UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

GENERAL ELECTRIC COMPANY,

Appellant,

v.

UNITED TECHNOLOGIES CORPORATION,

Appellee.

On Appeal from the United States Patent and Trademark Office, Patent Trial and Appeal Board in No. IPR2016-00531

APPELLANT GENERAL ELECTRIC COMPANY'S PETITION FOR REHEARING EN BANC

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August 16, 2019

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CERTIFICATE OF INTEREST

Counsel for Appellant General Electric Company certifies the following:

1. The full name of every party or *amicus* represented by me is:

General Electric Company

2. The name of the real party in interest represented by me is:

Not applicable.

3. All parent corporations and any publicly held companies that own 10 percent or more of the stock of the party or amicus curiae represented by me are:

None.

4. The names of all law firms and the partners or associates that appeared for the party or amicus now represented by me in the trial court or agency or are expected to appear in this court (and who have not or will not enter an appearance in this case) are:

WEIL, GOTSHAL & MANGES LLP: David Lender

5. The title and number of any case known to counsel to be pending in this or any other court or agency that will directly affect or be directly affected by this court's decision in the pending appeal:

The Court has designated the following as companion cases:

United Technologies Corp. v. General Electric Co., No.17-2502 United Technologies Corp. v. General Electric Co., No.17-2537 United Technologies Corp. v. General Electric Co., No.18-1020

Dated: August 16, 2019

/s/ William F. Lee WILLIAM F. LEE WILMER CUTLER PICKERING HALE AND DORR LLP 60 State Street Boston, MA 02109 (617) 526-6000

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STATEMENT OF COUNSEL

Based on my professional judgment, I believe the panel decision is contrary to the following decisions of the Supreme Court and this Court: *Clinton v. City of New York*, 524 U.S. 417 (1998); *Association of Data Processing Service Organizations, Inc. v. Camp*, 397 U.S. 150 (1970); *Canadian Lumber Trade Alliance v. United States*, 517 F.3d 1319 (Fed. Cir. 2008).

Based on my professional judgment, I believe this appeal requires answering the following precedent-setting question of exceptional importance: Whether the Panel's decision following this Court's decision in *AVX Corporation v. Presidio Components, Inc.*, 923 F.3d 1357 (Fed. Cir. 2019), improperly precludes application of the Supreme Court's competitor standing doctrine to appeals from *inter partes* review (IPR) determinations.

> /s/ William F. Lee WILLIAM F. LEE

INTRODUCTION

The U.S. Patent and Trademark Office—a federal agency—issued a decision rejecting Appellant General Electric Company's challenge to a direct competitor's right to exclude GE from offering a competing product. Congress expressly provided by statute that parties in GE's position have a right to appeal that agency decision to federal court. In any other area of law, the Supreme Court, this Court, and other circuits would recognize that GE has Article III standing to bring such an appeal.

But this Court has adopted a special rule of standing unique to appeals from IPR determinations, and the Panel applied that rule against GE here. *See AVX Corporation v. Presidio Components, Inc.*, 923 F.3d 1357, 1365 (Fed. Cir. 2019) (requiring appellant to show it is "currently" or "nonspeculatively planning" to engage in activities implicating the claimed features "in competition"). This Court should take this case *en banc* to overturn *AVX* and harmonize the law of standing for IPR appeals with longstanding precedent.

GE and Appellee United Technologies Corporation (UTC) compete directly to design, manufacture, and sell engines to aircraft manufacturers and operators. GE has been and is in ongoing discussions with customers about potential engine designs—which take years and hundreds of millions of dollars to research, develop, test, and certify. UTC owns patents—including the patent at issue—that broadly claim "geared turbofan" engines, a technology that was well-known in the prior art, including in GE's own designs. At least one customer requested GE to present a design for such a geared turbofan engine.

GE challenged UTC's patent through IPR. After the Board upheld some of the patent's claims, GE appealed to this Court pursuant to its statutory right, 35 U.S.C. § 141. The Panel declined to reach the merits and instead, applying *AVX*, dismissed GE's appeal because it determined GE had not shown that it had been injured by the Board's decision refusing to cancel claims of UTC's patent.

The Panel disregarded the rule that competitor standing exists when a party shows it is likely to suffer economic harm as a result of government action that alters competitive conditions, even without any further showing of particular losses. *Clinton*, 524 U.S. at 433. The Panel instead applied *AVX*'s heightened, patent-specific requirements for standing in IPR appeals, ignoring the well-established doctrine of competitor standing for appeals from agency actions in the context of express Congressional authorization to appeal. The Court should correct this error *en banc*.

BACKGROUND

Three companies dominate the worldwide aircraft engine market: GE; UTC's subsidiary Pratt & Whitney; and Rolls Royce. Long Decl. ¶4, Dkt. 36 at 29. GE is UTC's biggest competitor. *Id.* Both offer engines custom-designed to work with a

customer's aircraft. *Id.* ¶¶5, 8. Providing these engines requires enormous up-front costs: the research, design, testing, development, and certification process typically takes 8-10 years and costs hundreds of millions, or billions, of dollars. *Id.* ¶7. Once an engine is selected and certified, an engine maker can expect to receive orders and requests for maintenance services for many years. *Id.*

UTC has sought to limit competition by filing thousands of patent applications on aircraft engines in the past decade—many of which are overbroad, but some of which nonetheless issued as patents. Long Decl. ¶10. One of these is U.S. Patent No. 8,511,605 (the '605 patent), which claims a conventional geared turbofan engine in which a turbine drives a fan through a gearbox. *Id.* ¶¶12-13.

Aware of UTC's '605 patent, GE has refrained from offering engine designs to customers that would risk infringement. Long Decl. ¶16. This is so even though GE already has a blueprint for a geared turbofan engine that it manufactured many years before UTC's patent issued, and even though GE routinely leverages technologies developed for past designs as a starting point for new products. *Id.* ¶¶14-16, 22. At a customer's request, GE investigated geared turbofan engine designs that could implicate the '605 patent, and expended time and money researching and further developing a proposal for such an engine, ultimately landing on an unquestionably non-infringing design. Long Supp. Decl. ¶¶4-7, 9, 16, Dkt. 63 at 4. Thus, as a result of the '605 patent, GE has been forced to "expend additional

research and development money on designs that do not implicate the '605 patent, even though GE's own history of engine development includes geared turbofan engines[.]" Long Decl. ¶16.

