said gasoline vapor pressure’ and ‘said gasoline flow rate’”; (2) “calculating a blend ratio based upon . . . said gasoline vapor pressure[] and said allowable vapor pressure”; and (3) “blending’ the butane and gasoline streams ‘at a blending unit at said blend ratio to provide a blended gasoline stream having a blended vapor pressure less than or equal to said allowable vapor pressure.’” *Id.* at 493–94 (alteration and omission in original) (quoting '686 patent col. 15 l. 61–col. 16 l. 13). The district court explained that *McRO, Inc. v. Bandai Namco Games America Inc.*, 837 F.3d 1299 (Fed. Cir. 2016), is instructive in determining that Defendants-Cross-Appellants had failed to provide sufficient evidence that the prior art blending process was the same process required by claim 3. The district court thus held that the claimed invention used a computer to perform a distinct process to automate a task compared to what was previously manually performed. *See 101 Order* at 494.² Again,

² As part of its *101 Order*, the district court also noted that it struck exhibits related to the prior art Kerr-McGee system as untimely and declined to use Defendants-Cross-Appellants’ remaining proposed findings of fact that

as the district court determined the claim was not directed to ineligible subject matter under *Alice* step one, the court did not proceed to *Alice* step two.³

2

The district court granted JMOL of no infringement for claims 16 and 17 of the '302 patent and claims 18 and 22 of the '629 patent but denied JMOL of no infringement on the other claims the jury found infringed. The district court concluded that claims 16 and 17 of the '302 patent and claims 18 and 22 of the '629 patent “require[] knowing (whether it be through, for example, actual measurement, through looking it up in a table or other resource, or through knowledge of an inherent characteristic) the vapor pressure of the gasoline or butane to be blended.” *Sunoco Partners Mktg. & Terminals L.P. v. Powder Springs Logistics, LLC*, 624 F. Supp. 3d 473, 477 (D. Del. 2022) (“*Infringement Order*”) (quotation marks and citation omitted). The district court considered a prior decision of our court that held “the phrase ‘vapor pressure of the butane stream’ in claim 17 of the '302 patent covers an assumed vapor pressure value.” *Id.* (citing *U.S. Venture II*, 32 F.4th at 1175–76). The district court next considered that it was

relied on excerpts of the Kerr-McGee documents from the prosecution history of another related patent to find the claimed blending steps were conventional activities. *See 101 Order* at 490 n.3.

³ Sunoco sued U.S. Venture in the Southern District of Texas for infringing different claims of the '686 patent. *Sunoco Partners Mktg. & Terminals L.P. v. U.S. Venture, Inc.*, 598 F. Supp. 3d 520, 523 (S.D. Tex. 2022) (“*U.S. Venture Tex. Op.*”), *appeal dismissed*, 2023 WL 8366206 (Fed. Cir. Dec. 4, 2023). There, the Texas district court held claims 16 and 17 of the '686 patent ineligible under 35 U.S.C. § 101. *Id.* at 535–41. Neither claim recites periodically determining gasoline vapor pressure or flow rate.

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undisputed the accused products do not measure the vapor pressure of the butane but use an inherent butane RVP of 52 psi. The district court concluded that using an assumed butane vapor pressure satisfied the claim limitations requiring knowledge of a butane vapor pressure. The district court, however, determined that this knowledge was not enough to satisfy the “receiving” limitation of claims 18 and 22 of the ’629 patent and “transmitting” limitation of claims 16 and 17 of the ’302 patent, and held that Sunoco’s expert’s conclusory testimony on these limitations could not constitute substantial evidence to support the jury verdict of infringement for these claims.

In its *Infringement Order*, the district court also denied Defendants-Cross-Appellants’ motion for JMOL of no willful infringement for all asserted claims.

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The district court declined to enhance Sunoco’s damages award, despite its denial of JMOL of no willful infringement. The district court considered the *Read* factors as part of its analysis, *see Sunoco Partners Mktg. & Terminals L.P. v. Powder Springs Logistics, LLC*, No. 17-cv-01390-RGA, 2022 WL 3973499, at *1 (D. Del. Aug. 31, 2022) (“*Damages Order*”) (citing *Read Corp. v. Portec, Inc.*, 970 F.2d 816, 827 (Fed. Cir. 1992)), ultimately concluding that the factors weighed against enhancing damages. *Id.* at *3.

The district court also awarded supplemental damages at a \$0.02/gallon royalty rate for Defendants-Cross-Appellants’ infringement that was not covered by the jury verdict. The district court explained that the jury’s damages number of \$12,200,958.44 was the exact number presented by Sunoco in closing argument from multiplying the royalty rate of \$0.02/gallon by the infringing volumes of blended gasoline through the end in January 2019. “Thus, [the district court] ha[d] no doubt that the jury only considered Defendants’ infringement through January 2019

when assessing damages.” *Id.* And while the district court acknowledged that Sunoco had Defendants-Cross-Appellants’ blending volumes through October 2021 prior to trial, the court reasoned that (1) this information came in after fact and expert discovery closed, (2) there was no witness at trial or within subpoena range through whom Sunoco could have introduced these new volumes, and (3) other efforts to remedy an authentication problem may not have been successful. Accordingly, the district court determined that Sunoco “had no practical means of presenting these new volumes to the jury.” *Id.* As “the jury only compensated Sunoco for infringement through January 2019, [the district court] believe[d] supplemental damages [were] necessary to properly compensate Sunoco for Defendants’ infringement.” *Id.* at *4.

* * *

Sunoco appeals the district court’s (1) decision to strike Dr. Ugone’s various damages opinions, (2) decision not to instruct the jury on lost profits and to preclude Sunoco from asking the jury for a royalty based on its BSAs or Buckeye License, (3) decision not to award enhanced damages for Defendants-Cross-Appellants’ willful infringement, and (4) decision to grant JMOL of no infringement of claims 16 and 17 of the ’302 patent and claims 18 and 22 of the ’629 patent. Magellan and Powder Springs cross-appeal the district court’s decisions (1) holding all asserted claims eligible and (2) awarding supplemental damages. We have jurisdiction under 28 U.S.C. § 1295(a)(1).

DISCUSSION

MAGELLAN AND POWDER SPRINGS’S CROSS-APPEAL

We first address Magellan and Powder Springs’s cross-appeal, as they challenge the eligibility of all patent claims at issue. Magellan and Powder Springs also challenge the district court’s award of pre-verdict supplemental damages to Sunoco.

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I

“For the district court’s entry of judgment under Rule 52(c), we review the district court’s factual findings for clear error and its legal conclusions *de novo*.” *Intell. Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307, 1312 (Fed. Cir. 2016). “Patent eligibility is a question of law that may involve underlying questions of fact.” *PersonalWeb Techs. LLC v. Google LLC*, 8 F.4th 1310, 1314 (Fed. Cir. 2021). We review *de novo* a determination that a claim is not directed to patent-ineligible subject matter. *See, e.g., CardioNet*, 955 F.3d at 1367.

“Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor” 35 U.S.C. § 101. “The Supreme Court has identified three types of subject matter that are not patent-eligible: ‘Laws of nature, natural phenomena, and abstract ideas’” *CardioNet*, 955 F.3d at 1367 (quoting *Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208, 216 (2014)). “The abstract ideas category, the subject matter at issue in this case, embodies the longstanding rule that an idea of itself is not patentable.” *Id.* (cleaned up) (quoting *Alice*, 573 U.S. at 218). But “an invention is not rendered ineligible for patent simply because it involves an abstract concept.” *Alice*, 573 U.S. at 217. Applications of abstract concepts to a new and useful end are eligible for patent protection. *Id.*

The Supreme Court has “articulated a two-step test for examining patent eligibility.” *CardioNet*, 955 F.3d at 1367. “At step one, we consider the claims ‘in their entirety to ascertain whether their character as a whole is directed to excluded subject matter.’ We also consider the patent’s written description, as it informs our understanding of the claims.” *Id.* at 1367–68 (citations omitted). “If the claims are not directed to a patent-ineligible concept under *Alice* step [one], the claims satisfy § 101 and we need

not proceed to the second step.” *Id.* at 1368 (quotation marks omitted) (quoting *Data Engine Techs. LLC v. Google LLC*, 906 F.3d 999, 1007 (Fed. Cir. 2018)). “If the claims are directed to a patent-ineligible concept, however, we next consider *Alice* step two. In this step, we consider the elements of each claim both individually and as an ordered combination to determine whether the additional elements transform the nature of the claim into a patent-eligible application.” *Id.* (quotation marks and citations omitted).

A

We begin by analyzing claims 3, 16, and 17 of the ’302 patent at *Alice* step one. Defendants-Cross-Appellants argue the claims are directed to the abstract idea of gathering and/or receiving blend data and making a calculation with that data.⁴ We disagree and hold that claims 3, 16, and 17 are not directed to an abstract idea.

“At this step, we look to whether the claims focus on a specific means or method that improves the relevant technology or are instead directed to a result or effect that itself is the abstract idea and merely invoke generic processes and machinery.” *PowerBlock Holdings, Inc. v. iFit, Inc.*, 146 F.4th 1366, 1371 (Fed. Cir. 2025) (quotation marks and citation omitted). As the district court concluded here, claims 3, 16, and 17 of the ’302 patent are “directed to improved systems and methods for blending butane.” *See 101 Order* at 490.

