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Via Submission to TVANepaComments.com and
Electronic Mail

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**Re: Comments on the 2022 Draft Environmental Impact Statement For The
Cumberland Fossil Plant Retirement**

Dear Ms. Pilakowski,

On behalf of the Center for Biological Diversity (“Center”), we submit these comments on the Tennessee Valley Authority’s (“TVA”) Draft Environmental Impact Statement (“Draft EIS”) for the retirement of the Cumberland Fossil Plant (“Cumberland Plant”). Although TVA obviously must close the highly polluting and inefficient Cumberland Plant, as discussed below the Draft EIS is fundamentally inconsistent with the mandates of the TVA Act, 16 U.S.C. § 831, *et. seq.*, the National Environmental Policy Act (“NEPA”), 42 U.S.C. § 4321, *et seq.*, and the Endangered Species Act, 42 U.S.C. § 1531, *et seq.*, and must be substantially revised.

The National Environmental Policy Act (“NEPA”) requires federal agencies to “take seriously the potential environmental consequences of a proposed action” by taking a “hard look” at the potential environmental effects. 42 U.S.C. §4332(2)(c); *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 374 (1989). NEPA’s “twin aims” are to ensure that the agency (1) “consider[s] every significant aspect of the environmental impact of a proposed action, and to consider reasonable alternatives that could mitigate those impacts”; and (2) “inform the public that it has indeed considered environmental concerns in its decisionmaking process.” *Balt. Gas & Elec. Co. v. Natural Res. Def. Council*, 462 U.S. 87, 97 (1983) (citation omitted). “By focusing both agency and public attention on the environmental effects of proposed actions, NEPA facilitates informed decision-making by agencies. . . .” and “public involvement” in those decisions. *N.M. ex rel. Richardson v. BLM*, 565 F.3d 683, 703 (10th Cir. 2009). “Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA.” 40 C.F.R. § 1500.1(b).

Pursuant to NEPA’s “hard look” requirement, agencies must disclose all direct and indirect, foreseeable impacts from projects. 40 C.F.R. §1502.16; *City of Davis v. Coleman*, 521 F.2d 661, 676 (9th Cir. 1975). Direct effects are “caused by the action and occur at the same time and place,” whereas indirect effects are “caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable.” 40 C.F.R. § 1508.8. Cumulative effects are “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions.” *Id.* § 1508.7. NEPA requires a federal agency to consider all relevant factors relating to the direct and indirect effects of the proposed project, and to articulate a rational connection between the facts found and the choice made. *Balt. Gas & Elec. Co. v. NRDC*, 462 U.S. 87, 105 (1983).

To satisfy NEPA’s hard look and public disclosure and participation requirements, an agency must evaluate in detail a project’s potential site-specific impacts. For example, an agency must assess proposed actions on a “site specific” basis for compliance with its land-use plan and governing land use statutes. *Native Ecosystems Council v. Tidwell*, 599 F.3d 926, 934 (9th Cir. 2010). It must also examine the effects of its action on the site where they will be conducted. *See id.* Without quantified, site-specific information, “neither the courts nor the public . . . can be assured that the [government] provided the hard look that it is required to provide.” *Neighbors of Cuddy Mt. v. U.S. Forest Serv.*, 137 F.3d 1372, 1379 (9th Cir. 1998).

Under NEPA, information used by the agency for its review of environmental impacts must be of high quality. 40 C.F.R. §1500.1(b). Scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA. *Id.* The NEPA regulations also require agencies to ensure the scientific integrity of the discussions and analyses. 40 C.F.R. §1502.24. NEPA analysis “must be taken objectively and in good faith, not as an exercise in form over substance, and not as a subterfuge designed to rationalize a decision already made.” *Metcalf v. Daley*, 214 F.3d 1135, 1142 (9th Cir. 2000).

