BEFORE THE ENVIRONMENTAL PROTECTION AGENCY

Petition to Phase Out Greenhouse Gas (GHG) Pollution to Restore a Stable and Healthy Climate

TO

Michael S Regan, Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460
Regan.Michael@epa.gov

Submitted on Behalf of Petitioners

Donn J. Viviani,

John Birks,

Richard Heede,

Lise Van Susteren,

James E. Hansen,

Climate Science, Awareness and Solutions (CSAS), a non-profit organization, and

Climate Protection and Restoration Initiative (CPR Initiative), a non-profit organization

Filed June 16, 2022

Daniel M. Galpern, *Counsel for all Petitioners*
Climate Protection & Restoration Initiative
2495 Hilyard Street, Suite A
Eugene, Oregon 97405
541.968.7164; dan.galpern@cprclimate.org
CPRclimate.org

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I. EXECUTIVE SUMMARY

Petitioners seek to phase out the anthropogenic manufacture, processing, distribution, use, and disposal of greenhouse gas (GHG) emissions, fossil fuels, and fossil fuel emissions (hereafter "subject chemical substances and mixtures").

Petitioners specifically seek a determination by the federal Environmental Protection Agency ("EPA" or "the Agency") that the continuing manufacture, processing, distribution, use and disposal of the subject chemicals and mixtures presents *an unreasonable risk of injury to health and the environment*. That determination will authorize and compel the Agency to undertake a rulemaking to impose one or more requirements as necessary, until the point that the unreasonable risk is eliminated.

EPA's obligations to render that determination, and subsequently to commence determined action, stems from the Toxic Substances Control Act[1] (TSCA, or "the Act") and other US law. Timely and effective Agency action under the Act also would partly uphold the nation's relevant obligation under international law. Thus, pursuant to the United Nations Framework Convention on Climate Change (UNFCCC) nations retain "common but differentiated responsibilities" to "protect the climate system for the benefit of present and future generations of humankind.[2]

Consistent with the Paris Agreement, the Biden Administration's recent filing with the UNFCCC Secretariat committed the nation to a wide ranging decarbonization effort. Specifically, by that submission, the US committed to reduce net GHG emissions by 50-52 percent below 2005 levels by 2030; to achieve "100 percent carbon pollution-free electricity" by 2035; and "**to exceed** [] a straight-line path to achieve net-zero emissions, economy-wide, by no later than 2050." (Emphasis added.)[3]

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1 15 U.S.C.A. §§ 2601 to 2697, as amended by 130 Stat. 448 (June 22, 2016) (the "Frank R. Lautenberg Chemical Safety for the 21st Century Act").

2 UNFCCC, Article 3.1. *See also* the 1972 Rio Declaration on Environment and Development, Principle 7 ("States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem. In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command") at https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_CONF.151_26_Vol.I_Declaration.pdf.

3 The United States of America Nationally Determined Contribution: Reducing Greenhouse Gases in the United States: A 2030 Emissions Target, submitted pursuant to Article 4 of the Paris Agreement to the United Nations Framework Convention on Climate Change, April 21, 2021, at pages 3 and 6. Available at: https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/United%20States%20of%20America%20First/United%20States%20NDC%20April%2021%202021%20Final.pdf.

Relevant here, Petitioners hold that it is in only by "exceeding" a pathway to net-zero by 2050 – that is, it is only by ensuring that emissions within the reach of US law are "net negative" before then – that our nation can acquit its fundamental international obligation. In particular, as shown in Part II of this Petition, the US is responsible for an outsized share of worldwide historical GHG emissions. One implication of this is that the US clearly bears a disproportionately greater burden to reverse the increasing endangerment of low-lying island and coastal nations to climate-induced sea level rise and superstorms.

Petitioners agree with President Biden that present and anticipated impacts from global warming and ocean acidification impose an "existential threat" to the United States and other States.[4] But actual US practice under federal law is grossly insufficient. We have scarcely begun to decarbonize, even as the climate and pollution toll imposed on the nation and others grows and grows. Accordingly, Petitioners here demand that the Agency render the specific determination, pursuant to TSCA §6, namely that the subject chemical substances and mixtures "present an *unreasonable risk of injury to health or the environment*." 15 USC §2605. Indeed, the evidence outlined in the Petition, along with material that is otherwise reasonably available to the Agency, establishes that the subject chemicals and mixtures *present an imminent and unreasonable* risk *of serious or widespread injury to health and the environment.* TSCA §7, 15 USC 2606.

The aforementioned "unreasonable risk of injury to health or the environment" determination is a prerequisite for EPA to commence rulemaking under TSCA, while the "imminent and unreasonable risk of serious or widespread injury to health or the environment" is a prerequisite for the Agency to take legal action.

One central factual predicate and two legal suppositions undergird the Petition.

As to the first, Petitioners aver that the atmospheric concentrations of key greenhouse gases, including carbon dioxide (CO_2) and methane (CH_4), are already well into the danger zone and must be dialed back to eliminate their unlawful imposition on humanity and nature.

As to the second, under TSCA the Agency is authorized, upon its relevant determination, and within the jurisdiction of the United States, to impose requirements upon appropriate parties (a) to restrict or phase-out the manufacture (including production and importation) and, as warranted, the processing, distribution, use, or disposal, of the subject chemicals and mixtures, and (b) to compel industry to remove and, as necessary, to securely sequeseter legacy GHG emissions.

4 Fact Sheet, President Biden Sets 2030 Greenhouse Gas Pollution Reduction Target Aimed at Creating Good-Paying Union Jobs and Securing U.S. Leadership on Clean Energy Technologies, The White House, April 22, 2021. Available at https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/22/fact-sheet-president-biden-sets-2030-greenhouse-gas-pollution-reduction-target-aimed-at-creating-good-paying-union-jobs-and-securing-u-s-leadership-on-clean-energy-technologies/.

II. PETITIONERS

Petitioners are Dr. James E. Hansen; Dr. Donn J. Viviani; Dr. John Birks; Richard Heede; Dr. Lise Van Susteren; Climate Science, Awareness and Solutions, Inc. (CSAS); and Climate Protection and Restoration Initiative (CPR Initiative).

Donn J. Viviani, PhD, is a retired U.S. Environmental Protection Agency scientist. He was the Director of EPA's Climate Policy Assessment Division in the Office of Policy, Economics and Innovation; served as Chairman of the Great Lakes Water Quality Board's Toxic Substances Committee; and served as a member of the Science Coordinating Committee for the International Joint Commission for the Great Lakes.

Dr. Viviani serves as Board President of the Climate Protection and Restoration Initiative.

John Birks, PhD, is the Chief Scientist at 2B Technologies, a company he co-founded in 1998 that develops and manufactures new products for air quality measurements. He is Professor Emeritus of the University of Colorado where he and his graduate students carried out research in atmospheric chemistry for 25 years. He is best known for his work in quantifying the rates of chemical reactions that cause the Antarctic Ozone Hole, his co-development of the "nuclear winter" theory with Paul Crutzen in 1982, and development of miniaturized instruments for air pollution measurements. His current research is focused on the use of low-cost sensors for mobile monitoring of air pollutants in cities, an outgrowth of the AQTreks educational outreach programs his company implemented in several hundred schools around the US.

Dr. Birks also serves on the CPR Initiative Board of Directors.

Richard Heede is a petitioner here in his personal capacity. Mr. Heede leads the Climate Accountability Institute and serves as the principal investigator for its widely-cited "Carbon Majors" project, which traces historical CO_2 emissions to oil, natural gas, and coal companies. He has authored/co-authored several papers on the climate responsibilities of fossil fuel producers.[5] Mr. Heede co-founded CAI in 2011 to provide the scientific basis for leveraging climate stewardship by carbon producers. Mr. Heede published his thesis *A Geography of Carbon* with the National Center for Atmospheric Research in 1984. He worked on energy and climate solutions with the Rocky Mountain Institute 1984-2002, and founded Climate Mitigation Services in 2003.

Mr. Heede also serves on the CPR Initiative Board of Advisors.

Lise Van Susteren is a practicing general and forensic psychiatrist in Washington, DC, and an expert on the physical and mental health effects of climate disruption. Dr. Susteren is a co-founder of the Climate Psychiatry Alliance and has served on the Advisory Board of the Center for Health and the Global Environment at the Harvard T. H. Chan School of Public Health. In 2006, Dr. Susteren sought the Democratic nomination for the US Senate from Maryland. She is currently on the board of Physicians for Social Responsibility and Earth Day Network. In 2011, Dr Susteren co-authored *The Psychological Effects of Climate Warming on the U.S.: And Why the US Mental Health System Is Not Prepared*. Her book, *Emotional Inflammation Discover your Triggers and Reclaim Your Equilibrium During Anxious Times*, co-authored with science writer Stacy Colino, was released in April 2020.

5 *See* https://climateaccountability.org/publications.html.

Dr. Susteren also serves on the CPR Initiative Board of Directors.

James E. Hansen, PhD, is the former Director of the NASA Goddard Institute of Space Studies and current Director of Climate Science, Awareness and Solutions. CSAS is a program of the Earth Institute at Columbia University in New York City. Dr. Hansen is the author of the books *Storms of My Grandchildren* and the forthcoming *Sophie's Planet*, and the principal author or co-author of numerous papers on the subject of climate change and Earth's energy imbalance. He is best known for his testimony on climate change to congressional committees in the 1980s that helped raise broad awareness of the global warming issue. Dr. Hansen's recent research establishes that fossil fuel GHG emissions have already raised Earth's temperature well beyond the Holocene range, potentially imposing an increasingly untenable burden on young people to undertake or pay for exceedingly expensive CO_2 extraction to limit climate change and its consequences. His research also raises the prospect that continued high fossil fuel emissions will melt the planet's major ice sheets at a non-linear rate. On the other hand, in his work Dr. Hansen has helped specify the magnitude and rate of decarbonization required to preserve a habitable climate, and he has highlighted the potential utility of select methods and policies for deep decarbonization and large-scale CO_2 removal with lasting co-benefits.

Dr. Hansen also serves on the CPR Initiative Board of Advisors.

Climate Science, Awareness and Solutions (CSAS), is a public interest non-profit organization with headquarters in New York, NY. csas.earth.columbia.edu.

Climate Protection and Restoration Initiative (CPR Initiative) is a public interest non-profit organization with headquarters in Eugene, Oregon. CPRclimate.org.

Conflict of Interest Statement

Petitioners retain no conflict to disclose except, potentially, one: Petitioner Birks retains an interest in the success of air quality sensors manufactured by 2B Technologies wherein that interest may be affected by federal rulemaking, compliance with which may require wider use of such sensors to detect and eliminate GHG and other source emissions.

Representative

Petitioners are represented by attorney Daniel M. Galpern, to whom any questions or requests for further information should be addressed: General Counsel, CPR Initiative, 2495 Hilyard Street, Ste. A, Eugene Oregon 97405. (541) 968-7164. dan.galpern@cprclimate.org.

III. ACTION REQUESTED

At issue herein is the unreasonable risk imposed on humanity, future generations, and nature as we have come to know it from non deminimis[6] anthropogenic greenhouse gas (GHG) emissions[7] and the manufacture, processing, distribution, use and disposal of fossil fuels.[8] Together, the GHG emissions from all anthropogenic sources, the fossil fuels, and those emissions associated with fossil fuels (GHGs and otherwise) are referred to as "subject chemical substances and mixtures."

This Petition is brought pursuant to the United States Constitution, including its Preamble wherein the Framers declared their determination "to secure the blessings of liberty to ourselves and our posterity," and its First Amendment, recognizing the right of citizens to petition for "a redress of grievances."

As well, the Petition is brought pursuant to the Administrative Procedure Act (5 U.S.C. §553(e)) (establishing that "every interested person" may petition an agency to issue a rule), and Section 21 of the Toxic Substances Control Act (TSCA), 15 USC §§2620 and 2605 (entitling "any person" to petition the Environmental Protection Agency for its issuance of a rule.)

Specifically, the undersigned here expressly request that EPA render a determination that "the manufacture, processing, distribution in commerce, use, or disposal" of the subject chemical substances and mixtures *present an unreasonable risk of injury to health or the environment*. 15 USC §2605.

Further, because the manufacture, processing, distribution in commerce, use, or disposal of the subject chemical substances and mixtures **already** present *an imminent and unreasonable risk of serious or widespread injury to health or the environment,* Petitioners call upon the Agency to undertake immediate legal action to commence a serious effort to contain that risk. 15 USC §2606.

Petitioners note, as well, that the unreasonable risk determination sought by Petitioners herein will compel EPA to undertake a rulemaking under TSCA §6 (regulatory restrictions) and also, potentially, to take action under TSCA §9 (Utilization of Other Law) in order, at minimum, to compel responsible parties to:

(i) **phaseout** their production and importation and, as warranted, their processing, distribution, use or atmospheric disposal of the subject chemical substances and mixtures, as required to secure the elimination of associated emissions and legacy GHG emissions, on a

6 We leave for the agency to determine a workable definition of "non deminimis" with respect to the quantum of acceptable release or emission of each greenhouse gas, acknowledging that declining curves may be required to reflect a shrinking carbon budget.

7 The greenhouse gases (GHGs) at issue in this Petition include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O) and the Halocarbons -- chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs) and halons (HFCs)) from all sources. Quantities of GHGs at issue in this Petition include not only those being emitted currently and in the foreseeable future, but also so-called "legacy GHG emissions." Petitioners here deem such legacy GHGs to be the quantity of such GHGs already released or emitted by or because of human activity that retain a present effect on ambient global or regional temperatures, or on ocean pH. This is critical, in light of the long-lived nature of CO2 (among other GHGs) once released into the environment. *See infra*, nte 82 (work by Archer).

