FOR PUBLICATION

UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

NATURAL RESOURCES DEFENSE COUNCIL, *Petitioner*, v. U.S. ENVIRONMENTAL PROTECTION AGENCY, *Respondent.*	No. 15-72308
CENTER FOR FOOD SAFETY; INTERNATIONAL CENTER FOR TECHNOLOGY ASSESSMENT, *Petitioners*, v. U.S. ENVIRONMENTAL PROTECTION AGENCY; SCOTT PRUITT,* in his official capacity as Administrator of the Environmental Protection Agency, *Respondents.*	No. 15-72312 OPINION

* Scott Pruitt, Administrator of the Environmental Protection Agency, is substituted for his predecessor, Gina McCarthy. Fed. R. App. P. 43(c)(2).

On Petition for Review of an Order of the Environmental Protection Agency

Argued and Submitted November 17, 2016
San Francisco, California

Filed May 30, 2017

Before: Michael J. Melloy,** Richard R. Clifton, and Paul J. Watford, Circuit Judges.

Opinion by Judge Melloy

SUMMARY***

Pesticides / EPA

The panel vacated the United States Environmental Protection Agency's ("EPA") conditional registration of the pesticide NSPW-L30SWS – an antimicrobial materials preservative that uses nanosilver as its active ingredient – because the EPA failed to support its requisite finding that NSPW was in the public interest under 7 U.S.C. § 136a(c)(7)(C).

** The Honorable Michael J. Melloy, United States Circuit Judge for the U.S. Court of Appeals for the Eighth Circuit, sitting by designation.

*** This summary constitutes no part of the opinion of the court. It has been prepared by court staff for the convenience of the reader.

The Federal Insecticide, Fungicide, and Rodenticide Act governs the sale, use, and distribution of pesticides, and the Act requires that pesticides generally must be registered with the EPA before being sold or distributed. The EPA may grant a temporary, conditional registration if it first determines that use of a pesticide was in the public interest.

The panel held that substantial evidence supported the EPA's findings that NPSW has lower application and mobility rates than conventional-silver pesticides.

The panel held, however, that substantial evidence did not support the EPA's finding that use of NPSW was in the public interest because it had the "potential" to reduce the amount of silver released into the environment. The panel held that the EPA's finding was based on two unsubstantiated assumptions: first, that current users of conventional-silver pesticides would replace those pesticides with NSPW; and second, that NSPW would not be incorporated into new products to the extent that such incorporation would actually *increase* the amount of silver released into the environment. The panel concluded that without evidence in the record to support the assumptions, it could not find that the EPA's public-interest finding was supported by substantial evidence as required by the Act.

COUNSEL

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OPINION

MELLOY, Circuit Judge:

The Federal Insecticide, Fungicide, and Rodenticide Act ("FIFRA"), 7 U.S.C. §§ 136–136y, governs the sale, use, and distribution of pesticides. Under FIFRA, a pesticide generally must be registered with the Environmental Protection Agency ("EPA") before it is sold or distributed. *Id.* § 136a(a). In order to obtain pesticide registration, an applicant must submit sufficient data "concerning the product's health, safety, and environmental effects." *Pollinator Stewardship Council v. EPA*, 806 F.3d 520, 523 (9th Cir. 2015). The registration requirement thus enables the EPA to prohibit pesticides that will cause "unreasonable adverse effects on the environment." *Id.* (quoting 7 U.S.C. § 136a(c)(5)). Sometimes, however, the EPA may receive sufficient data to determine that short-term use of a pesticide is reasonable, but not enough data regarding its long-term use. *See* 7 U.S.C. § 136a(c)(7)(C). If the EPA lacks this data "because a period reasonably sufficient for generation of the

data has not elapsed since the [EPA] first imposed the data requirement," the EPA may grant a temporary, conditional registration. *Id.* But, to issue the conditional registration, the EPA must first determine "that use of the pesticide is in the public interest." *Id.*

This case involves the pesticide NSPW-L30SS ("NSPW"). Manufactured by Nanosilva LLC, NSPW is an antimicrobial materials preservative that uses nanosilver as its active ingredient. Petitioners—the Natural Resources Defense Council, the Center for Food Safety, and the International Center for Technology Assessment—opposed the EPA's conditional registration of NSPW during public notice and comment. Petitioners argued the EPA failed to support its findings that (1) use of NPSW is in the public interest; and (2) Nanosilva LLC had insufficient time to submit the required data. The EPA, nonetheless, conditionally registered NSPW in May 2015. Petitioners filed a timely petition for review and now renew their arguments before this Court. We have jurisdiction for direct review of the agency action pursuant to 7 U.S.C. § 136n(b).