TVA’s intention to replace the Cumberland Plant with a Combined Cycle Combustion Turbine (“CC”) fossil gas plant – and concomitant refusal to even *consider* viable alternatives that would maximize energy efficiency and distributed energy – is untenable, as it fails to even address the most pressing issue today: *the urgent need to rapidly transition away from all fossil fuels toward a renewable and just energy economy to avoid the worst impacts of climate emergency and address the disproportionate harm experienced by environmental justice communities from continued reliance on fossil fuels.* Given the latest climate science, and the significant climate change harms already occurring in TVA’s territory, TVA must, at minimum, fully address a NEPA alternative that would offset the Cumberland Plant’s electricity production

with distributed energy resources (“DER”), storage, and energy efficiency improvements. Moreover, the TVA Act demands that TVA move forward with this alternative.

Upon taking office last year, President Biden issued an Executive Order to transform the entire U.S. electricity sector to be carbon-free by 2035.¹ The President emphasized the Administration’s policy “to organize and deploy the *full capacity of its agencies* to combat the climate crisis.”² As a federal agency and the country’s largest public power provider, TVA must advance carbon-free electricity on a timeline consistent with climate science, the President’s goal, and the TVA’s conservation mandates. The Cumberland Plant EIS must therefore fully and fairly consider alternatives providing for the rapid retirement of the Plant and its replacement with clean, renewable energy sources, including DER, storage, and energy efficiency options, in order to comply with applicable statutory mandates.

We look forward to TVA substantially revising the Draft EIS and choosing an appropriate NEPA alternative to address these concerns.

DISCUSSION

A. In Light Of The Climate Emergency And TVA’s Environmental Stewardship Mandate, TVA Must Replace The Cumberland Plant With A Fossil-Free Alternative To Comply With The TVA Act.

a. The climate emergency on a global scale

The U.S. federal government, and scientists globally, have determined that human-caused climate change is bringing wide-spread harms throughout the country and the world. As the U.S. government summarized in its most recent authoritative Report on the subject (the Fourth National Climate Assessment (“NCA")), “evidence of human-caused climate change is overwhelming and continues to strengthen, [] the impacts of climate change are intensifying across the country, and [] climate-related threats to Americans’ physical, social, and economic well-being are rising.”³

¹ See President Biden Executive Order on Tackling the Climate Crisis at Home and Abroad, Sections 201 and 205(b)(i) (“Biden Order”) (Jan. 27, 2021), <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/>.

² *Id.* (emphasis added).

³ U.S. Global Change Research Program, *Impacts, Risks, and Adaptation in the United States*, Fourth National Climate Assessment, Volume II (2018) at 36, *al Climate Assessment, Volume II* (2018), <https://nca2018.globalchange.gov/>; see also U.S. Global Change Research Program, *Climate Science Special Report: Fourth National Climate Assessment, Vol. I* (2017), <https://science2017.globalchange.gov/>; U.S. EPA [U.S.

The actions taken this decade are absolutely crucial to avoiding the most devastating impacts. The NCA makes clear that the harms of climate change are long-lived, and for that reason the steps taken *now* to combat – or to not combat – greenhouse gas (“GHG”) pollution will have implications for many decades to come.⁴ Indeed, as detailed by the Intergovernmental Panel on Climate Change (IPCC), without prompt action across all sectors, the world is headed to 2°C or more of warming in the coming decades, which will lead to catastrophic climate change impacts.⁵

The Fourth NCA also finds – with very high confidence – that the *status quo* threatens to bring the planet past tipping points that cannot be cured, and which threaten even more catastrophic impacts.⁶ The Intergovernmental Panel on Climate Change (“IPCC”) issued a very similar warning in 2014,⁷ and the evidence that the climate system is approaching these tipping points only further demonstrates the urgent need for immediate action to address these threats.⁸

Environmental Protection Agency], Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act; Final Rule, 74 Fed. Reg. 66496 (2009); Duffy, Philip B. et al., *Strengthened Scientific Support for the Endangerment Finding for Atmospheric Greenhouse Gases*, 363 Science 1 (2019) at 1.

⁴ U.S. Global Change Research Program, *Impacts, Risks, and Adaptation in the United States, Fourth National Climate Assessment, Volume II* (2018), <https://nca2018.globalchange.gov/> at 34; *id.* at 1347 (“[m]any climate change impacts and associated economic damages in the United States can be substantially reduced over the course of the 21st century through global-scale reductions in greenhouse gas emissions”).

⁵ Intergovernmental Panel on Climate Change, *Global Warming of 1.5°C, An IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty* (2018), <https://www.ipcc.ch/sr15/>.