In 2016, GE filed two IPR petitions challenging the '605 patent. The Board issued final decisions finding some claims unpatentable, but rejecting GE's challenges to claims 7-11. GE appealed and submitted two declarations describing the injury it suffered because of the '605 patent, including GE's increased research, development, and design costs, and its reduced ability to compete for contracts, exacerbated by the Board's erroneous decision rejecting GE's challenges to claims 7-11. *See generally* Long Decl.; Long Supp. Decl.

The Panel dismissed the appeal, finding GE had not shown it had suffered an "injury-in-fact" sufficient to confer Article III standing. Specifically, the Panel concluded that GE's submissions concerning competitive and economic harm did not meet the standard set forth in *AVX*, 923 F.3d 1357 (Fed. Cir. 2019). The Panel reasoned that the Board's rejection of GE's challenge to claims 7-11 did not confer standing because it "did not change the competitive landscape for commercial airplane engines." Op. 7.

Judge Hughes wrote separately in a concurring opinion, expressing disagreement with this Court's precedent concerning competitor standing in IPR appeals. He explained that this "precedent has developed an overly rigid and narrow standard for Article III standing in the context of appeals from [IPR] proceedings," that *AVX* was wrongly decided, and that absent that precedent he "would conclude that GE has established Article III standing to appeal the Board's adverse decision." Concurrence 1, 9. As Judge Hughes explained, Article III does not require "an unsuccessful IPR appellant/petitioner to show concrete current or future plans to infringe the challenged patent," "particularly where Congress has provided IPR petitioners a procedural right of appeal." Concurrence 5. And as he emphasized, the Panel's "patent-specific treatment of competitor standing is out of step with its application in other areas." Concurrence 6.

ARGUMENT

AVX was wrongly decided. It adopted a patent-specific standing requirement inconsistent with Supreme Court precedent. The Panel thus erred in applying *AVX* to hold that GE—UTC's direct competitor—was required to quantify specific losses or show "definite plans" implicating the claimed features of the '605 patent to establish standing.

A party seeking to establish standing must show that it has suffered an injuryin-fact. *Data Processing*, 397 U.S. at 151. But contrary to the Panel's decision, an injury-in-fact exists where—as here—the appellant is harmed by a challenged agency decision benefiting its direct competitor, particularly where Congress has expressly identified the harm as one giving rise to a claim over which the federal courts have jurisdiction.

I. AVX WAS WRONGLY DECIDED.

AVX's requirement that an IPR appellant demonstrate concrete plans to engage in activity implicating the challenged patent's claims is inconsistent with the well-established standard for competitor standing. Competitor standing recognizes an injury-in-fact whenever a company's bottom line may be adversely affected by government action conferring a benefit on its competitor, *Data Processing*, 397 U.S. at 152, and permits a presumption of harm instead of requiring specific findings that the agency action has caused a particular harm, *Canadian Lumber*, 517 F.3d at 1334.

The competitor standing doctrine applies broadly to government action affecting competitive conditions. In *Data Processing*, various data processing companies challenged a government decision permitting banks to enter the market for data processing services. 397 U.S. at 151. The data processors' allegations that the banks' entry "might entail some future loss of profits" and that the bank had entered the market and begun providing services to the petitioners' former customers established an injury-in-fact. *Id.* at 152. Similarly, the Supreme Court found standing when a broadcaster challenged an agency's grant of a license to a competitor, *FCC v. Sanders Brothers Radio Station*, 309 U.S. 470, 477 (1940), and when farmers challenged the cancellation of a tax incentive that would have made it

easier for competing food processors to sell them their corporate stock, *Clinton*, 524 U.S. at 433.

Where the parties are direct competitors, "it is *presumed* (i.e., without affirmative findings of fact) that a boon to some market participants is a detriment to their competitors." *Canadian Lumber*, 517 F.3d at 1334.¹ In *Canadian Lumber*, the Canadian Wheat Board challenged U.S. Customs' distribution of collected duties to Canadian producers' U.S. competitors. *Id.* at 1332-1334. This Court held that the Canadian producers' injury could be inferred from the government's action—without requiring a showing that the injury would involve lower prices, lost customers, or some other mechanism leading to lost profits. *Id.*; *see Mendoza v. Perez*, 754 F.3d 1002, 1013 (D.C. Cir. 2014) (holding that appellant seeking to establish competitor standing must only "demonstrate that it is a direct and current competitor whose bottom line *may be* adversely affected by the challenged government action").

The competitor standing doctrine thus applies squarely to appeals of IPR decisions by direct competitors. When the Board rejects a petitioner's challenge to a patent owned by a competitor, it harms the petitioner in the market by maintaining an exclusion preventing the petitioner from offering products using the patented

¹ Emphases added unless otherwise noted.

feature. Harm can be inferred without a showing that the competitor's inability to offer the patented product actually led to lost customers, design-around costs, or some other harm.

The Panel rejected the conventional competitor standing doctrine and instead applied the heightened, patent-specific standard established in *AVX*. While the Panel acknowledged that "creating new benefits to competitors" or "alter[ing] the status quo of the field of competition" could create competitor standing, it held that a Board determination rejecting a patentability challenge—a government action maintaining an exclusion over the petitioner's challenge—does not affect "the competitive landscape." Op. 7. The Panel reasoned that there was some distinction between government action "address[ing] prices or introduc[ing] new competitors"—which confer standing—and government action "'giv[ing] exclusivity rights over precisely defined product features"—which purportedly cannot. *Id.* (quoting *AVX*, 923 F.3d at 1365).

There is no rationale for such a distinction. None of the challenged government conduct in the competitor standing cases directly "addresse[d] prices"; rather, in each case, the court *inferred* that the challenged government decision *could* affect prices, customer retention, or profits—solely because it offered a benefit to the challenging party's competitor. *See Data Processing*, 397 U.S. at 152 (inferring from regulation permitting new market participants that petitioners would

endure "some future loss of profits"); *Canadian Lumber*, 517 F.3d at 1334 (holding it was "quite rational to infer" that conferring a benefit on plaintiff's competitors "is likely to inflict" some further, unspecified economic injury on plaintiff). And the harm of "introduc[ing] new competitors" is effectively the same as *excluding* rightful competitors—precisely the harm caused by an improperly upheld patent.

