Consolidated Case Nos. 14-72553 and 14-72602

IN THE UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

HELPING HAND TOOLS, *et al.*,

Petitioners,

v.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, *et al.*,

Respondents,

and

SIERRA PACIFIC INDUSTRIES,

Respondent-Intervenor.

On Petition for Review of a Final Decision of the Environmental Protection Agency, 79 Fed. Reg. 35,543 (June 23, 2014)

PETITION FOR REHEARING AND/OR MODIFICATION OF OPINION BY PETITIONER CENTER FOR BIOLOGICAL DIVERSITY

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GLOSSARY

AR	Administrative Record (EPA Region IX)
BACT	Best Available Control Technology
EPA	Environmental Protection Agency
GHG(s)	Greenhouse Gas(es)
PER	Petitioners' Excerpts of Record
PFER	Petitioners' Further Excerpts of Record
RER	Respondents' Excerpts of Record

INTRODUCTION

Petitioner Center for Biological Diversity (the "Center") respectfully seeks panel rehearing of the Court's opinion in *Helping Hand Tools, et al. v. U.S. Environmental Protection Agency*, ---F.3d--- (9th Cir. Sept. 2, 2016) (slip op.) (attached as Appendix A) (hereafter "Opinion"). In accordance with Federal Rule of Appellate Procedure 40(a)(2), the purpose of this petition is to inform the Court of particular points of law and fact that the Court's Opinion overlooked or misapprehended. *See Armster v. U.S. Dist. Court*, 806 F.2d 1347, 1356 (9th Cir. 1986) ("The purpose of petitions for rehearing, by and large, is to ensure that the panel properly considered all relevant information in rendering its decision.").

As set forth below, the Opinion misapprehends governing law and thus misapplies the deferential standard articulated in *Baltimore Gas & Electric Co. v. Natural Resources Defense Council*, 462 U.S. 87 (1983). The Opinion also contains factual statements unsupported by the record. Accordingly, rehearing should be granted. *Cf. Silva-Calderon v. Ashcroft*, 371 F.3d 1135, 1136-37 (9th Cir. 2004) (granting rehearing and remanding cause to agency where original opinion was based on mistaken understanding of record). In the alternative, the Opinion should be modified to more accurately reflect both the factual record and the legal issues in contention. *See Elec. Frontier Found. v. Office of the Dir. of*

Nat'l Intelligence, 639 F.3d 876, 878-79 (9th Cir. 2010) (correcting misstatement of fact in original opinion).

ARGUMENT

I. The Opinion Incorrectly Defers to EPA's Unsupported Conclusions Regarding the Atmospheric Impacts of Different Biomass Fuels

The Opinion defers to the Environmental Protection Agency's ("EPA's") conclusion that the agency was unable to undertake a "quantitative analysis of different biomass fuel stocks . . . based on the current state of the science." Opinion at 29 (citing *Baltimore Gas & Elec.*, 462 U.S. at 103). The Opinion also states that the Center has not clearly explained the faults in EPA's analysis, concluding that "EPA did consider the environmental impacts of different biomass fuel stocks, just not in the manner or the level of detail the Center would prefer." Opinion at 29. These conclusions do not accurately reflect the Center's arguments or the facts in the record, and ultimately misapply the governing law.

The Center explained that EPA's conclusions as to the climate impacts of biomass fuels approved in the final permit were unsupported by analysis or evidence in the record. Center Op. Br. at 56-57; Center Reply Br. at 21-23. Specifically, EPA reached an explicit conclusion only as to the atmospheric effects of a *single* fuel: mill residue. AR VI.09, Response to Comments at 11-12 [PER

133-34].[1] EPA cited the Bioenergy BACT Guidance in support of this conclusion: "In the Bioenergy BACT Guidance, EPA observed that it appeared possible to conclude that a negligible atmospheric contribution would result from using mill residue in bioenergy production." *Id.* at 11 [PER 133] (citing AR I.90, Bioenergy BACT Guidance at 23 [PER 634].

Yet EPA then arbitrarily extended this narrow conclusion regarding mill residue—without any further analysis or citation to support in the record—to a far broader slate of fuels. "Based on this assessment"—referring to the foregoing assessment of mill residue—EPA concluded that a wide range of *other* fuels also would have "lower net atmospheric contributions when combusted." AR VI.09, Response to Comments at 12 [PER 134] (approving not only "mill residues" but also "untreated wood debris from urban areas (e.g., pallets and crates); agricultural crops and residues; forest residues; and non-merchantable forest biomass").

EPA's attempt to apply its conclusion regarding mill residue to several other fuels directly contradicted the Bioenergy BACT Guidance, which cautioned that the agency was not yet prepared to make even "qualitative characterizations" of

[1] References to documents in EPA's administrative record index are abbreviated "AR," followed by the index number, the name of the document, the page number, and a parallel citation to Petitioners' Excerpts of Record ("PER"), Respondents' Excerpts of Record ("RER"), or Petitioners' Further Excerpts of Record ("PFER"). Record pages cited herein are attached as Appendix B for the Court's convenience.

"specific feedstock types" other than mill residue. AR I.90, Bioenergy BACT Guidance at 24 [PER 635]. Accordingly, as to all fuels other than mill residue, EPA's explanation for its conclusion ran "counter to the evidence," and was therefore arbitrary and capricious. *Motor Vehicle Mfrs. Ass'n v. State Farm Mutual Auto. Ins. Co.*, 463 U.S. 29, 43 (1983).

As a result, EPA never made the kind of scientific "prediction," supported by analysis and evidence, to which the Supreme Court deferred in *Baltimore Gas & Electric*. 462 U.S. at 103 (distinguishing "predictions . . . at the frontiers of science" from "simple findings of fact"); *see* Center Reply Br. at 17-18. Other Ninth Circuit cases have declined to apply *Baltimore Gas & Electric* deference to inadequately supported conclusions. *See Natural Res. Defense Council v. EPA*, 735 F.3d 873, 877, 881-84 (9th Cir. 2013) (noting deferential standard under *Baltimore Gas & Electric*, but vacating rule where EPA failed to provide substantial evidence to support conclusion); *Nw. Coal. for Alts. to Pesticides v. EPA*, 544 F.3d 1043, 1051-52 (9th Cir. 2008) (vacating "vague" EPA order establishing pesticide tolerance where specific safety factor used by agency not supported by evidence or explained). The Opinion thus misapprehends the law by extending *Baltimore Gas & Electric* to a situation where EPA did not make a scientific "prediction" based on evidence in the record, but rather reached a conclusion unsupported by—and indeed counter to—that evidence.

The Opinion also improperly defers to EPA's conclusion that a quantitative comparison of different biomass fuels was impossible. The Center did not argue "that EPA is equipped to proceed with a quantitative analysis of different biomass fuel stocks at Step 1" of the best available control technology ("BACT") analysis. Opinion at 29. Rather, the Center argued that even if a quantitative analysis were too difficult, qualitative distinctions could have been made, and thus clean fuels should have been identified, at Step 1 as part of the "clean fuels" analysis required by the Clean Air Act and prior EPA guidance. Center Op. Br. at 58-59; Center Reply Br. at 16-18. Indeed, EPA claimed to have conducted just such a "qualitative analysis" at Step 4 of its BACT analysis. AR VI.09, Response to Comments at 11 [PER 133] (claiming EPA's conclusions regarding allowable fuels were "supported by a basic, qualitative evaluation in a Step 4 context of the environmental impacts of the specific biomass feedstocks [Sierra Pacific] intends [to] use"). The Center's argument was simply that if EPA could conduct a qualitative analysis at Step 4, it could conduct a qualitative analysis at Step 1. Center Op. Br. at 58-59; Center Reply Br. at 16-18.

The Opinion's statement that "[u]ltimately, the Center's concerns are not particular to the Sierra Pacific permit but attack the Bioenergy BACT Guidance," Opinion at 26, is also incorrect. The Center argued that EPA's reliance on the Bioenergy BACT Guidance in issuing this permit was inconsistent with both the

text of the Clean Air Act and prior agency precedent. Center Op. Br. at 44-45; Center Reply Br. at 12-14. The Center also argued that EPA's decision to approve Sierra Pacific's permit lacked both a rational explanation and a basis in the record. Accordingly, all of the Center's concerns are "particular" to Sierra Pacific's permit, which is the only agency action challenged in the petition for review.

In the end, EPA reached a qualitative conclusion regarding one type of fuel—mill residue—and then arbitrarily applied that conclusion, without any rational explanation or record support, to a host of other fuels. In so doing, EPA contradicted the Bioenergy BACT Guidance, which was the only document cited in support of its conclusion. The Opinion misapprehends the law by extending *Baltimore Gas & Electric* deference far beyond the realm of "scientific prediction," and applying it instead to an unsupported and arbitrary factual conclusion. Rehearing should be granted to correct this misapplication of the law, and the permit should be remanded to EPA.

II. The Opinion's Conclusions Regarding the Bioenergy BACT Guidance Are Overbroad, Unnecessary to the Decision, and Contrary to the Record.

Even if rehearing is not granted, the Opinion's overbroad conclusions regarding the Bioenergy BACT Guidance should be modified. The Opinion concludes in categorical terms that the Bioenergy BACT Guidance "is rational." Opinion at 30. The rationality of the Bioenergy BACT Guidance as a whole,

however, was not before the Court. Indeed, because the Center's petition sought review only of EPA's final decision to issue Sierra Pacific's permit, the Bioenergy BACT Guidance is relevant only to the extent EPA actually relied on the guidance in approving the permit. The Opinion's conclusion that the entire guidance document is "rational" thus goes beyond the controversy framed in the Center's petition and litigated by the parties.

Both the record and EPA's brief make clear that the agency did not rely on the Bioenergy BACT Guidance in its entirety. Rather, EPA followed the Bioenergy BACT Guidance only "in some respects"; in particular, EPA "did not conclude that the use of biomass fuel alone is itself BACT." EPA Br. at 22; AR VI.09, Response to Comments at 13-14 [PER 135-36]. EPA thus expressly disavowed reliance on one of the main purposes of the Bioenergy BACT Guidance: to provide a rationale to support the conclusion that simply burning biomass was, in effect, BACT for itself. *See* AR I.90, Bioenergy BACT Guidance at 10 [PER 621] (describing intent to offer further support for permitting authorities' determinations "in the GHG component of the BACT analysis for new or modified bioenergy facilities . . . that such utilization of biogenic fuels is inherently BACT for GHGs"), 28 [PER 639] (stating that "considerations described [in the guidance] can support a conclusion that the exclusive utilization of biomass fuel is BACT for greenhouse gases at a bioenergy facility.").

Because EPA disavowed reliance on the Bioenergy BACT Guidance in this respect, and EPA's rationale for the final permit did not rest on this aspect of the guidance, the Court has no occasion to pass on whether the guidance's conclusions on this point are "rational." *See Ctr. for Biological Diversity v. EPA*, 722 F.3d 401, 409 (D.C. Cir. 2013) (declining to consider possible rationale for rulemaking where EPA brief disavowed reliance on rationale); *Motor Vehicle Mfrs. Ass'n*, 463 U.S. at 50. "[C]ourts should not render advisory opinions upon issues which are not pressed before the court, precisely framed and necessary for decision." *U.S. v. 300 Units of Rentable Hous.*, 668 F.3d 1119, 1125 (9th Cir. 2012), quoting *U.S. v. Alpine Land & Reservoir Co.*, 887 F.2d 207, 214 (9th Cir. 1989). Accordingly, even if rehearing is denied, the Opinion's broad conclusion that the Bioenergy BACT Guidance is "rational" should be modified to address solely those portions of the guidance on which EPA actually relied.