8 Petitioners include within the phrase "emissions associated with the manufacture, processing, distribution, use and disposal of fossil fuels" both (1) GHGs released or emitted during those activities, and (2) other pollutants released or emitted during those activities, including particulate matter and sulfur and nitrogen dioxides.

timetable that is consistent with both the overarching need to protect and restore a habitable climate system and with the demands of national and international security,[9]

(ii) **remove** and securely sequester from the environment excess atmospheric greenhouse gases including, at minimum, surfeit atmospheric carbon dioxide (CO_2) and methane (CH_4) **or**, **in the alternative, to pay into an Atmospheric Carbon Abatement Fund** that EPA will establish for the purpose of removing such subject chemicals and mixtures in an amount and pursuant to a timetable consistent with protection and restoration of a habitable climate system.

The Petition establishes that the continuing production and use of the subject chemicals and mixtures, as well as the release of their associated emissions (accounting also for legacy GHG emissions) present both an "unreasonable risk of injury to health and the environment," and "an imminent and unreasonable risk of serious or widespread injury to health or the environment." TSCA §6, 15 USC §2605, and §7, 15 USC §2607, respectively. There are viable alternatives to the continued heavy reliance on fossil fuels, and potential alternatives to the sources of the other subject chemical substances and mixtures. As well, options are increasingly available to contain from the environment or remove from the atmosphere certain species of legacy emissions.

Accordingly, Petitioners aver herein that the continuing production, importation, distribution, use, release and disposal of the subject chemical substances and mixtures presents a decidedly imminent risk to health and the environment that is manifestly unreasonable, serious, and widespread. At minimum, EPA must render the requested determination, and then commence the requested rulemaking. In addition, the Agency should pursue immediate legal action in federal court to address the imminent, serious and widespread risk.

9 Petitioners acknowledge that the Russian Federation's illegal war against Ukraine may extend into the period of deep decarbonization contemplated by the Petition. Accordingly, some heightened demand for US oil and gas production and distribution may persist – in order to backfill prior Russian supply – until efficiency and decarbonization efforts, within Europe as well as in the US, more than offset any needed additional production, processing and delivery. A reasonable transition period therefore will be required, but that already is provided for by law. TSCA §6(d)(1)(E), 15 USC 2606(d)(1)(E). Moreover, notwithstanding NATO's newfound determination to combat climate change, continuing supply requirements by US and allied armed forces may at some point justify a partial, if temporary, waiver, so as to ensure continued, if sharply reduced, supply. A long-standing TSCA provision also already provides for such a national security waiver. 15 USC §2621. The statute is sufficiently flexible, in our judgment.

IV. AUTHORITY

In the 1992 United Nations Framework Convention on Climate Change ("UNFCCC" or "the Convention") the United States, along with, eventually, 196 other parties,[10] committed itself "to achieve. . . stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system."[11] The clear aim was to prevent "additional warming of the Earth's surface and atmosphere" and thus stem a process that threatened to "adversely affect natural ecosystems and humankind."

In particular, by its signing of the Convention, the United States assumed the obligation to take "precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects,"[12] particularly "threats of serious or irreversible damage," including by "limiting its anthropogenic emissions of greenhouse gases."[13] Consistent with the injunction contained in the Preamble to the United States Constitution, the UNFCCC emphasized that "the Parties should protect the climate system for the benefit of present and future generations of humankind. . . ."

To secure the Convention's fundamental objectives, the US in 2015, along with most other nations, signed onto the Paris Agreement to the UNFCCC. The US thereby committed itself to action that would hold "the increase in the global average temperature *to well below* 2°C above pre-industrial levels" and to "efforts to limit the temperature increase to 1.5°C above pre-industrial levels."[14] Consistent with that commitment, and in recognition that national commitments to date had come up short,[15] President Biden's 2021 Nationally Determined Contribution, filed pursuant to the Paris Agreement,[16] obliges the US to achieve an "economy-wide target" for net greenhouse gas emissions of "50-52 percent below 2005 levels in 2030." The 2021 filing also established US goals "to reach 100 percent carbon pollution-free electricity by

10 In total there are 197 signatories, comprised of 196 nations and one regional economic integration organization (the European Union). See https://treaties.un.org/Pages/ViewDetailsIII.aspx?src=IND&mtdsg_no=XXVII-7&chapter=27&Temp=mtdsg3&clang=_en.

11 UNFCCC Article 2. The full text is available, in English and five other languages, at https://unfccc.int/process-and-meetings/the-convention/status-of-ratification/status-of-ratification-of-the-convention.

12 UNFCCC Article 3.3.

13 UNFCCC Article 4.2. Moreover, in light of its status as a "developed country Party," the US agreed to "take the lead in combating climate change and the adverse effects thereof." Id. at Article 3.

14 Paris Agreement Article 2(1)(a). The full text of the Agreement is available, in English and five other languages, at https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement. In Article 4.1 of the Agreement, nations must reach global peak GHG emissions "as soon as possible," and "undertake rapid reductions thereafter in accordance with best available science, so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century."

15 The United Nations Environment Program reported late last year that "new national climate pledges combined with other mitigation measures put the world on track for a global temperature rise of 2.7°C by the end of the century," which is "well above the goals of the Paris climate agreement and would lead to catastrophic changes in the Earth's climate. To keep global warming below 1.5°C this century, the aspirational goal of the Paris Agreement, the world needs to halve annual greenhouse gas emissions in the next eight years." UNEP, Emissions Gap Report 2021, available at https://www.unep.org/resources/emissions-gap-report-2021.

16 The United States of America Nationally Determined Contribution Reducing Greenhouse Gases in the United States: A 2030 Emissions Target (filed April 20, 2021), available at https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/United%20States%20of%20America%20First/United%20States%20NDC%20April%2021%202021%20Final.pdf.

2035"[17] and to "exceed [] a straight-line path to achieve net-zero emissions, economy-wide, by no later than 2050."[18]

In 1976, Congress enacted the Toxic Substances Control Act (TSCA) in recognition that certain chemical substances and mixtures impose serious risks to health or the environment, but are not "single media" problems and so require a holistic approach to mitigation and control.[19] In particular, Congress aimed to ensure that the federal Environmental Protection Agency retained "adequate authority to regulate chemical substances and mixtures which present an unreasonable risk of injury to health or the environment." TSCA §2; 15 USC §2601(b)(2).

TSCA conveys express authority to the Agency to pursue restrictions by rule where it determines that "the manufacture, processing, distribution in commerce, use or disposal of a chemical substance or mixture, *or any combination of such activities*, present "an unreasonable risk of injury to health or the environment." TSCA §6, 15 USC§2605 (emphasis added). Further, where such substances and mixtures present an "imminent and unreasonable risk of serious or widespread injury to health or the environment," the Agency may and, in the view of Petitioners, should take legal action to contain and eliminate the risk. TSCA §7, 15 USC§2606. Fossil fuel GHG emissions manifestly present just such an imminent, unreasonable, serious and widespread risk.

As Petitioners also discuss *infra*, 2016 amendments to TSCA "radically transformed" the statute, "with clear requirements and a mandate to . . . put in place strong and timely protections against any unreasonable risks."[20] For instance, prior to 2016 EPA was authorized to impose requirements only "to the extent necessary to protect adequately against such risk using the least burdensome requirements." 15 USC §2605 (2015). These and other limitations created a "legal threshold that [] proved difficult for EPA [to meet]."[21] Indeed, courts interpreted TSCA pre-2016 to require the Agency, "[i]n evaluating what is 'unreasonable' . . . to consider the costs of any proposed actions" as well as "the environmental, economic, and social impact of any action."[22] In sharp contrast, under the 2016 amendments, EPA must render its unreasonable risk

17 *See also,* https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/22/fact-sheet-president-biden-sets-2030-greenhouse-gas-pollution-reduction-target-aimed-at-creating-good-paying-union-jobs-and-securing-u-s-leadership-on-clean-energy-technologies/.

18 The United States of America Nationally Determined Contribution: Reducing Greenhouse Gases in the United States: A 2030 Emissions Target, submitted pursuant to Article 4 of the Paris Agreement to the United Nations Framework Convention on Climate Change, April 21, 2021, at pages 3 and 6. Available at: https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/United%20States%20of%20America%20First/United%20States%20NDC%20April%2021%202021%20Final.pdf.

19 David Markell, An Overview of TSCA, Its History and Key Underlying Assumptions, and Its Place in Environmental Regulation, 32 WASH. U. J. L. & POL'Y333 (2010), at https://openscholarship.wustl.edu/law_journal_law_policy/vol32/iss1/11/.

20 EPA Office of Chemical Safety and Pollution Prevention, Chemical Update: EPA Proposes to Ban Ongoing Uses of Asbestos, Taking Historic Step to Protect People from Cancer Risk, April 5, 2022, at https://www.epa.gov/newsreleases/epa-proposes-ban-ongoing-uses-asbestos-taking-historic-step-protect-people-cancer-risk (visited April 6).

21 David Markell, An Overview of TSCA, its History and Key Underlying Assumptions, and its Place in Environmental Regulation, Journal of Law & Policy (Vol. 32:333, 2010) at 367, citing to U.S. Gov't Accountability Office, Chemical Regulation: Options For Enhancing The Effectiveness Of The Toxic Substances Control Act (2009) at 9.

22 Corrosion Proof Fittings v. EPA, 947 F.2d 1201, 1222 (5th Cir. 1991) (quoting prior version of 15 U.S.C. §2605(c)(1)).

determination "without consideration of costs or other nonrisk factors." 15 USC 2605(a) and 2605(b)(4)(A).

Pursuant to TSCA §21, 15 USC §2620, "[a]ny person may petition the [EPA] to initiate a proceeding for the issuance, amendment, or repeal of a rule" under several substantive sections of the statute, including TSCA §6, 15 USC §2605.[23] Petitioners are obliged only to "set forth the facts which it is claimed establish that it is necessary to issue, amend, or repeal a rule." TSCA §21(b)(1), 15 USC §2020(b)(1). The Agency then has 90 days to either grant or deny the petition, TSCA §21, 15 USC §2620(b)(3), on the basis of whether the petition's asserted facts establish that the rule advocated is necessary. 15 USC §2620(b)(1).

Congress did not define the term "necessary," as it employed the term, so Petitioners read the term, as used in TSCA §21, in its ordinary sense -- as in "needed," or "warranted under the circumstances,"[24] and not in an absolute sense, as in "logically necessary," or "impossible without").[25, 26]

Upon EPA's grant of a petition, the Agency is to "promptly commence an appropriate proceeding in accordance with," the relevant substantive TSCA section. 15 USC §2020(b)(3). Where the subject chemical substances and mixtures present an unreasonable risk of injury to health or the environment, then TSCA §6, 15 USC §2605 provides that the Agency must aim in that proceeding to fashion a rule controlling, to the point of prohibition, the "manufacture, processing, distribution in commerce, use, or disposal" of such chemical substances or mixtures, in order to ensure that "the chemical substance[s] or mixture[s] no longer present[] such risk."[27]

23 Moreover, pursuant to the Administrative Procedure Act, "any interested person" retains the right to petition any Agency for the issuance, amendment, or repeal of a rule.

24 Indeed, an even more inclusive sense of the term is often intended. The term "[n]ecessary . . . must be considered in the connection in which it is used, as it is a word susceptible of various meanings. It may import absolute physical necessity or inevitability, or may import that which is only convenient, useful, appropriate, suitable, proper, or conducive to the end sought. It is an adjective expressing degrees, and may express mere convenience or that which is indispensable or an absolute physical necessity. It may mean something which in the accomplishment of a given object cannot be dispensed with, or it may mean something reasonably useful and proper, and of greater or lesser benefit nr convenience, and its force and meaning must be determined with relation to the particular object sought." Black's Law Dictionary, Revised Fourth Edition (1968) at 1181-82.

Thus, "the word "necessary" does not always import an absolute physical necessity, so strong that one thing, to which another may be termed "necessary," cannot exist without that other. It frequently imports no more than that one thing is convenient or useful or essential to another. To employ the means necessary to an end is generally understood as employing any means calculated to produce the end, and not as being confined to those single means without which the end would be entirely unattainable." Black's Law Dictionary, Current Version (2022) at https://thelawdictionary.org/necessary/

25 Octane Fitness, LLC v. ICON Health & Fitness, Inc., 572 U.S. 545, 553 (2014) ("[] Patent Act does not define "exceptional," so it is construed in accordance with its ordinary meaning.").

26 Thus, while it is logically possible that, on their own accord, major fossil fuel companies will rapidly transition to clean energy and remove their legacy GHG emissions, there is no evidence that will be done and Petitioners deem that to be exceedingly improbable.

27 The Agency, accordingly, needs pursue two proceedings. In the first, it must determine whether the subject chemical substances or mixtures present an unreasonable risk of injury. In the section, it needs to craft the set of requirements requisite to eliminating the unreasonable risk.

Congress defined the term "manufacture" expansively, to include "to produce," as well "to import into the customs territory of the United States." 15 USC § 2602(9).[28] Accordingly, the full set of activities to be considered in the Agency's unreasonable risk evaluation, pursuant to TSCA §5, includes the production, importation, processing, distribution in commerce, use and disposal of the subject chemical substances and mixtures, and *any combination of such activities*.