A patent-specific heightened requirement for competitor standing is particularly problematic when—as here—the competitors operate in an industry with a long and expensive design cycle. *See* Long Decl. ¶7 (explaining design cycle). Rejecting a challenge to an overbroad patent in such an industry harms a patentee's competitor long before that competitor develops "definite plans to use the claimed features" or "concrete plans for future activity that creates a substantial risk of future infringement." Op. 7 (quoting *JTEKT Corp. v. GKN Auto. Ltd.*, 898 F.3d 1217, 1221 (Fed. Cir. 2018)). That is precisely why the competitor standing doctrine exists: to allow industry competitors access to the courts to redress competitive harms *before* taking steps that subject them to liability. *Cf. MedImmune, Inc. v. Genentech, Inc.*, 549 U.S. 118, 132 & n.11 (2007) (rejecting "reasonable apprehension of imminent suit" as a requirement to challenge patent's validity).

The *en banc* Court should grant review to overturn *AVX* and hold that competitor standing requires showing only that the government has acted in a way that "aids the [appellant]'s competitors." *Canadian Lumber*, 517 F.3d at 1332.

II. THE AIA CONFIRMS THAT GE'S INJURY WAS CONCRETE.

By creating the IPR process and the right to appeal in the America Invents Act (AIA), Congress identified and elevated the type of harm that GE has suffered, from one that may have previously been intangible, to a concrete harm. Spokeo, Inc. v. Robins, 136 S. Ct. 1540, 1549 (2016) (Congress has a "role in identifying and elevating intangible harms" such that they become concrete for Article III standing); see Massachusetts v. E.P.A., 549 U.S. 497, 516 (2007) (Congress "has the power to define injuries and articulate chains of causation that will give rise to a case or controversy where none existed before"). Congress can transform an intangible harm—real harm that is difficult to identify or quantify, like harms affecting the environment, harm from lack of voter information, or reputation harm from slander—into a concrete injury-in-fact by creating a cause of action. See Spokeo, 136 S. Ct. at 1549; Massachusetts, 549 U.S. at 516 ("[The fact that] Congress ... authorized this type of challenge to EPA action ... is of critical importance to the standing inquiry[.]"); Federal Election Comm'n v. Akins, 524 U.S. 11, 22 (1998) (finding standing where "there is a statute which ... seek[s] to protect individuals such as respondents from the kind of harm they say they have suffered"). As long as the challenging party has been "particularly" harmed by the government actionthat is, the harmed interest is not "merely a general interest common to all members

of the public"—Congress's elevation of the harm to one that is concrete gives the plaintiff an injury-in-fact. *Spokeo*, 136 S. Ct. at 1552.

In passing the AIA, Congress identified and elevated the injury of overbroad patents interfering with competition and innovation. As one Congress member explained during debate, "patents may discourage competition," so the continued existence of invalid patents will "severely restrict[]" "the flow of ideas and capital." Patent Quality Improvement: Post-Grant Opposition: Hearing before the Subcomm. on Courts, the Internet, and Intellectual Prop. of the H. Comm. on the Judiciary, 108th Cong. at 49 (2004) (statement of Rep. John Convers, Jr.); see 157 Cong. Rec. S1326 (daily ed. Mar. 7, 2011) (statement of Sen. Sessions) (post-grant review "will allow invalid patents that were mistakenly issued by the PTO to be fixed early in their life, before they disrupt an entire industry or result in expensive litigation"). The AIA expressly authorized appeals from IPR decisions to this Court. 35 U.S.C. § 141(c). Thus, to the extent the competitive harm resulting from the rejection of an IPR challenge to an overbroad patent were considered intangible, it becomes concrete when the decision becomes appealable under the AIA.²

² Moreover, the AIA precludes litigants from re-raising grounds the IPR petitioner "raised or reasonably could have raised" during the IPR. 35 U.S.C. § 315(e). This further shows that Congress intended to transform any intangible competitive harms into concrete injuries resulting from adverse IPR decisions.

GE has shown exactly the type of injury Congress identified and elevated in passing the AIA—the harm from the PTO's refusal to cancel an overbroad patent that stifles GE's ability to innovate and compete. GE is particularly and concretely harmed by the Board's decision because it is UTC's direct competitor. *Spokeo*, 136 S. Ct. 1552. GE therefore has standing to require a judicial decision on the merits of the Board's decision. *See Hardin v. Kentucky Utilities Co.*, 390 U.S. 1, 6 (1968) ("[W]hen the particular statutory provision invoked … reflect[s] a legislative purpose to protect a competitive interest, the injured competitor has standing to require compliance with that provision[.]").

III. UNDER THE CORRECT LEGAL STANDARD, GE HAS SHOWN INJURY-IN-FACT.

GE has shown a sufficiently "concrete and imminent" injury to establish competitor standing. *See* Op. 5. The Supreme Court "routinely recognizes [that] *probable* economic injury resulting from [governmental actions] that alter competitive conditions [are] sufficient to satisfy" Article III's "'injury-in-fact' requirement." *Clinton*, 524 U.S. at 433. Here, GE has shown both actual past losses and sufficient likelihood of harm.

First, GE established competitor standing by showing that it suffered actual past and probable future losses resulting from the Board's decision. Costs incurred in complying with the challenged government-imposed requirements are an injury-in-fact. *See Biotechnology Industry Organization v. District of Columbia*, 496 F.3d

1362, 1370-1371 (Fed. Cir. 2007) (explaining that manufacturers had standing to challenge law regulating drug prices because "the need to monitor and consider that structure in light of the Act will necessarily impose upon them actual administrative costs"). The actual amount of the costs need not be accounted for. *Id.; Canadian Lumber*, 517 F.3d at 1333 n.16 (rejecting argument that plaintiffs must present empirical analysis showing losses with "any more certainty" where the effects may be "relatively modest," and its full effects "may not be felt for years"). Because the '605 patent impeded GE's consideration of a geared turbofan engine, GE incurred ongoing increased research and design costs. Long Decl. ¶¶7, 9, 15-16. The Board's erroneous failure to cancel the claims of that patent thus constitutes an injury-in-fact, and the Panel's criticism of GE for "fail[ing] to provide an accounting" of its increased research and design costs was error. Op. 7.