⁶ U.S. Global Change Research Program, *Climate Science Special Report: Fourth National Climate Assessment, Vol. I* (2017), <https://science2017.globalchange.gov/> at 411.

⁷ Intergovernmental Panel on Climate Change, *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (2014) at 72-73 (“with increasing warming, some physical and ecological systems are at risk of abrupt and/or irreversible changes” and that the risk “increases as the magnitude of the warming increases.”) <https://www.ipcc.ch/report/ar5/syr/>

⁸ Intergovernmental Panel on Climate Change, *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (2014) at 73-74; Lenton, Timothy M. et al., *Climate tipping points—too risky to bet against*, 575 Nature 592 (2019).

For example, research indicates that a critical tipping point important to the stability of the West Antarctic Ice Sheet has been crossed. U.S. Global Change Research Program, *Climate Science Special Report: Fourth National Climate Assessment, Vol. I* (2017), <https://science2017.globalchange.gov/> at 420 (“observational evidence suggests that ice dynamics already in progress have committed the planet to as much as 3.9 feet (1.2 m) worth of sea level rise from the West Antarctic Ice Sheet alone”); Steffen, Will et al., *Trajectories of the Earth System in the Anthropocene*, 115 PNAS 33 (2018); Lenton, Timothy M. et al., *Climate tipping points—too risky to bet against*, 575 Nature 592

b. The climate emergency in TVA’s territory

Volume II of the Fourth National Climate Assessment, *Impacts, Risks, and Adaptation in the United States*, details the impacts of the climate crisis on the Tennessee Valley as a result of increased hurricanes, extended wildfire seasons, and myriad other impacts.⁹ The Assessment explains how lower-income and marginalized communities will experience even greater impacts to their health, safety, and quality of life than others.¹⁰

In particular, the southeastern United States, a part of which is TVA’s territory, has been facing and will continue to face extraordinary harms from climate change.¹¹ As the Environmental Protection Agency has detailed, climate change in the Southeast has already led to: (1) higher temperatures and greater demand for water that will strain water resources in the Southeast; (2) higher incidences of extreme weather, increased temperatures, and flooding that will likely impact human health, infrastructure, and agriculture; (3) sea level rise that is expected to contribute to increased hurricane activity and storm surge, and will increase the salinity of estuaries, coastal wetlands, tidal rivers, and swamps; and (4) coastal communities’ experiencing of warmer temperatures and the impacts of sea level rise, including seawater flooding.¹² In other words, the impacts of climate change on TVA’s territory and the communities that the agency serves are concrete, palpable, and are projected to be exacerbated—and will certainly do so should TVA fail to consider and pursue alternatives that rapidly reduce fossil fuel consumption.

c. Given the urgency of the climate emergency, TVA must replace the Cumberland Plant with a fossil-free alternative to comply with its statutory mandates.

In light of the climate crisis, the IPCC has emphasized the urgent need for “rapid and far-reaching transitions” across all sectors including electricity generation.¹³ Indeed, a critical feature of 1.5°C-consistent pathways is that the power sector must be significantly clean by 2030 and

(2019) (“the evidence from tipping points alone suggests that we are in a state of planetary emergency: both the risk and urgency of the situation are acute”).

⁹ U.S. Global Climate Change Research Program, “Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II: Summary Findings” (November 23, 2018), at 47.

¹⁰ *Id.* at 1.

¹¹ U.S. EPA, “Climate Impacts in the Southeast,” available at: https://19january2017snapshot.epa.gov/climate-impacts/climate-impacts-southeast_.html.

¹² *Id.*

¹³ *Id.* at 15.

achieve a “virtually full decarbonisation” around mid-century.¹⁴ For electricity in particular, the share of renewable energy must reach 60% by 2030 and 77% by 2050.¹⁵

The U.S. is the world’s largest historic emitter of greenhouse gas pollution and is currently the world’s second highest emitter on an annual and per capita basis.¹⁶ Scientific studies have estimated the remaining U.S. carbon budget consistent with the 1.5°C Paris Agreement target is approximately 25 gigatons of CO₂ equivalent (GtCO₂eq)¹⁷ to 57 GtCO₂eq on average,¹⁸ depending on the equity principles used to apportion the global budget across countries.¹⁹ As the U.S. emits more than 6 GtCO₂eq each year²⁰, the remaining U.S. carbon budget compatible with the Paris climate targets is extremely small and is rapidly being expended, highlighting the urgent need for the U.S. to transition from fossil fuels to renewable

¹⁴ Rogelj, Joeri, et al., 2018: Mitigation Pathways Compatible with 1.5°C in the Context of Sustainable Development. In: *Global Warming of 1.5°C: An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty* [Masson-Delmotte, V., et al. (eds.)] (2018) at 112.