After reviewing the conditional registration for substantial evidence, we conclude the EPA failed to support its finding that NSPW is in the public interest. We therefore vacate the registration in whole and need not reach Petitioners' insufficient-time arguments.

I

NSPW is a materials preservative incorporated into plastic and textile products. When so incorporated, the EPA explains, NSPW can help "suppress the growth of bacteria, algae, fungus, mold[,] and mildew, which cause odors,

discoloration, stains, and deterioration."[1] NSPW may be used in products such as trash cans, mops, window blinds, furniture, baseboards, light switches, plastic decking, carpet, toilet seats, shower curtains, tubs, cell phones, computers, plastic components in humidifiers, vacuums, combs, brushes, electric razors, blow dryers, beds, wall coverings, wheelchairs, linens, golf bags, exercise equipment, life preservers, sportswear, nursing uniforms, watch bands, restaurant uniforms, litter boxes, swimming pool equipment, ink pens, portable toilets, office supplies, and luggage. NSPW may not be used, however, in products designed for food contact, food packaging, or drinking water.

The active ingredient in NSPW is nanosilver. Simply put, nanosilver is a version of "conventional" silver that is engineered to have a much smaller particle size. Conventional silver has long been recognized as an antimicrobial agent and is the active ingredient in a number of currently registered pesticides used as materials preservatives. Nanosilver, due to its much smaller particle size, can have significantly different properties than conventional silver. These different properties provide new benefits and opportunities to industry.

But with these new benefits come new risks. After companies seeking to market nanosilver and other nanomaterials began approaching the EPA for pesticide

[1] Under FIFRA, pesticides include "any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest." 7 U.S.C. § 136(u). Pests include, with some exceptions, "(1) any insect, rodent, nematode, fungus, weed, or (2) any other form of terrestrial or aquatic plant or animal life or virus, bacteria, or other micro-organism." *Id.* § 136(t).

registration, the EPA convened a meeting of the FIFRA Scientific Advisory Panel ("the Panel") in November 2009 to discuss potential hazards. In part, the Panel summarized its meeting as follows:

> The Panel was not aware of any information that suggested that silver ions released from silver nanomaterials would behave differently than silver ions generated by any other source. However, the Panel believed that the rate of silver ion production, as well as the distribution of silver in [biological] tissue, may differ substantially between silver nanomaterials and other forms of silver. Nanomaterials can deliver ions directly to specific tissues, cell membranes or inside cells. The biological effects of silver nanomaterials (including temporal pattern for ion delivery), as well as their environmental fate, can be affected by other materials present in the preparation (*e.g.*, surfactants). Nanosilver can also potentially act as a carrier for other toxic chemicals. These issues led the Panel to suggest that the hazard profile of silver nanomaterials may differ from other forms of silver.

The Panel thus recommended that the "EPA treat nanosilver differently from its conventional silver counterpart." The Panel also "cautioned about extrapolating from one nanosilver formulation to another when assessing hazards."

After the Panel convened, the EPA evaluated and conditionally registered two pesticides containing a form of

nanosilver: AGS-20 and NSPW. Like NSPW, AGS-20 is a nanosilver-based antimicrobial pesticide used as a materials preservative. However, unlike NSPW, which is a liquid suspension incorporated into plastics and textiles, AGS-20 is a powder which may be used as a surface coating or by incorporation with textiles only. The nanosilver in AGS-20 also "has different size range and surface coatings than the nanosilver in NSPW[ ]." The EPA conditionally registered AGS-20 in December 2011, approximately three years after its manufacturer submitted its application for registration.[2]

Granting conditional registration to NSPW, however, took longer. While Nanosilva LLC submitted an application to register NSPW in 2009, the EPA did not conditionally register NSPW until May 2015. This conditional registration is for a four-year period.