Second, GE established competitor standing by showing that it is likely to incur future design-around costs and may lose customer opportunities because of the Board's improper failure to cancel the claims of the '605 patent. Notably, the showing necessary for competitor standing can be based on predictions about likely future harm or economic inference; the plaintiff or appellant need not show that its business has *already* been affected to show an injury that could confer standing. *Clinton*, 524 U.S. at 424-427. In *Clinton*, the plaintiff (a farmers' cooperative) established standing by showing that the government had taken away a statutory

"bargaining chip" in its negotiation to acquire a processing plant—namely, that the plant's capital gains from the sale to the cooperative could be tax-deferred—even though no sale had actually taken place. Without the tax benefit, the cooperative was at a competitive disadvantage relative to ordinary corporations, which, under then-operative law, could acquire processing plants without the seller recognizing capital gains. Id. at 423. The cooperative showed that it was negotiating with the owner of a plant who would have qualified for the tax benefit under pending legislation, that the negotiations "terminated when the President canceled" the tax reform provision of that legislation, id. at 426-427, and that the cooperative was "considering the possible purchase of other processing facilities in Idaho if the President's cancellation [were to be] reversed," id. at 427. Those facts satisfied the requirement of economic injury conferring standing because they showed probable economic injury resulting from the government's actions. Id. at 432-433 ("By depriving them of their statutory bargaining chip, the cancellation inflicted a sufficient likelihood of economic injury to establish standing under our precedents."); see Adams v. Watson, 10 F.3d 915, 923 (1st Cir. 1993) (explaining that "most 'competitor standing' cases depend on" "basic economic theory" predicated on "probable market behavior").

GE thus satisfied the standard for showing competitor standing by showing *probable* economic harm. The threat of the '605 patent "impedes GE's ability to

consider a geared turbofan VAFN engine," Long Decl. ¶15, "restricts GE's design choices," *id.* ¶16, and leads to increased design costs, *id.* ¶¶7, 9. And GE showed that there is demand for the relevant design: Boeing asked GE to research and develop a design proposal that may have implicated the '605 patent. Long Supp. Decl. ¶¶4-9. Thus, as in *Clinton*, where the cooperative's negotiations terminated when the tax incentive was vetoed, GE proposed an alternative design to Boeing rather than a geared turbofan design that would have implicated the '605 patent. *Id.* And, as in *Clinton*, where the cooperative was "considering the possible purchase of other processing facilities" if the tax incentive were to go into effect, 524 U.S. at 427, GE has shown that it considered (and may yet consider) proposing engine designs that risk infringement of the '605 patent. Long Decl. ¶16. GE's showing meets the competitor standing requirements.

Applying a far higher standard than in *Clinton*, the Panel rejected GE's showings as insufficient. While the cooperative in *Clinton* was not required to show that the negotiations for the processing facility were terminated *because* of the President's veto, or to show any specific examples of lost opportunities to purchase a processing facility *because of* the vetoed tax incentive, the Panel here required GE to make a corollary showing. Op. 4 (noting that "[t]he record does not indicate *why* GE submitted a direct-drive engine design instead of a geared-fan engine design" in its response to Boeing's request for a proposal); Op. 6 (stating there is "no evidence

that GE lost business or lost opportunities *because* it could not deliver a geared-fan engine covered by the upheld claims or any evidence that prospective bids *require* geared-fan engine designs"). The Panel's requirements exceed those necessary to show competitor standing and place an unworkable burden on IPR petitioners to publicly forecast their competitive plans.

GE established standing to challenge the Board's decision because of its increased research and design costs and potential loss of customer opportunities, and therefore was not required to show a likelihood of imminent suit. The *competitor* standing doctrine does not require a showing of "concrete plans for future activity that creates a substantial risk of future infringement." AVX, 923 F.3d at 1365 (quoting JTKET, 898 F.3d at 1221). Rather, the JTEKT "concrete plans" theory for establishing standing is independent from the competitor standing doctrine; to require such a showing to appeal an adverse IPR decision improperly conflates the competitor standing doctrine with standing based on showing a substantial threat of litigation. See JTEKT, 898 F.3d at 1220-1221 ("concrete injury" test applies "where the party relies on potential infringement liability as a basis for injury in fact"); see ABB Inc. v. Cooper Indus., LLC, 635 F.3d 1345, 1348 (Fed. Cir. 2011) ("[A] specific threat of infringement litigation by the patentee is not required to establish jurisdiction[.]").

Thus, by rejecting GE's showing of economic injury and requiring instead specific losses resulting from the Board's decision upholding the '605 patent, the Panel held GE to a higher standard than Article III requires. Under the correct standard, GE's evidence of both actual and probable harm was more than sufficient to establish injury-in-fact.

CONCLUSION

This Court should grant rehearing, overturn *AVX*, find that GE has standing, and remand to the Panel for consideration of the merits. Alternatively, this Court should remand for reconsideration of GE's standing under the correct injury-in-fact standard.

Respectfully submitted,

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Attorneys for Appellant General Electric Company

ADDENDUM

United States Court of Appeals for the Federal Circuit

GENERAL ELECTRIC COMPANY, Appellant

v.

UNITED TECHNOLOGIES CORPORATION, Appellee

2017-2497

Appeal from the United States Patent and Trademark Office, Patent Trial and Appeal Board in No. IPR2016-00531.

Decided: July 10, 2019

BRIAN E. FERGUSON, Weil, Gotshal & Manges LLP, Washington, DC, argued for appellant. Also represented by STEPHEN BOSCO, CHRISTOPHER PEPE; ANISH R. DESAI, New York, NY.

MICHAEL VALAIK, Bartlit Beck Herman Palenchar & Scott LLP, Chicago, IL, argued for appellee. Also represented by PATRICK JOSEPH COYNE, MICHAEL ANDREW HOLTMAN, SYDNEY KESTLE, JEFFREY CURTISS TOTTEN, Finnegan, Henderson, Farabow, Garrett & Dunner, LLP, Washington, DC; BENJAMIN AARON SAIDMAN, Atlanta, GA. Before REYNA, TARANTO, and HUGHES, Circuit Judges.

Opinion for the court filed by *Circuit Judge* REYNA.

Concurring opinion filed by Circuit Judge HUGHES.

REYNA, Circuit Judge.

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General Electric Company petitioned the United States Patent Trial and Appeal Board for *inter partes* review of U.S. Patent No. 8,511,605. United Technologies Corporation is the assignee of the patent. The Board found the claims not obvious in view of the prior art. General Electric appeals. For the reasons discussed below, we hold that General Electric lacks Article III standing and accordingly, we dismiss the appeal.

BACKGROUND

Appellee United Technologies Corporation ("UTC") is the assignee of U.S. Patent No. 8,511,605 ("the '605 patent"). The '605 patent is generally directed to a gas turbine engine having a gear train driven by a spool with a low stage count low pressure turbine. '605 patent, Abstract. This particular gas turbine engine is designed for use in airplanes and has an axially movable variable area fan nozzle.