¹⁵ IPCC Special Report at Summary for Policymakers, at 12.

¹⁶ LeQuéré, Corinne et al., *Global Carbon Budget 2018*, 10 *Earth Syst. Sci. Data* 2141 (2018) at Figure 5, 2167, <https://essd.copernicus.org/articles/10/2141/2018/essd-10-2141-2018.pdf>

¹⁷ Carbon dioxide is not the only greenhouse gas with significant global warming impacts. Scientists use CO₂ equivalent to compare the various greenhouse gases’ (e.g., methane, nitrous oxide, etc.) global warming potentials by converting the amounts of these gases to that of an equivalent amount of carbon dioxide with the same global warming potential.

¹⁸ Robiou du Pont, Yann et al., *Equitable mitigation to achieve the Paris Agreement goals*, 7 *Nature Climate Change* 38 (2017), and Supplemental Tables 1 and 2. Quantities measured in GtCO₂eq include the mass emissions from CO₂ as well as the other well-mixed greenhouse gases (CO₂, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and SF₆) converted into CO₂-equivalent values, while quantities measured in GtCO₂ refer to mass emissions of just CO₂ itself.

¹⁹ Robiou du Pont et al. (2017) averaged across IPCC sharing principles to estimate the U.S. carbon budget from 2010 to 2100 for a 50 percent chance of returning global average temperature rise to 1.5°C by 2100, based on a cost-optimal model. The study estimated the U.S. carbon budget consistent with a 1.5°C target at 25 GtCO₂eq by averaging across four equity principles: capability (83 GtCO₂eq), equal per capita (118 GtCO₂eq), greenhouse development rights (-69 GtCO₂eq), and equal cumulative per capita (-32 GtCO₂eq). The study estimated the U.S. budget at 57 GtCO₂eq when averaging across five sharing principles, adding the constant emissions ratio (186 GtCO₂eq) to the four above-mentioned principles. However, the constant emissions ratio, which maintains current emissions ratios, is not considered to be an equitable sharing principle because it is a grandfathering approach that “privileges today’s high-emitting countries when allocating future emission entitlements.”

²⁰ See U.S. EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks* (2020), <https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks>.

energy. For a decent chance at limiting global warming to 1.5 degrees Celsius, the United States must cease all coal extraction by 2030 and gas use by 2031.²¹

The electricity sector, in tandem with the transportation sector, is the leading source of U.S. GHG emissions, making up 25% of total emissions in 2019.²² TVA emitted 49.53 million short tons of CO₂ emissions and 23.49 thousand short tons of NO_x pollution in 2018 alone.²³ In fact, TVA's annual emissions – averaging 50 million tons - put it within the top 10 amongst the 100 largest power providers in the country.²⁴

The TVA Act mandates that, in managing its electric generation system, TVA protect “the economic, environmental, social, or physical well-being” of the customers it serves. 16 U.S.C. § 831a(g)(1)(K)(ii). Congress has also mandated that, in planning for new resources, TVA must “evaluate[] the *full range* of existing and incremental resources (including new power supplies, energy conservation and efficiency, and renewable energy resources)” that can be relied on to serve “electric customers of the Tennessee Valley Authority at the lowest system cost.” *Id.* § 831m-1(b)(1)(emphasis added); *see also id.* § 831a(b)(5) (setting out TVA's mission to be “a national leader in technological innovation, low-cost power, and environmental stewardship”).

Given the climate emergency, and the present and threatened impacts of climate change on the people TVA is mandated to serve, TVA's plan to replace the Cumberland Plant with a new fossil fuel plant is in flat violation of the TVA Act.