Finally, the Opinion's conclusion that the Bioenergy BACT Guidance is "thoroughly consistent with EPA's prior guidance," Opinion at 30, is not supported by the record. Indeed, the Bioenergy BACT Guidance itself explains that it departs from prior guidance in several important respects. AR I.90, Bioenergy BACT Guidance at 20 [PER 631] (announcing departure from "more traditional approach" and adoption of "a different frame of reference" for biomass fuels). Such a deviation may or may not be permissible, depending on whether it is

supported by a reasoned explanation. *See Encino Motorcars, LLC v. Navarro*, ---U.S.---, 136 S. Ct. 2117, 2125-26 (2016); *Modesto Irrigation Dist. v. Gutierrez*, 619 F.3d 1024, 1034 (9th Cir. 2010). Because the record reflects that a deviation did in fact occur, the Opinion should reflect the same.

III. The Opinion Contains Factual Errors Concerning Prior Environmental Review of the Facility and the Final List of Approved Fuels

The Opinion does not accurately reflect the factual record with respect to prior environmental review of the facility and the final list of fuels EPA approved in Sierra Pacific's permit. These aspects of the Opinion should be modified as well.

First, the Opinion states that EPA "prepared" and "conducted" an environmental impact report ("EIR") for Sierra Pacific's proposed facility. Opinion at 28. This is incorrect. The EIR was prepared not by EPA, but by a consultant for a local public agency, the Shasta County Department of Resource Management. AR V.31, Second Recirculated Draft EIR (Feb. 2012) [PER 537].

Second, the Opinion states that the list of approved fuels in EPA's permit was initially modified at Sierra Pacific's request to make the list of fuels "more consistent with the original application," and then was "further modified in response to the Center's comments." Opinion at 28. Both statements are unsupported by the record. Sierra Pacific requested what became the final permit conditions not to make the final list of fuels consistent with the "original

application," but rather solely "to better define the fuels that will be used for the project" by making the permit "language . . . consistent with EPA terms used" used in its draft "Framework" for biomass carbon accounting.[2] AR V.12, Sierra Pacific Email to EPA (March 12, 2014) [PFER 22-23]. The language requested by Sierra Pacific—not anything reflected or requested in the Center's comments—was incorporated verbatim into the final permit. *Compare id.* at 2 [PFER 23] *with* AR VI.10, Final Permit (Strikethru Version) at 11-12 [PFER 11-12].

The changes sought by Sierra Pacific thus did not reflect an attempt to make the final permit consistent with the original application. Nor does the record support the Opinion's conclusion that EPA adopted these modifications—which became the language of the final permit—"in response to the Center's comments."

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[2] The portion of the draft "Framework" from which Sierra Pacific derived its requested language did not express any judgment regarding the relative atmospheric consequences of the fuels described, AR V.19, Framework at 30-31 [RER 124-25], and thus offered no support for EPA's conclusion that the final slate of fuels approved in the permit will have "lower net atmospheric contributions when combusted." *See* Center Reply Br. at 23-24.

CONCLUSION

For the foregoing reasons, the Center respectfully requests that rehearing be granted. In the alternative, should rehearing be denied, the Center asks that the Opinion be modified to correct the errors identified herein.

Dated: October 14, 2016

Respectfully submitted,

/s/ Kevin P. Bundy
KEVIN P. BUNDY

Attorney for Petitioner
Center for Biological Diversity

CERTIFICATE OF COMPLIANCE

I certify that pursuant to Federal Rule of Appellate Procedure 40(b) and Ninth Circuit Rule 40-1(a), the foregoing opening brief is proportionately spaced, has a typeface of 14 points or more, and contains 2,370 words.

Dated: October 14, 2016

/s/ Kevin P. Bundy
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Center for Biological Diversity

APPENDIX A

Helping Hand Tools, et al. v. U.S. Environmental Protection Agency,
---F.3d--- (9th Cir. Sept. 2, 2016) (slip op.)

FOR PUBLICATION

UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

HELPING HAND TOOLS; ROB SIMPSON, *Petitioners*, v. U.S. ENVIRONMENTAL PROTECTION AGENCY; GINA MCCARTHY, in her capacity as Administrator of the U.S. Environmental Protection Agency; DEBORAH JORDAN, in her capacity as Director of the Air Division of U.S. Environmental Protection Agency Region IX, *Respondents*, SIERRA PACIFIC INDUSTRIES, INC., *Respondent-Intervenor*.	No. 14-72553

CENTER FOR BIOLOGICAL DIVERSITY, *Petitioner*, v. U.S. ENVIRONMENTAL PROTECTION AGENCY; GINA MCCARTHY, in her official capacity as Administrator of the United States Environmental Protection Agency; JARED BLUMENFELD, in his official capacity as Regional Administrator of Region 9 of the United States Environmental Protection Agency; DEBORAH JORDAN, in her official capacity as Director of the Air Division of Region 9 of the United States Environmental Protection Agency, *Respondents*, SIERRA PACIFIC INDUSTRIES, INC., *Respondent-Intervenor*.	No. 14-72602 EPA No. EPA-R09-OAR-2012-0634 OPINION

On Petitions for Review of an Order of the
United States Environmental Protection Agency

Argued and Submitted July 19, 2016
San Francisco, California

Filed September 2, 2016

Before: Susan P. Graber and Richard C. Tallman, Circuit Judges, and Nancy G. Edmunds,* Senior District Judge.

Opinion by Judge Tallman

SUMMARY**

Environmental Law

The panel denied a petition for review of a decision of the United States Environmental Protection Agency granting Sierra Pacific Industries, Inc. a prevention of significant deterioration permit for construction of a new biomass-burning power plant at its lumber mill in California.

The panel held that the EPA did not act arbitrarily or capriciously in granting a prevention of significant deterioration permit to Sierra Pacific.

Addressing petitioner Helping Hands Tools' claims that the EPA was required to consider solar power and a greater natural gas mix as clean fuel control technologies in the best available control technology ("BACT") analysis for pollutants subject to Clean Air Act regulation, the panel held that because the EPA properly took the requisite hard look at Sierra Pacific's proposed design and the key purpose of

* The Honorable Nancy G. Edmunds, Senior United States District Judge for the Eastern District of Michigan, 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.

burning its own biomass waste, the EPA reasonably concluded that consideration of solar or increased natural gas would disrupt that purpose and redefine the source.

Addressing petitioner Center for Biological Diversity's claims raised in response to the supplemental greenhouse gas BACT analysis, the panel deferred to the agency's determination because EPA was largely relying on its own guidance, acting at the frontiers of science.

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OPINION

TALLMAN, Circuit Judge:

Helping Hand Tools ("Helping Hand") and Center for Biological Diversity ("Center") petition for review of a final decision of the United States Environmental Protection Agency ("EPA") granting Sierra Pacific Industries ("Sierra Pacific") a prevention of significant deterioration ("PSD") permit for construction of a new biomass-burning power plant at its lumber mill in California. Plaintiffs contend that EPA issued the PSD permit in violation of the Clean Air Act, 42 U.S.C. §§ 7401–7671q. This is the first time we have reviewed EPA's doctrine of "redefining the source." It also appears to be the first time that EPA's framework for evaluating the best available control technology for greenhouse gas emissions from facilities burning biomass fuels is considered by any circuit in the United States. We hold that EPA did not act arbitrarily or capriciously in granting a PSD permit to Sierra Pacific pursuant to that framework.

I

Sierra Pacific owns and operates a lumber manufacturing facility in Anderson, California, situated at the northern end of the Central Valley in Shasta County. On March 29, 2010, Sierra Pacific filed an application for a PSD permit with EPA

in order to construct a new cogeneration[1] unit at its mill. The new unit was designed to burn biomass fuels[2] in a boiler to produce steam used to turn turbine blades to generate 31 megawatts of electricity and to heat existing lumber dry kilns. Fuel for the unit would come primarily from wood wastes from Sierra Pacific's own lumber mills, as well as other readily available sources of agricultural and urban wood wastes. The new boiler replaces a smaller existing boiler at the Anderson Facility. The smaller boiler could burn only 60,000 bone-dry tons ("BDT")[3] of the 160,000 BDT of wood waste the Anderson Facility annually produces. The new boiler has the increased capacity to burn up to 219,000 BDT of wood waste. Additionally, the boiler will utilize natural gas for the limited purpose of startup, shutdown, and flame stabilization.[4]

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[1] Cogeneration units produce both electrical power and heat. *See, e.g.*, *In re N. Mich. Univ. Ripley Heating Plant*, 14 E.A.D. 283, 285 (E.A.B. 2009).

[2] Used interchangeably with the terms "bioenergy" and "biogenic," biomass fuels include wood waste such as chips and bark from sawmill operations, forest residue, agricultural residue, crops, grasses, standing trees, and waste from landfills or water treatment. 76 Fed. Reg. 43,490-01, 43,493 (July 20, 2011).

[3] A BDT is 2,000 pounds of wood pulp with a zero percent moisture content.

[4] Flame stabilization is necessary when optimal operations of the boiler are upset by fuel variability, such as from burning wet wood waste fuel. At these times, the optimal combustion of the wood waste is not occurring and natural gas is used to stabilize combustion and to maximize efficiency by returning the boiler to desired high temperature operations.

To understand the process by which Sierra Pacific sought approval by EPA to build the new boiler and the resulting litigation that ensued first requires an examination of the statutory and regulatory framework underlying the permitting process and then an examination of how EPA employed that process with Sierra Pacific's particular permit application.

A

The Clean Air Act establishes a comprehensive program for controlling and improving air quality. As part of this program, 42 U.S.C. §§ 7470–7479 require new and modified major emitting facilities, like Sierra Pacific's new boiler, to seek a PSD permit prior to construction. *Id.* § 7475(a). These permits are required in geographical regions designated to meet particular national ambient air quality standards. *Id.* § 7471. Critically, in order to obtain a PSD permit, the applicant must demonstrate that the proposed facility utilizes the best available control technology ("BACT") for every pollutant subject to regulation by the Clean Air Act. *Id.* § 7475(a)(4). BACT is defined as

> an emission limitation based on the maximum degree of reduction of each pollutant subject to regulation . . . from any major emitting facility, which [EPA], on a case-by-case basis, . . . determines is achievable for such facility through application of production processes and available methods, systems, and techniques, including fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques for control of each such pollutant.

Id. § 7479(3). In every case-by-case analysis, EPA will consider "energy, environmental, and economic impacts and other costs." *Id.*

In 1990, in the absence of any clear guidance from Congress on how to evaluate BACT for a particular pollutant, EPA developed a five-step, "top-down" approach. *See* Environmental Protection Agency, New Source Review Workshop Manual, Chapter B (1990) (hereinafter "NSR Manual"). PSD permit applicants must engage in this analysis for every regulated pollutant with a significant emissions increase. *Id.* at B.4.