The ’302 patent’s specification, as well as trial testimony on the state of the art that the district court

⁴ Defendants-Cross-Appellants argue that claim 31 of the ’629 patent is representative of the claims in the ’302 patent. *See* Defendants-Cross-Appellants’ Reply Br. 2 n.1. We disagree and note that the district court also did not treat any claims as representative.

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credited,⁵ explains the conventional methods of blending butane at tank farms and the drawbacks of these methods. *See 101 Order* at 489–90. The specification then explains how the patented system and methods are different from prior manual blending methods, including that (1) “blending occurs downstream of the gasoline and butane storage tanks on the tank farm, after the gasoline and butane are drawn from their storage tanks for dispensing into a tanker truck, but before the gasoline is actually dispensed to the tanker truck at the rack,” ’302 patent col. 3 ll. 16–21; and (2) “a blending apparatus” blends the butane and gasoline streams at varying blend ratios to achieve a desired vapor pressure, and the apparatus is “under the continuous control of a process control unit, which can vary the ratio at which gasoline and butane are blended to attain a desired vapor pressure,” *id.* at col. 3 ll. 21–31. The specification explains that this “allows for blending the butane and gasoline streams to form a blend such that the maximum allowable vapor pressure is not exceeded and then dispensing the blend at the rack, without having to stir the tank and certify the vapor pressure of the tank before releasing it to the rack.” *See 101 Order* at 490 (citing ’302 patent col. 10 ll. 33–36, col. 11 ll. 30–42, 50–55). The specification further lays out four specific improvements this allowed for, including that “[t]he ratio of butane and-gasoline [sic] blended can be easily varied and controlled” and “operators are able to maximize the amounts of butane that they blend.” ’302 patent col. 3 ll. 44–67.

Improvements over the prior blending methods are sufficiently captured in claim 3, which depends from claims 1

⁵ As Sunoco pointed out at oral argument, the district court ruled on eligibility under Rule 52(c) and made several fact findings based on the record. *See Oral Arg.* at 43:04–44:01, https://oralarguments.cafc.uscourts.gov/default.aspx?fl=23-1218_01132025.mp3.

and 2. Claim 3 recites a system “for blending gasoline and butane at a tank farm” that includes: (1) a butane stream and a gasoline stream; (2) a tank of gasoline and one of butane; (3) a processing unit to calculate a blend ratio; (4) equipment, including a blending unit downstream of and in fluid connection with the gasoline tank, for blending the streams at the calculated blend ratio; and (5) a dispensing unit downstream of the blending unit to dispense the blend at a truck rack. *See* ’302 patent col. 13 ll. 12–31. Accordingly, we agree with the district court that claim 3 is directed to “a specific implementation of a technological improvement” for a butane blending system. *Chamberlain Grp., Inc. v. Techtronic Indus. Co.*, 935 F.3d 1341, 1347 (Fed. Cir. 2019). We hold that the limitations in this claim provide enough specificity and structure to satisfy § 101.

Indeed, we see this case as analogous to our recent decision in *PowerBlock Holdings* where we held eligible at *Alice* step one claims for selectorized dumbbells. *PowerBlock Holdings*, 146 F.4th at 1371–73. There, we explained that even though the claim language was broad, it was still “limited to a particular type of dumbbell,” went “beyond claiming the ‘broad concept’ of automating a known technique and provide[d] a sufficiently ‘specific manner of performing’ automated weight stacking,” and was “sufficiently focused on a specific mechanical improvement.” *Id.* at 1372–73. Similarly here, claim 3 is limited to a particular blending system that goes beyond merely automating conventional blending techniques by providing a sufficiently specific manner of blending and is focused on a specific mechanical improvement. *See also, e.g., CardioNet*, 955 F.3d at 1368 (holding that the claims “focus on a specific means or method that improves cardiac monitoring technology; they are not directed to a result or effect that itself is the abstract idea and merely invoke generic processes and machinery” (quotation marks and citation omitted)).

On the other hand, we disagree with Defendants-Cross-Appellants’ contention that claim 3 is analogous to

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the patent at issue in *University of Florida Research Foundation, Inc. v. General Electric Co.*, 916 F.3d 1363 (Fed. Cir. 2019). The patent at issue there, involving “a method and system for ‘integrat[ing] physiologic data from at least one bedside machine,” sought to “automate ‘pen and paper methodologies’ to conserve human resources and minimize errors” and was “a quintessential ‘do it on a computer’ patent.” *Univ. of Fla.*, 916 F.3d at 1366–67 (alteration in original) (citations omitted). As explained above, claim 3 is different: it claims equipment tanks, a processing unit to calculate a blend ratio, a blending unit, a dispensing unit, and a truck rack, as well as the specific arrangement that the blending unit is downstream of the tank. It is directed to an eligible mechanical invention—i.e., “a concrete thing, consisting of parts, or of certain devices and combination of devices.” *SiRF Tech., Inc. v. Int’l Trade Comm’n*, 601 F.3d 1319, 1332 (Fed. Cir. 2010) (quoting *In re Ferguson*, 558 F.3d 1359, 1364 (Fed. Cir. 2009)); see 35 U.S.C. § 101.

Nor do we agree with Defendants-Cross-Appellants’ view that claim 3 is similar to the claims at issue in *Chamberlain*. In *Chamberlain*, the specification described a system for wirelessly controlling a moveable barrier, such as a garage door. The claims recited a moveable barrier operator with a controller, an interface, and a wireless transmitter that sends status information. The claims did not recite the moveable barrier. We concluded that the asserted claims were “directed to wirelessly communicating status information about a system,” an abstract idea. *Chamberlain*, 935 F.3d at 1346–47. We explained that the claims in *Chamberlain* were “not limited to a specific implementation of a technological improvement to communication systems,” “they simply recite[d] a system that wirelessly communicates status information” instead of using physical signal paths. *Id.* at 1347. Claim 3 of the ’302 patent here is distinguishable. Claim 3 recites elements of a mechanical system including a blending unit

that physically blends butane and gasoline that is both connected downstream of the butane and gasoline tanks and upstream of the dispensing unit, which is also configured to blend butane and gasoline such that the blend has the desired vapor pressure. Here, claim 3 passes muster at *Alice* step one, as it is sufficiently focused on a specific mechanical improvement to blending butane.

Defendants-Cross-Appellants contend that we should not consider elements of claims that were invalidated as anticipated in other court proceedings—i.e., claim 1 of the '302 patent—and should only consider in our § 101 analysis the limitations added in claims 2 and 3. “We decline [Defendants-Cross-Appellants’] invitation to read out or ignore limitations in claim [3] here merely because they can be found in the prior art.” *PowerBlock*, 146 F.4th at 1373 (citing *Diamond v. Diehr*, 450 U.S. 175, 188 (1981)). We emphasize here that “parties and tribunals [should] not . . . conflate the separate novelty and obviousness inquiries under 35 U.S.C. §§ 102 and 103, respectively, with the step one inquiry under § 101.” *Id.* at 1373 n.3.⁶

Defendants-Cross-Appellants have not made any meaningful argument that the method claims 16 and 17 of the '302 patent are patent-ineligible even if claim 3 is patent-eligible. *See, e.g.,* Defendants-Cross-Appellants’ Br. 66 (describing claim 3 of the '302 patent as “more high-level” than claims 16 and 17). Courts may treat claims the same regardless of whether they are method or system

⁶ The district court struck certain evidence regarding the prior art Kerr-McGee system, an order that is not appealed, and then did not find the remaining excerpts of the prior art system in the record persuasive in showing the claimed blending steps were conventional. *See 101 Order* at 490 n.3. As our analysis is focused on what the language of the challenged claims captures, we do not reach the parties’ dispute over this prior art system.

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claims for the purposes of patent eligibility. *See Bancorp Servs., L.L.C. v. Sun Life Assurance Co. of Canada (U.S.)*, 687 F.3d 1266, 1277 (Fed. Cir. 2012) (“The equivalence of the asserted method and system claims is also readily apparent. . . . The only difference between the claims is the form in which they were drafted. The district court correctly treated the system and method claims at issue in this case as equivalent for purposes of patent eligibility under § 101.”); *cf. Alice*, 573 U.S. at 226 (“Put another way, the system claims are no different from the method claims in substance. . . . This Court has long warned against interpreting § 101 in ways that make patent eligibility depend simply on the draftsman’s art.” (cleaned up) (citation omitted)). Thus, claims 16 and 17 are directed to eligible subject matter for the same reasons as claim 3.

Because we conclude under *Alice* step one that claims 3, 16, and 17 of the ’302 patent are not directed to an abstract idea, we do not reach *Alice* step two. We affirm the district court’s holding that claims 3, 16, and 17 of the ’302 patent are patent eligible under § 101.

B

We turn next to claims 18, 22, 31, and 32 of the ’629 patent and start with *Alice* step one. Defendants-Cross-Appellants argue that these claims are directed to the abstract idea of gathering and/or receiving blend data and making a calculation with that data. Because Sunoco concedes that claim 31 is representative for our § 101 analysis for the ’629 patent, our analysis focuses on claim 31. Oral Arg. at 42:18–42:32. Starting with *Alice* step one, we agree that claim 31 of the ’629 patent is directed to an abstract idea.