Indeed, under TVA's current Integrated Resource Plan (“IRP”), the agency will not achieve decarbonization until *sometime after 2100*.²⁵ Moreover, with increased reliance on gas as

²¹ Dan Calverley and Kevin Anderson, *Phaseout Pathways for Fossil Fuel Production within Paris-compliant carbon budgets*, International Institute for Sustainable Development, (March 11, 2022), https://www.research.manchester.ac.uk/portal/files/213256008/Tyndall_Production_Phaseout_Report_final_text_3_.pdf.

²² U.S. EPA, *Sources of Greenhouse Gas Emissions*, Greenhouse Gas Emissions (2019), <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>.

²³ M.J. Bradley and Associates, *Benchmarking Air Emissions of the 100 Largest Power Producers in the United States*, CO₂ Emissions and Emissions Rates – All-Source (2021), <https://www.mjbradley.com/content/emissions-benchmarking-emissions-charts>.

²⁴ Christopher Van Atten, Amlan Saha, Luke Hellgren, and Ted Langlois, *Benchmarking Air Emissions Of the 100 Largest Electric Power Producers in the United States*, CERES, (July 2020), https://www.ceres.org/sites/default/files/reports/2020-07/Presentation_of_Results_2020.pdf.

²⁵ Southern Alliance for Clean Energy, *Tracking Decarbonization in the Southeast*, Generation and CO₂ Emissions Report (2021), <https://cleanenergy.org/wp-content/uploads/Tracking-Decarbonization-in-the-Southeast-April-2021.pdf>.

a replacement for coal, TVA is currently planning that it will *generate more than 34 million tons of CO₂ each year in 2038.*²⁶ The utility already has the second highest planned gas buildout for this decade – 4 GW by 2030.²⁷

This approach to decarbonization is completely unacceptable and will only further harm communities of color and other frontline communities who have been disproportionately burdened by TVA’s reliance on fossil fuels and false energy solutions like fossil gas.

Like coal, fossil gas disproportionately harms low-income communities and people of color.²⁸ In addition to driving the climate crisis via especially potent methane emissions, gas generation produces over 60 hazardous air pollutants – including volatile organic compounds, carcinogens, and endocrine disrupting chemicals.²⁹ And gas generation exposes communities within closer proximity to gas facilities to elevated ozone levels which, among other harms, can exacerbate asthma and other diseases.³⁰

To be sure, earlier this year TVA proposed a non-binding plan to decarbonize TVA by 2050.³¹ This empty promise is meaningless on its own, but also only further demonstrates that, at bare minimum, it makes no sense to build *new* fossil fuel resources in the middle of the climate emergency. Accordingly, to address the climate crisis and comply with the TVA Act, it is critical that TVA rapidly transition *away* from fossil fuels, including both its remaining coal plants as well as its fossil gas resources, and that the agency not build any *new* fossil energy generation to replace the retirements of existing fossil resources.

B. Because TVA Has Not Properly Defined the Purpose And Need For Replacing The Cumberland Plant, The Agency Has Not Meaningfully Evaluated Reasonable Alternatives And Their Relative Impacts.

²⁶ TVA 2019 Environmental Impact Statement, Final EIS at 5-27.

²⁷ See Sierra Club, *The Dirty Truth About Utility Climate Pledges*, (Jan. 2021), https://www.sierraclub.org/sites/www.sierraclub.org/files/blog/Final%20Greenwashing%20Report%20%281.22.2021%29.pdf?_ga=2.258595658.1137003374.1654099318-1273070209.1652123550.

²⁸ Greenpeace, *Fossil Fuel Racism: How Phasing Out Oil, Gas, and Coal Can Protect Communities* (2021), <https://www.greenpeace.org/usa/wp-content/uploads/2021/04/Fossil-Fuel-Racism.pdf>.

²⁹ *Id.* at 17.

³⁰ *Id.* at 17-18.

³¹ Tennessee Valley Authority, *TVA Charts Path to Clean Energy Future* (2021), <https://www.tva.com/newsroom/press-releases/tva-charts-path-to-clean-energy-future>.

A critical aspect of any EIS is properly defining the purpose and need for the project. That purpose is vital to determining which alternatives must be evaluated. *E.g. League of Wilderness Defs. -Blue Mts. Biodiversity Project v. United States Forest Serv.*, 689 F.3d 1060 (9th Cir. 2012).