As for the term "unreasonable," in "unreasonable risk," it too is not expressly defined in TSCA. Still, its meaning in the statute is rendered clear by recent statutory history. Thus, whereas for its first 40 years the statute compelled EPA, for its unreasonable risk determination, to balance, albeit not necessarily in a formal way,[29] the costs of the proposed regulation with the benefits of the substance or mixture to be banned or restricted, by its 2016 amendments Congress ended that balancing and directed EPA to make the unreasonable risk determination on the basis of a risk evaluation that it must conduct "without consideration of cost or other nonrisk factors."[30] In that context, then, a risk does not become reasonable, in the sense of "warranted,"[31] by a showing that the running of it will result in lowered financial cost. Rather, in considering a significant risk of injury to health or the environment from a chemical substance or mixture, that risk must be deemed "unreasonable" unless the running of it is necessary to the avoidance of a greater injury to health or the environment.

The evidence herein establishes that the "manufacture, processing, distribution in commerce, use or disposal," TSCA §6, of the subject chemical substances and mixtures induce and exacerbate climate change – "[t]he existential threat to human existence as we know it,"[32] among other injuries to health and the environment. Accordingly, the continued imposition and exacerbation of that risk must be deemed unreasonable – unless it is unavoidable.

Further, upon its determination, that "the manufacture,[33] processing, distribution in commerce, use, or disposal of a chemical substance . . . presents an unreasonable risk of injury to health or the environment," EPA "*shall* by rule," *Id*. (emphasis added) impose requirements, as necessary, so that the chemical substance "no longer presents such risk." *Id*. Accordingly, in the second proceeding, that is, the relief stage, EPA must consider whether it should impose one

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28 *See also*, TSCA §13, 15 USC 2612 (requiring the Secretary of the Treasure to bar entry to the US of "any chemical substance, mixture, or article containing a chemical substance or mixtures" that "fails to comply with any rule in effect" under TSCA").

29 House Report 94-1341 on TSCA (July 14, 1976) at 14.

30 Frank R. Lautenberg Chemical Safety for the 21st Century Act, 114 P.L. 182, 130 Stat. 448, 2016 (enacting H.R. 2576 adding current TSCA §6(b)(4)(A), 15 USC §2605(b)(4)(A).

31 Webster's provides, among synonyms for "unreasonable," the term "unwarranted."

32 Kate Sullivan, Biden says the climate crisis is "the existential threat to human existence as we know it," CNN, Nov. 2, 2021, https://www.cnn.com/world/live-news/cop26-climate-summit-intl-11-01-21/h_51ac65e9640565572a1707e2fef6cb50.

33 As employed in the statute, and so in this Petition, the term "manufacture" includes within its meaning "import" and "produce." 15 USC § 2602(9). As also employed there and herein, the statutory term "environment" includes "water, air, and land and the interrelationship which exists among water, air, and land and all living things." 15 USC § 2602(6). For completeness, here, we note as well that the term "commerce" includes within its meaning "trade, traffic, transportation." 15 USC § 2602(3).

or more out of a set of seven Congressionally specified requirements to address and eliminate the unreasonable risk.[34]

V. PROCEDURAL HISTORY: TWO PETITIONS UNDER TWO TSCAS

Petitioners here address the TSCA Section 21 requirements, 15 USC §2621, in part by discussing the Agency's 2015 treatment[35] of an earlier petition filed by present Petitioner Viviani and the Center on Biological Diversity (CBD). That 2015 Petition sought an unreasonable risk finding specifically with respect to CO_2.[36]

Though similar in some ways, the 2015 Petition requested that EPA render a TSCA §6 unreasonable risk finding principally with respect to injury to the oceans, i.e., ocean acidification and warming caused by CO_2 emissions. The present Petition seeks the Agency's determination with respect not only to CO_2, but the full gamut fossil fuels and their associated emissions (including GHG emissions), as well as other GHG sources. And the case for the present Petition cites to their impact the public health and all significant realms of the environment. Petitioners emphasize, however, that impacts to the ocean environment remain important in the present Petition; indeed, injury to the ocean has mounted since EPA's rejection of the 2015 Petition. But the unreasonable risk determination requested by Petitioners here requires the Agency to consider the imposition not only to the oceans, nor even to water in general, but *also* with respect to impacts to the air, to the land, and to "the interrelationship which exists among and between water, air, and land and all living things." TSCA §5(a) and §2(7), 15 USC §2605(a) and §2602(7).

EPA offered several arguments for its earlier refusal to issue an "unreasonable risk" finding.

First, and most important here, the Agency had argued that it could not make the requested unreasonable risk finding because the earlier petition failed to provide sufficient data for the Agency to adequately analyze *the costs* of a requested rule, and because the earlier petition had not delineated a sufficient yet "least burdensome" requirement. Second, EPA maintained that TSCA §6(a)(7)(C), providing the Agency with authority to impose a "replace or repurchase" requirement on manufacturers, did not authorize it to compel removal of legacy fossil fuel emissions – in part because CO_2 is a mere by-product of industrial activity that does not move in the stream of commerce.[37]

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34 Congress also specified, however, that where a specific risk to health or the environment "could be eliminated or reduced to a sufficient extent by actions taken under . . . other Federal law[]" also administered by the Agency, then that should be used – unless in the Agency's discretion it is "in the public interest to protect against such risk" by taking action under TSCA. TSCA §9(b)(1), 15 USC 2608(b)(1). Accordingly, even if another statute were available to resolve an aspect of the fossil fueled climate crisis, Congress expressly reserved to EPA the option of proceeding under TSCA.

35 EPA, Reasons for Agency Response; TSCA Section 21 Petitions: Carbon Dioxide Emissions and Ocean Acidification, Oct. 6, 2015, at https://www.regulations.gov/document/EPA-HQ-OPPT-2015-0487-0001. *See also*, https://www.epa.gov/assessing-and-managing-chemicals-under-tsca.

36 *See* https://www.epa.gov/sites/default/files/2015-09/documents/petition_oa_tsca_2014_final_2.pdf

37 We note, for completeness, that EPA also maintained that the earlier petitioners failed to adequately specify the rule they sought, and that they retained no right under TSCA to request EPA consider use of legal authority other than TSCA to address the relevant risks.

A. Unreasonable Risk

Petitioners emphasize here, most importantly, that several of the Agency's earlier arguments no longer obtain, and thus simply cannot tell against the instant Petition. The reason? Because, on June 22, 2016, Congress substantially amended TSCA.[38] As EPA itself observes, TSCA now compels the Agency to evaluate chemicals "against a new risk-based safety standard to determine whether a chemical use poses an 'unreasonable risk'." In particular, the Agency notes that such a risk evaluation now must *exclude* consideration of costs or non-risk factors.[39] That was a critical and long-overdue change that the Agency itself describes as having "radically transformed" the statute.[40]

Accordingly, under the revised statute, EPA's unreasonable risk determination now must be "in accordance" with a risk evaluation that the Agency must conduct "*without consideration of costs or other nonrisk factors*. . . ." TSCA §§6(a), 15 USC 2605(a) and §§6(b)(4)(A), 15 USC 2605(b)(4)(A) (emphasis added). Questions as to the cost of a proposed requirement, or whether a method of constraining fossil fuel GHG emissions is the 'least burdensome,' simply no longer may be entertained by the Agency in determining unreasonable risk for the subject chemical substances and mixtures.[41]

Petitioners note here that EPA in the past has considered certain risks from chemicals to be unreasonable, thus compelling it to regulate under TSCA §6(a) – including those from mixed mono and diamides of an organic acid,[42] triethanolamine salt of a substituted organic acid,[43] triethanolamine salt of tricarboxylic acid,[44] and hexavalent chromium-based water treatment chemicals in cooling systems.[45] But the imposed risk of injury to health and the environment (as well as *actual* injury) stemming from fossil fuels and other GHG sources is orders of magnitude greater than the above-referenced risks. Accordingly, Petitioners hold that EPA should proceed in no less an expedited fashion to address the unreasonable risk from the subject chemical substances and mixtures.

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38 See https://www.congress.gov/114/plaws/publ182/PLAW-114publ182.pdf.

39 EPA, Highlights of Key Provisions in the Frank R. Lautenberg Chemical Safety for the 21st Century Act, available at https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/highlights-key-provisions-frank-r-lautenberg-chemical. TSCA §§6(a), 15 USC 2605(a) and §§6(b)(4)(A), 15 USC 2605(b)(4)(A). [Emphasis added.]

40 Press release, EPA Proposes to Ban Ongoing Uses of Asbestos, Taking Historic Step to Protect People from Cancer Risk, April 5, 2022, available at https://www.epa.gov/newsreleases/epa-proposes-ban-ongoing-uses-asbestos-taking-historic-step-protect-people-cancer-risk.

41 Indeed, even prior to the recent strengthening amendments, EPA had responded favorably, in part, to a TSCA §21 petition that it nonetheless deemed to lack sufficient facts to assess a "least burdensome" requirement. However, instead of commencing an immediate rulemaking docket, EPA opened "a proceeding to investigate whether and what type of regulatory or other action might be appropriate to protect against risks posed by formaldehyde emitted from pressed wood products. EPA, Formaldehyde Emissions from Composite Wood Products; Disposition of TSCA Section 21 Petition (June 26, 2008) available at https://www.regulations.gov/document/EPA-HQ-OPPT-2008-0267-0032. On July 27, 2016, EPA finalized a rule to reduce exposure to formaldehyde vapors from certain wood products produced domestically or imported into the United States. *See* https://www.epa.gov/formaldehyde/formaldehyde-emission-standards-composite-wood-products.

42 CFR 747.115

43 40 CFR 747.195

44 40 CFR 747.20

45 40 CFR 749.68

Importantly, here, Petitioners emphasize that the instant Petition seeks only EPA's unreasonable risk determination. That will require EPA to initiate a rulemaking process, but it is not Petitioners' burden *here* to propose in detail requirements that EPA should propose following its determination. Rather, Petitioners are obliged here only to provide risk factors that would support the unreasonable risk determination. Upon this petition's submittal, then, EPA is at an early stage in its process,[46] so that, again, EPA here must decide only the question whether it should grant the petition. Much less information, at this stage, is required than that which is needed to assess the range of alternatives required for final policy choices. Again, here, Petitioners seek Agency action in two phases: (1) the risk determination, and then (2) commencement of a rulemaking proceeding.[47, 48]

B. Stream of Commerce

EPA also rejected the 2015 Petition's suggestion "that EPA [] use its authority under TSCA §6(a)(7)(C) to require emitters to take steps to mitigate or sequester past CO_2 emissions," on the ground that the provision "is intended to address chemical substances and mixtures that move in the stream of commerce, not air pollution that is a byproduct of industrial and other activity on a global scale."[49]

In relevant part, TSCA §6(a)(7) enables EPA, upon its determination that a chemical substance or mixture presents an unreasonable risk of injury to health or the environment, to impose:

> [a] requirement directing manufacturers or processors of such substance or mixture (A) to give notice of such determination to distributors in commerce of such substance or mixture and, to the extent reasonably ascertainable, to other persons in possession of such substance or mixture or exposed to such substance or mixture, (B) to give public notice of such determination, and (C) to replace or repurchase such substance or mixture as elected by the person to which the requirement is directed.

In its 2015 rejection, EPA indicated that it reads §6(a)(7)(C) "as applying when a distinct person or persons who received the chemical substance or mixture and from whom the manufacturer or processor can elect to repurchase or replace can be identified." EPA was therefore presuming that a requirement that it might impose under provision (C) in the above subparagraph must apply far more narrowly than requirements it may apply in response to provisions (A) and (B) – which, on their terms, apply not only where persons are "in possession

46 *See EPA's Action Development Process*. Guidance for EPA Staff for Developing Quality Actions (Revised 2011).

47 Nonetheless, to assist the Agency's preparation for its subsequent consideration of factors, including cost, that would be relevant to an appropriate rulemaking, Petitioners here provide facts deriving not only from scientific studies of major risks to health and the environment imposed by the subject chemical substances and mixtures, but also information that may aid EPA's evaluation of possible methods of risk reduction, including options for reducing atmospheric concentrations of CO2 and CH4 through economic incentives, trading, and regulation. However, Petitioners expressly reserve the option to submit additional material once the Agency commences a rulemaking process and opens a docket for the purpose. 15 USC §2691.

48 *Citizens for a Better Environment v. Thomas* No. 85 C 8000 (704 F. Supp. 149, 28 ERC 1841) (N.D. Ill. January 10, 1989) ("Section 2620 was adopted by Congress to allow citizens to prod the EPA into action by petitioning for the initiation of rulemaking procedure which must be carried out under the Administrative Procedures Act (APA) . . . .").

49 EPA, op. cit. nte. 33.

of such substance or mixture," but also where persons are "exposed to such substance or mixture," and to the "public" as whole.

Irrespective of the question whether EPA's interpretation of TSCA §6(a)(7)(C) was correct, Petitioners here note that an adjacent subparagraph of the statute, namely TSCA §6(a)(6)(A), clearly permits the Agency to address legacy emissions. Specifically, that provision authorizes EPA to impose requirements "prohibiting or otherwise regulating any manner or method of disposal of such substance or mixture. . .by its manufacturer or processor or by any other person who uses, or disposes of, it for commercial purposes." 16 USC §2606(a)(6)(A).

Moreover, EPA's prior thought that CO_2 cannot be both a substance that moves in the stream of commerce and a byproduct of global industrial activity is not correct. Fossil fuels are produced and distributed in the stream of commerce in full light of their CO_2-formation potential. Indeed, CO_2 is not a mere byproduct, but rather the intended chemical product of fossil fuel combustion. Energy released by combustion materializes only when the CO_2 carbon-oxygen double bonds are formed. It is therefore in the instant that CO_2 is formed that the energy can be captured. After that, the generated CO_2 is either emitted to the atmosphere (its predominant fate, to date) or else captured for disposal or commercial utilization.