In granting conditional registration, the EPA found, as required by 7 U.S.C. § 136a(c)(7)(C), that NSPW contained a new active ingredient and would not cause unreasonable adverse effects on the environment. The EPA also made two findings relevant to Petitioners' arguments in the present case. The EPA, first, found that granting conditional registration was in the public interest. Specifically, it found that NSPW had a lower application rate (*i.e.*, it uses less silver) and a lower mobility rate (*i.e.*, it is less likely to release silver into the environment in detectable quantities) when compared to conventional-silver pesticides. Therefore, the EPA reasoned, using NSPW has the "potential" to reduce

[2] This Court partially vacated the conditional registration of AGS-20 because the EPA did not satisfy its own rule for determining particular risk concerns requiring mitigation. *Nat. Res. Def. Council v. EPA (NRDC)*, 735 F.3d 873, 886–87 (9th Cir. 2013).

"environmental loading" and risk caused by silver release. Second, the EPA found that Nanosilva LLC had insufficient time to generate the data required for unconditional registration.

Petitioners, who had opposed the conditional registration of NSPW during public notice and comment, filed a timely petition for review in this Court. They argue the EPA failed to support its public-interest and insufficient-time findings.[3]

II

The following principles guide our review of the EPA's conditional registration of NSPW. First, we must sustain the conditional registration "if it is supported by substantial evidence when considered on the record as a whole." 7 U.S.C. § 136n(b). "Substantial evidence means more than a mere scintilla but less than a preponderance; it is such relevant evidence as a reasonable mind might accept as adequate to support a conclusion." *NRDC*, 735 F.3d at 877 (quoting *Vasquez v. Astrue*, 572 F.3d 586, 591 (9th Cir. 2009)). "Under the substantial evidence standard, we must affirm the [EPA's] finding 'where there is "such relevant evidence as a reasonable mind might accept as adequate to support a conclusion" even if it is possible to draw two inconsistent conclusions from the evidence.'" *Id.* (quoting *Nw. Food Processors Ass'n v. Reilly*, 886 F.2d 1075, 1079–80 (9th Cir. 1989)). "When, as in this case, the agency 'is making predictions, within its area of special expertise, at

[3] Petitioners do not directly challenge the EPA's no-adverse-effects finding (*i.e.*, that NSPW will not have any unreasonable adverse effect on the environment during the conditional-registration period), but Petitioners do not concede that NSPW is "safe."

the frontiers of science . . . a reviewing court must generally be at its most deferential.'" *Id.* (alteration in original) (quoting *Balt. Gas & Elec. Co. v. NRDC*, 462 U.S. 87, 103 (1983)). But, "[a]lthough we must give due deference to EPA's findings, '[i]t is well-established that an agency's action must be upheld, if at all, on the basis articulated by the agency itself.'" *Id.* (quoting *Motor Vehicle Mfrs. Ass'n of the U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 50 (1983)).

Second, "[w]hen interpreting a statute, we are guided by the fundamental canons of statutory construction and begin with the statutory text." *United States v. Neal*, 776 F.3d 645, 652 (9th Cir. 2015). "The words of a statute should be accorded their plain meaning, as considered in light of 'the particular statutory language at issue, as well as the language and design of the statute as a whole.'" *Preap v. Johnson*, 831 F.3d 1193, 1200 (9th Cir. 2016) (quoting *K Mart Corp. v. Cartier, Inc.*, 486 U.S. 281, 291 (1988)). And, where a statute is ambiguous, "we may turn to legislative history for guidance." *United States v. Thomsen*, 830 F.3d 1049, 1058 (9th Cir. 2016).

III

We are unaware of any prior decision considering the public-interest requirement under 7 U.S.C. § 136a(c)(7)(C). Accordingly, to illuminate the requirement's role in FIFRA's regulatory scheme, we begin with the statutory background. We then turn to whether the EPA supported its public-interest finding in the present case with substantial evidence.

A

Generally, "no person . . . may distribute or sell to any person any pesticide that is not registered" with the EPA. 7 U.S.C. § 136a(a). In order for the EPA to evaluate an application for pesticide registration, an application must "describ[e] how the pesticide will be used, the claims made of its benefits, the ingredients, and a description of all tests and studies done and the results thereof, concerning the product's health, safety, and environmental effects." *Pollinator Stewardship Council*, 806 F.3d at 523. The EPA "shall publish guidelines specifying the kinds of information which will be required to support the registration of a pesticide and shall revise such guidelines from time to time." 7 U.S.C. § 136a(c)(2)(A).