Here, because TVA has improperly defined the purpose of closing the Cumberland Plant, the agency has declined to meaningfully consider appropriate alternatives and their relative impacts on the environment.

a. TVA is not closing the Cumberland Plant simply because the Plant is old, but because continuing to burn coal is devastating to the environment and the climate.

The Draft EIS defines the need to close the Cumberland Plant as simply the result of its age and reliability challenges. Draft EIS at iii. TVA then narrowly defines the purpose of the EIS to be evaluating alternatives to continue providing cost-effective power generation, *without any reference to any environmental objectives. Id.*

This violates NEPA, which requires that an agency “specify the underlying purpose and need for the proposed action,” 40 C.F.R. § 1502.13, and prohibits an agency from defining “its objectives in unreasonably narrow terms.” *Nat’l Parks & Conservation Ass’n v. BLM*, 586 F.3d 735, 746 (9th Cir. 2009); *City of Carmel-By-The-Sea v. United States Dep’t. of Transp.*, 123 F.3d 1142, 1155 (9th Cir. 1997).

By limiting the purpose in this manner, TVA has avoided meaningfully considering alternatives that would hasten TVA’s transition to non-polluting energy sources, including an alternative that prioritizes replacing Cumberland’s power generation with DERs, energy efficiency, and other non-wires alternatives.

The fact that the EIS obliquely refers to a transition to cleaner technologies occurring in TVA territory does not ameliorate this concern. Draft EIS at iii. As framed in the EIS, this is something that TVA is simply considering, not a purpose of the actual project under review or a need TVA is working to fulfill. In short, TVA must reframe the purpose and need for the EIS as evaluating alternative ways to replace the Cumberland Plant’s generation with fossil-free approaches that do not exacerbate the climate emergency, consistent with the TVA Act, President Biden’s Executive Orders, and the desperate need for a rapid transition away from fossil fuels.

Indeed, the alternatives that TVA *does* include in the EIS belies TVA’s claim that cheaply replacing the Cumberland Plant is the agency’s only concern. TVA does not even consider the possibility of simply updating the Cumberland Plant, or otherwise continuing to

provide the Plant's generation through a new coal-burning facility, because implicit in TVA's purpose and need is a recognition that coal is *simply too polluting and devastating for the climate to be considered*.

Accordingly, because it is evident that environmental *objectives are part of the purpose and need for this project*, TVA must explicitly acknowledge the goal of replacing the Cumberland Plant with the least polluting alternative, thereby opening the door to a meaningful set of alternatives.

b. The EIS must consider a broader suite of alternatives and compare their relative environmental impacts.

Once the purpose and need for the EIS is properly defined, it becomes apparent that TVA has improperly refused to consider reasonable alternatives.

The purpose of NEPA is to identify reasonable alternatives to an agency's proposed action, and then expose and discuss the multitude of public health, environmental, socio-economic, wildlife, and other impacts of those alternatives. However, regardless of the ultimate decisions made, NEPA does not permit an agency to refuse to even *consider* reasonable alternatives. *See, e.g., Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv.*, 235 F. Supp. 2d 1143, 1154 (W.D. Wash. 2002) ("An agency may not reject a reasonable alternative because it is not within the jurisdiction of the lead agency").

Accordingly, here TVA may not rely on contract terms or simple economic considerations to refuse to consider alternative scenarios for its power mix in the coming decades, including DER and storage alternatives.

Once again, this is particularly true given TVA's statutory mission be a "leader in technology innovation, low-cost power and environmental stewardship." 16 U.S.C. § 831a(b)(5). To meet this mandate TVA *must* explore opportunities to invest in the renewable energy technologies that will help reduce electricity prices and make those technologies even more cost-competitive in the coming years.