Petitioners note, as well, that CO_2 is the chemical product that drives the pistons in an internal combustion engine. The pistons are moved only when the carbon in the fuel (gasoline, diesel, or natural gas) is combined with oxygen to form CO_2 – thereby increasing the number of moles of gas, and the pressure in the pistons, and thus powering the engine to do the required work. In addition, the heat released from forming the carbon-oxygen double bonds expand all the other gases (principally, N_2) in the piston as well. Again, the CO_2 may then be discarded as (increasingly dangerous) exhaust – but only after it has been employed to power the internal combustion engine.

Further, CO_2 itself is manifestly moving in the stream of commerce. According to a 2019 IEA report, some 130 million tonnes (MMT) of CO_2 is used in urea manufacturing for fertilizers, and 70 to 80 MMT CO_2 is used in enhanced oil recovery. "Other commercial applications include food and beverage production, metal fabrication, cooling, fire suppression and stimulating plant growth in greenhouses."[50] Moreover, a carbon removal market is fast developing. Indeed, recent action by the US government evinces a vigorous determination – to the tune of tens of billions of taxpayer dollars – to develop a wide-reaching carbon removal industrial base.[51] Federal carbon removal action extends beyond research and development to substantial, if capped, taxpayer funding of actual CO_2 removals. Indeed, a "credit for CO_2 sequestration was added to the tax code in . . . 2008," considerably enlarged in the Bipartisan

50 IEA, Putting CO_2 to Use, September 2019, available at https://www.iea.org/reports/putting-co2-to-use.

51 *See* Congress' recent commitment of $11.5B to carbon capture pilots and demonstrations, including $6.5B for "new carbon management" projects – $3.5B of which is for direct air capture regional "hubs" (each of which is to have the capacity to capture, store or utilize 1MMT of CO2/year) and $2.5 billion of which is targeted to "new or expanded large-scale commercial carbon sequestration projects and supporting transport infrastructure." In addition, "[t]he newly established Office of Clean Energy Demonstrations was allocated $3.5 billion in the bi-partisan infrastructure bill, for carbon capture demonstrations and large pilots and $8 billion for hydrogen hubs including at least one utilizing fossil fuels with carbon management." Meanwhile, the US Department of Energy Loan Programs Office "will coordinate the Carbon Dioxide Transportation Infrastructure Finance and Innovation Program Account" with $2.1 billion to finance CO2 transportation. US Department of Energy, Fact Sheet: The Infrastructure Investment And Jobs Act: Opportunities to Accelerate Deployment in Fossil Energy and Carbon Management Activities, at https://www.energy.gov/sites/default/files/2021-12/FECM%20Infrastructure%20Factsheet.pdf, visited April 20, 2022.

Budget Act of 2018, and is anticipated by the Joint Committee on Taxation to cost the Treasury an estimated $0.6 billion over the 2021-30 period.[52,53] Significant carbon removal investments also have been announced recently by a consortium of big tech and financial services firms,[54] while one company has committed not only to going carbon negative by 2030 but also to removing, by 2050, "all the carbon the company has emitted either directly or by electrical consumption since it was founded."[55] In pursuit of those goals, Microsoft recently purchased "carbon removal credits from 21 projects"[56] utilizing, in part, funds raised by an internal carbon fee that the company charges its business groups.[57, 58] A database maintained by CarbonPlan details 219 such projects worldwide with, by our count, 89 projects by 44 companies operating throughout the US.[59]

Moreover, TSCA is not limited to restricting only those chemical substances that are "in commerce" or that present no global scale challenge. For one thing, such *distribution* is but one of five activities within the reach of the statute. TSCA §6(a).[60] Also, PCB-contaminated rags and sewage sludge were restricted under TSCA, yet neither were is in commerce to the extent of CO_2.[61] As to global scale, CFCs and dioxin were properly regulated at one time pursuant to TSCA even though they were at one time produced on a global scale. Moreover, the Agency restricted CFCs under TSCA even though it believed, in 1978, that the health and environmental consequences of ozone depletion and global warming were not well understood.[62]

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52 Congressional Research Service, "The Tax Credit for Carbon Sequestration (Section 45Q)," as updated June 8, 2021, and available at https://sgp.fas.org/crs/misc/IF11455.pdf.

53 The credit "is computed per metric ton of qualified carbon oxide captured and sequestered." Id.

54 These include, most recently and prominently, a $925 million commitment by Google, Meta (formerly known as Facebook), Shopify, Stripe. Robinson Meyer, We've Never Seen a Carbon-Removal Plan Like This Before, The Atlantic, https://www.theatlantic.com/science/archive/2022/04/big-tech-investment-carbon-removal/629545/. Visited April 20, 2022. According to Meyer, "In a world awash in overhyped corporate climate commitments, this is actually a big deal."

55 https://blogs.microsoft.com/blog/2020/01/16/microsoft-will-be-carbon-negative-by-2030/

56 Microsoft Carbon Removal: An update with lessons learned in our second year (March 2022) at 9, available at https://query.prod.cms.rt.microsoft.com/cms/api/am/binary/RE4QO0D (visited April 21, 2022). Id. at 13-17.

57 Microsoft Carbon Removal: An update with lessons learned in our second year (March 2022) at 9, available at https://query.prod.cms.rt.microsoft.com/cms/api/am/binary/RE4QO0D (visited April 21, 2022).

58 In addition, in recognition that "market needs to go even further, faster," the company recently made a $100 million grant to a Bill Gates company aimed at accelerating "the development of technology solutions needed to reach global net zero," including direct air capture, energy storage and sustainable fuels. Lucas Joppa, Further, faster, together: Microsoft donates $100 million to Breakthrough Energy Catalyst to accelerate and scale climate tech (September 19, 2021), available at https://blogs.microsoft.com/blog/2021/09/19/further-faster-together-microsoft-donates-100-million-to-breakthrough-energy-catalyst-to-accelerate-and-scale-climate-tech/ (visited April 21, 2022).

59 *See* https://carbonplan.org/research/cdr-database, visited April 23, 2022. Petitioners here observe, as well, that in TSCA Congress established that "'commerce' means trade, traffic, transportation, or other commerce . . . between a place in a State and any place outside of such State. . ." TSCA §2(3), 16 USC 2602(3).

60 15 USC §2605(a). Unreasonable risk may be determined, as well, on the basis of injury to health or the environment stemming from the chemical substances' manufacture, processing, use, or disposal. Further, the Agency is also authorized to base its determination on "any combination of such activities." Id.

61 40 CFR §761 (Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions) at §761.61 (PCB Remediation Waste).

62 EPA, Fully Halogenated Chlorofluoroalkanes, Final Rules, 43 FR 11318, stating, *inter alia*, that:

By its terms, TSCA is not constrained to bite-sized problems. Indeed, Congress charged EPA with protecting not only public health but also "the environment," and expressly defined the term expansively to include "water, air, and land *and the interrelationship which exists among and between water, air, and land and all living things*." TSCA §2 (6), 15 USC 2603 (6). (Emphasis added.) The definition admits of no local or locale limitation.[63]

VI. ARGUMENT, REQUEST, and PETITION

The present Petition aims in part to further the nation's international commitments and interests,[64] yet it is based squarely on existing federal law. In particular, Petitioners aim to establish a firm foundation for an effective US decarbonization program. That firm foundation is constructed herein pursuant to the clear terms of the Toxic Substances Control Act (TSCA), as amended in 2016, along with related statutes administered in whole or in part by EPA.

On the basis of their review of the relevant science (*see* Part II of the instant petition) Petitioners think that there is no question but that the subject chemical substances and mixtures present an unreasonable risk of injury to health or the environment, compelling the requested determination and then a subsequent rulemaking action under TSCA §6, 15 USC 2605. Indeed, the evidence further establishes that the subject chemical substances and mixtures present "an imminent and unreasonable risk of serious or widespread injury to health or the environment," requiring EPA to commence legal action in the absence of an immediately-effective rule. TSCA §7, 15 USC 2606. *See also*, 15 USC 2601(b)(2) ("It is the policy of the United States. . . to take action with respect to chemical substances and mixtures which are imminent hazards.").

Under the Act, "chemical substances" include those with a particular molecular identity, whether occurring in nature or as the result of a chemical reaction. TSCA §3; 15 USC

"Chlorofluorocarbons produce a risk to human health and the environment by causing depletion of the ozone layer. Upon release from an aerosol product or other source, the compounds diffuse slowly to the stratosphere. When they reach the stratosphere, they undergo photochemical decomposition which liberates free chorine radicals. The chlorine radicals enter into a catalytic chain reaction with ozone molecules, and the net result is a depletion of the ozone layer. . .

"While the effects of ozone depletion are very difficult to quantify, they are quite serious. The major immediate concern is that increased UV radiation leads to a statistically significant increase in skin cancer. Some negative effects on plants and animals are likely. There are also predictions of adverse effects because of an increase in the Earth's temperature ("green house effect") and changes in climate. The health and environmental consequences of these and other changes are not well understood. However, there is considerable concern that these consequences will produce significant adverse effects."

63 On the other hand, Petitioners observe that the Agency may specify the geographic reach of TSCA §6(a) requirements that it applies to deal with the unreasonable risk of injury to health or the environment: "Any requirement (or combination of requirements) imposed under this subsection may be limited in application to specified geographic areas." 16 USC §2606(a)(final sentence of subsection).

64 The present petition's demand for a phaseout of the subject chemical substances and mixtures is also necessary to meet the aims of the pending international covenant to limit the severe imposition of plastics on human health and the environment. *See* United Nations Environment Assembly of the United Nations Environment Programme, End plastic pollution: Towards an international legally binding instrument (Draft Resolution: March 2, 2022)(Noting with concern that "the high and rapidly increasing levels of plastic pollution represent a serious environmental problem at a global scale, negatively impacting the environmental, social and economic dimensions of sustainable development"); Altman and Dey, The World Has One Big Chance to Fix Plastics, The Atlantic (March 15, 2022)(observing, inter alia, that "the response of producer nations, especially the U.S., the largest contributor to plastic waste, could ultimately shape the treaty's success"); CIEL et al, Plastic & Climate: The Hidden Costs of a Plastic Planet (May 2019)(concluding that "[n]othing short of stopping the expansion of petrochemical and plastic production and keeping fossil fuels in the ground will create the surest and most effective reductions in the climate impacts from the plastic lifecycle.").

§2602(2)(A). The greenhouse gases CO_2 and CH_4, as well as nitrous oxide (N_2O) and certain fluorinated gases, fit squarely within TSCA's definition of *chemical substances*.[65]

We note, as well, that Congress incorporated into its definition "*any combination* of such substances occurring in whole or in part as a result of a chemical reaction or occurring in nature." 15 USC §2602(2)(A)(i). Certain fossil fuels occurring in nature, including coal and crude oil, are thus TSCA chemical substances. So too are certain petroleum products derived in part from the *chemical processing* of reforming, cracking, and coking; these include jet fuel, LPG and gasoline.

Other petroleum products derived from the *physical processing* of crude oil via distillation are deemed *chemical mixtures* under TSCA, and these include naptha, kerosene, diesel distillate, medium and heavy gas oil, and crude residuum. Such fossil fuel mixtures also may be restricted under TSCA, where their manufacture, distribution, use or disposal presents an unreasonable risk.[66]

That the subject chemical substances and mixtures present not only an unreasonable but also an imminent risk of serious and widespread injury has been exhaustively established in credible reports and documents available to the Agency, including many adopted by the Agency or by other US government units. Petitioners, in Part II of this Petition, present relevant evidence. In addition, the Agency should also credit supplemental information available to it, where warranted by their merits, of relevant risks arising from subject chemical substances and mixtures that, for reasons *inter alia* of manageability and brevity, Petitioners neither expressly address nor incorporate into the Petition. Indeed, the Agency undoubtedly retains considerable relevant information in the form of submissions from fossil fuel companies and other sources of the risks presented by subject chemical substances and mixtures. After all, each of them is bound by law to submit information in their possession "immediately" to EPA, which information "reasonably supports the conclusion that such substance or mixture presents a substantial risk of injury to health or the environment." 15 USC 2607(e).

A. EPA Legal Action Against Imminent, Serious, Widespread, Unreasonable Risk

1. Right to Demand Legal Action and thus an Immediately Effective Proposed Rule

Petitioners retain a derivative right to demand that EPA exercise its authority to take legal action to contain and eliminate the unreasonable, imminent, serious and widespread risk of injury to health and the environment presented by the subject chemical substances and mixtures. Petitioners here invoke that right and demand such action. Further, in light of their grievances concerning the nation's to-date failure to seriously confront the climate emergency, the undersigned petition here, as well, under the first amendment to the Constitution.

Pursuant to TSCA §20, Petitioners may petition for a §6 rule addressing the unreasonable risk presented by the subject chemical substances and mixtures. Upon its acceptance of the Petition, EPA must open a rulemaking docket and issue a proposed rule for notice and

65 *See* US EPA, Overview of Greenhouse Gases, available Aug. 5, 2021 at www.epa.gov/ghgemissions/overview-greenhouse-gases.