On January 29, 2016, General Electric Company ("GE") filed a petition for *inter partes* review ("IPR") challenging claims 1 and 2 of the '605 patent on grounds of anticipation and claims 7–11 of the '605 patent on grounds of obviousness. After institution, UTC disclaimed claims 1 and 2, leaving only claims 7–11 at issue. On June 26, 2017, the United States Patent Trial and Appeal Board ("Board") issued a Final Written Decision concluding that the preponderance of the evidence did not show claims 7–11 of the '605 patent to be unpatentable for obviousness. GE timely appealed to this court.

On December 29, 2017, UTC moved to dismiss GE's appeal for lack of standing. UTC asserted that GE lacked standing because it failed to demonstrate a sufficient injury in fact. In support, UTC pointed to this court's decisions holding that an appellant does not automatically possess standing to appeal an adverse Board decision by virtue of serving its petitions in the challenged IPR. GE submitted a response on January 16, 2018, including the Declaration of Alexander E. Long, GE's Chief IP Counsel and General Counsel of Engineering for GE Aviation ("First Long Declaration"). Mr. Long explained that the commercial aircraft engine business operates on a long lifecycle and that airplane engines are designed to meet certain specifications for certain aircraft. Because the design of aircraft engines can take eight years or more, GE develops new engines based on old designs. Mr. Long stated that, in the 1970s, GE developed a geared turbofan engine with a variable area fan nozzle for NASA. GE asserted that the '605 patent impedes its ability to use its 1970s gearedfan engine design as a basis for developing and marketing future geared turbofan engine designs with a variable area fan nozzle, thereby limiting the scope of GE's engine designs and its ability to compete in a highly regulated industry. Mr. Long also declared that designing around the '605 patent restricts GE's design choices and forced GE to incur additional research and development expenses.

We denied UTC's motion without addressing the merits and ordered UTC to brief the issue in its responsive appellate brief. The parties subsequently briefed the standing issue. GE argued that the injuries it suffered include statutory estoppel, economic loss, future threat of litigation, and competitive harm. GE relied on the First Long Declaration as evidence to show its injuries. UTC argued that GE suffered no injury in fact because: (1) UTC has not sued or threatened to sue GE for infringement of the '605 patent; (2) GE does not offer evidence of a concrete and particularized economic injury because it has not developed an engine that implicates claims 7–11 of the '605 patent; and (3) statutory estoppel and the competitive standing doctrine do not apply to GE.

We heard oral argument on November 7, 2018. Much of oral argument focused on whether GE had constitutional standing to appeal and whether general statements made in the First Long Declaration were sufficient to establish standing. We subsequently ordered GE to supplement the First Long Declaration and submit any additional declarations that would provide greater specificity regarding the asserted injury GE contends provides sufficient standing to appeal in this matter. We provided UTC with an opportunity to respond.

Each party filed its supplemental submission. GE filed an additional declaration from Mr. Long on November 28, 2018 ("Second Long Declaration"). In his second declaration, Mr. Long stated that Boeing requested information from GE and several of its competitors for engine designs for future Boeing aircrafts. Mr. Long also noted that Boeing requested information regarding designs for both geared-fan engines and direct-drive engines.

In response to Boeing's request, GE researched a geared-fan engine design that "would potentially implicate [UTC's] 605 Patent." Second Long Decl. ¶ 5. GE asserts it "expended time and money researching and further developing" this technology for the potential business opportunity with Boeing. *Id.* ¶ 7. Ultimately, GE chose not to submit to Boeing a geared-fan engine design and instead submitted a design for a direct-drive engine of the type used in GE's current engine designs. The record does not indicate why GE submitted a direct-drive engine design instead of a geared-fan engine design. Nor does Mr. Long state whether GE lost this particular bid. He contends only that to maintain GE's competitive position, it needs to be able to meet customer needs with a geared-fan engine design that may implicate the '605 patent.

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DISCUSSION

Not every party to an IPR will have Article III standing to appeal a final written decision of the Board. See Phigenix, Inc. v. Immunogen, Inc., 845 F.3d 1168, 1172 (Fed. Cir. 2017) (citing Cuozzo Speed Techs., LLC v. Lee, 136 S. Ct. 2131, 2143–44 (2016)). To establish standing, an appellant must have suffered an injury in fact that has a nexus to the challenged conduct and that can be ameliorated by the court. Id. at 1171 (citing Spokeo, Inc. v. Robins, 136 S. Ct. 1540, 1545 (2016)). The injury in fact must be "concrete and particularized," not merely "conjectural or hypothetical." JTEKT Corp. v. GKN Auto. Ltd., 898 F.3d 1217, 1220 (Fed. Cir. 2018) (emphasis omitted) (first quoting Spokeo, 136 S. Ct. at 1545, and then quoting Lujan v. Defs. of Wildlife, 504 U.S. 555, 560 (1992)).

GE has the burden of showing that it suffered an injury in fact sufficient to confer Article III standing to appeal. *See DaimlerChrysler Corp. v. Cuno*, 547 U.S. 332, 342 (2006). It is undisputed that GE did not establish before the Board that it had standing to appeal the Board's Final Written Decision. *See JTEKT*, 898 F.3d at 1220. Therefore, GE must create a record in this court with the "requisite proof of an injury in fact" sufficient to show that it has standing to appeal. *Id.* (quoting *Phigenix*, 845 F.3d at 1171–72). As a result, GE has submitted two declarations from Mr. Long and has proffered three theories of harm to support standing: (1) competitive harm; (2) economic losses; and (3) estoppel under 35 U.S.C. § 315(e). For the reasons stated below, we reject GE's arguments.

GE's purported competitive injuries are too speculative to support constitutional standing. *See Phigenix*, 845 F.3d at 1171 (stating that the injury must be real or imminent). Mr. Long's declarations are the only evidence of standing before the court, and neither shows a concrete and imminent injury to GE related to the '605 patent. Mr. Long does not assert that GE lost bids to customers because it could

offer only a direct-drive engine design. Nor does Mr. Long attest that GE submitted a direct-drive engine design to Boeing *because* of the '605 patent. Mr. Long contends only that GE expended some unspecified amount of time and money to consider engine designs that could *potentially* implicate the '605 patent. Boeing may have asked for information regarding a possible geared-fan engine design, but there is no evidence that Boeing demanded or required an engine covered by claims 7–11 of the '605 patent, and there is no indication that GE lost the Boeing bid. The evidence shows that GE submitted to Boeing a direct-drive engine design, but there is no indication as to why it opted not to submit a geared-fan engine design. There is also no evidence that GE lost business or lost opportunities because it could not deliver a geared-fan engine covered by the upheld claims or any evidence that prospective bids require geared-fan engine designs. GE asserts only speculative harm untethered to the '605 patent. Without a real, particularized injury, GE lacks standing to appeal the IPR decision.