In contrast to claim 3 of the ’302 patent, claim 31 of the ’629 patent recites “[a] computer-implemented method for blending a butane stream and a gasoline stream” that includes: (1) “receiving a first measurement indicating a vapor pressure . . .”; (2) “calculating a blend rate . . .”;

(3) “transmitting an instruction to a programmable logic controller . . .”; and (4) “receiving a second measurement indicating a vapor pressure . . .” ’629 patent col. 16 ll. 8–21. Claim 31 does not recite the step of blending gasoline and butane; nor does it recite where blending would occur. Rather, claim 31 recites an algorithm that receives measurements, calculates, and transmits an instruction for adjusting a butane stream based on “receiving” and “calculating” data. We have held similar algorithm and data-focused claims ineligible. *See In re Bd. of Trs. of Leland Stanford Junior Univ.*, 989 F.3d 1367, 1372–73 (Fed. Cir. 2021) (collecting cases and explaining that “[c]ourts have long held that mathematical algorithms for performing calculations, without more, are patent ineligible under § 101.”); *PersonalWeb Techs.*, 8 F.4th at 1317 (“[W]e [have] explained that a process that started with data, added an algorithm, and ended with a new form of data was directed to an abstract idea.” (cleaned up) (citation omitted)).

While the district court determined that this claim is directed to the improved blending methods based on the specification, *see 101 Order* at 491, we disagree. Unlike claim 3 of the ’302 patent, which recites specific components of a system, in a specific order so that butane is blended at a specific point in the pipeline, and in a specific manner to capture the invention’s improvements, claim 31 is written at a high level of generality and fails to capture any specific improvements described in the specification. For example, claim 31 does not recite if or where in the pipeline butane is blended with gasoline. At most, the claim recites an instruction that could be used for blending and “distributing at a rack.” ’629 patent col. 16 l. 18.

Sunoco argues that the claim involves more than gathering and processing data, and that Defendants-Cross-Appellants ignore that the claim is specifically about a process of blending butane with gasoline, which is recited by the claim’s preamble. Appellant’s Reply Br. 42–43. Sunoco

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warns against “disregard[ing] those express claim elements [and] proceed[ing] at ‘a high level of abstraction’ that is ‘untethered from the claim language’ and that ‘overgeneraliz[es] the claim.” Appellant’s Reply Br. 44 (fourth alteration in original) (quoting *TecSec, Inc. v. Adobe Inc.*, 978 F.3d 1278, 1295 (Fed. Cir. 2020)). Sunoco argues that “the focus of the claim[] is determining the RVP of a flowing gasoline stream to calculate how much butane can be added, not the subsequent act or result of blending,” which is all that is required. *Id.* (citing *Free Stream Media Corp. v. Alphonso Inc.*, 996 F.3d 1355, 1363 (Fed. Cir. 2021)).

The claim’s preamble does not save it from abstraction here. We agree that courts must be vigilant against overgeneralizing what a claim is directed to in an *Alice* analysis. However, “we have treated collecting information, including when limited to particular content (which does not change its character as information), as within the realm of abstract ideas.” *Elec. Power Grp., v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016). Here, the claims recite a method “of gathering and analyzing information of a specified content [in claim 31], then displaying the results [by generating a report in claim 32], and not any particular assertedly inventive technology for performing those functions. The[claims] are therefore directed to an abstract idea.” *Id.* at 1354.

Because we hold that claim 31 is directed to an abstract idea at *Alice* step one, we move to *Alice* step two.⁷ “In this step, we consider the elements of each claim both individually and as an ordered combination to determine whether the additional elements transform the nature of the claim into a patent-eligible application.” *CardioNet*, 955 F.3d at 1368 (citations and quotation marks omitted).

⁷ The parties did not provide separate arguments under *Alice* step two for the various claims on appeal.

As an initial matter, the district court did not reach *Alice* step two. Sunoco thus contends that if we reach this step, we should not analyze it in the first instance but instead remand the issue to the district court. *See* Appellant’s Reply Br. 59 (citing *MyMail, Ltd. v. ooVoo, LLC*, 934 F.3d 1373, 1380 (Fed. Cir. 2019)). However, where a patentee has argued that its claims are eligible under step two as a matter of law, as Sunoco does here, we have previously reached step two even when the district court did not. *See Free Stream*, 996 F.3d at 1365–66.

Sunoco argues that claim 31 recites an inventive concept at step two because the invention is directed to specific blending methods, not just automated calculations, that are “directed to improved systems and methods” that “blend more gasoline than would be possible with the prior art.” Appellant’s Reply Br. 60 (emphasis removed) (first quoting *101 Order* at 490, 492; and then citing *CosmoKey Sols. GmbH & Co. KG v. Duo Sec. LLC*, 15 F.4th 1091, 1098–99 (Fed. Cir. 2021) (“[C]laims recite an inventive concept by requiring a specific set of ordered steps that go beyond the abstract idea . . . and improve upon the prior art.”)). We disagree.

Here, at *Alice* step two, we do not discern “an ‘inventive concept’ sufficient to ‘transform’ the claimed abstract idea into a patent-eligible [invention].” *Alice*, 573 U.S. at 221 (quoting *Mayo Collaborative Servs. v. Prometheus Lab’s, Inc.*, 566 U.S. 66, 72, 79 (2012)). While we agree that the invention as disclosed in the specification describes “improved systems and methods” that “blend more gasoline than would be possible with the prior art,” the focus of our inquiry is on claim 31. And as discussed above, what is actually claimed does not capture the improvements described elsewhere in the patent. The claim merely recites a generic method of performing any butane blending (i.e., calculating a blend rate after receiving a vapor pressure measurement and transmitting an instruction adjusting the flow of the butane stream), albeit done on a computer.

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The claim limitations, analyzed alone and in combination, fail to add “something more” to “transform” the claimed abstract idea of gathering and/or receiving blend data and making a calculation into “a patent-eligible [invention].” *See Alice*, 573 U.S. at 217, 221.

Because we conclude that claim 31 is ineligible, and the parties treat it as representative of claims 18, 22, and 32, we reverse the district court’s holding that claims 18, 22, 31, and 32 of the ’629 patent are eligible under § 101.

C

Finally, we turn to claim 3 of the ’686 patent and again start with *Alice* step one. Defendants-Cross-Appellants argue the claim is directed to the abstract idea of gathering and/or receiving blend data and making a calculation with that data. We disagree.

The ’686 patent does not share a specification with the other two patents. Instead, the ’686 patent’s specification describes a method for in-line blending of butane and gasoline “at any point along a petroleum pipeline,” ’686 patent col. 1 ll. 22–25, which allows for “surprising versatility that can be used to blend butane with petroleum products at practically any point along a petroleum pipeline, regardless of variations in the flow rate of gasoline . . . , the time of year . . . , or the ultimate destination.” *Id.* at col. 3 ll. 17–23. The district court highlighted “[o]ne embodiment [that] includes ‘periodically determining’ the gasoline flow rate and vapor pressure so that ‘the blend ratio and blend rate are both periodically recalculated to account for differences within and among batches in gasoline flow rate and gasoline vapor pressure.’” *101 Order* at 493 (first quoting ’686 patent col. 3 ll. 52–64; and then citing *id.* at col. 14 ll. 38–44).

The district court held that claim 3 captured the described “unconventional methods” of the ’686 patent

specification because it recited (1) “periodically determining said gasoline vapor pressure,” (2) a “gasoline flow rate,” (3) “calculating a blend ratio based upon . . . said gasoline vapor pressure[] and said allowable vapor pressure,” (4) “‘blending’ the butane and gasoline streams ‘at a blending unit at said blend ratio to provide a blended gasoline stream having a blended vapor pressure less than or equal to said allowable vapor pressure,’” (5) a processing unit that “generates pulses of flow rate data,” and (6) “another processing unit that performs the steps of ‘calculating a blend ratio’ and of ‘calculating a blend rate . . . based upon said flow rate data.’” *101 Order* at 493–94 (alteration and omissions in original) (quoting ’686 patent col. 15 l. 61–col. 16 l. 23). We agree and conclude that claim 3 is directed to providing in-line blending notwithstanding differences within and among batches in gasoline flow rate and gasoline vapor pressure.

Claim 1, from which claim 3 depends, recites a method for in-line blending of gasoline and a volatility modifying agent, batches of different gasoline types, with different flow rates and vapor pressures, requiring periodic determinations of flow rates and vapor pressures and calculating a blend ratio. Claim 1 also recites blending the agent stream and gasoline stream at a blending unit, and claim 3 adds first and second “information processing unit[s],” the second for calculating the flow rate data and the first for calculating blend ratios based on the flow rate data. Based on this specific claim language as understood in light of the specification, we conclude that claim 3 is not directed to an abstract idea. Rather, claim 3 recites specific technological improvements to address specific problems that existed in providing in-line blending of gasoline and a volatility modifying agent.

As we hold that claim 3 is not directed to an abstract idea at *Alice* step one, we need not address *Alice* step two. Consistent with the specification, the claims are directed to an improved in-line blending system that allows for

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more “versatility” and for butane and gasoline to be blended “at any point along a petroleum pipeline.” We thus affirm the district court’s holding that claim 3 of the ’686 patent is eligible under § 101.

II

Magellan and Powder Springs also contend on cross-appeal that the district court erred in awarding pre-verdict supplemental damages to Sunoco for February 2019 to October 2021.