66 *See* The process of crude oil refining, Department of Energy and Mineral and Engineering, PennState, https://www.e-education.psu.edu/eme801/node/470, visited April 19, 2022.

comment." Administrative Procedure Act (APA), 5 USC 553.[67] In light of the emergency nature of the climate crisis, Petitioners here also urge EPA to issue a proposed rule that is not only appropriately strong but immediately effective,[68] so as to at least constrain if not eliminate the risk involved – one that is also imminent, serious, and widespread.[69] TSCA 6(d)(3). It is only in this way that Petitioners can reasonably ensure that their requested rulemaking will not serve as a vehicle for further delay as to actions our nation needs to take to secure our children's future. Congress anticipated this type of situation and, accordingly, specified that such an unreasonable, serious and widespread risk "shall be considered imminent if it is shown that the manufacture, processing, distribution in commerce, use, or disposal of the chemical substance or mixture, or that any combination of such activities, is likely to result in such injury to health or the environment *before a final rule under [TSCA §6] can protect against such risk*. TSCA §7(f), 15 USC §2606 (f) (emphasis added).

Materials in Part II of this Petition establish that the subject chemical substances and mixtures "present an imminent and unreasonable risk of serious or widespread injury to health or the environment.15 USC §2606 (f). Indeed, Petitioners establish, herein, that these substances and mixtures are *already* the cause of serious and widespread injury to health and the environment. Accordingly, no final rule under TSCA §6 can *prevent* such injury entirely; it is only *additional* injury that can be prevented. The risk presented by the subject chemical substances and mixtures is therefore "imminent" under the law. TSCA §7(f), 15 USC 2606(f). Because delay will compound the relevant injury, a highly protective and immediately effective proposed rule is required.

TSCA provides, however, that before EPA can file any such immediately-effective proposed rule, to constrain the risk, the Agency must first file a legal action in district court and secure relevant relief. TSCA §6(d)(3)(A)(ii)., 15 USC 2605(d)(3)(A)(ii). Accordingly, EPA **must** bring legal action in a district court to address the problem. 15 USC 2606(a)(2) ("[t]he Administrator *shall* commence in a district court. . . with respect to such substance or mixture.") (Emphasis added.). 15 USC §2606 (a)(2).

The federal court considering such legal action retains authority to "grant such temporary or permanent relief as may be necessary to protect health or the environment from the unreasonable risk." 15 USC §2606 (b)(1). That relief may run against "any person who manufactures, processes, distributes in commerce, uses, or disposes of the imminently hazardous chemical substance or mixture [here, the oil, gas or coal] or any article containing such a substance or mixture." 15 USC §2606(a)(1)(B). Congress even authorized the courts to compel EPA to seize such chemical substances or mixtures, 15 USC §2606(a)(1)(A), that present "an imminent and unreasonable risk of serious or widespread injury to health or the environment."

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67 In the alternative, under the APA, EPA could publish a mere "description of the subjects and issues involved," but doing so, although preferable to doing nothing, would not adequately address the present crisis.

68 Immediately effective, that is, "upon publication in the Federal Register of the proposed rule." TSCA 6(d)(3)(A), 15 USC 2605(d)(3)(A).

69 Serious or widespread injury to health or the environment stemming from subject chemical substances and mixtures is already apparent and severe, but much injury is still to come, as Petitioners make clear in Part II of the Petition, stemming from the combination of legacy and continuing emissions. The risk therefore is also imminent. *See*, e.g., House Report 94-1341 (July 14, 1976) at 4 ("[W]hile the unreasonable risk of harm must be imminent, the physical manifestations of the harm itself need not be. An imminent hazard may be found at any point in the chain of events which may ultimately result in damage to the health or environment.").

15 USC §2606(f). Again, that unreasonable risk is to be identified by EPA "without consideration of costs or other nonrisk factors."[70]

2. Demand for Legal Action

Accordingly, Petitioners here request that the Agency take legal action, in federal court against, at minimum, the major fossil fuel producers and importers with operations or assets in, or doing business within, the United States, and demanding in relief that they:

(a) Provide public notice

Fossil fuel defendants must be required to give public notice that the manufacture (including production and importation), processing, distribution in commerce, use, and disposal ("the Activities") of the subject chemical substances and mixtures, and emissions stemming from such activities, present an imminent and unreasonable risk of serious and widespread injury to human health and the environment, and

(b) Provide a detailed accounting

Fossil fuel defendants must be required to provide a detailed accounting of the quantity of Scope 1, Scope 2, and Scope 3 emissions[71] attributable to each company's Activities, along with a detailed accounting of legacy GHG emissions they have removed and durably sequestered from the atmosphere.

The requested Order should direct Defendant producers to issue such public notices on an annual basis, which notices shall reprise the content of subparagraph (a) above, until such time as the subject chemical substances and mixtures no longer present an unreasonable risk of injury to health or the environment, and the content of subparagraph (b) above, updated to show both prior year and cumulative figures, until such time as the company has verifiably caused the removal of a CO2-equivalent amount of legacy GHG emissions. The Agency should further request, in relief, that the court deciding the case retain continuing jurisdiction to ensure compliance with its Order.

B. Petition for Unreasonable Risk Determination and Subsequent Rulemaking

Irrespective of whether EPA brings a civil action, Petitioners are entitled, where the subject chemical substances and mixtures present an "unreasonable risk of injury to health and the environment," to petition the Administrator for a rulemaking under TSCA §6, 15 USC 2605. TSCA §21, 15 USC §2620. Petitioners invoke that right here and so petition.

70 EPA's use of its authority to commence such a civil action to phaseout production, release and disposal of imminently hazardous substances is not affected by any prior determination under TSCA Section 6, 15 USC §2605. 15 USC §2606 (a)(1)(C).

71 "Scope 1 emissions are direct greenhouse (GHG) emissions that occur from sources that are controlled or owned by an organization. . . Scope 2 emissions are indirect GHG emissions associated with the purchase of electricity, steam, heat, or cooling." https://www.epa.gov/climateleadership/scope-1-and-scope-2-inventory-guidance

"Scope 3 emissions are the result of activities from assets not owned or controlled by the reporting organization, but that the organization indirectly impacts in its value chain." https://www.epa.gov/climateleadership/scope-3-inventory-guidance

1. Necessary

TSCA §21 requires petitioners for a TSCA §6 rulemaking to "set forth the facts which it is claimed establish that it is necessary to issue, amend, or repeal a rule. 15 USC 2620(a)(1).

Petitioners aver such facts below and throughout the Petition. As well, Petitioners establish in Part II that it is critically important that the subject chemical substances and mixtures be phased out and their atmospheric surfeit reduced.[72] In that context, EPA action pursuant to the requested rule is necessary. Three sets of additional facts support that assertion:

(a) Insufficient US action to date

EPA has been attempting, in fits and starts,[73] to restrict fossil fuel and other GHG emissions since at least 2007 – albeit pursuant to other statutes. But those efforts to date have set no fossil fuel phaseout course. Neither have they put the United States on track to meet its own nationally-determined obligation[74] to slash net greenhouse gas emissions 50-52 percent below 2005 levels by 2030, nor to achieve "100 percent carbon pollution-free electricity" by 2035,[75] nor to "exceed [] a straight-line path to achieve net-zero emissions, economy-wide, by no later than 2050."[76] The President has both acknowledged and emphasized that unabated GHG emissions present an existential threat to the nation and humanity, but that articulated reality has yet to be reflected in US policy. The mismatch is reflected, in part, in exceptionally high US per

72 Petitioners observe, as well, that the set of actions they propose for consideration in a TSCA §6 rulemaking may be necessary even if not sufficient to address the climate crisis. We take a moment here also to preemptively answer one possible objection, namely that strong "unilateral" US action to phase out GHG emissions might relieve pressure on other nations. Petitioners actually think the reverse would be true, namely that strong climate action in the US would encourage similarly strong (or stronger) action in other nations. But in order to ensure a level playing field for highly trade-exposed US business, the Agency in rulemaking should take care to impose on imports restrictions that are no less rigorous than those imposed on US products. That aspect of the program should be backed up, moreover, by the exercise of authority residing with the Secretary of Treasury, where warranted, to restrict or even "refuse entry into the customs territory" of the US for any noncompliant "chemical substance, mixture, or article containing" such a restricted substance or mixture. TSCA §13, 15 USC §2612.

73 For instance, with respect to "the third largest greenhouse gas (GHG) emitting industrial sector among stationary sources behind Power Plants and Petroleum and Natural Gas Systems," EPA, 2013 GHGRP Industrial Profiles, https://www.epa.gov/sites/default/files/2016-11/documents/refineries_2013_112516.pdf, see, EPA, Standards of Performance for Petroleum Refineries, 73 FR 35838, 35859 (June 24, 2008) (declining to restrict GHG emissions from petroleum refineries on the ground, among others, that "the regulation of GHG emissions raises numerous issues that are not well suited to initial resolution in a rulemaking directed at an individual source category," but promising to explore "the many complex interconnections between the relevant sections of the Clean Air Act" and "lay[] the foundation for a comprehensive path forward with respect to regulation of all GHG.").

74 The United States of America Nationally Determined Contribution: Reducing Greenhouse Gases in the United States: A 2030 Emissions Target, submitted pursuant to Article 4 of the Paris Agreement to the United Nations Framework Convention on Climate Change, April 21, 2021, at pages 3 and 6. Available at: https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/United%20States%20of%20America%20First/United%20States%20NDC%20April%2021%202021%20Final.pdf.

75 *Id*.

76 *See also*, https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/22/fact-sheet-president-biden-sets-2030-greenhouse-gas-pollution-reduction-target-aimed-at-creating-good-paying-union-jobs-and-securing-u-s-leadership-on-clean-energy-technologies/.

capita GHG emissions,[77] and US commitments submitted pursuant to the Paris Agreement to date have been honored in the breach.[78]

The rulemaking requested in the Petition is necessary, then, because the Agency has declined to date to undertake the requested or equivalent actions on its own.

(b) Untouched legacy carbon emissions

The Agency has not yet imposed *any* requirement pursuant to *any* statute upon *any* fossil fuel company, or indeed, upon *any* other source of GHG emissions, to remove all, or even a share, of such source's legacy GHG emissions.

Indeed, Petitioners aver that **no other federal statute** – that is, none other than TSCA – authorizes the Agency, even pursuant to rule, to compel the sources of the subject chemical substances and mixtures, including fossil fuel producers and importers (or other potentially liable parties) to remove and securely sequester their legacy GHG emissions. The scientific consensus is that humanity has already far overshot the safe level of atmospheric CO_2 and other GHGs so that, even in conjunction with a rapid yet feasible phaseout of additional quantities of the subject chemical substances and mixtures, at least some substantial carbon removal will be necessary to protect and restore a viable climate system,[79] and thus to protect our children's future.[80]

The rulemaking sought herein, then, is necessary because the Agency has not commenced any significant effort to compel the removal of legacy GHG emissions, and because no other statute confers upon the Agency such authority.

(c) A firm statutory basis for deep decarbonization

No federal statute, other than TSCA, provides the Agency with the needed comprehensive authority and duty to impose requirements prohibiting or restricting the

77 *See* UNEP, Emissions Gap Report 2021 at 15 (deeming the United States and Canada to be "not on track to meet their earlier NDC targets with implemented policies" and 17 (illustrating that US per capita emissions remain far larger than the G20 average, and 4th highest – among those nations in terms of current policies). Available at https://wedocs.unep.org/bitstream/handle/20.500.11822/36992/EGR21_CH2.pdf. *See also*, Carbon Action Tracker, USA Country Summary, Nov. 2021 (rating US climate policies and action as in need of "substantial improvements to be consistent with the Paris Agreement's 1.5°C temperature limit. If all countries were to follow the US approach, warming would reach over 2°C and up to 3°C. The range of policy projections for the US spans two rating categories: 'Highly insufficient" and "Insufficient'.").

78 Jackson, et al., 2019, Persistent fossil fuel growth threatens the Paris Agreement and planetary health. Environ. Res. Lett., 14(12), 121001, doi: 10.1088/1748-9326/ab57b3; Hansen, et al, 2017, Young people's burden: requirement of negative CO2 Emissions, Earth Syst. Dynam., 8, 577–616, 2017, at https://doi.org/10.5194/esd-8-577-2017.

79 Petitioners do not suggest that action solely by US-based producers and importers to phase out and remove a large share of their associated subject chemical substances and mixtures will suffice to restore a viable climate system. We note, however, that pursuant to TSCA §21(b)(1), 15 USC 2620(b)(1), it is petitioners' burden to establish necessity, not sufficiency. Relevant to that burden, therefore, Petitioners have herein adduced facts establishing that humanity has already overshot the safe level of atmospheric GHGs on a CO_2-e basis, so that it is necessary both to rapidly phase out, to the extent feasible, fossil fuel GHG emissions and also remove a substantial share of such legacy GHG emissions. Further, Petitioners aver, based on historical experience, that it is exceedingly improbable that the other major emitting nations, as a whole, will so overachieve their proportionate decarbonization duties as to offset continuing high emissions from the US. It is on a practical basis then, that Petitioners assert that a serious program of deep carbonization is necessary in the US – one that aims with high confidence to ensure that *on net* the aggregate of US sources are carbon-negative by or before 2050.

80 James Hansen, et al., Young people's burden: requirement of negative CO_2 emissions, Earth Syst. Dynam., 8, 577–616, 2017, https://doi.org/10.5194/esd-8-577-2017, July 2017. [DG also cite to recent IPCC reports.]

manufacture, processing, distribution, use or disposal of the subject chemical substances and mixtures until the point that their unreasonable risk is abated. Further, the crystal-clear terms of the statute confer capacity and corresponding duty upon citizens to defend human health and "the water, air, and land and the interrelationship which exists" among them "and all living things" from the onslaught of impacts associated with the subject chemical substances and mixtures emissions.[81]

2. Required determination and mandatory duty

The Agency's first step in response to the Petition must be to determine whether the subject chemical substances and mixtures present an unreasonable risk of injury to health or the environment.