We recently addressed the "competitor standing" doctrine in AVX Corp. v. Presidio Components, Inc., 923 F.3d 1357 (Fed. Cir. 2019). There, we concluded that the appellant lacked Article III standing because it had "no present or nonspeculative interest in engaging in conduct even arguably covered by the patent claims at issue." Id. at 1363. We explained that competitor standing has been found when government action alters competitive conditions. Id. at 1364 (citing Clinton v. City of New York, 524 U.S. 417, 433 (1998)). In those circumstances, the government "provides benefits to an existing competitor or expands the number of entrants in the petitioner's market, not an agency action that is, at most, the first step in the direction of future competition." Id. at 1364 (quoting New World Radio, Inc. v. FCC, 294 F.3d 164, 172 (D.C. Cir. 2002)).

For the competitor standing doctrine to apply, the government action must change the competitive landscape by, for example, creating new benefits to competitors. Put another way, the government action must alter the status quo of the field of competition. Here, the Board's upholding of claims 7–11 of the '605 patent did not change the competitive landscape for commercial airplane engines. *See id.* ("The government action is the upholding of specific patent claims, which do not address prices or introduce new competitors, but rather give exclusivity rights over precisely defined product features."). Therefore, we see no competitive harm to GE sufficient to establish standing to appeal.

We similarly reject GE's economic losses argument. GE contends that it has been injured by increased research and development costs sustained by attempts to design engines that could implicate the '605 patent and engines that do not implicate the '605 patent. Yet, GE provides no further details. It fails to provide an accounting for the additional research and development costs expended to design around the '605 patent. It provides no evidence that GE actually designed a geared-fan engine or that these research and development costs are tied to a demand by Boeing for a geared-fan engine. The only evidence that GE actually designed a geared-fan engine is the engine that it designed in the 1970s. Any economic loss deriving from the 1970s engine is not an imminent injury. See Lujan, 504 U.S. at 560 (stating that injury in fact must be actual or imminent). Aside from a broad claim of research and development expenditures, GE has provided no evidence that these expenses were caused by the '605 patent. See id. (requiring "a causal connection between the injury and the conduct complained of"). Therefore, GE's broad claim of economic loss is insufficient to confer standing.

There is also no evidence that GE is in the process of designing an engine covered by claims 7–11 of the '605 patent. Nor has GE demonstrated that it has definite plans to use the claimed features of the '605 patent in the airplane engine market. *See JTEKT*, 898 F.3d at 1221 (holding appellant lacked standing because it had not

established that it had "concrete plans for future activity that creates a substantial risk of future infringement"). UTC has not sued or threatened to sue GE for infringing the '605 patent. Appellee Br. 36. Therefore, GE's future harm argument fails.

GE also contends that estoppel under 35 U.S.C. § 315(e) creates injury in fact for standing purposes. We have previously rejected the estoppel argument as a basis for Article III standing. Where, as here, the appellant does not currently practice the patent claims and the injury is speculative, we have held that the estoppel provision does not amount to an injury in fact. See, e.g., AVX Corp., 923 F.3d at 1362–63; Phigenix, 845 F.3d at 1175–76; Consumer Watchdog v. Wis. Alumni Research Found., 753 F.3d 1258, 1262 (Fed. Cir. 2014). We see no need to reach a different conclusion on this record.

CONCLUSION

We have considered GE's remaining arguments and find them unpersuasive. We hold that GE lacks Article III standing to appeal the Board's Final Written Decision and therefore dismiss the appeal.

DISMISSED

COSTS

No costs.

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United States Court of Appeals for the Federal Circuit

GENERAL ELECTRIC COMPANY, Appellant

v.

UNITED TECHNOLOGIES CORPORATION, Appellee

2017-2497

Appeal from the United States Patent and Trademark Office, Patent Trial and Appeal Board in No. IPR2016-00531.

HUGHES, Circuit Judge, concurring.

Because our recent precedent compels holding that General Electric Company lacks Article III standing here, I concur in the judgment. I write separately because I believe that precedent has developed an overly rigid and narrow standard for Article III standing in the context of appeals from *inter partes* review proceedings.

Our recent decision in *AVX Corp. v. Presidio Components, Inc.*, 923 F.3d 1357 (Fed. Cir. 2019), which I believe was incorrectly decided, takes a patent-specific approach to the doctrine of competitor standing that is out of step with Supreme Court precedent. The Court has repeatedly held that government actions altering the competitive landscape of a market cause competitors probable economic injury sufficient for Article III standing. And I do not believe that a Board decision erroneously upholding a competitor's patent in an IPR is meaningfully different from the type of government actions held to invoke competitor standing in those cases. Thus, absent our holding in *AVX Corp.*, I would conclude that GE possesses Article III standing in this appeal.

Ι

The parties here are direct competitors in the commercial aircraft turbofan engine market. GE, both itself and through joint ventures, "designs, tests, certifies, manufactures, and supplies aircraft engines" for major airplane manufacturers, or "airframers," such as Boeing and Airbus. Decl. of Alexander E. Long 2 ¶ 3, ECF No. 36. During the design process, "airframers explain to GE their needs and requirements for turbofan engines, to enable GE to provide competitive offerings that will satisfy the airframers' requirements." Suppl. Decl. of Alexander E. Long 2 ¶ 3, ECF No. 64.

Due to the safety and regulatory requirements of the turbofan engine market, "designing, developing, testing, and certifying a new aircraft engine can take eight to ten years or longer." Long Decl. $3 \P 6$. And "[t]here is enormous up-front investment required." Long Decl. $4 \P 7$. Accordingly, "new aircraft engine design work necessarily begins years before there is any commercial sale or offer for sale of the final engine." Long Decl. $4 \P 8$.

According to GE, competition in the aircraft engine market is fierce, and the market is dominated by three major players: GE, Universal Technologies Corporation, and Rolls-Royce. GE petitioned for IPR of a patent owned by UTC. That patent is directed to a turbofan engine design – the very type of technology over which GE and UTC fiercely compete. The Board decided that GE failed to show that the challenged claims were unpatentable, and GE appealed that decision to this Court.