Assessing and computing supplemental damages “is within the sound discretion of the district court.” *Bayer Healthcare LLC v. Baxalta Inc.*, 989 F.3d 964, 985 (Fed. Cir. 2021) (citation omitted); *Stryker Corp. v. Davol Inc.*, 234 F.3d 1252, 1259–60 (Fed. Cir. 2000) (reviewing an award of supplemental damages for abuse of discretion). “A district court abuses its discretion by making a clear error of judgment in weighing relevant factors or in basing its decision on an error of law or on clearly erroneous factual findings.” *Mentor Graphics Corp. v. Quickturn Design Sys., Inc.*, 150 F.3d 1374, 1377 (Fed. Cir. 1998).

Defendants-Cross-Appellants argue that Sunoco should be held to the damages number it calculated for the jury at trial—i.e., multiplying the \$0.02/gallon royalty rate times the accused blend volumes through January 2019—because Sunoco had possession of Defendants-Cross-Appellants’ updated blend volumes through October 2021 prior to trial. Defendants-Cross-Appellants contend that Sunoco had ample time after its damages expert’s opinions were stricken and it received the updated volumes data to attempt to authenticate or admit the data at trial. Defendants-Cross-Appellants argue that the district court’s assessment that it was “not sure [authentication] efforts would have been successful” was insufficient to grant Sunoco damages it had not proven. Defendants-Cross-Appellants’ Br. 50 (alteration in original) (quoting *Damages Order* at *3). We are not persuaded.

The district court, having witnessed trial where “[t]he jury awarded Sunoco’s exact damages number” as “Sunoco’s counsel presented [it]” using the infringing volumes that ended in January 2019, was left with “*no doubt* that the jury only considered Defendants’ infringement through January 2019 when assessing damages.” *Damages Order* at *3 (emphasis added) (citation omitted). The district court then made three observations about the updated blend volume data: (1) this information came in after fact and expert discovery closed, (2) there was no witness at trial or within subpoena range through whom Sunoco could have introduced the new volumes, and (3) other efforts to remedy an authentication problem may not have been successful based on Defendants-Cross-Appellants’ objections practice. Thus, the district court determined that Sunoco “had no practical means of presenting these new volumes to the jury,” and “[b]ecause the jury only compensated Sunoco for infringement through January 2019, . . . supplemental damages are necessary to properly compensate Sunoco.” *Id.* at *3–4. Defendants-Cross-Appellants have not shown the district court made a clear error in judgment, of law, or in fact finding in reaching this conclusion, and we will not second guess the district court’s assessment of the proceedings before it. Accordingly, we affirm the district court’s award of supplemental damages.

SUNOCO’S DIRECT APPEAL

As we affirm the district court’s determination that claims 3, 16, and 17 of the ’302 patent and claim 3 of the ’686 patent are eligible under § 101, *supra*, we now turn to Sunoco’s direct appeal. Sunoco challenges a litany of the district court’s holdings on damages, arguing that the court: (1) abused its discretion by excluding Dr. Ugone’s opinions relying on Sunoco’s unapportioned BSAs; (2) abused its discretion by excluding Dr. Ugone’s lost profits opinions; (3) abused its discretion by excluding Dr. Ugone’s reasonable royalty opinions; (4) erred by not instructing the jury on lost profit damages and by

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prohibiting Sunoco from asking the jury for an intermediate royalty based on Sunoco's BSAs and Buckeye License; (5) abused its discretion by excluding Dr. Ugone's lost opportunity cost opinion against Powder Springs; and (6) abused its discretion by not awarding enhanced damages for Defendants-Cross-Appellants' willful infringement. Sunoco also challenges the district court's JMOL of no infringement as to claims 16 and 17 of the '302 patent and claims 18 and 22 of the '629 patent.

"For issues not unique to patent law, we apply the law of the regional circuit in which this appeal would otherwise lie." *i4i Ltd. P'ship v. Microsoft Corp.*, 598 F.3d 831, 841 (Fed. Cir. 2010). This includes evidentiary rulings. *Tokai Corp. v. Easton Enters., Inc.*, 632 F.3d 1358, 1364 (Fed. Cir. 2011). The Third Circuit applies an abuse-of-discretion standard to review evidentiary rulings, reversing decisions resting "upon a clearly erroneous finding of fact, an errant conclusion of law or an improper application of law to fact." *Pineda v. Ford Motor Co.*, 520 F.3d 237, 243 (3d Cir. 2008) (quoting *In re TMI Litig.*, 193 F.3d 613, 666 (3d Cir. 1999)). "[A] trial judge acts as a 'gatekeeper' to ensure that 'any and all expert testimony or evidence is not only relevant, but also reliable.'" *Id.* (quoting *Kannankeril v. Terminix Int'l, Inc.*, 128 F.3d 802, 806 (3d Cir. 1997)).

"We review a district court's decision on [patent] damages for 'an erroneous conclusion of law, clearly erroneous factual findings, or a clear error of judgment amounting to an abuse of discretion.'" *Juicy Whip, Inc. v. Orange Bang, Inc.*, 382 F.3d 1367, 1370 (Fed. Cir. 2004) (quoting *Rite-Hite Corp. v. Kelley Co.*, 56 F.3d 1538, 1543 (Fed. Cir. 1995) (en banc)). When we "review a damages determination, the clearly erroneous standard applies to the review of the amount of damages, while the abuse of discretion standard applies to the review of the methodology chosen to compute damages." *In re Cambridge Biotech. Corp.*, 186 F.3d 1356, 1369 (Fed. Cir. 1999). "We review a district court's decision regarding enhanced damages for an abuse of discretion."

Ironburg Inventions Ltd. v. Valve Corp., 64 F.4th 1274, 1300 (Fed. Cir. 2023).

We review “the legal sufficiency of jury instructions on an issue of patent law without deference to the district court.” *DSU Med. Corp. v. JMS Co.*, 471 F.3d 1293, 1304 (Fed. Cir. 2006) (en banc). “A jury verdict will be set aside only if the jury instructions were ‘legally erroneous’ and the ‘errors had prejudicial effect.’” *Ericsson, Inc. v. D-Link Sys., Inc.*, 773 F.3d 1201, 1225 (Fed. Cir. 2014) (quoting *Sulzer Textil A.G. v. Picanol N.V.*, 358 F.3d 1356, 1363 (Fed. Cir. 2004)).

“We review denial of post-trial motions for JMOL and new trial under regional circuit law.” *Finjan, Inc. v. Secure Computing Corp.*, 626 F.3d 1197, 1202 (Fed. Cir. 2010) (citations omitted). “In the Third Circuit, review of denial of JMOL is plenary.” *Id.* (citations omitted). JMOL is “‘granted only if, viewing the evidence in the light most favorable to the nonmovant and giving it the advantage of every fair and reasonable inference, there is insufficient evidence from which a jury reasonably could find’ for the non-movant.” *TransWeb, LLC v. 3M Innovative Props. Co.*, 812 F.3d 1295, 1301 (Fed. Cir. 2016) (quoting *Lightning Lube, Inc. v. Witco Corp.*, 4 F.3d 1153, 1166 (3d Cir. 1993)). Infringement is a question of fact, “reviewed for substantial evidence when tried to a jury.” *ACCO Brands, Inc. v. ABA Locks Mfrs. Co.*, 501 F.3d 1307, 1311 (Fed. Cir. 2007).

I

We turn first to Sunoco’s assertion that the district court erred by striking Dr. Ugone’s opinions relying on Sunoco’s BSAs as comparable licenses from which to adopt the BSA royalty rate and royalty base—i.e., a 40/60 to 50/50 profit-share on the extra gasoline created—without further apportionment. Sunoco asserts its expert’s opinions were erroneously struck for two reasons.

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First, Sunoco argues that because its BSAs “are the epitome of the ‘comparable’ licenses,” they “may be the most effective method of estimating the asserted patent’s value” and need not be apportioned. Appellant’s Br. 23–24 (first quoting *LaserDynamics*, 694 F.3d at 79; and then quoting *Commonwealth Sci. & Indus. Rsch. Organisation v. Cisco Sys., Inc.*, 809 F.3d 1295, 1303–04 (Fed. Cir. 2015)). Sunoco argues that any question over “[t]he degree of comparability of the . . . license agreements[,] as well as any failure on the part of [Sunoco’s] expert to control for certain variables[,] are factual issues best addressed by cross examination and not by exclusion.” Appellant’s Br. 24 (first and third alterations and omission in original) (quoting *ActiveVideo Networks, Inc. v. Verizon Commc’ns, Inc.*, 694 F.3d 1312, 1333 (Fed. Cir. 2012)). Sunoco compares this case to *Commonwealth* to argue that it was an abuse of discretion to exclude Dr. Ugone’s opinions because the BSAs tracked actual marketplace negotiations over sharing the profits from Sunoco’s patented inventions.

In the alternative, Sunoco argues that it was an abuse of discretion to exclude Dr. Ugone’s opinions under *Vectura Limited v. GlaxoSmithKline LLC*, 981 F.3d 1030 (Fed. Cir. 2020), which explains that prior licenses can have “built-in apportionment” sufficient to meet this court’s requirements. Appellant’s Br. 26 (citing 981 F.3d at 1039–42). Sunoco argues that because negotiators for its “BSAs recognized the only thing that prospective licensees needed was rights to Sunoco’s patents, and settled upon on [sic] a royalty rate and base combination that embodied the market’s value of Sunoco’s patents,” Appellant’s Br. 27–28, “apportionment principles had already been negotiated into the BSA methodology.” Appellant’s Br. 28–29.