Indeed, recent research demonstrates that replacing fossil fuel resources with DER, storage, and energy efficiency could provide significant financial benefits. One analysis from Vibrant Clean Energy modeled the cost-effectiveness and impact of DERs and other clean energy resources on the electricity system. Under the examined scenarios, significant investment in DER would result in cumulative system-wide savings of \$301 billion by 2050 compared to a

business-as-usual energy system.³² The same study showed that a clean electricity standard reducing emissions by 95 percent from 1990 levels by mid-century could save \$473 billion.³³

In addition to cost savings, DERs bring several additional benefits including grid management, demand response, and transmission benefits.³⁴ TVA has expressed concern that alternatives prioritizing renewables like solar as replacements to Cumberland are incapable of addressing peak demand. But as the Vibrant Clean Energy report demonstrates, DER can minimize peak demand by about 17 percent and effectively shift demand to meet variable supply rather than forcing supply to meet demand.³⁵

Additionally, distributed solar generation can provide benefits to communities and ecosystems including reduced water use, reduced land use, and even improved wildlife habitat, which are critically important to TVA's customers.³⁶ In the Draft EIS, one of TVA's arguments against the renewable alternative was the estimated 22,540 acres of land that would be converted from agricultural to industrial to accommodate 4,700 MW of new solar and storage in Middle Tennessee. However, this concern is irrelevant to the kinds of DER, energy efficiency, and related initiatives we proposed in our scoping comments, which TVA has thus far rejected out of hand.³⁷ In particular, alternatives with distributed energy, storage and energy efficiency could address this concern while also reducing demand for large-scale energy projects like fossil gas that carry significant environmental, community, and public health hazards.³⁸

Thus, TVA must consider a *full range of renewable energy alternatives*, including an alternative that largely or completely relies on DER, storage, and energy efficiency, and then must compare the environmental impacts of such alternatives with the other options—including

³² Clack et al., *Technical Report: Why Local Solar For All Costs Less- A New Roadmap for the Lowest Cost Grid*, Vibrant Clean Energy (2020), https://www.vibrantcleanenergy.com/wp-content/uploads/2020/12/WhyDERs_TR_Final.pdf.

³³ *Id.* at 3.

³⁴ Armstrong et. al., *Techno-Ecological Synergies of Solar Energy for Global Sustainability*, 2 *Nature Sustainability* 560 (July 2019).

³⁵ Vibrant Clean Energy Technical Report (2020) at 48.

³⁶ *Techno-Ecological Synergies of Solar Energy for Global Sustainability* (2019) at 563.

³⁷ See Center for Biological Diversity Scoping Comments, (June 10, 2021), <https://biologicaldiversity.org/programs/energy-justice/pdfs/2021-06-10-Center-Cumberland-Closure-Scoping-Comments-NEPA.pdf>.

³⁸ See Environmental Protection Agency, "Distributed Generation of Electricity and its Environmental Impacts", <https://www.epa.gov/energy/distributed-generation-electricity-and-its-environmental-impacts>.

not only the cost of potential early retirement of fossil fuel resources and expansion of gas, but also the social cost of carbon associated with keeping them running for many years to come.

In short, to meet its purpose of providing safe, clean, reliable, and affordable electricity to all its customers, TVA must consider alternatives that focus on DER, storage, and energy efficiency as replacements for the Cumberland Plant. Moreover, TVA must also consider an alternative that includes advancing the timeline for Cumberland's complete retirement to earlier than 2033, which would significantly reduce TVA's GHG emissions.

The Draft EIS also contains another fatal flaw: the failure to meaningfully consider the *relative environmental impacts among the alternatives*. This analysis is vital to comply with NEPA. See 40 C.F.R. § 1502.14 (explaining "[a]lternatives section should present the environmental impacts of the proposal *and the alternatives* in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public) (emphasis added); *Sierra Club v. United States Forest Serv.*, 857 F. Supp. 2d 1167, 1177 (D. Utah 2012).

Here, TVA has largely compared each of the alternatives to the no action alternative (*i.e.*, keeping the Cumberland Plan open), and on that basis determined that each alternative would have beneficial impacts on the environment. See, *e.g.*, Draft EIS at 45-50. Thus, for example, for air quality and GHG emissions, by only comparing each alternative to the no action alternative, TVA found "long-term beneficial effects." *Id.* at 48-49. Indeed, TVA's *entire discussion* of the air quality and GHG impacts of Alternative A – building the new gas plant – simply compares that alternative to the Cumberland coal plant emissions. Draft EIS at 197-203

Similarly, in discussing the impacts of the various alternatives on environmental justice communities, the Draft EIS simply assumes the impacts are the same with no analysis whatsoever. Indeed, the Draft EIS states that none of the alternatives – including *simply keeping the Cumberland coal plant open* – would have any adverse impacts on environmental justice communities. Draft EIS at 45, 89-90. As we discuss in the next section, the failure to address these impacts at all itself violates NEPA, but the Draft EIS's failure to at all *compare* these impacts among the alternatives undermines the entire premise of NEPA to help the public and agency understand the impacts of the various alternatives under consideration.