After an applicant submits sufficient data for pesticide registration, the EPA may grant "unconditional registration" under § 136a(c)(5). "Unconditional registration necessarily requires sufficient data to evaluate the environmental risks." *Pollinator Stewardship Council*, 806 F.3d at 523; *see also* 7 U.S.C. § 136a(c)(5) (listing the findings required for unconditional registration). If an applicant has not submitted sufficient data to support unconditional registration, however, the EPA may conditionally register the pesticide under limited circumstances. *See* 7 U.S.C. § 136a(c)(7). As relevant here,

> [t]he [EPA] may conditionally register a pesticide containing an active ingredient not contained in any currently registered pesticide for a period reasonably sufficient for the generation and submission of required data (which are lacking because a period

> reasonably sufficient for generation of the data has not elapsed since the [EPA] first imposed the data requirement) on the condition that by the end of such period the [EPA] receives such data and the data do not meet or exceed risk criteria enumerated in regulations issued under this subchapter, and on such other conditions as the [EPA] may prescribe. A conditional registration under this subparagraph shall be granted only if the [EPA] determines that use of the pesticide during such period will not cause any unreasonable adverse effect on the environment, and *that use of the pesticide is in the public interest.*

Id. § 136a(c)(7)(C) (emphasis added).

The public-interest requirement reflects an important distinction between conditional registration and unconditional registration. Conditional registration under § 136a(c)(7)(C) does not require all the risk data that unconditional registration requires. *Cf.* 7 U.S.C. § 136a(c)(5). Instead, § 136a(c)(7)(C) allows the EPA to temporarily register a pesticide with less-than-complete risk data so long as the EPA, among other additional requirements, determines "that use of the pesticide is in the public interest."

The statute does not further define the public-interest requirement, but the legislative history of conditional registration provides some insight. For example, a report by the Senate Committee on Agriculture, Nutrition, and Forestry, stated:

> No new-chemical conditional registration [under § 136a(c)(7)(C)] could be issued unless the [EPA] determined that use of the pesticide during the period required to complete the testing would not cause any unreasonable adverse effect on the environment, and that use of the pesticide was required in the public interest, as for example, in a situation in which there is a significant pest control problem which cannot satisfactorily be handled by use of products which have been fully registered.

S. Rep. No. 95-334, at 21 (1977).

On the Senate floor, Senator Leahy, who sponsored the bill that created the conditional registration provision, stated that the Senate committee carefully considered the statutory requirements so conditional registration "would be reserved to the truly exceptional case." 123 Cong. Rec. 25,706 (1977). The public-interest requirement, he stated, was "a more stringent test" than that required for unconditional registration. *Id.* ("[A]s with all other registrations, the [EPA] has to find the pesticide would not have an unreasonable adverse effect on the environment. Finally, *a more stringent test* also applies. The [EPA] must be shown evidence sufficient to find that this confidential [*sic*] registration is 'in the public interest.'" (emphasis added)). Senator Leahy continued:

> Suppose we have a serious pest problem for which this new pesticide would be an alternative to other chemicals. The [EPA] is

> sure that this pesticide is as safe as any pesticide already registered for that use. . . .
>
> . . . However, in the best case there may be gaps in the safety data which supports the registration. . . . Clearly the objectives of the Act are best served with the added flexibility to permit a new product to be used which will meet the stringent test of being "in the public interest."

Id.

The EPA Administrator, while testifying before the Senate committee, made statements to similar effect. *See* S. Rep. No. 95-334, at 74 (Statement of Douglas Costle, Adm'r, Environmental Protection Agency) ("[T]here may be a real need for use of the pesticide to avoid pest outbreaks. It is our opinion that in some of these cases it would be proper to allow conditional registration . . . if the public interest would be served by issuance of a conditional registration, bearing in mind the benefits as well as the likely scope of the risk. Although we think that the exercise of this conditional registration authority for new chemicals would be rare, we feel that it should be available in appropriate cases.").