We are not persuaded by either argument. While Sunoco attempts to frame its BSAs as only accounting for the value of its patents, it is undisputed that the BSAs provide Sunoco’s customers with many services and proprietary rights beyond patent rights. These include

(1) designing, engineering, constructing, and maintaining the blending systems; (2) providing regulatory oversight support; (3) providing maintenance and support services; (4) providing risk management services; (5) providing other customer services; (6) providing hedging services on butane; and (7) allowing the use of its unclaimed, proprietary blending algorithm. *See, e.g.*, J.A. 5244; J.A. 5206–08; J.A. 5222; J.A. 5343 (Meyers Dep. Tr. 141:7–20). Indeed, evidence from Sunoco itself recognizes that (1) its BSAs “provide a basket of services to make it as easy as possible on [its] customers,” J.A. 5237–38 (Meyers Dep. Tr. 53:16–54:7); (2) offering these services together “is more efficient . . . because [Sunoco] ha[s] the supply and the logistics and the know-how . . . [, and] most of [Sunoco’s] blend partners recognize [its] expertise in this area,” J.A. 5330–31 (Collela Dep. Tr. 536:25–537:5); (3) “[t]he results of the blending, because of [the proprietary] algorithms, . . . was the selling point,” J.A. 5343 (Meyers Dep. Tr. 139:18–141:2); and (4) the proprietary algorithm helps blend butane to a customer’s specification, which is a selling point, J.A. 5336 (Buchanan Dep. Tr. 70:9–72:22). *See also* J.A. 23–24 (district court crediting this evidence).⁸ None of the case law cited by Sunoco allows a party to avoid apportionment when it will result in a damages award that exceeds the value attributable to the infringing features of the accused product. *See, e.g., LaserDynamics*, 694 F.3d at 67 (“[T]he patentee . . . *must in every case* give evidence tending to separate or apportion the defendant’s profits and the patentee’s damages between the patented feature and the unpatented features, and such evidence must be reliable and tangible, and not conjectural or speculative.” (emphasis added) (omission in original) (citation omitted));

⁸ While not the focus of the parties’ apportionment dispute here, we note that the BSAs also provide a license to other patents in Sunoco’s butane blending portfolio in addition to the asserted patents. *See* J.A. 5206–07.

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Commonwealth, 809 F.3d at 1301 (“Consequently, to be admissible, all expert damages opinions must separate the value of the allegedly infringing features from the value of all other features.”). In view of the largely undisputed record evidence showing that the BSAs encompass more than just the value of the asserted patents, the district court did not abuse its discretion in excluding Dr. Ugone’s opinions that were premised on using the total profit-share from the unapportioned BSAs as unreliable under our precedent.

This conclusion accords with our prior decision in *U.S. Venture II*, where we held that a different district court did not err in refusing to grant Sunoco (1) lost profit damages or (2) a reasonable royalty rate based on its unapportioned BSAs because the BSAs “do not accurately reflect the value of the patented invention.” 32 F.4th at 1180. There, we noted that Sunoco’s “[BSAs] reflect a bundle of goods and services beyond just the patented invention—e.g., the purchase and sale of butane, equipment maintenance and monitoring, and a license to more than just the patented technology.” *Id.* (citation omitted).

We disagree, however, with Defendants-Cross-Appellants’ contention that Sunoco is collaterally estopped from arguing that its damages should be tied to the unapportioned BSAs. Collateral estoppel applies when “(1) a prior action presents an identical issue; (2) the prior action actually litigated and adjudged that issue; (3) the judgment in that prior action necessarily required determination of the identical issue; and (4) the prior action featured full representation of the estopped party.” *VirnetX Inc. v. Apple Inc.*, 909 F.3d 1375, 1377 (Fed. Cir. 2018) (quoting *Stephen Slesinger, Inc. v. Disney Enters., Inc.*, 702 F.3d 640, 644 (Fed. Cir. 2012)). At a minimum, we are unpersuaded that Defendants-Cross-Appellants can show factor one is satisfied here. First, our prior decision in *U.S. Venture II* stemmed from different infringement acts against a different defendant. Second, that decision was also on appeal from a bench trial where the district court, acting as a fact

finder, credited the defendant's expert's opinions over Dr. Ugone's opinions, which presents a different legal standard than the case here, where the district court was acting as a gatekeeper to admissibility prior to a jury trial. *See Kroy IP Holdings, LLC v. Groupon, Inc.*, 127 F.4th 1376, 1380 (Fed. Cir. 2025) ("Collateral estoppel generally does not apply when the second action involves application of a different legal standard.").

II

We next turn to Sunoco's challenge to the district court's exclusion of Dr. Ugone's lost profits opinions.⁹ Sunoco presents five arguments on appeal for why the district court abused its discretion in excluding Dr. Ugone's lost profits opinions: (1) Dr. Ugone established a prima facie case for lost profits under the *Panduit* factors; (2) under *Mentor*, apportionment is satisfied when the first two *Panduit* factors are established; (3) Dr. Ugone presented enough evidence in support of his opinions that Sunoco's patents were the key drivers of demand for Sunoco's BSAs to go to the jury; (4) Dr. Ugone established that apportionment was not necessary because Sunoco could receive lost profits on the other BSA services as convoyed sales; and (5) Dr. Ugone appropriately apportioned Sunoco's damages request in his supplemental report. We take each issue in turn.

A

Sunoco contends that Dr. Ugone established a prima facie case of "but for" causation for lost profits by opining on how the *Panduit* factors were met. As part of these opinions, Dr. Ugone calculated that Sunoco would have averaged a per-gallon profitability that ranged from \$0.25/gallon (from a 40/60 profit-share) to \$0.28/gallon

⁹ Sunoco did not seek lost profits from Powder Springs. *See* Appellant's Br. 31 n.2.

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(from a 50/50 profit-share) but for infringement, resulting in lost profits of \$150.3 to \$166.7 million. *See* J.A. 7503–14 ¶¶ 107–16.

“Under the *Panduit* test, a patentee is entitled to lost profit damages if it can establish four things: (1) demand for the patented product; (2) absence of acceptable non-infringing alternatives; (3) manufacturing and marketing capability to exploit the demand; and (4) the amount of profit it would have made.” *Mentor Graphics Corp. v. EVE-USA, Inc.*, 851 F.3d 1275, 1285 (Fed. Cir. 2017) (quoting *Panduit Corp. v. Stahl Bros. Fibre Works, Inc.*, 575 F.2d 1152, 1156 (6th Cir. 1978)). “Damages under *Panduit* are not easy to prove.” *Id.* (collecting support).

The district court did not abuse its discretion in striking Dr. Ugone’s lost profits opinions under the *Panduit* factors for the same reasons discussed above related to his opinion on reasonable royalty and comparable licenses. Dr. Ugone used the full profit-share of the unapportioned BSAs to calculate Sunoco’s lost profits. While Sunoco may be able to show demand for its BSAs, the BSAs are not co-extensive with the asserted patents and instead encompass more services and products than the patented inventions. Thus, there was no *prima facie* showing under *Panduit* factor one—demand for the patented product—or *Panduit* factor four—the amount of profit Sunoco would have made—without apportioning the value of the patents from the other services.

Nor does the case law relied on by Sunoco compel a different result. In *Versata Software, Inc. v. SAP America, Inc.*, 717 F.3d 1255 (Fed. Cir. 2013), the patentee’s damages expert isolated from the sales of the accused product the value of the patentee’s software product—software that the parties apparently did not dispute encompassed only the claimed invention—before separately calculating what additional revenue streams would follow on from a software sale through maintenance and consulting

agreements. 717 F.3d at 1266–67. Similarly, it does not appear to have been a dispute in *Georgetown Rail Equipment Co. v. Holland L.P.*, 867 F.3d 1229 (Fed. Cir. 2017), that the comparable contract used for the lost profit calculation would include services other than those rendered by the patented invention. We are not holding that a prima facie case for lost profits can never be made based on comparable licenses that take into account “sound economic proof confirmed by the historical record” or the sale of other services. *Versata*, 717 F.3d at 1267 (citation omitted); *Georgetown*, 867 F.3d at 1243; *see also* Appellant’s Br. 32. We hold only that, based on the record here, the district court did not err in requiring Sunoco to separately apportion the other services out from the patented inventions in its BSAs.

B

Sunoco contends, however, that in proving the first two *Panduit* factors, Dr. Ugone satisfied the apportionment requirement for his lost profit opinions under *Mentor*. But *Mentor* does not fit the facts of this case.

Mentor’s unusual facts were “remarkably simple”—in short, “[t]he jury found, and [the defendant] d[id] not dispute on appeal, that Mentor satisfied all of the *Panduit* factors with regard to the sales to Intel for which the jury awarded lost profits.” 851 F.3d at 1286–87. These facts included that:

Intel would not have purchased the [defendant’s] emulator system without the two patented features and that there were no other alternatives available. Despite hearing evidence that there were many valuable and important features in the emulator system, this jury found that if [defendant] could not have sold its emulator system with the two infringing features (Mentor’s patented features), Intel would have bought the emulators from Mentor.