EPA has previously determined that "greenhouse gases in the atmosphere may reasonably be anticipated both to endanger public health and to endanger public welfare." 74 FR 66496, 66497 (Dec. 15, 2009) (evaluating "the mix of six long-lived and directly emitted greenhouse gases: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF6))." In considering the threat to public health, the Agency evaluated "the risks associated with changes in air quality, increases in temperatures, changes in extreme weather events, increases in food- and water-borne pathogens, and changes in aeroallergens." *Id*.

The Agency reaffirmed its endangerment finding in 2015, upon promulgating a rule under the Clean Air Act governing GHG emissions standards for new or modified fossil fuel-fired electric utility steam generating units and stationary combustion turbines. 80 FR 64510,[82] 64530 (Oct. 23, 2015) (citing its enhanced understanding "of the near- and longer-term impacts emissions of CO_2 are having on Earth's climate and the adverse public health, welfare, and economic consequences that are occurring and are projected to occur as a result").

The term "unreasonable risk" is not expressly defined in TSCA, but Congress' intent is nonetheless clear from the plain language and statutory history. Thus, whereas for its first 40 years the statute compelled EPA to consider costs of regulation in its determination of whether an imposed risk was unreasonable, pursuant to the 2016 amendments, Congress directed EPA henceforth to determine whether a chemical substance or mixture presents an unreasonable risk "without consideration of cost or other nonrisk factors." TSCA §6(a), 15 USC 2606(a). Congress further specified that the unreasonable risk determination should include consideration of "a potentially exposed or susceptible subpopulation identified as relevant to the risk evaluation by the Administrator, under the conditions of use." *Id*.

Upon its unreasonable risk determination, EPA **must** commence a rulemaking proceeding. Specifically, TSCA §6 provides that where the Administrator determines that "the manufacture,[83] processing, distribution in commerce, use, or disposal of a chemical

81 "[B]y providing for the protection of the environment [TSCA] includes protection for all living things within the environment." House Report 94-1341, July 14, 1976, at 12.

82 EPA, Standards of Performance for Greenhouse Gas Emissions From New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units, https://www.federalregister.gov/documents/2015/10/23/2015-22837/standards-of-performance-for-greenhouse-gas-emissions-from-new-modified-and-reconstructed-stationary.

83 As employed in the statute, and so in this Petition, the term "manufacture" includes within its meaning "import" and "produce." 15 USC § 2602(9). As also employed there and herein, the statutory term "environment" includes "water,

substance . . . presents an unreasonable risk of injury to health or the environment, the Administrator *shall* by rule" (emphasis added) impose requirements, as necessary, so that the chemical substance "no longer presents such risk"). *Id*.

3. Evaluation of the risk

The top-level statutory subsection as to unreasonable risk, TSCA 6(a), instructs EPA to base its determination on TSCA 6(b)(4)(a). That subparagraph, in turn, provides, as indicated *supra*, that the Administrator, in determining whether the manufacture, processing, distribution, use or disposal of the subject chemical substances and mixtures "present an unreasonable risk of injury to health or the environment," must do so "without consideration of costs or other nonrisk factors. . . ." TSCA §6(a), 2605(b)(4)(A).

EPA is also required to consider "an unreasonable risk to a potentially exposed or susceptible subpopulation identified as relevant . . . by the Administrator, under the conditions of use." *Id*. As for "conditions of use," Petitioners suggest consideration of the present and historic use of fossil fuels including, in particular, the hydrocarbon combustion process that aims to form CO_2 and H_2O, releasing energy in the process.[84]

As for candidate susceptible subpopulations to be considered as at unreasonable risk, Petitioners suggest these include, but are not limited to,[85] children and future generations, individuals at increased personal risk such as the elderly and persons with disabilities, populations at increased risk due to their socioeconomic status or homelessness, and Indigenous and Native communities as well as communities of color.[86]

As explained in Part II, it is not necessary to generate prodigious quantities of subject chemical substances and mixtures to avoid some greater injury to health and the environment; indeed, the generation of GHG emissions by the manufacture and use of fossil fuels presents an unparalleled risk of injury to health and the environment.

In the considered view of the Petitioners, on the basis, in part, of facts they adduce in Part II of this Petition as to associated elevated risks of sea level rise, heat waves, extreme weather events, drought, wildfire, ocean acidification, and air quality, et al. – and

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air, and land and the interrelationship which exists among water, air, and land and all living things." 15 USC § 2602(6). For completeness, here, we note as well that the term "commerce" includes within its meaning "trade, traffic, transportation." 15 USC § 2602(3).

84 *See* University of Calgary, Energy Education, Hydrocarbon combustion, https://energyeducation.ca/encyclopedia/Hydrocarbon_combustion, visited April 20, 2022.

85 Other susceptible subpopulations suitable for such Agency consideration in such an unreasonable risk assessment of subject chemical substances and mixtures could include communities identified as disadvantaged pursuant to the beta version of the Council on Environmental Quality's Climate and Economic Justice Screening Tool (CEJST). *See* https://screeningtool.geoplatform.gov/en/#16.79/11.94947/-121.670349, visited April 19, 2022.

In the CEJST, vulnerability factors accounted for include household and median income, the poverty rate, unemployment, housing costs, median home value, and the proportionate burden of energy costs; anticipated agricultural, population and building loss due to climate linked natural hazards; air-borne PM2.5, traffic density, diesel particulate matter and lead-paint exposures, and proximity to hazardous waste sites, superfund sites, and chemical facilities at high risk for accidents; share of population with asthma, diabetes, or heart disease; high school degree attainment and higher education enrollment; linguistic isolation; and low life expectancy. See Methodology at https://screeningtool.geoplatform.gov/en/methodology#life-exp.

86 *See* Makati et al., Disparities in Distribution of Particulate Matter Emission Sources by Race and Poverty Status, Am J Public Health 2018 Apr;108(4):480-485. doi: 10.2105/AJPH.2017.304297. *See also*, John Oliver, Environmental Racism, Last Week Tonight (May 1, 2022) https://youtu.be/-v0XiUQlRLw.

taking account of the present surfeit of legacy anthropogenic GHG emissions, global warming to date, ocean acidification to date, and the planet's present energy imbalance – it is manifest that the manufacture, processing, distribution in commerce, use, or disposal of the subject chemical substances and mixture, including combinations of such activities, present an unreasonable risk of injury to health or the environment. The Agency should render the determination.

Moreover, because that risk is not unreasonable merely, but also serious, widespread, and imminent, the Agency should commence legal action against producers and importers, at least. Moreover, the Agency should – as soon thereafter as is practicable -- proposed a strong rule with immediate effect.

4. Commencement of rulemaking

Assuming the Agency renders its unreasonable risk determination, it must, within a year following its final risk evaluation, *propose a rule* and publish it in the Federal Register. 15 §2605(c)(1)(A). Moreover, within two years of that final risk evaluation, EPA must also *publish a final rule* in the Federal Register. 15 §2605(c)(1)(B). EPA's rule must include a statement that considers the effects of the subject chemical substances and mixtures on health and the environment, as well as "the reasonably ascertainable economic consequences of the rule" including the rule's "likely effect on the national economy, small business, technological innovation, the environment and public health." 15 §2605(c)(2). Petitioners expressly reserve the option to provide comments to the Agency regarding these consequences and effects.

The above considerations should be factored in by the Administrator, "to the extent practicable," "[i]n selecting among prohibitions and other requirements" for a final rule, §2605 (c)(2)(B), including in evaluating prohibitions or restrictions of use, in assessing whether there are preferable feasible alternatives, and "in setting an appropriate transition period for such action." §2605 (c)(2)(C).

5. Immediate Effect and Unreviewability of Proposed Rule

As was noted, *supra*, EPA's Administrator is authorized to declare a proposed rule effective upon publication in the Federal Register where necessary to protect the public interest from a chemical substance whose production, distribution, use, or disposal imposes an "unreasonable risk of serious or widespread injury to health or the environment," and where, pursuant to 15 USC §2606, a court has granted relief. In this circumstance, the proposed but effective rule will not be considered final agency action for purposes of judicial review. 15 USC §2605(d)(3)(A).

C. Agency Rulemaking Under TSCA

Petitioners, as emphasized *supra*, expressly reserve their option to propose to the Agency further specifications for consideration in a TSCA §6 rulemaking after EPA has rendered the requisite unreasonable risk determination and opens such a rulemaking docket.

Upon EPA's determination that the manufacture, processing, distribution, use, or disposal of the subject chemical substances and mixtures GHG emissions present an unreasonable risk, then TSCA directs EPA to impose one or more of a set of requirements specified by Congress "to the extent necessary so that the chemical substance or mixture no longer presents such risk." These include:

- "prohibiting or otherwise restricting the manufacturing, processing, or distribution in commerce of such substance or mixture." 15 USC §2605 (a)(1), and
- prohibiting or otherwise regulating *any manner or method of disposal* of such substance. 15 USC §2605(a)(6) and 15 USC §2606.[87] (Emphasis added.)

Petitioners note that where the combustion or other use of fossil fuels, as well as other sources of the subject chemical substances and mixtures, results in GHG emissions, such emissions amount to a "manner or method of disposal" of the chemical substance CO_2 and the other subject GHGs. It is indeed a disposal, as Petitioners show herein, that imposes a catastrophically "unreasonable risk of injury to health and the environment."[88]

Indeed, although a fraction of atmospheric CO_2 is captured and used for commercial purposes, or is otherwise removed by human effort and natural processes, a substantial share of it is emitted to and will remain in the atmosphere for millenia (unless otherwise removed).[89] Accordingly, at least with respect to CO_2, the dominant to-date manner or method of its disposal – dumping it into the air – serves only to exacerbate the planet's energy imbalance, and on a timeframe that far exceeds usual human considerations, until the point that natural processes (primarily, weathering) remove them -- again, over many millennia.

There is no question but that such disposal of subject chemical substances and mixtures includes GHG emissions. TSCA does not expressly define "disposal," so we take the term with its ordinary meanings. *Sandifer v. United States Steel Corp.*, 571 U.S. 220, 227 (2014). Considering Webster's, the closest relevant definition to "dispose of" is "to get rid of."[90] Under a pertinent ordinary definition, then, the major producers of it get rid of waste CO_2, that is, dispose of that chemical substance, generally by providing for its unregulated emission.

EPA itself has clearly held this view, including rulemaking under TSCA to restrict formaldehyde emissions from pressed wood products.[91] Indeed, EPA clearly held this view at

87 Under TSCA, the Agency is also able to prohibit, restrict or limit the production or distribution of a substance for a particular use; limit the volume or concentration of the chemical produced; prohibit or regulate the manner or method of commercial use; require warning labels and/or instructions on containers or products; require record-keeping by producers; and require replacement or repurchase of products already distributed. TSCA §6, 15 USC §2605.

88 Other methods of disposal of CO2, such as its removal from the air and sequestration, may not present any such risk, depending in part on the permanency of the sequestration and offsetting associated deleterious consequences if any.

89 *See* Archer et. al, Atmospheric Lifetime of Fossil Fuel Carbon Dioxide, Annu. Rev. Earth Planet. Sci. 2009. 37:117–34, at http://climatemodels.uchicago.edu/geocarb/archer.2009.ann_rev_tail.pdf (concluding that for the emissions of CO2following fossil fuel consumption (burning) that "[e]quilibration with the ocean will absorb most of it on a timescale of 2 to 20 centuries. Even if this equilibration were allowed to run to completion, a substantial fraction of the CO2, 20–40%, would remain in the atmosphere awaiting slower chemical reactions with CaCO3 and igneous rocks. The remaining CO2is abundant enough to continue to have a substantial impact on climate for thousands of years.).

Accordingly, by their Activities, fossil fuel corporations including, as above, fossil fuel producers, among others GHG emitters, must be deemed to be continuously disposing of their associated CO2or, in the alternative, imposing a continuing injury on health and the environment. That would be the case until they have removed and securely sequestered, or paid for the same to be verifiably done, an equivalent amount of CO2-e.

90 https://www.merriam-webster.com/dictionary/dispose%20of

91 *See* EPA. Formaldehyde Emissions from Composite Wood Products; Advanced notice of proposed rulemaking and notice of public meetings. 73 FR 73620 (Dec. 3, 2008) (proposed rulemaking to determine "whether EPA should take action, which may include regulatory action under TSCA section 6(a), action under TSCA section 6(b), voluntary

least as far back as 1977 when, under its TSCA authority, the Agency proposed to "eliminate almost all of the manufacture, processing, and distribution in commerce of fully halogenated chlorofluoroalkanes used as aerosol propellants." 42 FR 24542 (May 13, 1977).[92]

The Agency specified then that its intent was "*to reduce the emissions* of such fully halogenated chlorofluoroalkanes to the atmosphere, thereby reducing the health and environmental risks caused by depletion of the ozone layer." *Id*. (Emphasis added.) The Agency based its strong action upon its concern, among others, that "continued release of these compounds at current levels for an indefinite period will have adverse environmental consequences, potentially affecting the entire global population now and in future generations." *Id*. at 24544. EPA therefore concluded that "the continued depletion of stratospheric ozone as the result of discharges from nonessential aerosol products containing fully halogenated chlorofluoroalkane propellants presents an unreasonable risk of injury to health and the environment." *Id*. at 24545. "Mindful, however, of the economic impact of such action, an 18-month phase out schedule" was permitted in order to "insure that such products are removed from the economy in a manner which allows for an orderly adjustment to the introduction of substitute products." *Id*.

Pursuant to a TSCA rule, then, manufacturers – and others, if the Agency deems it warranted – must be required not only to phase out their associated activities but also to phase out their utilization of the atmosphere for continuing disposal of their legacy emissions.[93] That is to say, they must be required to clean up their mess.