B

In the present case, the EPA found that use of NSPW is in the public interest because it has the "potential" to reduce the amount of silver released into the environment. Petitioners do not dispute that reducing the amount of silver in the environment is in the public interest. Rather, Petitioners dispute the factual premises underlying the EPA's public-

interest finding: (1) that NSPW has a lower application rate (*i.e.*, it uses less silver) than conventional-silver pesticides; (2) that NSPW has a lower mobility rate (*i.e.*, it is less likely to release silver into the environment in detectable quantities); and (3) that current users of conventional-silver pesticides will switch to NSPW and/or that NSPW will not be incorporated into new products. Although we conclude that the first two premises are supported by substantial evidence, we hold that the third premise impermissibly relies on unsubstantiated assumptions.[4]

1

The EPA found that NSPW has a lower application rate than conventional-silver pesticides. Petitioners make several arguments as to why this finding is not supported by substantial evidence. First, Petitioners argue that the increased toxicity of nanosilver[5] outweighs any benefits that may be gained from its lower application rate. We conclude, however, that the EPA presented substantial evidence to support its conclusion regarding these toxicity risks. In its response to public comments, the EPA agreed that the evidence suggests "nano-scale silver can potentially be more toxic than ionic silver alone." But the EPA also concluded that the evidence suggests nanosilver would not be

[4] The EPA argues that Petitioners waived their arguments regarding EPA's assumptions. After reviewing Petitioners' comments, however, we conclude Petitioners more than adequately raised the issue during the public notice-and-comment period. *See Portland Gen. Elec. Co. v. Bonneville Power Admin.*, 501 F.3d 1009, 1023–24 (9th Cir. 2007).

[5] For ease of reference and at the risk of conflating different formulations of nanosilver, our references to "nanosilver" from this point forward pertain only to the formulation in NSPW.

"sufficiently more toxic to raise risk concerns when taking into account leaching rates for the proposed uses." For NSPW incorporated into plastics, the EPA specifically concluded that nanosilver would have to be "on the order of 5 to 53 times more toxic" than conventional silver to raise concerns. And for textiles, the EPA concluded that nanosilver would need to be "on the order of 19 to 190 times more toxic."

Petitioners appear to attack these conclusions as too probabilistic. Nevertheless, on substantial evidence review, the EPA need not present evidence to support an outcome with certainty; it only needs to present "such relevant evidence as a reasonable mind might accept as adequate to support a conclusion." *NRDC*, 735 F.3d. at 877 (quoting *Vasquez*, 572 F.3d at 591). We defer to the EPA on this matter as it "is making predictions, within its area of special expertise, at the frontiers of science." *Id.* (quoting *Balt. Gas & Elec. Co.*, 462 U.S. at 103).

Second, Petitioners argue the EPA failed to explain why, given the different risks that nanosilver poses, total mass of silver applied (*i.e.*, the application rate) is a relevant point of comparison. We disagree. The EPA acknowledged in its response to public comments that there was an "ongoing debate within the scientific community that metrics other than mass (such as particle number or surface area) may be more suitable for assessing nanosilver risks." But the EPA also considered its use of mass in light of NSPW's "low release[ ] [levels], the available toxicity data, use of multiple risk uncertainty factors . . . [,] and required risk-mitigation measures on the product label." Under these circumstances, we conclude that the EPA's qualified use of application rate

is supported by substantial evidence and defer to the EPA's expertise.

Finally, Petitioners argue that the EPA failed to support its finding that conventional-silver pesticides have higher application rates than NSPW. While the EPA did not list every conventional-silver pesticide's application rate, the EPA listed 16 different conventional-silver pesticides and their application rates in its response to public comments. These rates are many times higher than the permitted application rate of NSPW. As a result, we cannot say the EPA's lower-application rate finding is unsupported by substantial evidence.

2

The EPA next found that the nanosilver in NSPW has a lower mobility rate than conventional-silver pesticides. Petitioners argue this finding relied on a plastic-leaching study the EPA had previously found deficient. But the EPA's finding does not rely solely on the plastic-leaching study. The EPA also relied on an undisputed textile-leaching study which also demonstrated low release levels. Further, the EPA noted, the nanosilver in NSPW "is complexed to a larger particle that is then embedded into a polymer. The submitted leaching studies show that nanosilver is unlikely to be released in quantities above the detection limit from this polymer. Absent release from the polymer, the mobility of nanosilver in [NSPW] is greatly reduced." The EPA then compared this structure to "silver salts," which are in "most silver-based pesticide products" and "immediate[ly] dissol[ve]." We therefore cannot say the EPA's lower-mobility finding is unsupported by substantial evidence.