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Id. at 1287. In *Mentor*, the relevant challenge on appeal was whether, because the “infringing features were just two features of [the accused] emulators that comprise[d] thousands of hardware and software features,” further apportionment was needed. *Id.*

In our analysis, we acknowledged that “apportionment is an important component of damages law generally, and we believe it is necessary in both reasonable royalty and lost profits analysis.” *Id.* at 1287–88 (first citing *Ericsson*, 773 F.3d at 1226 (“Apportionment is required even for non-royalty forms of damages.”); and then citing *VirnetX, Inc. v. Cisco Sys., Inc.*, 767 F.3d 1308, 1326 (Fed. Cir. 2014) (“No matter what the form of the royalty, a patentee must take care to seek only those damages attributable to the infringing features.”)). We then narrowly held (1) that “[i]n this case, apportionment was properly incorporated into the lost profits analysis and in particular through the *Panduit* factors,” and (2) “that on the undisputed facts of this record, satisfaction of the *Panduit* factors satisfies principles of apportionment: Mentor’s damages are tied to the worth of its patented features.” *Id.* at 1288. We also emphasized that *Mentor* was “a highly factual case, and [the defendant] did not appeal any of the jury’s fact findings relating to damages.” *Id.* at 1289.

There are no undisputed facts on the *Panduit* factors here. Indeed, Magellan contests both *Panduit* factors one and two. And again, as to factor one, Dr. Ugone did not start his analysis with demand for the claimed inventions; instead, he and Sunoco sought to conflate demand for the claimed inventions with the demand for the BSAs as a whole. But they cannot start with the demand for undisputedly more than the patented inventions—indeed, for an entire basket of services—to base patent damages on. *See, e.g., VirnetX*, 767 F.3d at 1326 (“[A] patentee must take

care to seek only those damages attributable to the infringing features.”).¹⁰

Thus, Dr. Ugone did not reliably show that Sunoco’s “damages are tied to the worth of its patented features.” *Mentor*, 851 F.3d at 1288; see also *WesternGeco L.L.C. v. ION Geophysical Corp.*, 913 F.3d 1067, 1073 & n.2 (Fed. Cir. 2019) (citing *Mentor* in a footnote after explaining that “[i]f the application of the *Panduit* factors does not result in the separation of profits attributable to the patented device and the profits attributable to providing other aspects of the surveys . . . , it appears that apportionment is necessary.”). And while Sunoco argues that the district court erred in “dismiss[ing] *Mentor* because Sunoco was seeking lost profits associated with its BSAs,” as “demand [for the BSAs] is the same demand for the rights to Sunoco’s patents provided under the BSAs,” Appellant’s Br. 35, that argument is belied by the record.

C

Sunoco further argues that apportionment was not necessary because Dr. Ugone’s opinion that Sunoco’s patents were the key drivers of demand for Sunoco’s BSAs under the entire market value rule was reliable. We disagree.

“The entire market value rule allows for the recovery of damages based on the value of an entire apparatus containing several features, when the feature patented constitutes the basis for customer demand.” *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1336 (Fed. Cir. 2009) (quoting *TWM Mfg. Co. v. Dura Corp.*, 789 F.2d 895, 901

¹⁰ As to factor two, Magellan points out that following the jury’s verdict of infringement, Powder Springs switched to a non-infringing manual blending operation, indicating that there were acceptable non-infringing alternatives. Defendants-Cross-Appellants’ Br. 36 (citing J.A. 21263–64; J.A. 21283–85).

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(Fed. Cir. 1986)). We have explained that “[t]he law requires patentees to apportion . . . to a reasonable estimate of the value of its claimed technology,” unless the patentee can “establish that its patented technology drove demand for the entire product.” *VirnetX*, 767 F.3d at 1329. “[S]trict requirements limiting the entire market value exception ensure that [a damages request] ‘does not overreach and encompass components not covered by the patent.’” *Id.* at 1326 (quoting *LaserDynamics*, 694 F.3d at 70). “If the product has other valuable features that also contribute to driving consumer demand . . . then the damages for patent infringement must be apportioned to reflect only the value of the patented feature. This is so whenever the claimed feature does not define the entirety of the commercial product.” *Power Integrations*, 904 F.3d at 978.

Sunoco argues that Dr. Ugone explained that the granted patent rights were the key driver for the BSAs, *see* Appellant’s Br. 37 (citing J.A. 8976–85 ¶¶ 7–19), and relied on fact witness testimony from Sunoco personnel that included (1) Sunoco’s former Director of Business Development James Myers’s testimony that “I don’t think we have a business without those patents,” and that “a hundred percent of our income, in my opinion, probably is related to those patents,” J.A. 8984 ¶ 18(a); (2) Myers’s testimony that he believed Phillips 66 Company entered into a BSA to ensure that it was not infringing Sunoco’s patents, J.A. 8981 ¶ 14; and (3) Sunoco’s former Vice President for Sunoco’s Northeast Operations Joseph Colella’s testimony that “Kinder Morgan’s license with Sunoco ‘really reflects the strength of the patents,’” J.A. 8984 ¶ 18(d). *See* Appellant’s Br. 38–39. Sunoco also points to Dr. Ugone’s reliance on evidence that Magellan assumed Perimeter Terminal, LLC’s pre-existing BSA with Sunoco on terms more favorable to Sunoco. Appellant’s Br. 39 (citing J.A. 8978–79 ¶¶ 9(b)–(c)). Sunoco contends that this was enough to “‘reliably show’ that the licensed patent rights were the ‘sole’ driver of BSA demand[, which] is a jury question.”

Appellant's Br. 39 (citing *Marine Polymer Techs., Inc. v. HemCon, Inc.*, 672 F.3d 1350, 1360 (Fed. Cir. 2012)). Thus, Sunoco argues that the district court overstepped its gatekeeping role in excluding Dr. Ugone's opinions.

We disagree. “[S]trict requirements limit[] the entire market value exception.” *VirnetX*, 767 F.3d at 1326. We do not believe the district court abused its discretion in requiring Dr. Ugone's opinions to adhere to those requirements to reach the jury; indeed, it is part of the court's “gatekeeping obligation” to ensure as “a critical prerequisite . . . that the underlying methodology be sound.” *Id.* at 1328. And where it is not, “the district court should . . . exercise[] its gatekeeping authority to ensure that only theories comporting with settled principles of apportionment [are] allowed to reach the jury.” *Id.* Here, the district court determined that Dr. Ugone's entire market value opinions were unreliable because they were speculative as to the importance of the patents in driving demand for Sunoco's BSAs. The court's determination was supported by evidence and admissions in the record that features of the BSAs other than the asserted patents helped drive demand for Sunoco's customers to enter into the BSAs. The district court explained that evidence from Sunoco itself showed that its services are “valued for their non-patented features, such as their expertise and algorithm,” and that even Dr. Ugone “recognized in formulating his expert opinions that Sunoco's algorithm and software are necessary and valuable components to what Sunoco includes in its [BSAs].” J.A. 23–24 (citation omitted). The district court's determination is not undermined by the above self-serving testimony from Sunoco's own witnesses. None of that testimony states that the asserted patents are the sole driver of demand for the BSAs and Sunoco's other services have no value. And, while not required, Sunoco did not present testimony from the customers whose state of mind Sunoco's employees and former employees purported to speak to. The evidence Sunoco relies on, when viewed against

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Sunoco's admissions about other meaningful services provided by the BSAs, is unreliable to show that "the claimed feature . . . define[s] the entirety of the commercial product [or service]." *Power Integrations*, 904 F.3d at 978. Thus, under the facts of this case, the district court did not abuse its discretion in holding that apportionment was required.

D

Sunoco also argues that Dr. Ugone established that apportionment was not necessary because Sunoco could receive lost profits on the other BSA services as convoyed sales.

"A patentee may recover lost profits on unpatented components sold with a patented item, a convoyed sale, if both the patented and unpatented products 'together were considered to be components of a single assembly or parts of a complete machine, or they together constituted a functional unit.'" *Am. Seating Co. v. USSC Grp., Inc.*, 514 F.3d 1262, 1268 (Fed. Cir. 2008) (quoting *Rite-Hite*, 56 F.3d at 1550). "Our precedent has not extended liability to include items that have essentially no functional relationship to the patented invention and that may have been sold with an infringing device only as a matter of convenience or business advantage." *Id.* (quoting *Rite-Hite*, 56 F.3d at 1550).

As with any damages opinion, however, an expert must still present a reliable methodology. *See Daubert*, 509 U.S. at 589–93. And here, merely declaring certain services to be convoyed sales did not remove the need to provide guidance for the fact finder on what the value was of the non-patented products versus the patented product in order for Dr. Ugone's opinions to be reliable. Indeed, review of Dr. Ugone's reports shows he attributed a value to only two services as "convoyed sales": Sunoco's hedging service and its butane supply service. J.A. 8972–76 ¶ 5(b). To be sure, Dr. Ugone also provided general statements like "[u]nder a lost profits theory of damages, these services would

represent convoyed sales.” J.A. 8986 ¶ 20. But he provided no breakdown for what the value of each “convoyed sale” would be for any of the other various unpatented services and features provided by the BSAs. While “we note that we have never required absolute precision in [applying the principles of apportionment],” *VirnetX*, 767 F.3d at 1328, the issue here is that if the jury were to determine that only some (or none) of the extra services were in a functional relationship with the patented inventions, it would have *no* guidance on how to determine what to award in damages.

As Dr. Ugone provided no way to determine what amount to award for each service if it was found to be in a functional unit with the patented inventions versus what to award for just the patented inventions, the district court did not abuse its discretion in striking his opinions as unreliable.