Briefly, the top-down analysis begins at Step 1 when the applicant lists all available control technologies. *Id.* at B.5. Control technologies are those technologies that have "a practical potential for application to the emissions unit and the regulated pollutant under evaluation." *Id.* This list is meant to be comprehensive and include all options applicable to the particular pollutant even though the option may be eliminated in later steps. *Id.* at B.5–7. At Step 2, the applicant eliminates any technically infeasible options and must clearly document why the particular control option cannot be used. *Id.* at B.7. At Step 3, the applicant ranks the remaining control options against each other in order of overall effectiveness. *Id.* at B.7–8. Then, based on this ranking, at Step 4, the applicant evaluates each control option to consider the energy, environmental, and economic impacts. *Id.* at B.8. If the top candidate is unfavorable for any of these reasons then the applicant evaluates the impacts of the next available control option. *Id.* at B.8–9. The most effective control option that is not eliminated at Step 4 is then chosen as BACT at step 5. *Id.* at B.9.

EPA supplemented the top-down approach as it applied to greenhouse gases[5] in March 2011 when it issued new guidance.[6] *See* Environmental Protection Agency, PSD and Title V Permitting Guidance for Greenhouse Gases (2011) (hereinafter "GHG Permitting Guidance"). At the same time, EPA issued more specific BACT guidance for carbon dioxide emissions from facilities that use biomass as a primary fuel source. *See* Environmental Protection Agency, Guidance for Determining Best Available Control Technology for Reducing Carbon Dioxide Emissions from Bioenergy Production (2011) (hereinafter "Bioenergy BACT Guidance"). The Bioenergy BACT Guidance describes how each step of the five-step BACT analysis should be approached when a facility proposes to use mostly biomass as a fuel. *Id.* at 10–11. It does not supersede prior guidance, *id.* at 4, and agencies must still consider each PSD application on a case-by-case basis, *id.* at 5.

EPA promulgated a more particular BACT framework because carbon dioxide emissions from biomass fuels participate in the carbon cycle differently than other fuels, and biomass fuel stocks replenish more quickly than fossil

[5] "Greenhouse gases" are considered a single pollutant comprised of the aggregate of carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

[6] Though the extent to which EPA can require particular facilities to comply with BACT requirements for greenhouse gases has been heavily litigated, the Supreme Court recently held that "EPA's decision to require BACT for greenhouse gases emitted by sources otherwise subject to PSD review is" permissible. *Util. Air Regulatory Grp. v. EPA*, 134 S. Ct. 2427, 2448 (2014). The cogeneration power plant proposed by Sierra Pacific is such a facility and neither party disputes EPA's authority to regulate greenhouse gas emissions from that facility.

fuel stocks. *Id.* at 6. Trees are a classic example of this phenomenon in nature. The short regenerative time means that new growing plant matter, biomass carbon stocks, can absorb excess carbon dioxide from the atmosphere more quickly than fossil fuel carbon stocks. *Id.* Additionally, photosynthesis from a well-managed biomass carbon stock, such as a well-managed forest, can act as a carbon sink, thereby decreasing the net carbon dioxide released from burning biomass as fuels. *Id.* "Biogenic [carbon dioxide] emissions are distinct from other regulated pollutants at bioenergy facilities because, unlike other pollutants and other [greenhouse gases], [carbon dioxide] emissions can participate directly in the global carbon cycle through photosynthesis." *Id.* at 7. Therefore, EPA modified the steps of the traditional BACT analysis in particular ways to account for the unique properties of biomass.

Of particular relevance, at Step 1, EPA notes that "it will be important to address the extent to which the BACT analysis for [greenhouse gases] should include" an evaluation of other fuel types. *Id.* at 15. However, if utilization of biomass is the primary purpose of the project, then the agency can rely on that purpose to determine that another fuel would redefine the project. *Id.* If a facility relies primarily on biomass as fuel, the options at Step 1 "may be limited to (1) utilization of biomass fuel alone, (2) energy efficiency improvements, and (3) carbon capture and sequestration." *Id.*

Skipping to Step 4,[7] the Bioenergy BACT Guidance notes that the traditional Step 4 analysis is "an environmental, economic, and energy impacts analysis that includes both

[7] Steps 2 and 3 are conducted in the same manner as promulgated in the NSR Manual. Bioenergy BACT Guidance at 16–17.

direct and indirect (*i.e.*, collateral) considerations." *Id.* at 18. EPA emphasizes that indirect environmental impacts and benefits are better suited to analysis in Step 4, *id.* at 21, and burning different biomass fuel stocks will not have a differential impact on emissions at the facility but at the forest or region where the biomass fuel is taken, *id.* at 22.[8]

In holding that facilities like Sierra Pacific's were subject to PSD permit requirements for greenhouse gas emissions, the Supreme Court expressly refrained from deciding whether to approve or endorse EPA's current approach for determining BACT for greenhouse gases. *Util. Air Regulatory Grp. v. EPA*, 134 S. Ct. 2427, 2449 (2014). To our knowledge, no other court has evaluated EPA's approach. We examine it here as it was used to grant Sierra Pacific its PSD permit.

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[8] To illustrate the point, burning a dead tree that has fallen in the forest, instead of a live tree, will have a different impact on the environment. Burning the dead tree releases the same amount of carbon dioxide into the atmosphere that would be released anyway as the tree decomposed. But the emissions occur faster and at the facility, not in the forest. Burning the live tree, which uses carbon dioxide for photosynthesis, removes a carbon dioxide absorbing source from the forest and also releases carbon dioxide emissions at the facility. The facility emits carbon dioxide in either case but the environmental impact at the forest—the benefit of removing a carbon dioxide emitting decomposing tree or the harm in removing a carbon dioxide absorbing live one—are an indirect result of burning biomass fuel at the facility. However, a comparison of different biomass fuel stocks, such as comparing the effects of burning mill waste to the effects of burning a dead tree, is a much more technical endeavor that EPA is actively trying to calculate at present. Bioenergy BACT Guidance at 23. The problem, according to the agency, is the current inability of the available science to quantify the tradeoff. *Id.* Where the agency is acting on the frontiers of developing science, our deference is at its highest level. *Baltimore Gas & Elec. Co. v. Nat. Res. Def. Council, Inc.*, 462 U.S. 87, 103 (1983).

B

EPA's consideration of Sierra Pacific's permit application took place in two phases. During the first phase in September 2012, EPA proposed to issue a PSD permit to Sierra Pacific that required the use of add-on control technologies and inherently lower-emitting controls as BACT for the pollutants analyzed. EPA did not consider BACT for greenhouse gases because it was not then required.[9] EPA accepted Sierra Pacific's cap on natural gas use of no more than 10% of the total fuel required, because it was to be used only for limited purposes during startup, shutdown, and flame stabilization.

After public comment, EPA issued the PSD permit, and Helping Hand petitioned the Environmental Appeals Board ("the Board") for review. On July 18, 2013, the Board remanded the PSD permit to EPA for further proceedings on a single ground—that EPA had abused its discretion in not holding a public hearing. The Board held that EPA did not abuse its discretion in approving the permit on all other issues, two of which are relevant to the current petition before us.

First, the Board held that EPA did not abuse its discretion by declining to consider the inclusion of solar power as a fuel source or a greater percentage of natural gas because it would impermissibly redefine the source. In making this determination, the Board reviewed the administrative record

[9] At the time, EPA had issued a rule deferring regulation of biogenic carbon sources in order to examine the science behind biogenic carbon dioxide emissions from stationary sources like power plants. *See Ctr. for Biological Diversity v. EPA*, 722 F.3d 401, 407 (D.C. Cir. 2013). The District of Columbia Circuit later vacated this rule. *Id.* at 412.

and determined that the primary purpose of the project was to allow Sierra Pacific "to put to use the hundreds of thousands of bone-dry tons of wood waste the company has in the Shasta County region, for the production of lumber and electricity." The Board then held that "requiring [Sierra Pacific] to burn fewer tons of wood waste so that it could generate solar power or burn more natural gas instead would plainly disrupt the project's 'basic business purpose' of using as much surplus biomass as possible" to get rid of the byproduct and to generate steam to dry lumber in kilns and produce electricity for use on site and for sale to the electrical grid.

Second, the Board held that EPA did not abuse its discretion in limiting the mix of fuel to 90% biomass and 10% natural gas. The Board held that Sierra Pacific's prudent use of natural gas for startup, shutdown, and flame stabilization was a valid reason to limit the quantity of natural gas used and "not evidence of a project design 'derived for reasons of air quality permitting.'"

The second phase of consideration occurred when, just a few days before the Board's decision, the District of Columbia Circuit vacated EPA's rule deferring BACT determinations for greenhouse gases emitted from facilities like Sierra Pacific's boiler. *See Ctr. for Biological Diversity v. EPA*, 722 F.3d 401, 412 (D.C. Cir. 2013). As a result, EPA conducted a supplemental BACT analysis on Sierra Pacific's new biomass facility. EPA considered public comments on the supplemental analysis, and the Center contended that EPA could not consider the burning of biomass fuel alone as a control option at Step 1 and should have directly compared the environmental impacts of different biomass fuel stocks at Step 1.

EPA nonetheless issued a final PSD permit notice on April 25, 2014. The Center appealed to the Board and the Board dismissed for lack of jurisdiction because, in its July 2013 decision, the Board specifically stated that, pursuant to 40 C.F.R. § 124.19(*l*)(2)(iii), it would not require or accept an appeal after the remand. Helping Hand and the Center then filed the petitions for review now before us. Because all available administrative remedies have been exhausted, we have jurisdiction under 42 U.S.C. § 7607(b)(1).[10]

II

EPA's decision is reviewed under the Administrative Procedure Act and may be set aside only if it is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 5 U.S.C. § 706(2)(A); *see Alaska Dep't of Envtl. Conservation v. EPA*, 540 U.S. 461, 496–97 (2004). EPA must "articulate[] a rational connection between the facts found and the choice made." *Sierra Club v. EPA*, 346 F.3d 955, 961 (9th Cir. 2003) (alteration in original) (quoting *Ariz. Cattle Growers' Ass'n v. U.S. Fish & Wildlife*, 273 F.3d 1229, 1236 (9th Cir. 2001)).

[10] Though not disputed by EPA, because this is the first time the case is before an Article III court, Helping Hand and the Center must establish standing. *See Sierra Club v. EPA*, 762 F.3d 971, 976 (9th Cir. 2014). We are satisfied that, through the declarations of its members, both Helping Hand and the Center have associational standing to bring the current petition. *See id.* at 976–78 (discussing that "[a]n association has standing to bring suit on behalf of its members when its members would otherwise have standing to sue in their own right" and further discussing the factors demonstrating that the individual members had standing to pursue Clean Air Act claims (internal quotation marks omitted)).

"[W]e do not simply review whether it was arbitrary or capricious" for the Board to reject a petitioner's claims that EPA clearly erred. *Citizens for Clean Air v. EPA*, 959 F.2d 839, 845–46 (9th Cir. 1992). "Rather, we conduct a deferential review of the entire agency action," including whether approval of the PSD permit is based on a clearly erroneous finding of fact or conclusion of law. *Id.* at 846.