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UTC filed a motion to dismiss the appeal, arguing that GE lacks Article III standing because GE does not produce or plan to produce an engine that would infringe its patent. Relying on precedent of both this Court and the Supreme Court, GE argued that the Board's decision to uphold UT's patent caused GE a concrete competitive injury sufficient to satisfy Article III standing.

Π

The sole issue with respect to standing in this case is whether GE has shown that it has suffered an injury-infact. An injury-in-fact requires a party to establish "an invasion of a legally protected interest which is (a) concrete and particularized, and (b) actual or imminent, not conjectural or hypothetical." Lujan v. Defs. of Wildlife, 504 U.S. 555, 560 (1992) (internal quotation marks and citations omitted). This requirement "ensure[s] that the plaintiffs have a stake in the fight and will therefore diligently prosecute the case . . . while, at the same time, ensuring that the claim is not abstract or conjectural so that resolution by the judiciary is both manageable and proper." Canadian Lumber Trade All. v. United States, 517 F.3d 1319, 1333 (Fed. Cir. 2008) (internal quotation marks omitted); see also Massachusetts v. E.P.A., 549 U.S. 497, 517 (2007) ("At bottom, 'the gist of the question of standing' is whether petitioners have 'such a personal stake in the outcome of the controversy as to assure that concrete adverseness which sharpens the presentation of issues upon which the court so largely depends for illumination." (quoting Baker v. Carr, 369 U.S. 186, 204 (1962))). But "[i]njury-in-fact is not Mount Everest." Canadian Lumber, 517 F.3d at 1333 (quoting Danvers Motor Co. v. Ford Motor Co., 432 F.3d 286, 294 (3d Cir. 2005)); accord Bowman v. Wilson, 672 F.2d 1145, 1151 (3d Cir. 1982) ("The contours of the injuryin-fact requirement, while not precisely defined, are very generous.").

Many of our recent cases dealing with injury-in-fact in IPR appeals have focused on the appellant/petitioner's likelihood of facing a future infringement suit. See JTEKT Corp. v. GKN Auto. LTD., 898 F.3d 1217, 1220 (Fed. Cir. 2018) (noting that "typically in order to demonstrate the requisite injury in an IPR appeal, the appellant/petitioner must show that it is engaged or will likely engage 'in an[] activity that would give rise to a possible infringement suit,'... or has contractual rights that are affected by a determination of patent validity" (quoting Consumer Watchdog v. Wis. Alumni Research Found., 753 F.3d 1258, 1262 (Fed. Cir. 2014))); see also Momenta Pharm., Inc. v. Bristol-Myers Squibb Co., 915 F.3d 764, 769-70 (Fed. Cir. 2019) (holding that an IPR petitioner lacked standing because it had abandoned its plans for developing a potentially infringing product, so it no longer faced a potential infringement suit); E.I. Dupont de Nemours & Co. v. Synvina C.V., 904 F.3d 996, 1004 (Fed. Cir. 2018) (holding that an IPR petitioner had suffered an injury in fact because it "currently operates a plant capable of infringing" the challenged patent); Phigenix, Inc. v. Immunogen, Inc., 845 F.3d 1168, 1173–74 (Fed. Cir. 2017) (noting that appellant "does not contend that it faces risk of infringing the [challenged] patent, that it is an actual or prospective licensee of the patent, or that it otherwise plans to take any action that would implicate the patent"); Consumer Watchdog, 753 F.3d at 1262 (noting that the appellant/petitioner "is not engaged in any activity that would give rise to a possible infringement suit"). But these cases do not suggest that the *only* means for an IPR petitioner to establish injury-in-fact is to show a reasonable likelihood of an imminent infringement suit. Such a reading would conflate the injury-in-fact analysis with the "reasonable apprehension of imminent suit" test for declaratory judgment jurisdiction, which the Supreme Court overruled. See MedImmune, Inc. v. Genentech, Inc., 549 U.S. 118, 132 n. 11 (2007) (noting that the "reasonable apprehension of suit" test conflicts with Supreme Court precedent); see also ABB Inc. v.

Cooper Indus., LLC, 635 F.3d 1345, 1348 (Fed. Cir. 2011) (recognizing that *MedImmune* rejected the requirement of a "reasonable apprehension of imminent suit" to establish declaratory judgment jurisdiction).

The risk of a future infringement suit is not the only way an IPR petitioner can show injury-in-fact. "The [Supreme Court] routinely recognizes probable economic injury resulting from [government actions] that alter competitive conditions as sufficient to satisfy the [Article III injury-in-fact requirement]." 3 K. Davis & R. Pierce, Administrative Law Treatise 13–14 (3d ed. 1994); see also Clinton v. City of New York, 524 U.S. 417, 433 (1998) (citing David & Pierce, *supra*, at 13–14). This Court's recent decision in AVX Corp. addressed the competitor standing doctrine in IPR appeals. We held that a patent could cause an IPR petitioner competitive harm if the petitioner "was currently using the claimed features [of the challenged patent] or nonspeculatively planning to do so in competition." AVX Corp., 923 F.3d at 1365. But if the petitioner is not currently engaged in infringing activity and has no concrete plans to do so in the imminent future, we held that the Board's decision to uphold a challenged patent does not invoke the competitor standing doctrine. Id.

Thus, even when the parties are direct competitors, our cases require an unsuccessful IPR appellant/petitioner to show concrete current or future plans to infringe the challenged patent. I do not believe that Article III requires such a showing, particularly where Congress has provided IPR petitioners a procedural right of appeal. *See* 35 U.S.C. § 141; *see also Consumer Watchdog*, 753 F.3d at 1261 (recognizing that "where Congress has accorded a procedural right to a litigant, such as the right to appeal an administrative decision, certain requirements of standing—namely immediacy and redressability, as well as prudential aspects that are not part of Article III—may be relaxed").

AVX Corp. found that the "government action at issue [in IPR] is guite different" from the government action in other cases applying competitor standing. AVX Corp., 923 F.3d at 1365. According to AVX Corp., the "feature-specific exclusivity right [of a patent] does not, by the operation of ordinary economic forces, naturally harm a firm just because it is a competitor in the same market as the beneficiary of the government action (the patentee)." Id. This analysis sets patents apart from other applications of competitor standing on the basis that a patent's exclusivity right is different than other interests. The Supreme Court, however, has made clear that "[p]atent law is governed by the same common-law principles, methods of statutory interpretation, and procedural rules as other areas of civil litigation." SCA Hygiene Prods. Aktiebolag v. First Quality Baby Prods., LLC, 137 S. Ct. 954, 964 (2017) (internal guotation marks omitted).