3

Our inquiry cannot end with the EPA's findings that NSPW has lower application and mobility rates than conventional-silver pesticides. The EPA ultimately found that, based on these comparatively lower rates, use of NSPW is in the public interest because it has the "potential" to reduce the amount of silver released into the environment. This finding, however, also requires two interrelated and unstated assumptions. It assumes, first, that current users of conventional-silver pesticides will replace those pesticides with NSPW ("the substitution assumption"). It also assumes that NSPW will not be incorporated into new products to the extent that such incorporation would actually *increase* the amount of silver released into the environment ("the no-new-products assumption").[6] Because the substitution and no-new-products assumptions are unsubstantiated, Petitioners argue that the EPA's public-interest finding is not supported by substantial evidence. We agree.

The EPA cites no evidence in the record to support its substitution assumption. In briefing before this Court, the EPA contends that substitution will occur as a "logical matter." To support this proposition, the EPA cites a 1983 entry in the Federal Register, stating that "the pesticide market in general is finite, relatively 'saturated' and inelastic" and that increased competition may "shift the user's purchase

[6] New "products" should not be confused with new "use pattern." When referring to new products, we refer to new incorporations of NSPW *within* current registered use patterns. In other words, we base our analysis on the understanding that NSPW is not registered for use in a greater range of products than conventional-silver pesticides. We provide an example below of how NSPW may be used in new products.

from one company to another." *See* Regulations for the Enforcement of FIFRA; Conditional Registration, 48 Fed. Reg. 34000, 34003 (July 26, 1983). We cannot, however, "accept appellate counsel's post-hoc rationalizations for agency action." *Hernandez-Cruz v. Holder*, 651 F.3d 1094, 1109 (9th Cir. 2011) (quoting *Nw. Envtl. Def. Ctr. v. Bonneville Power Admin.*, 477 F.3d 668, 688 (9th Cir. 2007)). And even if we did consider the general description of the pesticide market as it existed in 1983, we have no way of knowing from the record whether that description is applicable to the current and narrower markets for silver-based pesticides and materials preservatives.

The lack of evidence supporting the substitution assumption may not be inherently problematic: if no manufacturer adopts NSPW, then NSPW will not present any environmental risk through those manufacturers' products. The substitution assumption is certainly problematic, however, in light of the no-new-products assumption, which the EPA also fails to support. In response, the EPA argues that there is no evidence to suggest that NSPW *will* be incorporated into new products. It also contends that it need not prove a negative proposition. But, as a logical matter, the EPA's no-new-products assumption must be weighed against its substitution assumption. On the one hand, the EPA assumes that current users of conventional-silver pesticides will switch to NSPW. On the other hand, however, it assumes that the benefits of NSPW will not also invite manufacturers to incorporate NSPW into new products. The EPA assumes, moreover, that the costs of switching to NSPW are not prohibitive, while it also assumes that the costs of adding NSPW will discourage new incorporations during the conditional-registration period.

We do not foreclose the possibility that the EPA could have proved these assumptions. Nevertheless, without evidence in the record to support the assumptions, we cannot find that the EPA's public-interest finding is supported by substantial evidence as required by FIFRA. Requiring substantial evidence for public-interest findings, moreover, is not just a statutory technicality as this case demonstrates. Here, if the EPA's substitution and no-new-products assumptions are incorrect, NSPW may *increase* the amount of silver released into the environment and contravene the identified public interest. For example, the EPA permits NSPW and conventional-silver pesticides to be incorporated into certain plastic furniture under their current registrations. That does not mean, however, that every plastic furniture product actually incorporates a silver-based pesticide. Furniture A may use a conventional-silver pesticide as a materials preservative, but Furniture B may not. If NSPW is added to Furniture B, but Furniture A continues to use the conventional-silver pesticide, there would be a net increase in the amount of silver incorporated into Furniture A and B.