III

First, we address the claims raised by Helping Hand that EPA was required to consider solar power and a greater natural gas mix as clean fuel control technologies in the BACT analysis. This is an issue of first impression in our circuit, but our opinion is guided by well-reasoned decisions of the Board and the Seventh Circuit. Because EPA properly took the requisite hard look at Sierra Pacific's proposed design and the key purpose of burning its own biomass waste, we hold that EPA reasonably concluded that consideration of solar or increased natural gas would disrupt that purpose and redefine the source.

A

Though failure to consider all available control alternatives in a BACT analysis constitutes clear error, EPA does not have to consider control alternatives that would "redefine the source." *See, e.g.*, *In re Desert Rock Energy Co.*, 14 E.A.D. 484, 526 (E.A.B. 2009); *see also* NSR Manual at B.13. In essence, a control alternative redefines the source if it requires a complete redesign of the facility. In a classic and simple example, a coal-burning power plant need not consider a nuclear fuel option as a "cleaner" fuel because it would require a complete redesign of the coal-burning power-

plant. *See Sierra Club v. EPA*, 499 F.3d 653, 655 (7th Cir. 2007). Considering control technologies is rarely so simple, however, and EPA engages in a two-step process to determine whether a control technology will redefine the source.

First, "the permit applicant initiates the process and . . . defines the proposed facility's end, object, aim or purpose—that is the facility's basic design." *In re Prairie State Generating Co.*, 13 E.A.D. 1, 22 (E.A.B. 2006), *aff'd sub nom Sierra Club*, 499 F.3d 653; *accord Desert Rock*, 14 E.A.D. at 530; *In re N. Mich. Univ. Ripley Heating Plant*, 14 E.A.D. 283, 301–02 (E.A.B. 2009) (hereinafter "NMU"). The purpose must be "objectively discernable." *Prairie State*, 13 E.A.D. at 22. Additionally, the applicant's proposed definition "must be for reasons independent of air permitting" and cannot be motivated by cost savings or avoidance of risks. *Id.* at 23 n.23; *see also Desert Rock*, 14 E.A.D. at 530; *NMU*, 14 E.A.D. at 302 n.28.

Second, EPA takes a "hard look" at the proposed definition to determine which design elements are inherent to the applicant's purpose and which elements can be changed to reduce pollutant emissions without disrupting the applicant's basic business purpose. *Desert Rock*, 14 E.A.D. at 530 (remanding a permit back to the agency because it failed to take a "hard look" when the agency determined a particular technology would redefine the source even though the applicant had considered the technology in its application); *see also Prairie State*, 13 E.A.D. at 25–26; *NMU*, 14 E.A.D. at 302. This determination and "[r]efining [of] the statutory definition of 'control technology' . . . to exclude redesign is the kind of judgement by an administrative agency to which a reviewing court should

defer." *Sierra Club*, 499 F.3d at 655. Our examination of this two-step process for Sierra Pacific's PSD permit is guided significantly by the reasoning of our sister circuit in *Sierra Club* in which it denied the petition arising from *Prairie State*.

When a fuel source is co-located with a facility, EPA need not consider in the BACT analysis fuel sources that are not readily available, because it would redefine the source. *Prairie State*, 13 E.A.D. at 28. There, Prairie State Generating Company filed an application for a PSD permit with EPA to build a coal-burning electrical plant in southern Illinois. *Id.* at 4–5. The proposed facility was a "mine-mouth" plant in which the plant is located at the site of the coal mine which fuels it. *Id.* at 16. However, the mine only produced high-sulfur coal which emits more sulfur dioxide pollution than low-sulfur coal from other outlying mines. *Id.* at 15. EPA did not list low-sulfur coal as a control technology in Step 1 of the BACT analysis, however, because low-sulfur coal would have to be shipped in by rail from long distances. *Id.* EPA explained that "it would be inconsistent with the scope of the project to use coal from other regions of the country." *Id.* at 16.

In making this determination, EPA noted that "the project that must be addressed when evaluating BACT is the project for which an application has been submitted." *Id.* In this instance, the construction of a "mine-mouth" plant. *Id.* EPA found that "use of a particular coal supply is an inherent aspect of the proposed project." *Id.* EPA broadly considered alternative coal supplies but rejected a more detailed analysis because it was beyond the scope of the project. *Id.* at 18.

The ultimate dispute before the Board lay in determining how to define the basic purpose of the project and whether Prairie State could include use of coal from a particular source as part of that purpose. *Id.* at 21–22. "The permit issuer must be mindful that BACT, in most cases, should not be applied to regulate the applicant's objective or purpose for the proposed facility." *Id.* at 23. The Board specifically rejected petitioners' assertion that the facility's business purpose must be viewed broadly as the production of electricity from coal because "we have frequently recognized that an electric generating facility's purpose may be more narrowly defined." *Id.* at 25. The Board held that, in defining the scope of a project, EPA could consider if a particular fuel source was an inherent part of the project design. *See id.* ("It has also been long-standing EPA policy that certain fuel choices are integral to the electric power generating station's basic design." (citing NSR Manual at B.13)).

Additionally, the Board rejected the petitioners' argument that a purpose that includes a particular fuel source "would allow a permit applicant to avoid all BACT review by including its preferred fuel . . . and hide behind the claim that requiring anything different would unlawfully 'redefine' the proposed source." *Id.* at 27. Because Prairie State could narrowly define its purpose as burning a particular fuel source, EPA needed only to review the facility proposed, and that meant reviewing a facility that burned co-localized high-sulfur coal. The Board examined EPA's review of the proposed facility and was satisfied that EPA had taken a hard look at whether further emissions reductions were possible. *Id.* Therefore, the Board concluded, EPA did not err when it "determined that consideration of low-sulfur coal, because it necessarily involves a fuel source other than the co-located

mine, would require Prairie State to redefine the fundamental purpose or basic design of its proposed Facility" and, as a result, EPA properly rejected low-sulfur fuel from Step 1 of the BACT analysis. *Id.* at 28.

In denying the petition arising out of *Prairie State*, the Seventh Circuit noted that the Board and EPA were struggling to draw the line between where "control technology ends and redesign of the 'proposed facility' begins." *Sierra Club*, 499 F.3d at 655. The court noted that if EPA had to consider all clean fuels, it would be required to consider a nuclear plant rather than a coal-fired one, and it was clearly not required to do that. *See id.* ("That approach would invite a litigation strategy that would make seeking a permit for a new power plant a Sisyphean labor, for there would always be one more option to consider."). Because it was not as clear cut, the Seventh Circuit characterized its case as lying on the borderline between control technology and redesign. *Id.* at 656.

That borderline, defining the distinction between considering alternative fuels to be control technologies or to redefine the facility, is a product of EPA's framework for evaluating BACT. The Seventh Circuit therefore held that "it makes sense to let the EPA, the author of the underlying distinction, draw it, within reason." *Id.* at 655. In the facility proposed in *Sierra Club*, the court noted that, in isolation, the difference between low-sulfur and high-sulfur coal as a fuel source is a difference in control technology. *Id.* at 657. But "the difference between a plant co-located with a coal mine and a plant that obtains its coal from afar" is a difference in design. *Id.* Therefore, the Seventh Circuit upheld the BACT determination because EPA reasonably drew the line between control technology and redefining the source. *Id.*

The reasoning of *Prairie State* and *Sierra Club* has been applied to subsequent cases from the Board. In *NMU*, relating to the construction of a power plant on a college campus, the Board remanded a PSD permit back to the agency when it rejected the assertion that considering a different proportion of a coal and wood fuel mix would impermissibly redefine the source. 14 E.A.D. at 301–03. Particularly, the Board noted that NMU locked onto a particular fuel combination without any logic or data to justify the choice. *Id.* at 303; *see also id.* at 297 ("[A]lthough the record reflects that other coal . . . will produce the lowest sulfur emissions, [the agency] proceeds without explaining why these sources are unavailable or not technologically feasible."). Notably relevant to the current appeal, NMU did not fully analyze the possibility of natural gas as a fuel source when the permit application stated that it would be used for boiler startup and as a backup fuel source. *Id.* at 297 n.17; *see also In re Cash Creek Generation LLC*, 2009 WL 7513857 (E.P.A. 2009) (remanding the permit to the applicant because the record was insufficient to justify a determination that an exclusive use of natural gas, a secondary fuel for the project, would impermissibly redefine the source).

B

Adopting the two-step analysis promulgated by the Board and approved by the Seventh Circuit, we must now determine whether EPA erred in determining that using solar power or a greater natural gas mix in Sierra Pacific's proposed facility would impermissibly redefine the source.

First, we look at how Sierra Pacific itself defined its facility. In its application description, Sierra Pacific

explicitly stated that it intended to build a power plant "that would burn biomass fuels in a boiler to produce steam that would be used to generate electricity and to heat existing lumber dry kilns at the facility." Sierra Pacific then went on to define more particularly that its biomass fuel source would come from the existing Sierra Pacific mills, in-forest materials from timberlands owned by Sierra Pacific, and other readily available sources of agricultural and urban wood wastes. Sierra Pacific would use natural gas only for the limited purposes of startup, shutdown, and flame stabilization. Capped at 10%, Sierra Pacific estimated its annual usage of natural gas to be significantly below that limit.

Next, we must determine if EPA took the appropriate "hard look" at how Sierra Pacific defined the facility and whether EPA appropriately determined that the burning of biomass was an inherent element of the facility or whether it could be changed to reduce emissions. In the PSD permit issued by EPA, the project description stated that fuel for the power plant would be generated on-site or received from other local sources to produce steam in the new facility. The steam was then to be used to dry lumber and to power a steam turbine to generate electricity for use onsite or for sale to the northern California power grid.

Helping Hand argues that the Board improperly deferred to Sierra Pacific's purpose of "burning biomass 'as much as possible'" and read "clean fuels" out of the Clean Air Act. Sierra Pacific's purpose, according to Helping Hand, is only to generate steam for lumber drying kilns and to make electricity. However, Sierra Pacific's purpose need not be so limited, *see Prairie State*, 13 E.A.D. at 25, and Helping Hand concedes that "Sierra Pacific arguably can have a basic

business purpose of 'primarily' burning a dirtier fuel that is readily available to it." Just as the Prairie State facility was co-located with its fuel source, a high-sulfur coal mine, Sierra Pacific's facility is co-located with its fuel source, waste from its lumber manufacturing operations. Therefore, EPA took a "hard look" at the record and how Sierra Pacific defined its facility and reasonably determined that use of a co-located fuel source was an inherent part of the facility's design.

Having determined that biomass fuel was an inherent part of the design, we finally examine whether the two proposed alternative clean fuels were control alternatives that should have been considered or would impermissibly redefine the source; keeping in mind the deference EPA must be afforded in making such a determination. Like the petitioners in *Sierra Club*, Helping Hand essentially argues that "if a plant is capable—with redesign—of burning a clean fuel, it must undergo a 'best available control technology' analysis." 499 F.3d at 656. Requiring a solar component just because it is a cleaner fuel than biomass is the same as requiring Sierra Pacific to consider the nuclear option. *See id.* Sierra Pacific and EPA are not required to take on the "Sisyphean" task of considering every possible clean fuel alternative. *See id.* at 655. Therefore, EPA properly dismissed solar as a control technology.