E

Finally, Sunoco challenges the district court’s decision striking Dr. Ugone’s apportionment opinions in his supplemental report. In his supplemental report, Dr. Ugone assigned value for Sunoco’s hedging services at \$0.02/gallon and for its butane supply/certification services at \$0.01/gallon. *See* J.A. 8991–93 ¶ 26(d)–(e); J.A. 8987–88 ¶¶ 22–24. Dr. Ugone opined that there was no separate value for any other features of Sunoco’s BSAs apart from its patented system. The district court determined that this was unreliable, as at a minimum, Sunoco’s blending algorithm was a feature that Sunoco’s own witnesses touted as a selling point and could not be considered part of the patented system because it was an unclaimed trade secret.¹¹ *See*

¹¹ At oral argument, Sunoco argued that the value of its blending algorithm was already apportioned out of Dr. Ugone’s opinions because Dr. Ugone used Defendants-

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J.A. 24–25 (citation omitted). For all the reasons previously discussed about requiring an appellant to ensure “damages are tied to the worth of its patented features,” *Mentor*, 851 F.3d at 1288, we see no abuse of discretion in this exclusion.

Moreover, Sunoco and Dr. Ugone were warned that they needed to apportion the value of the various services offered in the BSAs relative to the value of the patented technology and were allowed to supplement Dr. Ugone’s report in order to do so. They disregarded this warning from the district court and thus risked the exclusion of all of Dr. Ugone’s opinions.

III

We next turn to Sunoco’s challenge to the district court’s exclusion of Dr. Ugone’s reasonable royalty opinions. Sunoco argues that, under *Vectura* and *Bio-Rad Laboratories, Inc. v. 10X Genomics Inc.*, when an expert’s opinions parallel the hypothetical negotiation, as Sunoco contends Dr. Ugone’s opinions do here, no further apportionment is required. *See* Appellant’s Br. 47–48 (first citing *Vectura*, 981 F.3d at 1041; and then citing *Bio-Rad Lab’s.*, 967 F.3d 1353, 1376–77 (Fed. Cir. 2020)). We are not persuaded.

This argument simply repackages Sunoco’s prior arguments for why it need not apportion the BSAs in order to accurately determine the value of a bare license to its patents in a hypothetical negotiation. Sunoco seeks to use the entire profit-share of its BSAs to calculate the royalty rate for a bare license to the asserted patents. For the reasons

Cross-Appellants’ blend volumes as a royalty base—i.e., gasoline and butane blended without Sunoco’s algorithm. However, Sunoco could not explain how this represented the value of the algorithm under the BSAs to Sunoco’s customers. Oral Arg. at 10:21–11:15.

described above, the district court did not abuse its discretion in excluding such opinions when Dr. Ugone failed to properly apportion the value of the patented inventions from the BSAs to opine on a royalty rate. Nor do the cases Sunoco relies on compel a different result. *See Vectura*, 981 F.3d at 1040–41 (presenting “unusual circumstance[s]” where even the opposing expert conceded the prior license was “a very close comparable [license to the hypothetical negotiation], much closer than you ever find in a patent case” (citation omitted)); *Bio-Rad Lab’s.*, 967 F.3d at 1376–77 (explaining that the expert’s “analysis could reasonably be found to incorporate the required apportionment”).

IV

We next turn to Sunoco’s other, miscellaneous challenges to the district court’s decisions on damages. These include challenges to the district court’s decision to (1) exclude Dr. Ugone’s rebuttal opinions on the Buckeye License; (2) not instruct the jury on lost profits based on Sunoco’s fact witness testimony; and (3) bar Sunoco from arguing to the jury in closing its comparable license evidence and royalty-rate theories. We are not persuaded that the district court erred in these rulings.

Whether premised on opinions from Dr. Ugone or on fact witness testimony, these challenges still stem from the same issue that has been fatal to Sunoco’s other challenges to the district court’s damages decisions. First, Dr. Ugone and Sunoco were prohibited “from arguing that . . . the full value of the Buckeye license is attributable solely to the patents,” J.A. 15978 (Hearing Tr. 33:4–13)—i.e., where the “full value” would include Sunoco’s 30 percent of the profits stemming from its agreement with Texon that Sunoco would receive 60 percent of Texon’s 50/50 profit-share from Buckeye. *See* Appellant’s Br. 55–56. The district court thus did not abuse its discretion in excluding such opinions as “consistent with the *Daubert* ruling,” J.A. 15978

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(Hearing Tr. 33:4–13), as Sunoco was still seeking damages based on an unapportioned profit rate.

Second, the district court did not err by not including Sunoco’s lost profits jury instruction. Sunoco argues that, even without expert testimony, trial evidence would have allowed the jury to make any necessary determination, including on apportionment, to properly consider Sunoco’s lost profits. However, whether Sunoco tries to advance its theory of lost profits through an expert, as we have already rejected, or through fact witness testimony, apportionment as to the value of the patented inventions versus the rest of the services offered in the BSAs was necessary in order to seek lost profit damages. Such apportionment did not occur.¹² We thus see no error in the district court declining to include Sunoco’s proposed lost profits instruction in its jury instructions.

Third, Sunoco complains that the district court improperly barred Sunoco from arguing to the jury “some value that’s intermediate” between the 40–50 percent profit-sharing rate in the BSAs and the 30 percent profit rate in the Buckeye License, as “even if you say here’s a little piece and here’s a little piece and they’re worth this and this . . . that’s not apportionment.” J.A. 23229–31 (Trial Tr. 1461:2–1463:15). The district court thus ruled that

¹² Sunoco relies on our case law that a party need not present expert testimony on damages, including on lost profits, but can instead rely on lay witness testimony. *See* Appellant’s Br. 58–59. This argument misses the mark. Here, Sunoco’s lost profits theory was already stricken as unreliable and merely repackaging it through fact witness testimony does not imbue it with reliability such that the theory can reach the jury. Our case law allowing lay witness testimony and juries to determine a damages award is not a vehicle for a party to avoid an unfavorable *Daubert* ruling.

“the 30 percent is out and the 50 percent is out.” J.A. 23236–37 (Trial Tr. 1468:16–1469:4). Sunoco contends that this was error, as it prevented Sunoco from presenting to the jury a reasonable royalty theory based on evaluating the comparability of Sunoco’s prior licenses and negotiations. Additionally, Sunoco argues, this ruling resulted in a one-sided damages trial where only Defendants-Cross-Appellants’ \$0.02/gallon rate could be argued to the jury. We disagree. Sunoco was required to apportion its BSAs under either a lost profits or a reasonable royalty damages theory. Sunoco’s choice not to undertake such apportionment left it open to having its theories struck and only Defendants-Cross-Appellants’ damages model being presented to the jury. It was not an abuse of discretion for the district court to hold Sunoco to our apportionment case law nor to the consequences of its own strategic decisions.

V

We next turn to Sunoco’s challenge to the district court’s exclusion of Dr. Ugone’s lost opportunity cost opinion regarding Powder Springs. Sunoco argues that a new damages trial on Powder Springs’s infringement is warranted because the district court improperly excluded Dr. Ugone’s opinion on lost opportunity cost from Powder Springs’s infringing blending on the Colonial Pipeline upstream of Sunoco’s terminals, which was not based on Sunoco’s BSA methodology. We are not persuaded that the district court abused its discretion in excluding Dr. Ugone’s opinion as unreliable.

The district court explained that, while this theory may not be based on Sunoco’s BSA methodology, “it, too, is unreliable because Dr. Ugone failed to apportion the value lost due to non-infringing manual blending (and, thus, failed to identify the value lost to infringing automated blending).” J.A. 25. Sunoco contends that Dr. Ugone did not need to apportion the value derived from non-infringing manual blending because Dr. Ugone stated in his

report that, “based upon discussions with Sunoco personnel[,] I understand that manual blending would not be feasible into large and active pipelines (such as [Powder Springs’s] Accused System).” J.A. 7469. Sunoco offers no other support for this proposition, including no testimony from a fact witness or technical expert as to the accuracy of this statement.¹³ Here, we cannot say the district court abused its discretion in not crediting a non-technical expert’s statement as to the feasibility of certain blending processes. Nor can we say the district court abused its discretion in finding Dr. Ugone’s methodology unreliable where he failed to account for the value of potential non-infringing processes in his opinions.¹⁴

¹³ To avoid a permanent injunction after the jury found Powder Springs infringed claim 3 of the ’686 patent, Defendants-Cross-Appellants represented to the district court, based on sworn witness testimony, that Powder Springs switched its operation over to a manual blending process. *See* J.A. 21263–65; J.A. 21283–84.

¹⁴ Sunoco also argues that the district court abused its discretion by addressing an argument raised for the first time in Defendants-Cross-Appellants’ *Daubert* reply briefing to exclude Dr. Ugone’s lost opportunity cost opinion. *See* Appellant’s Br. 54. But prior to *Daubert* briefing, Sunoco merely presented lost opportunity cost as part of Dr. Ugone’s opinions on Powder Spring’s bargaining position in a hypothetical negotiation, not as an affirmative, standalone damages theory. *See* J.A. 7431–33; J.A. 7558–60 ¶¶ 177–78; *see also* J.A. 25 (the district court noting that it is reaching this issue because it is merely “*assuming arguendo* that Dr. Ugone is offering what Sunoco calls a ‘lost opportunity cost opinion’” (emphasis added) (citation omitted)). We therefore will not fault the district court for addressing Sunoco’s new damages theory when it arose.