(i) Security and Burden-Sharing Accommodation (SBSA)

Petitioners recognize that a certain share of fossil fuels produced, including that imported to the US, has been or continues to be relied upon by US and allied armed forces, as well as for international peacekeeping, humanitarian relief, and domestic and international disaster assistance efforts. In addition, a certain share of fossil fuels produced in the US derive from public lands leased at the discretion of the federal government to private concerns for coal, oil and gas production.

Furthermore, Petitioners advance the following, both in fairness but also, perhaps, in a spirit of generosity towards an industry that has heavily profited by its ability to utilize our common atmosphere as a free, open sewer. Petitioners therefore stipulate here, solely for the sake of advancing a necessary rulemaking without undue delay, the possibility that key decision-makers in the US fossil fuel industry may have been unclear or unaware, through June 24,

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or regulatory (e.g., under TSCA section 6) application of a voluntary consensus standard, or other approaches"). *See also*, EPA, Formaldehyde Emission Standards for Composite Wood Products, "On March 29, 2021, EPA opened a public comment period on proposed updates to the Formaldehyde Emission Standards for Composite Wood Products rule under TSCA." https://www.epa.gov/formaldehyde/formaldehyde-emission-standards-composite-wood-products (including technical corrections to "better align EPA's rule with the California Air Resources Board (CARB), allowing the two programs to work in tandem with one another in order to create an effective and efficient formaldehyde emissions regulatory system").

92 *See also*, EPA, PARTS 712, 762: Fully Halogenated Chlorofluoroalkanes, Final Rule, 43 FR 11318 (March 17, 1978).

93 *See*, e.g., Shue, H. Responsible for what? Carbon producer CO2 contributions and the energy transition. Climatic Change 144, 591–596 (2017). https://doi.org/10.1007/s10584-017-2042-9

1988,[94] about the nature of the risk their Activities imposed on health and the environment. Certainly, and very conservatively, their actual or constructive knowledge must be presumed onward at least from October 7, 1992.[95] According to the calculations of Petitioner Richard Heede, about 50% of all historic-to-date fossil fuel consumption – and the corresponding disposal in the atmosphere of their associated emissions – has occurred since 1992.

We account for these facts in a Security and Burden-Sharing Accommodation (SBSA) below, wherein Petitioners here urge the Agency's initial imposition of a *carbon take-back obligation*[96] equivalent to, at minimum, 50 percent of each producer's and importer's Scope 1, 2 and 3 CO_2-e GHG emissions stemming from 1992 through 2022.[97] Petitioners recognize that this departs from more protective equitable standards, including under CERCLA, wherein it is usual practice to impose joint and several (and strict) liability upon owners and operators of facilities that have contaminated land or water. Petitioners reserve the option, therefore, to seek further relief via other administrative or legal action, as warranted, but they here suggest a generous to industry public burden-sharing arrangement in part to expedite the effort to secure, at long last, a genuine national effort aimed at deep decarbonization.

The carbon-take-back obligation should grow, however, with each succeeding year of continued production, and pursuant to the following schedule: 50% of a company's legacy emissions plus 51% of such emissions associated with a producer's Activities in the first year of implementation of the contemplate rule, 52% for 2024, 53% in 2025, and so on until, by ~2073, 100% of each producer's such annual CO_2-e GHG emissions must be removed and securely sequestered. The obligations can be satisfied by a producer's submission of verifiable evidence of such removal and secure sequestration, or else by its payment into an Atmospheric Carbon Abatement Fund that EPA will establish for the purpose of reducing atmospheric concentration of GHGs, and thus protecting and restoring a habitable climate system. Clearly, relevant details of an adequate program to be administered by the Agency would be need to be hammered out in rulemaking, and again, on that point, Petitioners reserve the option to provide additional relevant comment and testimony during such a proceeding.

Pursuant to the above discussion, with further detail to be developed in the course of rulemaking, and in light of the unreasonable risk that the manufacture, processing, distribution in commerce, use, and disposal of the subject chemical substances and mixtures, including legacy

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94 On that date, Dr. James E. Hansen – Petitioner here, but then with the National Aeronautics and Space Administration – provided widely-covered testimony to the US Senate, during which he maintained that it was then already "99 percent certain" that the buildup of CO_2 and other greenhouse gases accounted for observed global warming. Philip Shabecoff, Global Warming Has Begun, Expert Tells Senate, NY Times (June 24, 1988) at https://www.nytimes.com/1988/06/24/us/global-warming-has-begun-expert-tells-senate.html, visited April 5, 2022.

95 On that date, the U.S. Senate ratified the United Nations Framework Convention on Climate Change, which international treaty stipulated, among other things, that human activities were "substantially increasing the atmospheric concentrations of greenhouse gases," a develop that, if maintained, would "adversely affect natural ecosystems and humankind," so that, among other things, developed nations were obliged to take "immediate action," to limit "emissions of greenhouse gases and [protect and enhance] greenhouse gas sinks and reservoirs" – in order to "protect the climate system for the benefit of present and future generations of humankind."

96 The evocative name derives from Stuart Jenkins, et al., Upstream decarbonization through a carbon takeback obligation: An affordable backstop climate policy, Joule (Oct. 26, 2021) at https://www.cell.com/joule/fulltext/S2542-4351(21)00489-X#relatedArticles, visited April 13, 2022.

97 Petitioners observe that such "upstream" imposition of requirements makes sense based on considerations of simplicity and efficiency, but in rulemaking EPA might seek to somewhat broaden the list of parties on whom such obligations should attach.

GHG emissions, impose on health and the environment, Petitioners herein urge the Agency to commence rulemaking aimed at the imposition on fossil fuel manufacturers, and others if warranted, of requirements to:

1. phase out their production (etc.) of fossil fuels and other sources of the subject chemical substances and mixtures, on a timeline that is at least as stringent as that required to secure the US nationally-determined contribution under the Paris Agreement, and,

2. remove and securely sequester legacy GHG emissions, or else to pay into an Atmospheric Carbon Abatement Fund in an amount to be determined that is nonetheless sufficient to satisfy each producer's carbon take-back obligation, accounting for the SBSA and pursuant to a schedule consistent with the discussion above, with further detail, again, to be developed during rulemaking.

D. Agency Action under other authority

In general, TSCA instructs the Agency to "coordinate actions" taken under that law "with actions taken under other Federal laws" that it administers. Petitioners here list several such statutory provisions outside of TSCA where rulemaking by the Agency could substantially complement efforts under TSCA. Petitioners caution, however, that the present listing is partial, and they reserve the right to supplement once the Agency opens a rulemaking docket.

1. Independent Offices Appropriations Act

Under the Independent Offices Appropriations Act (IOAA), 31 U.S.C. §9701 (as amended in 1982) EPA or any other federal Agency is authorized to impose "a charge" for "a thing of value" that is provided to any person.[98] This may include "a charge for using the public's air to dispose of carbon dioxide and other wastes," as one former EPA General Counsel has put it.[99] Such a user fee may be based not only on "the costs to the Government," but also the "value of the service or thing to the recipient," the "public policy or interest served" and "other relevant facts." 31 U.S.C. §9701. The full cost to the government component of the user fee should include "all direct and indirect costs."[100] Imposition of a meaningful and rising fee on oil, gas and coal would induce utilities and consumers to switch to carbon-free energy.[101]

98 The term "person" must be read to include the term "corporation." Historical and revision note, US Code, 31 USC §9701 ("The words "(including groups, associations, organizations, partnerships, corporations, or businesses)" are omitted as being included in 'person'," in the statute). *See* https://uscode.house.gov/view.xhtml?req=(title:31%20section:9701%20edition:prelim)#sourcecredit.

99 E. Donald Elliott, EPA's Existing Authority to Impose a Carbon "Tax," 49 ELR 10919 (2019), available at https://www.eli.org/sites/default/files/docs/49.10919.pdf.

100 OMB Circular No. A-25 at §6(d). Available at https://www.whitehouse.gov/omb/information-for-agencies/circulars/. It may also be based on the "market price" for the resource where "based on competition in open markets." As well, in TSCA §26, 15 USC §2625, Congress authorized the Agency to collect fees to "defray the cost related to such chemical substance[s] of administering sections 4, 5, and 6." Those sections concern (TSCA §4) the testing of chemical substances and mixtures -- including evaluating the feasibility of remedial action; (TSCA §5) manufacturing and processing notices; and (TSCA §6) requirements to eliminate unreasonable risks of injuries to health or the environment from such chemical substances and mixtures.

101 J. Hansen and D. Galpern, President Biden Should Impose a Carbon Fee Immediately, Boston Globe (June 1, 2021), available at https://cprclimate.org/biden-should-impose-a-carbon-fee-immediately/. *See also*, Petition to the President at https://cprclimate.org/take-action/.

The International Monetary Fund advises that a carbon price may need to rise to at least $75 per ton of CO_2 emissions to induce such meaningful action as required under the Paris Agreement.[102, 103]

Petitioners note that a rising carbon fee in itself would not *directly* prohibit or restrict "the manufacturing, processing, or distribution in commerce, use or disposal" of the fossil fuel GHG emissions, as may be contemplated by Agency action taken pursuant to TSCA, 15 USC 2605(a). However, a rising user fee, depending in part on the use of its revenues, may at least partly compensate the government (or the public, if revenues are recycled as carbon dividends) for the period of time in which EPA continues to provide a special benefit to fossil fuel producers by its forbearance – that is, the Agency's decision not to immediately exercise its authority to prohibit fossil fuel GHG emissions. During that period of forbearance, the user fee will, if substantial and growing, function to constrain emissions as producers and consumers attempt to minimize costs.

Accordingly, Petitioners urge that EPA commence a parallel rulemaking to impose a rising fee on the manufacturing, distribution, use and disposal of oil, gas and coal, on the basis of foreseeable GHG emissions, and to align that rule with the one in development with respect to the instant petition.

2. Clean Air Act §§108-110

Pursuant to the Clean Air Act, EPA's Administrator is required to periodically revise ambient air quality standards for air pollutants the "emissions of which, in his (sic) judgement, cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare." 42 USC 7408(a)(1). The Agency must then issue air quality criteria, 42 USC 7408(a)(1), and publish national ambient air quality standards (NAAQS) for such pollutants, 42 USC 7408, which standards are then enforced largely through state implementation plans, 42 USC §7410, and via citizen suits. 42 USC §7604.

The materials in Part II of this petition, in conjunction with other material already within the grip of the Agency, more than amply demonstrate that fossil fuel GHG emissions "cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare."

In 2009, the citizen groups 350.org and the Center for Biological Diversity petitioned the Agency for a rulemaking to develop a NAAQS for GHG emissions.[104] On the last day of the Trump Administration, EPA rejected that petition, but the Biden Administration is taking another

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102 As noted in the text, to ensure that low and moderate-income families are not disadvantaged by fossil fuel companies that pass on their user fees in the form of increased fuel prices, user fee revenues might be returned to consumers as lump-sum rebates on a roughly per capita basis. Such a scheme would more than offset the higher price burden for low and moderate-income taxpayers. Ian Parry, Putting a Price on Pollution: Carbon-pricing strategies could hold the key to meeting the world's climate stabilization goals, International Monetary Fund (Dec. 2019) available at https://www.imf.org/external/pubs/ft/fandd/2019/12/the-case-for-carbon-taxation-and-putting-a-price-on-pollution-parry.htm.

103 Rosenberg et. al, "Distributional Implications of A Carbon Tax," Columbia Center on Global Energy Policy (2018), available at https://www.energypolicy.columbia.edu/sites/default/files/pictures/CGEP_Distributional_Implications_CarbonTax.pdf.

104 Petition to Establish National Pollution Limits for Greenhouse Gases Pursuant to the Clean Air Act (Dec. 2, 2009), http://www.biologicaldiversity.org/programs/climate_law_institute/global_warming_litigation/clean_air_act/pdfs/Petition_GHG_pollution_cap_12-2-2009.pdf.

look. For reasons well outlined in a recent article,[105] whose reasoning we incorporate by reference here, **Petitioners urge that EPA grant the 350/ CBD petition and commence a parallel rulemaking to develop air quality standards for CO_2, CH_4 and other GHGs and to align that rule if warranted with the one in development with respect to the instant petition.**

3. Clean Air Act §115

GHGs comprising in part subject chemical substances and mixtures readily mix in the atmosphere, and the ensuing impacts from such emissions stemming from US sources perforce affect every nation. The Clean Air Act anticipated the possibility that such US emissions might impact other nations and that, just as we would wish to have a say in "foreign" emissions that impact the US, the interests of other nations should matter in the formation of US air pollution regulatory policy. Accordingly, in §115 of the Clean Air Act, Congress provided that upon its receipt of information that sources of air pollution in the US cause or contribute to pollution that endangers the health or welfare of a foreign jurisdiction, the Agency then needs to compel states to amend their implementation plans "to prevent or eliminate the endangerment." 42 USC §7415(b).

The materials in Part II of this petition, in conjunction with other material already with the Agency, more than amply demonstrate that fossil fuel and other sources of the subject chemical substances and mixtures from within the United States "cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare in a foreign country." In 2013, the New York University School of Law's Center for Public Integrity petitioned the EPA for rulemaking to limit such US-based GHG emissions that endanger public health and welfare in foreign nations.[106]

Petitioners here urge EPA to grant the Center's petition so as to commence a parallel rulemaking pursuant to CAA §115, and to align that rule if warranted with the one in development with respect to the instant petition.