The Board noted, correctly, that consideration of a greater natural gas mix was a closer question. Sierra Pacific's proposed project falls on the borderline discussed in *Sierra Club*. However, unlike the applicant in *Sierra Club*, Sierra Pacific is not considering two fuel sources as control options: one an off-site "clean" fuel, one an on-site "dirty" fuel. In this instance, Sierra Pacific has access to two on-site fuel sources: "clean" natural gas and "dirty" biomass. Though

this typically would suggest that Sierra Pacific must consider a greater mix of natural gas, even when an alternative fuel is available, it need not be considered at Step 1 if it disrupts the business purpose. GHG Permitting Guidance at 28 ("[G]reater utilization of a fuel that the applicant is already proposing to use in some aspect of the project design should be listed as an option in Step 1 unless it can be demonstrated that such an option would disrupt the applicant's basic business purpose for the proposed facility."). Here, a greater use of natural gas would disrupt Sierra Pacific's intent to burn the biomass waste it produces from mill operations.[11]

Notably, unlike the facilities in *NMU* and *Cash Creek*, Sierra Pacific does not propose to use natural gas as a "secondary" or backup fuel source but only for strictly limited purposes. And unlike the facilities in *NMU* and *Cash Creek*, Sierra Pacific gave valid reasons for imposing a 10% cap: that its purpose was to burn as much of its own biomass waste as possible, and that it expected to burn much less than 10% natural gas because it was being used for such a limited purpose. Burning natural gas is therefore incidental to Sierra Pacific's business purpose of using its on-site source of biomass as fuel for the new facility. Declining to consider greater use of an incidental fuel is not arbitrary, capricious, or an abuse of discretion.[12]

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[11] This conclusion is supported by evidence in the record that Sierra Pacific produces more waste than could be consumed by the proposed generator.

[12] Petitioners seize upon Sierra Pacific's admission that it limited natural gas to 10% to avoid the nitrous oxide limiting requirements of the New Source Performance Standards ("NSPS"). *See* 40 C.F.R. § 60.44b(d). Limiting natural gas to avoid a nitrous oxide emission limit is not a design decision "independent of air permitting." The Board erroneously held that

Drawing the line between control technology and redefining the source is a technical determination to which a court should defer to EPA, *see Sierra Club*, 499 F.3d at 655, and there was sufficient justification in the record for EPA to determine that primarily burning biomass from Sierra Pacific's own wood waste, a co-localized source, was an inherent aspect of the facility's design. Requiring EPA and Sierra Pacific to consider solar power, a completely different fuel source, or a greater percentage of natural gas, an incidental fuel source, would redefine the source. EPA did not act arbitrarily or capriciously and Helping Hand's petition is denied.

IV

Next we address the claims raised by the Center in response to the supplemental greenhouse gas BACT analysis. The Center contends that EPA could not consider burning of biomass fuel alone as a control option at Step 1 and that it erred in weighing the effects of different biomass fuel stocks at Step 4 instead of directly comparing them at Step 1. Because EPA was largely relying on its own guidance, acting

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such a self-imposed cap was acceptable because it was "federally enforceable." Deciding whether or not to impose a cap of 10% natural gas to avoid NSPS requirements does not exclude consideration of greater utilization of natural gas in the BACT analysis. *See* NSR Manual at B.12 ("The only reason for comparing control options to an NSPS is to determine whether the control option would result in an emissions level less stringent than the NSPS."). Though troubling, this error does not ultimately undermine the key fact that Sierra Pacific's basic business purpose and facility design is to use a co-localized source of biomass fuel, its own wood wastes, to generate steam and electricity for its mill and limited use of natural gas is incidental to that purpose. For that reason, any error in justifying the 10% cap is harmless.

at the frontiers of science, we defer to the agency's determination. *See Baltimore Gas & Elec. Co. v. Nat. Res. Def. Council, Inc.*, 462 U.S. 87, 103 (1983)

A

We review questions of statutory interpretations of the Clean Air Act by the two-step process of *Chevron U.S.A. Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837, 842–43 (1984). *See Vigil v. Leavitt*, 381 F.3d 826, 833–34 (9th Cir. 2004). If Congress has not directly spoken to the precise issue, or the statute is silent or ambiguous, the court must determine if the agency's construction is permissible. *Chevron*, 467 U.S. at 842–43. When Congress has not provided clear guidance in a statute, an agency may fill the gap and its construction is to be given "controlling weight unless . . . arbitrary, capricious, or manifestly contrary to the statute." *Id.* at 844 (deferring to EPA's interpretation of "source" in the Clean Air Act); *see also EPA v. EME Homer City Generation, L.P.*, 134 S. Ct. 1584, 1603–07 (2014) (deferring to EPA's interpretation of "amount" in the Good Neighbor Provision of the Clean Air Act).

"[T]he weight that we are to give an administrative interpretation not intended by an agency to carry the general force of law is a function of that interpretation's thoroughness, rational validity, and consistency with prior and subsequent pronouncements." *Wilderness Soc'y v. U.S. Fish & Wildlife Serv.*, 353 F.3d 1051, 1068 (9th Cir. 2003) (en banc). However, when an agency is acting "within its area of special expertise, at the frontiers of science," the court should "be at its most deferential." *Baltimore Gas & Elec. Co.*, 462 U.S. at 103; *see also Nat'l Wildlife Fed'n v. U.S. Army Corps of Eng'rs*, 384 F.3d 1163, 1174 (9th Cir. 2004)

("Where scientific and technical expertise is necessarily involved in agency decision-making, . . . a reviewing court must be highly deferential to the judgment of the agency.").

What level of deference we must show EPA's BACT guidance is unclear. The publications are not intended to carry the force of law because EPA must still analyze each application on a case-by-case basis. However, all the publications were promulgated by EPA in order to bring meaning to the BACT statute which Congress has not defined any further than it did in 42 U.S.C. § 7479(3). EPA promulgated these policies specifically to carry out Congress's intent. We need not resolve the issue here, however, because, as discussed below, under either standard EPA's actions were neither arbitrary nor capricious.

B

Ultimately, the Center's concerns are not particular to the Sierra Pacific permit but attack the Bioenergy BACT Guidance. The Bioenergy BACT Guidance builds on the NSR Manual that EPA has used for decades and proposes a more detailed analysis for a particular pollutant—greenhouse gas emissions from biomass fuels—because the emissions from this particular fuel source have unique environmental consequences. Nothing prohibits EPA from refining its top-down BACT approach for particular pollutants—particularly when the refinement is heavily dependent upon the agency's own scientific expertise. Following the Bioenergy BACT Guidance is therefore thorough, rational, and consistent with EPA's prior practice. *See Wilderness Soc'y*, 353 F.3d at 1068. And as explained above, we must defer to EPA agency expertise and not disturb the analysis set forth in the Bioenergy BACT Guidance.

In particular, the Center contends that utilization of biomass fuel alone cannot be considered a control technology for the burning of biomass fuel at Step 1 of the BACT analysis because it does not "control" biomass emissions. EPA argues, however, that the option is used as a baseline to which all other options are compared and is not inconsistent with the traditional top-down approach. Moreover, EPA did not ultimately choose this option but selected other control technologies including: combustion of specific biomass fuel stocks; energy efficient design, operation, and maintenance; and employing good combustion practices and efficient operation as a cogeneration unit. In the end, EPA chose the same control measures as five other facilities. Providing a baseline in the BACT analysis does not make the ultimate determination arbitrary, capricious, or even unreasonable.

The Center further argues that the effect of burning different biomass fuel stocks should be considered at Step 1 of the analysis. EPA does not disagree in theory. But EPA currently lacks the scientific data at this time to make such a quantitative determination and is actively collecting the data to do in the future the type of analysis desired by the Center. *See* Bioenergy BACT Guidance at 23. Furthermore, because the same amount of carbon dioxide will be released at the facility no matter which biomass fuel stock is burned, any difference in environmental consequences is indirect. *Id.* at 22. Therefore, consistent with the NSR Manual, these indirect environmental impacts and benefits are better suited to analysis in Step 4.

Acknowledging the differences in the environmental impact of different biomass fuel stocks, however, EPA responded to the Center's comment by clarifying the fuel restrictions in the final permit. Notably, Sierra Pacific and

EPA were particularly proactive in ensuring the appropriate fuel restrictions were written into the PSD permit. Sierra Pacific's initial application contemplated the use of co-localized mill waste as well as in-forest materials from Sierra Pacific's timber operations and other readily available agricultural and urban wood wastes.

The environmental impact report ("EIR") prepared by EPA noted that there were different estimates of the type of biomass fuel blend Sierra Pacific planned on using, ranging from 100% mill wastes to a blend supplementing mill wastes with biomass from forest-harvesting operations, forest-thinning operations, agricultural waste from the Sacramento Valley, and urban wood waste. EPA therefore conducted the EIR assuming a "worst-case" scenario in which 35% of the biomass used was not co-localized with the facility. The supplemental Statement of Basis and Ambient Air Quality Impact Report also assumed a biomass fuel mix of 75% mill residue and 25% in-forest residues, agricultural residues, and urban wood residues.

Based on the EIR, EPA drafted a PSD permit restricting fuel to "clean cellulosic biomass" allowing Sierra Pacific to burn an extensive list of biomass fuels at the facility. Sierra Pacific commented on the draft asking for more restrictive limitations on the types of biomass fuel it would be allowed to use in its facility because it was more consistent with the original application. EPA adopted Sierra Pacific's modifications in another draft of the permit, which was then further modified in response to the Center's comments.

Though it was not prepared at the time to compare the environmental impacts of sawmill residue versus other biomass wastes, EPA ensured that Sierra Pacific would not

log timber solely for the purpose of using it as biomass for the new facility. EPA limited Sierra Pacific to only the particular biomass fuels readily available to the facility: mill residues, untreated wood debris from urban areas such as pallets and crates, agricultural crops and residues, forest residues, and non-merchantable forest biomass. The only trees that can be burned in Sierra Pacific's facility, therefore, are those that would be removed from the forest anyway as part of Sierra Pacific's ongoing forest management and forest-thinning operations.

Though the Center argues that EPA is equipped to proceed with a quantitative analysis of different biomass fuel stocks at Step 1, EPA says it cannot do that based on the current state of the science. Because the agency is acting at the frontiers of science, we must defer. *See Baltimore Gas & Elec.*, 462 U.S. at 103. The Center does not clearly explain how EPA's analysis here is not thorough, rational, and consistent with EPA's prior guidance on BACT. Sierra Pacific is restricted to the forms of biomass waste readily available to it and cannot clear cut forests just to produce electricity for its lumber mills. EPA did consider the environmental impacts of different biomass fuel stocks, just not in the manner or the level of detail the Center would prefer. Because we must defer to EPA's interpretation of BACT and its scientific expertise, EPA's analysis is not arbitrary, capricious, or an abuse of discretion, and we deny the Center's petition.