Our patent-specific treatment of competitor standing is out of step with its application in other areas. The Supreme Court has repeatedly found standing where government action subjects the plaintiff to increased competition because of the probable economic injury that accompanies it. See Clinton, 524 U.S. at 433; Ass'n of Data Processing Serv. Orgs., Inc., 397 U.S 150, 152 (1970); Inv. Co. Inst. v. Camp, 401 U.S. 617, 620 (1971); accord Canadian Lumber, 517 F.3d at 1334; La. Energy & Power Auth. v. FERC, 141 F.3d 364, 367 (D.C. Cir. 1998). In *Data Processing*, for example, the petitioners - organizations who sold data processing services to businesses – challenged a ruling by the Comptroller of Currency that allowed national banks to provide data processing services to other banks and bank customers. 397 U.S. at 151. The Supreme Court held that the Comptroller's ruling caused petitioners an injury-infact because the resulting increase in competition would likely cause petitioners future economic harm. Id. at 152. Similarly, in *Clinton* the Supreme Court held that a farmers' cooperative suffered a concrete injury when the president cancelled a tax benefit enacted to facilitate the purchase of processing plants by such cooperatives. 524 U.S. at 432. The Court found that "[b]y depriving [the cooperative] of their statutory bargaining chip, the cancellation inflicted a sufficient likelihood of economic injury to establish standing under our precedents." *Id*.

In both Data Processing and Clinton, the government action subjected the challenger to increased competition. The exclusionary right of a patent, however, allows the patent owner to exclude others from competing in its market. But like an action that increases competition, government action that *excludes* an appellant from effectively competing in a market, such as erroneously upholding its competitor's patent, provides a benefit to the competitor and causes competitive harm to the appellant that presumptively leads to economic injury. See Canadian Lumber, 517 F.3d 1332 (noting that competitor standing "relies on economic logic to conclude that a plaintiff will likely suffer an injury-in-fact when the government acts in a way that increases competition or aids the plaintiff's competitors" (emphasis added)). Thus, I do not believe there is any sound basis for AVX Corp.'s patent-specific treatment of the competitor standing doctrine.

The facts of this case further demonstrate why AVX *Corp.*'s patent-specific approach is incorrect. GE and UTC are direct competitors in a fiercely competitive market that requires significant up-front investment years before any profits can be realized. During the engine design process, "airframers explain to GE their needs and requirements for turbofan engines, to enable GE to provide competitive offerings that will satisfy the airframers' requirements." Long Suppl. Decl. at $2 \P 3$. According to GE, one such airframer specifically requested that GE research an engine design that would implicate UTC's patent. But at least until that patent expires, GE cannot design and produce such an engine without risking infringement. Thus, UTC's patent effectively precludes GE from meeting its customer's

design needs without spending additional resources to design around the patent.¹ I fail to see how this costly competitive burden does not constitute a "concrete and particularized" harm to GE. See Lujan, 504 U.S. at 560. And GE certainly has a "personal stake in the outcome of th[is] controversy," which concerns the validity of a patent owned by its direct competitor covering technology over which the parties compete. *E.P.A.*, 549 U.S. at 517 (internal quotation marks omitted).

Finally, as the majority correctly notes, we have repeatedly held that the estoppel provisions of 35 U.S.C. § 315(e), standing alone, do not create an injury. Maj. Op. 8. But the effects of that estopped have especially significant impact where the parties are direct competitors. Unlike the appellant/petitioners in *Consumer Watchdog* or *Phigenix*, who did not manufacture or sell products in the market involving the patented technology, see Consumer Watchdog, 753 F.3d at 1260; Phigenix, 845 F.3d at 1171, GE is one of three major actors in the turbofan engine market. Although we have not decided whether § 315(e) would estop an IPR petitioner who lacked standing to appeal an unfavorable Board decision, see AVX Corp., 923 F.3d at 1363, until we do, UTC's patent is an even greater competitive deterrent for GE. GE faces uncertainty as to whether it is estopped from raising an invalidity defense on any

¹ In Biotechnology Industry Organization v. District of Columbia, we found that "[w]hether the Act is enforced or not," pharmaceutical manufacturers challenging a statute that penalized selling prescription drugs at "excessive price[s]" could demonstrate injury-in-fact due to the "actual administrative costs" they would necessarily incur in complying with the statute. 496 F.3d 1362, 1370–71 (Fed. Cir. 2007). Those "actual administrative costs" are analogous to the increased research and design costs that GE has allegedly suffered due to UTC's patent.

ground "that [it] raised or reasonably could have raised during" its IPR. See § 315(e)(2). This uncertainty makes facing potential infringement litigation significantly more impactful on GE's future design choices. Thus, while I agree that 35 U.S.C. § 315(e) estoppel alone does not create an injury-in-fact, its potential effects in this case underscore the problems with our increasingly narrow approach to Article III standing.

Absent *AVX Corp.*, which I believe was incorrectly decided, I would conclude that GE has established Article III standing to appeal the Board's adverse decision. Because I am bound by that precedent, however, I respectfully concur only in the judgment.

CERTIFICATE OF SERVICE

I hereby certify that, on this 16th day of August, 2019, I filed the foregoing Appellant General Electric Company's Combined Petition for Panel Rehearing and Rehearing En Banc with the Clerk of the United States Court of Appeals for the Federal Circuit via the CM/ECF system, which will send notice of such filing to all registered CM/ECF users.

> /s/ William F. Lee WILLIAM F. LEE WILMER CUTLER PICKERING HALE AND DORR LLP 60 State Street Boston, MA 02109 (617) 526-6000

CERTIFICATE OF COMPLIANCE

Pursuant to Fed. R. App. P. 32(g), the undersigned hereby certifies that this petition complies with the type-volume limitation of Fed. R. App. P. 35(b)(2).

Exclusive of the exempted portions of the petition, as provided in Fed.
Cir. Rule 35(c)(2), the petition contains 3,892 words.

2. The petition has been prepared in proportionally spaced typeface using Microsoft Word 2010 in 14 point Times New Roman font. As permitted by Fed. R. App. P. 32(g), the undersigned has relied upon the word count feature of this word processing system in preparing this certificate.

> /s/ William F. Lee WILLIAM F. LEE WILMER CUTLER PICKERING HALE AND DORR LLP 60 State Street Boston, MA 02109 (617) 526-6000

August 16, 2019