VI

We now turn to Sunoco’s challenge to the district court’s decision not to award enhanced damages for Defendants-Cross-Appellants’ willful infringement. Sunoco contends that the district court abused its discretion by improperly reweighing evidence and made its own findings that contradicted the jury’s findings. We disagree.

The district court thoroughly analyzed each *Read*¹⁵ factor, determining that five factors weighed against enhancement, three factors weighed in favor of enhancement, and one factor was neutral. *Damages Order* at *1–3. While Sunoco takes issue with how the district court weighed certain factors against it, it is not our role as the reviewing court to reweigh the evidence. *See Ecolab, Inc. v. FMC Corp.*, 569 F.3d 1335, 1352 (Fed. Cir. 2009) (explaining we only find an abuse of discretion “on a showing that the court made *a clear error of judgment* in weighing relevant factors” (emphasis added)); *Nutrinova Nutrition Specialties & Food Ingredients GmbH v. Int’l Trade Comm’n*, 224 F.3d 1356, 1359 (Fed. Cir. 2000) (“[E]ven if we might have drawn some inferences from the facts differently, none of which we are inclined to do, that is not the role of an appellate court.”).

¹⁵ The *Read* factors include: (1) whether the infringer deliberately copied the ideas or design of another; (2) whether the infringer, when he knew of the other’s patent protection, investigated the scope of the patent and formed a good-faith belief that it was invalid or that it was not infringed; (3) the infringer’s behavior as a party to the litigation; (4) defendant’s size and financial condition; (5) closeness of the case; (6) duration of defendant’s misconduct; (7) remedial action by the defendant; (8) defendant’s motivation for harm; and (9) whether defendant attempted to conceal its misconduct. *See Read*, 970 F.2d at 827.

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Nor are we persuaded by Sunoco's contention that the district court replaced the jury's findings with its own. For example, Sunoco points to the district court's analysis on factor one. Sunoco argues that the "the jury had substantial evidence that Magellan copied Texon's systems" and that "the jury's presumed findings" were that copying occurred, Appellant's Br. 66–67, and the district court erred by finding that the evidence of discussions between Magellan and Texon did not show copying and instead there was record evidence that Magellan had internal automated blending systems that predated its discussions with Texon. *Damages Order* at *1. But our case law emphasizes that "[w]illfulness and enhancement are separate issues," *Ironburg*, 64 F.4th at 1295, and that "an award of enhanced damages does not necessarily flow from a willfulness finding," *Presidio Components, Inc. v. Am. Tech. Ceramics Corp.*, 875 F.3d 1369, 1382 (Fed. Cir. 2017). In reviewing the district court's analysis on each factor and overall weighing of the factors, we see no contradictions between the district court upholding the jury's willfulness verdict and determining that enhanced damages were not warranted here.

Nor are we persuaded by Sunoco's argument that the district court legally erred in its analysis of factors three and five under *Halo Electronics, Inc. v. Pulse Electronics, Inc.*, 579 U.S. 93 (2016). Sunoco argues that *Halo* rendered the district court's findings that "Defendants acted reasonably and in good faith in pursuing their defenses" and that the case "was relatively close," *Damages Order* at *2, "irrelevant absent proof Defendants knew of and acted on their trial defenses before infringing." Appellant's Br. 67 (citing *Halo*, 579 U.S. at 105). But *Halo* does not stand for this proposition. Instead, *Halo* rejected the test laid out in *In re Seagate Technology, LLC*, 497 F.3d 1360 (Fed. Cir. 2007), which required a threshold finding of objective recklessness on the part of the infringer, in favor of a less rigid standard granting substantial discretion to district courts

in determining whether to award enhanced damages. In this context, the Court noted how under *Seagate*, bad actors could escape enhanced damages “by making dispositive the ability of the infringer to muster a reasonable (even though unsuccessful) defense at the infringement trial. The existence of such a defense insulates the infringer from enhanced damages, even if he did not act on the basis of the defense or was even aware of it.” *Halo*, 579 U.S. at 105. In rejecting *Seagate*, the Supreme Court explained that district courts are permitted “to exercise their discretion in a manner free from the inelastic constraints of the *Seagate* test.” *Id.* at 106. And “[a]s with any exercise of discretion, courts should continue to take into account the particular circumstances of each case in deciding whether to award damages, and in what amount.” *Id.* Nowhere does *Halo* lay out the strict test Sunoco proposes that would require a district court to ignore an infringer’s behavior as a party to the litigation or the closeness of the case unless the defendant could also prove it knew of its litigation defenses at the time of infringement.

We decline to second guess the district court’s weighing of the *Read* factors. As we see no clear error in the district court’s weighing of the evidence or any legal error in its analysis, we determine that the court did not abuse its discretion in declining to award enhanced damages for Defendants-Cross-Appellants’ willful infringement.¹⁶

¹⁶ Sunoco also argues that it is highly relevant to the enhanced damages analysis that the jury’s damages award amounted to only 2 percent of Defendants-Cross-Appellants’ profits from their infringing systems. However, as explained above, the ultimate damages award was limited to Defendants-Cross-Appellants’ proposed royalty rate in part due to Sunoco’s failure to propose an apportioned damages model. We are thus unpersuaded that any disparity

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VII

Finally, we turn to Sunoco's challenge to the district court's JMOL that claims 16 and 17 of the '302 patent and claims 18 and 22 of the '629 patent were not infringed.¹⁷ Sunoco argues that the district court erred in granting JMOL because (1) Magellan failed to move under Federal Rule of Civil Procedure 50(a) on the "transmitting" or "receiving" limitation arguments it raised in its Federal Rule of Civil Procedure 50(b) motion; and (2) the only evidence addressing these limitations came from Sunoco's infringement expert, and such unrebutted testimony is substantial evidence to support the jury verdict.

As to Sunoco's contention that Magellan failed to raise the relevant arguments from its Rule 50(b) motion in its Rule 50(a) motion, Sunoco has forfeited this argument. Under Third Circuit law, when a party does not raise this type of forfeiture argument in response to a Rule 50(b) motion before the district court, the party forfeits that argument for appeal. *Williams v. Runyon*, 130 F.3d 568, 572 (3d Cir. 1997) ("[W]here a party d[oes] not object to a movant's Rule 50(b) motion specifically on the grounds that the issue was waived by an inadequate Rule 50(a) motion, the party's right to object on that basis is itself waived."). Sunoco thus forfeited this argument for appeal.¹⁸

between the damages award and Defendants-Cross-Appellants' profits "reflects such a serious error in judgment that the corresponding failure to enhance damages could only be an abuse of discretion." Appellant's Br. 69.

¹⁷ Powder Springs was only found to infringe claim 3 of the '686 patent, thus this issue applies only to Magellan.

¹⁸ After oral argument to the panel, Sunoco filed a letter with our court attaching an email Sunoco sent the district court after argument on the JMOL motions below,

As to Sunoco's argument on the merits, while it may be true that only Sunoco's expert testified as to these limitations, review of the record shows that Sunoco's expert's testimony on these limitations is limited. *See* J.A. 22347–48 (Trial Tr. 579:16–580:25); J.A. 22358–62 (Trial Tr. 590:25–594:7). He testified that the accused products perform (1) the “receiving” step “by virtue of programming in or inputting into the equation the vapor pressure of the butane,” which was the baked-in number of 52 psi, J.A. 22347–48 (Trial Tr. 579:16–580:5), and (2) the “transmitting” step because “the equation utilizes the butane vapor pressure,” J.A. 22359–60 (Trial Tr. 591:24–592:5). This testimony does not explain to the jury how an equation that uses a known, baked-in butane vapor pressure receives or transmits that butane vapor pressure in accordance with the claimed limitation. Sunoco's expert merely relied on the knowledge requirement that met other claim limitations. Such conclusory testimony on the “receiving” and

which raised Magellan's failure to argue the “transmitting” or “receiving” limitation arguments in its Rule 50(a) motion. *See* ECF No. 67. However, Sunoco did not raise this issue in its briefing on the JMOL motions, it did not raise it at the hearing on the JMOL motions, and it did not even raise it in the first letter it sent to the district court after the hearing; it only raised it in a post-hearing reply letter. *Cf.* D. Del. LR 7.1.3(c)(2) (“The party filing the opening brief shall not reserve material for the reply brief which should have been included in a full and fair opening brief.”). Furthermore, there is no indication that the district court was apprised of this argument, especially as the district court (1) addressed Sunoco's first post-hearing letter about an improper claim construction argument, *see Infringement Order* at 479 n.3, and (2) addressed a different forfeiture argument in the same order, *id.* at 480. We will not fault the district court when a party has been this delinquent in raising an argument.

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“transmitting” limitations was not sufficient to support a jury verdict of infringement. Thus, we see no error in the district court’s JMOL of no infringement.

CONCLUSION

We have considered the parties’ remaining arguments and find them unpersuasive. For the foregoing reasons, we affirm the district court’s decision on each damages issue in the direct- and cross-appeal. We also affirm the district court’s decision granting judgment as a matter of law of no infringement as to claims 16 and 17 of the ’302 patent and claims 18 and 22 of the ’629 patent. As for the district court’s order under Rule 52(c) on eligibility, we affirm the court’s holding that claims 3, 16, and 17 of the ’302 patent and claim 3 of the ’686 patent are eligible under § 101 and reverse the court’s holding that claims 18, 22, 31 and 32 of the ’629 patent are eligible under § 101.

AFFIRMED-IN-PART, REVERSED-IN-PART

COSTS

No costs.