V

Sierra Pacific's application went through an extensive process to issue a reasoned PSD permit for its new biomass burning boiler. EPA properly defined the project and rejected

control technologies that redefined the project with thoughtful and reasonable explanations. The Bioenergy BACT Guidance EPA applied to the greenhouse gas emissions from Sierra Pacific's new facility is rational and thoroughly consistent with EPA's prior guidance. The guidance relies extensively on the continually evolving analysis of the environmental effect of different biomass fuels in the ever-developing field of climate-change science. It is not our place to interfere with EPA's expertise when the record shows that its endeavors were reasonable.

Costs are awarded to Respondents.

The petitions for review are **DENIED**.

APPENDIX B

Pages from Petitioners' Excerpts of Record ("PER"), Respondents' Excerpts of Record ("RER"), and Petitioners' Further Excerpts of Record ("PFER") cited in Center for Biological Diversity's Petition for Rehearing and/or Modification

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Recognizing the complexity of these issues, EPA chose not to prolong its review of this permit application by attempting to complete the type of net atmospheric contribution assessment described in the Bioenergy Guidance. After identifying biomass as the only fuel under consideration in the BACT analysis for this facility in a manner consistent with EPA's Bioenergy BACT Guidance, EPA's GHG AAQIR followed EPA's PSD and Title V GHG Guidance and focused on energy efficiency and add-on controls for GHG emissions as part of the BACT analysis.

EPA agrees with the commenter that consideration of the carbon cycle is relevant to the determination of BACT for a biomass-fired emissions unit and that case-by-case analysis that considers the attributes of particular feedstocks is preferable. Since EPA's Accounting Framework is still under development, EPA lacks the tools at this time to undertake a quantitative comparison of the net atmospheric contribution of different biomass feedstocks that might be utilized at the facility SPI seeks authorization to construct. Nevertheless, in response to several points raised by CBD, EPA is revising *Permit Condition X.G.*, Fuel Restrictions to clarify that SPI will be limited to particular types of biomass fuels, such as mill residues, untreated wood debris from urban areas, agricultural crops and residues, forest residues, and non-merchantable forest biomass. EPA is clarifying that the option of using biomass fuel alone identified in Step 1 of the analysis entails using the specific types of biomass feedstocks reflected in revised *Permit Condition X.G*. We assume it is technically feasible to use all of the specified feedstocks, but have not broken each feedstock out into a distinct Step 1 option or attempted to rank them at Step 3 for the reasons discussed above.

This revision is supported by a basic, qualitative evaluation in a Step 4 context of the environmental impacts of the specific biomass feedstocks SPI intends use to fire the boiler. Based on its current understanding and information, EPA is able to make a rough qualitative assessment that the feedstocks SPI seeks to use are unlikely to result in a significant increase in atmospheric CO_2 loading. The SPI Anderson facility is a lumber mill that generates a significant amount of sawdust and other mill residuals. SPI's permit application states that the Anderson mill generates approximately 160,000 bone dry tons (BDT) of mill waste annually, and that the new cogeneration unit is expected to burn a maximum of 219,000 BDT annually. *See* SPI PSD Permit Application, March 2010 at 3-4. SPI also intends to burn mill residues from lumber mills it owns and operates in Shasta Lake, approximately 18 miles from Anderson; Red Bluff, approximately 26 miles from Anderson; and Arcata, approximately 155 miles from Anderson. *See id*.; Second Recirculated Draft EIR, February 2012, at 2.0-32. In addition to mill waste, SPI seeks to feed the boiler with untreated wood waste (e.g., pallets and crates), agricultural residues, and forest management residues. *See* SPI PSD Permit Application, March 2010 at 3-4.

In the Bioenergy BACT Guidance, EPA observed that it appeared possible to conclude that a negligible atmospheric contribution would result from using mill residue in bioenergy production. Bioenergy BACT Guidance at 23. The commenter also acknowledges that the carbon impacts from burning mill residues are generally viewed as

less significant than the impact of burning trees harvested solely for the purpose of biomass fuel. *See* CBD Comments at 5-7. Although the commenter notes that mill waste may be used to create durable wood products, SPI has informed EPA that there is no market for its mill waste due to the closure of several former facilities that previously manufactured particle board, oriented strand board and pulp and paper.[4]

Based on this assessment, the Final Permit includes a revision to *Permit Condition X.G.*, Fuel Restrictions. The revision is intended to clarify that SPI will be limited to the following types of biomass fuels: mill residues; untreated wood debris from urban areas (e.g., pallets and crates); agricultural crops and residues; forest residues; and non-merchantable forest biomass. EPA believes that these revisions to *Permit Condition X.G.* will limit the facility to the types of biomass fuels that are generally considered to have lower net atmospheric contributions when combusted. In addition, the record reflects that SPI's proposed cogeneration project is not intended to use timber harvested solely for the purpose of biomass combustion. *See* Second Recirculated Draft EIR, February 2012, at 2.0-20. Nevertheless, in response to the commenter's concerns, EPA's revisions to *Permit Condition X.G.* are intended to preclude the use of this type of feedstock.[5] Thus our final determination for SPI Anderson facility is that BACT is comprised of three components: (i) combustion of specific biomass feedstocks (per the fuel restrictions in *Permit Condition X.G.*); (ii) energy efficient design, operation and maintenance; and (iii) operation as a cogeneration unit.[6]

2.6 **Comment:** CBD commented that EPA must assess whether there are available fuel mixes (other than the assumed fuel mix of 75% mill waste and 25% other material) that would result in shorter carbon debt periods. According to CBD, requiring the facility to use only mill waste rather than forest-sourced material could reduce the carbon debt associated with biomass combustion compared to the assumed and permitted fuel mixes, depending on what would happen to the mill waste if it were not used as fuel. CBD stated that EPA should evaluate a mill waste only alternative under CAA section 165(a)(2) to determine whether that alternative could reduce air quality and other environmental impacts relative to the proposed project.

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[4] If there were an existing market for its mills waste, then diverting these wastes to the production of energy would have the potential to cause "leakage effects" (i.e., if mill wastes go to a biomass energy facility rather than another type of end-user, then the other end-user would need to make up the shortfall, possibly by increasing forest harvests).

[5] The assessment of net atmospheric impacts of combustion of roundwood feedstocks is a more a complex exercise, and EPA is drawing no conclusions at this time with respect to how the net impact of such feedstocks compares to the feedstocks that SPI is authorized to use under the final permit conditions.

[6] Specifically, our BACT determination is: 0.36 pounds of CO_2e per pound of steam (12 month rolling average); combustion of biomass (as regulated by Condition X.G. "Fuel Restrictions") at all times except during start up and shutdown (during which time the boiler will burn natural gas); and energy efficient design and use of good combustion and operational and maintenance practices, including a state of the art stoker boiler, and operation of the stoker boiler as a cogeneration unit at the facility. AAQIR at 29.

Response: As explained above, the assessment of the carbon cycle in connection with biogenic feedstocks is a complex evaluation involving a range of policy and technical issues. Thus, EPA is not prepared at this time to make the type of bright line determinations suggested by the commenter. With the refinements described above, *Permit Condition X.G.* of the Final Permit sets forth the types of biomass fuels that SPI will be allowed to burn in the new boiler. These fuels include: mill residues; untreated urban wood debris; agricultural crops and residues; forest residues; and non-merchantable forest biomass. *See* Final *Permit Condition X.G.* EPA has no grounds to require that the applicant adhere to a specific fuel use mixture given the complexities associated with comparing the net carbon contribution of the fuel types that are permissible under *Permit Condition X.G.*

2.7 **Comment:** In a footnote, CBD stated that reliance on the Bioenergy BACT Guidance would be unlawful, referencing comments it made on the Bioenergy BACT guidance, which CBD attached as Exhibit 1 and incorporated by reference. CBD's comments on the Bioenergy BACT Guidance state that the Act and EPA's regulations require a case-by-case analysis of BACT and that the Bioenergy BACT Guidance "effectively constitutes presumptive BACT" rather than a case-by-case analysis. CBD criticizes the guidance for substituting broad policy judgments for the case-by-case analysis required by the statute and regulations. Also, CBD's comments on the Bioenergy BACT Guidance criticize EPA's consideration of net atmospheric contributions at Step 4 of a BACT analysis and argue the guidance omits considering other relevant factors in the Step 4 environmental impacts analysis.

Response: CBD's comments on the Bioenergy BACT Guidance do not appear relevant to the SPI Anderson project. For example, EPA's Bioenergy BACT Guidance simply "provides an illustration of reasoning that a permitting authority may use" to support a BACT determination. *Id.* at 1. The document does not "provide a final determination of BACT for a particular source, since such a determination can only be made by individual permitting authorities on case-by-case record in each case." *Id.* at 5. Recognizing this, EPA has conducted a case-by-case analysis for the SPI Anderson project. Furthermore, the Bioenergy BACT Guidance explains that it is "interim guidance only" and that the results of a more "detailed examination of the science and technical issues … may outweigh many of the considerations mentioned in this guidance." For the reasons discussed elsewhere in this document, EPA does yet have the capability to conduct a more thorough Step 4 analysis for this facility.

Moreover, we also point out that our proposed and final BACT determinations do not conclude that BACT is combustion of biomass alone. Our final BACT determination for the SPI PSD permit is: (i) combustion of specific biomass feedstocks (per the fuel restrictions in *Permit Condition X.G.*); (ii) energy efficient design, operation and maintenance; and (iii) operation as a cogeneration unit. Our proposed and final BACT limit is: 0.36 pounds of CO_2e per pound of steam (12 month rolling average); combustion of specific biomass feedstocks at all times except during start up and shutdown (during

which time the boiler will burn natural gas); and energy efficient design and use of good combustion and operational and maintenance practices, including a state of the art stoker boiler, and operation of the stoker boiler as a cogeneration unit at the facility. GHG AAQIR at 29.

Finally, as discussed above, parts of the Bioenergy BACT Guidance reflect the legal analysis that the commenter's request regarding whether the PSD provisions in the Clean Air Act afford discretion to examine the net atmospheric contribution of using biomass fuels in stationary sources. EPA has concluded in the Biomass BACT Guidance that the Act's instructions that permitting authorities consider "environmental impacts" when establishing BACT may be construed to afford discretion to examine the net atmospheric contribution of using biomass fuel in the context of a Step 4 of the top-down BACT process.

2.8 **Comment:** CBD commented that SPI's GHG cost effectiveness threshold of $7 per ton of CO_2 is unsubstantiated. CBD stated that SPI does not explain why a comparison of CO and CO_2 emission factors for external natural gas combustion is an appropriate way of scaling the cost effectiveness of CO_2 controls at a biomass facility. CBD also stated that CO emissions from biomass tend to be considerably higher than those from natural gas, and that SPI did not explain why it used CO as a basis for comparison, rather than NOx or PM or anything else.

Response: Our BACT determination for the SPI Anderson project did not set or rely on a cost-effectiveness threshold, and did not reference SPI's $7 per ton of CO_2 removed cost-effectiveness value. EPA's evaluation of costs, at Step 4 of the BACT analysis in the GHG AAQIR, compared the costs of CCS to the cost of a new cogeneration unit similar to that proposed for the SPI Anderson project. In EPA's cost analysis for CCS, the addition of CCS (including both the capture equipment and the pipeline) is expected to cost approximately $138,904,547, which would represent a 185% increase in the estimated cogeneration project costs of $75,000,000. *See* GHG AAQIR at 27-28.