The EPA argues that its public-interest finding allows for the possibility that NSPW could be added to new products. It points out, again, that the maximum application rate for the nanosilver in NSPW "is a fraction of what is permitted in pesticides containing conventional silver." The EPA also states that it used "worst-case scenarios" when assessing how much nanosilver from NSPW will leach from products and end up in the environment. The maximum-application-rate argument, however, still requires the assumption that a new product would have used a conventional-silver pesticide if NSPW was not available or that there will be an offsetting switch from conventional-silver pesticides to NSPW in other products. Regardless of whether the NSPW in new products

only releases a minimal amount of silver in the "worst-case scenario," the public interest that the EPA identified—reducing silver in the environment—will not be met unless one of these two conditions occurs. In short, these arguments do nothing to address the core flaw in the EPA's public-interest finding: it assumed, without citing evidence, that NSPW would be used enough by some, but not too much by others, to reduce the amount of silver released into the environment.

The EPA is capable of evaluating the kind of evidence that would have substantiated these assumptions. In its own guidance document, the EPA listed several factors it may consider in determining whether a pesticide is in the public interest. *See* Pesticide Programs; Conditional Registration of New Pesticides, 51 Fed. Reg. 7628-02, 7632–33 (Mar. 5, 1986).[7] These include economic factors, such as the "[c]omparative estimated costs and savings if the new pesticide is used instead of equivalent registered pesticides or alternative non-pesticide methods." *Id.* at 7633. NSPW, moreover, is not the first registered nanosilver-based materials preservative on the market—it is the second. While there are important differences between AGS-20 and NSPW, we have to imagine that at least *some* data about AGS-20's use and adoption were ascertainable and would have been useful in evaluating the EPA's assumptions.

[7] We acknowledge that the EPA is not bound to follow this guidance document and do not base our decision on the EPA's failure to follow this guidance. The guidance is only relevant to the extent it illustrates the EPA's capability to evaluate and consider the kind of evidence that would have supported its public-interest finding in the present case.

To be clear, the EPA need not "ferret out every possible alternative" scenario that may occur when determining that a conditional registration is in the public interest. *Vermont Yankee Nuclear Power Corp. v. Nat. Res. Def. Council*, 435 U.S. 519, 551 (1978). Nor is the EPA required to support a public-interest finding with "scientific certainty." *ASARCO, Inc. v. Occupational Safety & Health Admin.*, 746 F.2d 483, 490 (9th Cir. 1984) (citation omitted). But the EPA must support its predicted public-interest scenario with "substantial evidence when considered on the record as a whole." *See* 7 U.S.C. § 136n(b). Further, § 136a(c)(7)(C) does not presume, as the EPA argues, that the EPA may collect missing data related to its public-interest finding after granting a conditional registration. To the contrary, § 136a(c)(7)(C) only presumes the EPA needs more data to make a risk determination regarding use of the pesticide beyond the conditional-registration period. The statute instead requires the EPA to find, *before* granting conditional registration, "that use of the pesticide *is* in the public interest." 7 U.S.C. § 136a(c)(7)(C) (emphasis added).

In sum, the public-interest requirement of § 136a(c)(7)(C) is an additional, "more stringent test" that distinguishes conditional registration from unconditional registration. *See* 123 Cong. Rec. at 25,706; *see also Preap*, 831 F.3d at 1200 (stating that a statute's words must be considered in light of the "design of the statute as a whole" (citation omitted)). To pass this test, the EPA must support its finding with substantial evidence. The EPA may not satisfy the requirement by simply finding that a pesticide has the "potential" to be in the public interest—especially where the pesticide also has the "potential" to contravene the public interest. Accordingly, where an essential premise of a public-interest finding is only supported by bare assumptions, as in

the present case, we will find substantial evidence lacking. *See Pollinator Stewardship Council*, 806 F.3d at 538 (N.R. Smith, J., concurring in judgment) ("Although the EPA certainly has authority to rely on its well-founded beliefs, scientifically-derived knowledge, and experience-driven professional judgment, it must support the beliefs, knowledge, and judgment with evidence.").

IV

The public-interest finding is an essential prerequisite to conditional registration under § 136a(c)(7)(C). With respect to NSPW, the EPA failed to support that finding with substantial evidence. We therefore vacate the conditional registration in whole, *see* 7 U.S.C. § 136n(b), and need not reach the remaining grounds for vacatur raised by Petitioners, *see Pollinator Stewardship Council*, 806 F.3d at 532–33.

VACATED and **REMANDED**.

Costs are awarded to the Petitioners.