4. Comprehensive Environmental Response, Compensation and Liability Act (CERCLA

Pursuant to CERCLA, upon the President's determination that an "actual or threatened release of a hazardous substance" presents "an imminent and substantial endangerment to the public health or welfare or the environment," the President is authorized to go to federal court to secure "such relief as may be necessary to abate such danger or threat." CERCLA §106, 42 USC §9606. In the alternative, the President is also authorized to "take other action" including "issuing such orders as may be necessary to protect public health and welfare and the environment." *Id*.

In addition, CERCLA §107, 42 USC §9606, authorizes the federal government, as well as states and Tribes, to remove hazardous substances that have been released into the environment, or otherwise to remediate an impacted site, and then to recover costs incurred from liable persons. The statute also authorizes federal, state and tribal governments to seek recovery for damages to natural resources – defined to include, among others, land, fish, wildlife, biota, air and water CERCLA §101(16), 42 USC §9601(16) — with recovered funds then to be used

105 Eric Laschever, Environmental Law Institute, Rebutting Administrator Wheeler's Denial of a NAAQS for Greenhouse Gases (2021) available at https://www.eli.org/sites/default/files/files-pdf/51.10923.pdf.

106 Petition for Rulemaking and Call for Information under §115, Title VI, §111 (Feb. 19, 2013) at www.epa.gov/sites/default/files/documents/policy_integrity_omnibus_ghg_petition_under_caa.pdf.

"to restore, replace, or acquire the equivalent of such natural resources." §107(f)(1)(a), 42 USC §9601(f)(1)(a).

However, certain express exemptions within CERCLA may limit its utility here.

First, CERCLA by its terms excludes from the definition of hazardous substance petroleum, crude oil and its distillates (which includes fuel oil, diesel, regular gasoline),[107] as well as "natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas)."[108] CERCLA §101(14).

Second, CERCLA excludes from the definition of "release," all "emissions from the engine exhaust of a motor vehicle, rolling stock, aircraft, vessel, or pipeline pumping station engine." CERCLA §101(22). And third, releases (including emissions) from facilities that are federally-permitted under the Clean Air Act are exempt from CERCLA. §107(j).[109] [110]

However, CO_2 and other GHGs emitted by sources not expressly exempted from CERCLA may be the subject of federal action for abatement, CERCLA §105, or removal and cost-recovery, CERCLA §§106 and 107, upon their designation as hazardous substances. CERCLA §§101(14)[111] and 102(a). Because, however, CO_2 and CH_4 are also "naturally occurring substances," such action under CERCLA would require a presidential finding that release of these substances "constitutes a public health or environmental emergency," and that executive action is required because "no other person with the authority and capability to respond. . .will do so in a timely manner." CERCLA §104(a)(3)(A), 42 USC §9604(a)(3)(A) and §104(a)(4), 42 USC §9604 (a)(4).[112]

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107 The statute, however, provides an exception to the petroleum exclusion. CERCLA §101(14). In particular, one or other of petroleum products become CERCLA hazardous by operation of law where "specifically listed or designated as a hazardous substance" under the Clean Water Act (CWA) §311 or §307(a), Clean Air Act (CAA) §112, Resource Conservation and Recovery Act (RCRA) §3001, and the Toxic Substance Control Act" (TSCA) § 7. To date, however, fossil fuel GHGs have not been designated as hazardous under the CAA, CWA or RCRA, and "no substances [have been] designated under [] authority" of TSCA §7. EPA, Hazardous Substance Designations and Release Notifications, at https://www.epa.gov/epcra/hazardous-substance-designations-and-release-notifications, visited April 30, 2022.

108 The statute provides no exception to its definitional exclusion from "hazardous waste" of natural gas, natural gas liquids, liquefied natural gas, or synthetic gas. Accordingly, these substances simply may not be deemed hazardous under CERCLA, that is, not without a statutory amendment.

109 *See also*, EPA, Scope of federally permitted release exemption ("CERCLA section 101(10) defines federally permitted releases in terms of releases permitted under a number of other environmental statutes. Releases that are federally permitted are exempt not only from CERCLA section 103 and EPCRA section 304 notification requirements, but from CERCLA liability as well.") at https://www.epa.gov/epcra/scope-federally-permitted-release-exemption, visiting May 1, 2022.

110 CERCLA also authorizes the US or a State or a Tribe to recover for natural resource damages, §107(f), including for harm to the air, deriving from a person's release of a hazardous substance. §107(a)((C). The above discussion is thus relevant to the question whether its exemptions and limitations constrain CERCLA's utility in natural resource recovery from GHG damages.

111 Among other authorities, CERCLA §101(14) contemplates Agency designation of hazardous substances pursuant to TSCA §6. That provision requires the Agency, in certain circumstances to seek relief against "imminently hazardous chemical substance[s] or mixture[s]," 15 USC §2606(a)(1) that the Agency "identifies,"§2606(b)(1), whose production, processing, distribution, use or disposal presents an "imminent and unreasonable risk of serious or widespread injury to health or the environment." §2606(f).

112 Petitioners establish in Part II of this petition that the release of CO2 and other fossil fuel GHG emissions have created a public health and environmental emergency, one of such severity that it requires Presidential action – in part because no other person with the authority and capability to respond will do so in a timely manner. The subject

Accordingly, Petitioners herein urge EPA to consider whether its authority under CERCLA, accounting for the statute's exemptions and limitations, provides the Agency with significant authority to compel fossil fuel manufacturers to remove legacy GHG emissions associated with their Activities. If the Agency so finds, then Petitioners urge it to recommend that the President issue findings that the emissions associated with fossil fuel Activities, including combustion of fossil fuels, "constitute a public health and environmental emergency."

5. EPA referral to *other agencies* for exercise of other authority

If the Administrator determines that action under federal law that is not administered by EPA *may be sufficient* to eliminate the risk to health and the environment presented by the manufacture, processing, distribution, use or disposal of fossil fuel greenhouse gases, the Administrator *must* inform such other agency or agencies by report that "describes such risk and includes . . .a specification of the activity or combination of activities that the Administrator has reason to believe so presents such a risk." 15 USC § 2608(a). Petitioners believe that the authorities administered by other agencies are not at all sufficient. Nothing in TSCA, however, precludes the Administrator from so informing any other agency, by report, wherein the control of such activities as they regulate under law is *necessary, even if insufficient*, to eliminate the risk, **and Petitioners here request that the Agency take such acion where warranted**.

matter of this petition therefore fits precisely with the §104(a)(4) exception to the limitation, and so, on its face, the statute would allow federal action to remove legacy CO2 and CH4 and recover the costs for such removal. That would be allowable, that is, but for CERCLA's additional exclusions and exemptions.

VII. OUTLINE OF ACTIONS

Entities subject to restrictions to be imposed pursuant to a rule or legal action as described herein or *supra* shall be referred to herein, as warranted, as "responsible parties," or as "manufacturers," "distributors," "users," disposers," or "other responsible parties."

Responsible parties for the manufacture, distribution, use, or disposal of subject chemical substances and mixtures, where not in compliance with the rules to be established by the Agency pursuant to this Petition, shall be subject to civil and criminal enforcement according to law.

"Legacy GHG emissions" refers to Scope 1, Scope 2, and Scope 3 GHG emissions associated with a responsible party's prior-year manufacture, distribution, use or disposal of a subject chemical substance or mixture.

"Residual GHG emissions" refers to such Scope 1, Scope 2, and Scope 3 GHG emissions associated with a responsible party's current-year manufacture, distribution, use or disposal of a subject chemical substance or mixture, whether the GHG emissions are within or out of compliance with the party's Reduction Obligation.

A. Legal action and immediately effective proposed rule

The Agency should take legal action in a district court to secure relief against manufacturers or other responsible parties as discussed herein and, upon securing that relief, EPA shou;d promulgate an immediately-effective proposal for rulemaking in order to constrain or phase out the unreasonable, imminent, serious and widespread risk of injury to health and the environment presented by the subject chemical substances and mixtures.

B. Unreasonable risk determination

On the basis of the facts adduced in this Petition and otherwise available, the Agency should render a determination as to whether the manufacture, processing, distribution in commerce, use, or disposal, or any combination of those activities, of the subject chemical substances and mixtures present an unreasonable risk of injury to health or the environment.

To so determine, EPA first must identify subpopulations susceptible to injuries to health or the environment that may be presented by the subject chemical substances and mixtures.

The determination as to unreasonable risk herein must be rendered solely on the basis of the risks imposed on those subpopulations, others, and the environment, and without consideration of costs or other nonrisk factors.

C. Rulemaking

Upon its unreasonable risk determination, or as soon as practicable thereafter, EPA should commence a rulemaking to impose requirements to phase out the subject chemical substances and mixtures, to the maximum extent feasible, with respect to their manufacture, processing, distribution in commerce, use, or disposal, or any combination of those activities, to ensure they no longer present an unreasonable risk of injury to health or the environment.

The Agency should also impose upon manufacturers and, in its discretion, other responsible parties, the obligation to reduce (Reduction Obligation) the Scope 1, Scope 2 and Scope 3 GHG emissions associated with their manufacture, processing, distribution in commerce, use, or disposal, of subject chemical substances and mixtures.

EPA also should impose upon manufacturers and, in its discretion, other responsible parties, the obligation to remove from the environment and securely sequester (Take-Back Obligation) legacy and residual GHG emissions.

1. Phaseout/ phase-in period.

EPA needs to identify a phaseout/ phase-in period consistent with the goal of ensuring that, on the basis of their CO_2 climate forcing potential, GHG emissions within reach of US law are net negative prior to 2050. In the interim, the manufacture, processing, distribution in commerce, use, or disposal of the subject chemical substances and mixtures may continue only at increasingly reduced levels, on a schedule to be developed by EPA in conjunction with Petitioners herein and others.

EPA should develop and implement a certification program with respect to responsible parties' reduction and take-back obligations, to ensure that every such anthropogenic GHG that is emitted, released, or resident in the environment is subject to such an obligation or exemption.

2. GHG Emissions Fees

EPA should, by rule pursuant to the IOAA or other authority, as described in this Petition, impose a rising annual fee on GHG pollution, on the basis of CO_2-equivalence, stemming from the manufacture, processing, distribution in commerce, use, or disposal of the subject chemical substances and mixtures. The fee should be imposed on fossil fuel manufacturers and, in the Agency's discretion, upon other responsible parties, on the basis of Scope 1, Scope 2, and Scope 3 GHG emissions arising from the production, distribution, use, and disposal of the oil, gas and coal they produce. The rising GHG emissions fee to be imposed should be in addition to, and not in lieu of, requirements compelling the phaseout of subject chemical substances and mixtures.

Revenues collected under this paragraph by the Agency, except for administrative purposes, should be returned by dividend to US residents, on terms as Congress or the Agency specify, to the maximum extent allowed by law, in order to amplify residents' purchasing power for climate-related home weatherization, carbon-free energy, carbon removal investing, or other use under law in the full discretion of the dividend recipient. The program should be tailored, if practically feasible, to preclude receipt of such dividends by high-income earners, or those with high disposable wealth, accounting for family size and special needs.

The fee shall be set on a per-tonne of CO_2-equivalent emission basis, commencing at $50/ tonne in 2023, rising annually thereafter by $10 per-tonne plus an adjustment for inflation. The imposition (or consideration) of a rising GHG pollution fee shall not be taken to displace any other authority administered by the Agency or other regulatory body to impose additional restrictions on the manufacture, distribution, use or disposal of subject chemical substances and mixtures.

3. Legacy and Residual GHG Emissions

EPA shall establish an Atmospheric Carbon Abatement Fund ("the Fund").

The Agency shall impose carbon take-back obligations with respect to manufactures and, as warranted in the Agency's discretion, upon other responsible parties, concerning subject chemical substances and mixtures associated with their activities, including associated Scope 1, Scope 2 and Scope 3 GHG emissions, to ensure these parties remove, or sufficiently pay into the Fund to remove, legacy and residual GHG emissions, on a CO_2-equivalent basis, according to a

schedule to be established by the Agency, similar to the following, in amounts that satisfy their obligations.

Those minimum obligations are at least 50 percent of each such responsible party's cumulative Scope 1, 2 and 3 CO_2-e GHG emissions in the 1992 through 2022 period; 51% of such 2023 emissions, 52% of such 2024 emissions, 53% in 2025, and so on until, by ~2073, 100% of each producer's residual GHG emissions are removed and securely sequestered from the environment.

No responsible party's to-date carbon take-back obligation shall be relieved by its sale of assets to any buyer with respect to any subject chemical substances or mixtures it produced, distributed, used, or disposed of prior to such sale.

4. Other authority

The Agency, in addition to the above-denoted requirements, shall consider utilization of additional authorities outside of TSCA but within its control where, in its expert judgment as to the public interest, doing so will accellerate reduction of the unreasonable risk imposed on health and the environment from the manufacture, processing, distribution in commerce, use, or disposal of the subject chemical substances and mixtures.

5. Public participation

At every step of the rulemaking, the Agency must take special care to ensure the full participation of highly impacted persons and traditionally under-represented communities, as these are among the most likely groups to be at unreasonable risk from present and anticipated climate impacts. As Petitioners discussed *supra*,[113] these include, but are not limited to, children and future generations, individuals at increased personal risk such as the elderly and persons with disabilities, populations at increased risk due to their socioeconomic status or homelessness, and Indigenous and Native communities as well as communities of color.

Petitioners emphasize that the Agency must take special care to ensure that the interests of these groups are taken fully into account, including by the direct participation of informed representatives, as the Agency develops rules governing the phaseout of GHG pollution to restore a stable and healthy climate.

[113] *See* §VI(B)(3): Evaluation of the Risk