2.9 **Comment**: CBD also stated that SPI's GHG cost effectiveness threshold of $7 per ton of CO_2 is too low. CBD stated that a more relevant comparison would be cost of GHG allowance under CA AB32 ($11.48 or $11.10). CBD stated that the EPA has estimated the social cost of carbon as ranging from $12 to $116 per ton. CBD stated that SPI's $7 per ton cost effectiveness value is below relevant regulatory thresholds and fails to internalize even a fraction of the potential social cost of the facility's emissions.

Response: As stated above in response to the previous comment, EPA's BACT analysis in the GHG AAQIR did not rely on SPI's cost effectiveness threshold of $7 per ton of CO2 removed. Instead, EPA compared the costs of CCS to the cost of a new cogeneration unit similar to that proposed for the SPI Anderson project. *See* GHG AAQIR at 27-28.

SECOND RECIRCULATED DRAFT EIR

FOR THE

SIERRA PACIFIC COGENERATION POWER PROJECT

SCH# 2009072011

FEBRUARY 2012

Prepared for:

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that permit writers and applicants need to address GHG emissions in permits.[16] To assist permitting authorities carrying out BACT analyses for GHGs pending further EPA action, the guidance indicated that permitting authorities may consider the environmental, energy and economic benefits that may accrue from the use of certain types of biogenic fuels (e.g., biogas from landfills) for energy generation, consistent with existing air quality standards. Noting that a variety of federal and state policies have recognized that some biogenic fuels can be part of a national strategy to reduce dependence on fossil fuels and to reduce emissions of GHGs, EPA determined that it is appropriate for permitting authorities to account for both existing federal and state policies and their underlying objectives in evaluating the environmental, energy and economic benefits of biogenic fuels. EPA observed that, based on these considerations, permitting authorities might determine in the GHG component of the BACT analysis for new or modified bioenergy facilities, as defined in Section I, that such utilization of biogenic fuels is inherently BACT for GHGs. To assist permitting authorities further in considering these factors, EPA announced its intent to issue guidance that will provide a suggested framework for undertaking an analysis of the environmental, energy and economic impacts of using biogenic fuels in Step 4 of the top-down BACT process.

IV. Summary of the Top-Down BACT Process

On November 10, 2010, EPA issued the 2010 GHG Permitting Guidance, which supplements prior EPA guidance on determining BACT, including EPA's *1990 Draft New Source Review Workshop Manual* ("1990 Workshop Manual").[17] In the 2010 GHG Permitting

[16] PSD and Title V Permitting Guidance for Greenhouse Gases. Prepared by EPA staff. November 2010. Available at: http://www.epa.gov/nsr/ghgdocs/epa-hq-oar-2010-0841-0001.pdf

[17] "PSD and Title V Permitting Guidance for Greenhouse Gases." Prepared by EPA staff. November 2010. Available at: http://www.epa.gov/nsr/ghgdocs/epa-hq-oar-2010-0841-0001.pdf;
"New Source Review Workshop Manual; Draft." October 1990.
Available at: http://www.epa.gov/ttn/nsr/gen/wkshpman.pdf.

authorities should examine whether the energy requirements for each control option result in any significant or unusual energy penalties or benefits.[35] The costs associated with direct energy impacts should be calculated and included in the economic impacts analysis (i.e., cost analysis).[36]

B. Specific Considerations at Step 4 for Bioenergy Facilities

While the more traditional approach that EPA has applied in the Step 4 analysis is to eliminate options from the top-down BACT analysis based on unacceptable adverse energy, environmental, or economic impacts, this is not the only way to conduct a Step 4 analysis. EPA has recognized a permitting authority is not limited to evaluating the impacts of only the "top" or most effective technology (based on the ranking options based on control of released from the facility) but can assess the impacts of all technologies under consideration.[37] This approach may include an evaluation of the energy, environmental, and environmental benefits of all options under consideration without explicitly eliminating options based on adverse impacts.

1. Environmental impacts

Although EPA has not recommended focusing on the environmental impacts of the pollutant that is the subject of the BACT analysis, with respect to CO_2 emissions from bioenergy facilities, EPA believes a different frame of reference should be considered because of the nature of the carbon cycle and the fact that the production of biomass entails carbon sequestration. Within the context of the PSD program, a potential justification that biogenic CO_2 emissions can be accounted for differently than non-biogenic CO_2 emissions at the facility relies on the argument that sequestration occurs. This sequestration occurs offsite, outside the boundaries of

[35] 1990 Workshop Manual at B.29.
[36] 1990 Workshop Manual at B.30.
[37] *In re Knauf Fiber Glass*, 8 E.A.D. at 131 n. 15.

emissions expected under BAU. In that situation, the BAU case is the non-bioenergy case, such that the bioenergy use might result in increased atmospheric CO_2 levels.

However, such a case-by-case analysis of the net atmospheric impact of biomass fuels would likely be prohibitively time-consuming and complex for facilities and permitting authorities. The information we have collected to this point indicates that at present, attempting to determine the net carbon cycle impact of particular facilities combusting particular types of biomass feedstocks would require extensive analysis and would therefore entail extensive workload requirements. Further, additional detailed examination of science and technical issues is needed to ensure that permitting authorities would be able to reasonably calculate and implement accounting for the amount of GHG emissions above BAU in particular instances, or to assure consistency among the calculation methodologies of the various permitting authorities. Given the challenge of conducting a complete analysis for each permit application, a more practical approach to accounting is needed. Absent this, the burden on permitting authorities is likely to be overwhelming.

For at least one category of biomass feedstocks that may be used in energy production, it does appear possible at this time to conclude that the atmospheric impact is negligible. Some commenters on the CFI suggested that utilizing mill residue (e.g. sawdust, planar shavings, panel trim) to generate energy, rather than leaving the residue to decompose, likely would not cause emissions over and above that which would have taken place if the energy use did not occur. Given that this material would have decomposed under natural circumstances in a short period of time (e.g., 10-15 years) in the absence of utilization as bioenergy, this conclusion appears credible.

In some cases, the use of biological material as a fuel would clearly reduce net atmospheric CO_2 stocks in comparison with BAU fossil fuel emissions. In these cases, requiring permitting at this time, before conducting the detailed analysis required to develop an appropriate accounting system for bioenergy and other biogenic sources, might actually discourage projects that would have a net benefit for the atmosphere. For example, requiring permitting for facilities seeking to generate energy from the combustion of dead trees, especially those killed due to a widespread event like the mountain pine beetle epidemic (that would emit CO_2 anyway through natural decomposition), is likely to discourage the utilization of a readily available resource that would clearly reduce CO_2 emissions, in comparison with BAU fossil fuel-related emissions.

In November 2010, EPA said it would provide guidance containing qualitative information on useful issues to consider with respect to biomass combustion, such as specific feedstock types and trends in carbon stocks at different spatial scales (e.g. national, regional, state). Upon further review, EPA has concluded that it requires further discussion with partners and scientists both inside and outside the federal government, as well as engagement with an independent scientific panel, before it can make more qualitative characterizations beyond the one described above for residue material.

2. Economic impacts

As discussed earlier in this section, EPA has previously advised that the economic impacts component of BACT analysis should focus on direct economic impacts calculated in terms of cost effectiveness (dollars per ton of emission reduction). As noted in the 2010 GHG Permitting Guidance, EPA recognizes that at present add-on controls for CO_2 are generally expensive technologies, largely because of the costs associated with CO_2 capture and storage. As with other electric generating facilities, these direct costs will generally make the price of

management for biomass production. California, for example, as of 2009, has the technical potential for 14.2 million bone dry tons a year available from forest residues.[46] After trees are harvested for timber, such forest residues are typically left in the forest or disposed of via open burning because only timber of a certain quality can be used in lumber mills and other processing facilities. An advantage of using forest residues for bioenergy production is that a collection infrastructure is already in place to harvest the wood, it reduces the incidence of open burning and provides an additional stream of revenue for forest owners. Programs and policies established to meet the multiple goals of forest management plans -- to establish healthy and naturally diverse forests with a balance between productive harvest and natural ecosystem and wildlife health – can act as a foundation for sustainable bioenergy production.[47]

Conversely, if the proposed biogenic feedstock is scarce in the localized area of the proposed project, then the scarcity of available fuel for the project might be an energy impact suggesting that the proposed feedstock should not be selected as BACT.

C. Potential Conclusions in Step 4 Analysis

The considerations described above can support a conclusion that the exclusive utilization of biomass fuel is BACT for greenhouse gases at a bioenergy facility. As discussed above and in earlier EPA guidance, the costs of applying add-on pollution controls for greenhouse gas emissions are expected to be expensive and thus would in most cases justify

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Senate Bill (SB) 71. Economic Development: Sales And Use Tax Exclusions. Environmental Technology Project California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA). www.treasurer.ca.gov/caeatfa/sb71/index.asp

[44] Washington State Bioenergy Policy Framework. www.bioenergy.wa.gov/BiofuelIncentives.aspx

[45] Massachusetts Green Power Purchasing Commitment, 2007, and Renewable Portfolio Standard. 2010. www.dsireusa.org/incentives/index.cfm?EE=0&RE=1&SPV=0&ST=0&implementingsector=S&state=MA&technology=Biomass&sh=1

Act Related to Green Communities. Commonwealth of Massachusetts. 2008. www.malegislature.gov/Laws/SessionLaws/Acts/2008/Chapter169

[46] 2009 Progress to a Plan: Bioenergy Action Plan for California. California Energy Commission. 2009. www.energy.ca.gov/2010publications/CEC-500-2010-007/CEC-500-2010-007.PDF

[47] California Forest Practice Rules. The California Department of Forestry and Fire Protection. 2011. www.fire.ca.gov/resource_mgt/downloads/2011_FP_Rulebook_with_Diagrams_with_Tech_Rule_No_1.pdf.

use changes can generate emissions that contribute to the net atmospheric impact of using the feedstock at a stationary source.

- *Time Scale over which Sequestration Occurs.* Across certain feedstocks, sequestration of the carbon into the feedstock can occur over a short time (i.e., a year or less), or over a much longer time (i.e., ten to twenty-five to hundreds of years). The time period over which carbon cycles versus the instantaneous release of emissions to the atmosphere from combustion creates a varying element of time for each feedstock type.

- *Baseline Assumptions on "What Would Have Happened Anyway."* These assumptions involve consideration of the end-of-life emissions profile of the feedstock if it was not used at the stationary source. For example, the feedstock can be oxidized and emitted as biogenic carbon to the atmosphere in a reasonably short amount of time or the feedstock can remain as sequestered carbon for some quantifiable period of time. Further, the feedstock could decompose and emit both CO_2 and methane, which has a larger impact on the Earth's radiative balance than CO_2 emitted when the feedstock is used for energy.

A. Forest-Derived Woody Biomass

This feedstock category includes biomass that is derived directly from (U.S.) natural forests and tree plantations,[32] as well as secondary forest-derived biomass from facilities that process forest products such as saw- and pulp mills. Discarded wood products and other wood-derived waste (e.g., construction debris and unwanted pallets) are discussed in the waste materials subsection. To simplify the discussion, woody biomass can be further categorized based on the alternative fates of the material removed for energy production: (1) forest and mill residue, (2) non-merchantable forest biomass, (3) timber roundwood harvest in a commercial market area, and (4) roundwood harvest from a dedicated source.

Forest and Mill Residue. The process of harvesting timber and processing roundwood at mills involves a substantial amount of byproducts (DOE, 2004). Forest residues are biomass derived from "residue, including treetops, non-merchantable sections of the stem, branches, and bark, left on the ground after logging or accumulating as a result of a storm, fire, delimbing, or other similar disturbance" (EPA, 2009b). This material is often left on site after a harvesting operation and eventually will be burned or will decompose, releasing carbon into the atmosphere and into organic matter on the forest floor and soil (Evans and Ducey, 2010). These residues can be assumed to be a byproduct in most cases (i.e., a biomass market did not trigger the harvest operation in the first case).

Mill residues are secondary forest-derived biomass procured from a wood processing facility such as a saw- or pulp mill. Sources from sawmills typically include peeler shavings, sawdust, and bark, while product streams from pulp mills also include lignin and other wood components, black liquor, or liquid fuels such as cellulosic ethanol. Most of this material is currently burned for energy or heat at the facilities; some may be sold for mulch or for processing into pulp (Johnson, 2001).

Non-Merchantable Forest Biomass. There are occasions when woody biomass may be removed from a forest without affecting markets for commercial roundwood. In such cases, leakage effects are minimal or non-existent, and the alternate fate of this biomass would be loss to management-

[32] Short rotation woody crops systems with typical rotations of less than 15 years are not covered here but discussed in the "agricultural products" section.

induced prescribed fire, wildfire, or decomposition. Examples include harvest of pulp-quality biomass for energy purposes in a region where a pulp market is absent, pre-commercial thinning of trees that are not of a merchantable size, low-grade biomass harvests in large areas of forest damaged from insects (e.g., beetle-killed timber), hurricanes, or wildfire. In most cases, trees damaged in this form have no market value except for biomass due to the nature of the damage. Removal of dead trees can decrease the severity of wildfires, and enhance conditions for regeneration. Biomass from salvage operations is unique in that the harvest operation was triggered by an event beyond the control of the forest manager, potentially reducing total live tree carbon stock of a forest substantially.

Timber Roundwood that is Not Used for Energy. In many forest harvest operations, the commercial timber is separated into saw timber and pulpwood at the harvest or mill site, since these products may differ significantly in sale value and often go to different mills for processing. When a market for energy feedstocks is available, feedstock prices have historically been lower than those of saw timber or pulpwood, so this results in a three-way separation of the material. Where this is the case, and the timber and pulpwood do not enter the bioenergy facility, they are not included in the facility's carbon accounting. Similarly, when the bioenergy stationary source is part of a saw or pulp mill, the carbon that goes out of the mill in products is not counted in the mill's direct emissions.

Timber Roundwood Harvest in a Commercial Market Area. This type of woody biomass entails the harvest of trees of commercial size, species, and quality from a forest in an area with commercial markets. This includes forest management treatments, such as thinnings, that remove trees of merchantable size. The difference in this case from the previous cases is that the removal of biomass for energy production is in competition with removals for other products. Thus it can potentially create leakage issues. It can also raise the issue of "what would have happened anyway." Where wood goes into commercial use for paper or solid wood products, a portion of the carbon content remains sequestered for a period of time (Heath and Skog, 2004). Using methods and tables published by the USDA Forest Service (USFS), the amount of carbon that remains sequestered in wood products for long periods of time (i.e., 100 years) can be estimated for different types of wood, wood products, and geographic regions (Skog and Nicholson, 2000). Commercial wood that is diverted into energy use and processed immediately shortens this decomposition cycle.

Roundwood Harvest from a Dedicated Source. This type of woody biomass feedstock includes roundwood from a landscape that is dedicated as an energy source. An example might be a company that owns and manages forest plantations, specifically for the production of woody biomass for energy use. A key consideration relative to the harvest of commercial roundwood is the likelihood that current forest growth will recapture the carbon from energy emissions. Forest ownerships may use methods such as a continuous forest inventory or forest certification to demonstrate that ongoing carbon stocks in the forest are maintained or increased under the management scheme.

1. Possible Data Sources for Forest-Derived Woody Biomass

The USFS maintains the Forest Inventory Analysis (FIA) database, which reports information on the status and trends of America's forests through sampling, surveys, and assessments (USDA Forest Service, 2011b). The database includes data that summarize the acreage of standing forest, as well as tree mortality, removals, and net growth of forests. These measured plot data can be aggregated or disaggregated to generate estimates at multiple spatial scales, and include information on land ownership, physiographic factors, forest type, and other forest characteristics. Biomass equations can then be applied to get the total biomass from these FIA data results.

10. Fugitive dust from storage piles, processing area, and disturbed areas shall be minimized by periodic cleanup and/or use of sprinklers, tarps, or dust palliative agents.

11. During periods of high winds, Permittee shall take immediate action to correct fugitive dust emissions from the chip processing area.

12. All necessary surfaces shall be cleaned or washed sufficiently to prevent wind-blown dust from leaving the property boundaries.

13. All truck loading and unloading conducted at the facility shall be done in a manner that minimizes spillage, and fugitive emissions.

14. For U2, the drift rate shall not exceed 0.0005%.

15. Each container holding volatile organic waste shall be labeled with the contents identified and information noting the date when waste material was added.

16. The Permittee shall inspect all containers holding VOCs or waste, at least weekly, for leaks and for deterioration caused by corrosion or other factors.

17. Containers holding ignitable or reactive waste must be located within the property boundary at least 50 feet from the facility's property line.

18. Incompatible wastes must not be placed in the same container. The treatment, storage, and disposal of ignitable or reactive waste, and the commingling of wastes, or wastes and materials, must be conducted so it does not:

    a. Generate extreme heat, pressure, explosion, or violent reaction;
    b. Produce uncontrolled toxic mists, fumes, dusts or gases in sufficient quantities to threaten human health;
    c. Produce flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions;
    d. Damage the structural integrity of the device or facility containing the waste; or
    e. Through other means threaten human health or the environment.

G. Fuel Restrictions

1. The following biomass fuels shall constitute the only fuel allowed for use as fuel in U1, except during periods defined in *Condition X.D.* and to counteract upset conditions:

    a. Untreated wood pallets, crates, dunnage, untreated manufacturing and

construction wood debris from urban areas;

b. All agricultural crops or residues;

c. Mill residues including hog fuel, shavings, sawdust, trimmings, and bark.

d. Forest residues including treetops, non-merchantable sections of the stem, branches, and bark, left on the ground after logging or accumulating as a result of a storm, fire, delimbing, or other similar disturbance.

~~b.~~ Non-merchantable forest biomass consisting of byproducts and residuals of forest management activities

~~c.~~e. ~~Wood and wood wastes~~ identified to follow all of the following practices;

(1) Harvested pursuant to an approved timber management plan prepared in accordance with the Z'berg-Nejedly Forest practice Act of 1973 or other locally or nationally approved plan; and

(2) Harvested for the purpose of forest fire fuel reduction or forest stand improvement.

2. The heat input from pipeline natural gas shall not exceed 10% of the total heat input to U1 on a 12-month rolling basis.

3. The heat input to U3 shall only be PUC–quality pipeline natural gas

H. Monitoring Conditions

1. For U1, the Permittee shall maintain the following continuous monitoring systems at all times when the combustion process is occurring:

   a. The Permittee shall install, calibrate, operate and quality-assure a Continuous Emissions Monitoring System (CEMS) that measures CO, NO_x, and CO_2.
   b. The CO and NO_x CEMS shall measure and record (i) CO and NO_x emissions in ppmv, and (ii) exhaust gas CO and NO_x concentrations corrected to 12 percent by volume stack gas CO_2 dry basis.
   c. The Permittee shall conduct initial certification of the CEMS in accordance with *Condition X.H.2.*
   d. The Permittee shall operate and maintain a Continuous Opacity Monitoring System (COMS) capable of measuring stack gas opacity.
   e. The Permittee shall install a stack gas volumetric flowrate monitor, and steam production rate monitor.

2. The CEMS and stack gas volumetric flowrate monitor for U1 shall meet the applicable requirements of 40 CFR Part 60.13 and 40 CFR Part 60 Appendix B, and 40 CFR Part 60 Appendix F, Procedure 1.

3. Each CEMS shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute clock-hour period.

Kelly, Shaheerah

From: Tony Jaegel <TJaegel@spi-ind.com>
Sent: Wednesday, March 12, 2014 5:54 PM
To: Kelly, Shaheerah
Cc: Shane Young; William Sloan (wsloan@mofo.com); George Emmerson; John Gardner; Dave Dun; Eric Albright; Christenson, Kara; Rios, Gerardo
Subject: SPI Anderson PSD Permit
Attachments: Pre-Combustion CCS GHG BACT analysis - draft.docx; PSD_Fuel_Condition.docx

Shaheerah,

In follow-up to our phone call on Monday, attached are two documents providing the requested information in support of advancing the Anderson PSD permit.

The first document contains requested revisions to *Condition G.1. Fuel Restrictions* to better define the fuels that will be used for the project. The language is now consistent with EPA terms used in its March 2011 Accounting Framework.

The second document provides a brief evaluation of pre-combustion carbon capture and sequestration, prepared by Eric Albright/ENVIRON International Corp. In summary, the technology is economically infeasible and is not technically or commercially viable for this application.

I will call you tomorrow to follow-up. We remain committed to resolving all questions and information requests as soon as possible.

Best regards,

Tony Jaegel
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Sierra Pacific Industries
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G. Fuel Restrictions

1. The following biomass fuels shall constitute the only fuel allowed for use as fuel in U1, except during periods defined in *Condition X.D.* and to counteract upset conditions:

a. Untreated wood pallets, crates, dunnage, untreated manufacturing and construction wood debris from urban areas;

b. All agricultural crops or residues;

c. Mill residues including hog fuel, shavings, sawdust, trimmings, and bark.

d. Forest residues including treetops, non-merchantable sections of the stem, branches, and bark, left on the ground after logging or accumulating as a result of a storm, fire, delimbing, or other similar disturbance.

e. Non-merchantable forest biomass consisting of byproducts and residuals of forest management activities ~~Wood and wood wastes~~ identified to follow all of the following practices;

(1) Harvested pursuant to an approved timber management plan prepared in accordance with the Z'berg-Nejedly Forest practice Act of 1973 or other locally or nationally approved plan; and

(2) Harvested for the purpose of forest fire fuel reduction or forest stand improvement.

CERTIFICATE OF SERVICE

I hereby certify that on October 14, 2016, I electronically filed the foregoing **PETITION FOR REHEARING AND/OR MODIFICATION OF OPINION BY PETITIONER CENTER FOR BIOLOGICAL DIVERSITY** with the Clerk of the Court for the United States Court of Appeals for the Ninth Circuit by using the appellate CM/ECF system.

I certify that all participants in the case are registered CM/ECF users and that service will be accomplished by the appellate CM/ECF system.

Dated: October 14, 2016

/s/ *Kevin P. Bundy*
Kevin P. Bundy