For example, in *Sierra Club*, the court rejected the Forest Service's NEPA analysis where the agency "assum[ed] the impact would be the same regardless of which alternative was chosen," because the agency had failed to consider the "*varying impacts*" among alternatives. 857 F. Supp. 2d at 1177-78 (emphasis added). Similarly, here, by failing to meaningfully compare the relative environmental impacts among alternatives, TVA has violated NEPA.

Most importantly, TVA has not meaningfully compared the relative environmental impacts between *expanding* the agency's gas fleet as compared to transitioning to fossil-free alternatives.

Indeed, EPA's preferred alternative is to build a new gas plant in the footprint of the Cumberland Plant. Draft EIS at 55. Had TVA made the building of this new gas plant its proposed action, the agency would have been forced to analyze the comparative environmental harms posed by the fossil fuel plant as compared to fossil-fuel free alternatives. This approach would have starkly shown that building one or more gas plants and associated pipelines will be significantly more harmful to the environment than other alternatives. Once again, TVA cannot avoid a meaningful NEPA analysis by playing games with the project under consideration, defining the project as whether to close the Cumberland Plant and then declaring that all the alternatives are environmentally beneficial because they are all less devastating to the environment than coal.

Given that the purpose of the action is to close the coal plant, it simply makes no sense to frame the no action alternative as *keeping the plant open*. Rather, the focus of the EIS should be on the various alternatives TVA might adopt to replace the lost generation there. In short, TVA may not avoid disclosing and considering the relative environmental impacts of alternatives by simply comparing them all to a non-existent option of keeping the Cumberland plant operational into the indefinite future.

C. TVA's Draft EIS Fails To Address The Environmental Impacts Of Expanding TVA's Dirty Fossil Fuel Portfolio.

As noted, by only comparing the new proposed gas plant to the alternative of keeping the Cumberland Plant open, TVA has failed to comply with NEPA. However, even with respect to that comparison, the Draft EIS falls well short of NEPA's requirements.

First and foremost, TVA seeks to minimize the environmental effects of expanding its fossil fuel portfolio by burying the expected emissions within the overall TVA fleet. Draft EIS at 191. This approach violates NEPA by failing to highlight the distinct effects of this gas plant. *See, e.g., 350 Mont. v. Haaland*, 2022 U.S. App. LEXIS 8918, *38 (9th Cir. Apr. 4, 2022). Indeed, if agencies were permitted to minimize environmental impacts by simply declaring they will not impact the planet as a whole, environmental reviews would be largely meaningless. Similarly, if TVA were to have simply compared the emissions from the new gas plant to *global* GHG emissions, this would not inform the public or TVA regarding the actual impact this gas plant will have on the environment. In short, by failing to independently consider the emissions of this plant – separate and apart from TVA's overall emissions – the Draft EIS fails to comply with NEPA.

Second, as noted, the Draft EIS claims that none of the alternatives will have disproportionate impacts on environmental justice communities. Draft EIS at 45. This conclusion, however, ignores the particularly disproportionate impacts that fossil fuel plants and waste have on these communities. As a threshold matter, it is well-recognized that the fossil fuel economy particularly harms Black, Indigenous, and other communities of color.³⁹ Black Americans are exposed to 56% more polluted air than white Americans, on average, and more than one million Black Americans live within a half-mile of gas facilities, resulting in higher risks of cancer and other health problems.⁴⁰

The retirement of the Cumberland Plant also calls into question the treatment and disposal of coal ash. Fossil fuel waste, like coal ash, disproportionately harms environmental justice communities.⁴¹ The improper storage of coal ash leads to chemicals leaching into the environment, such as waterways, poisoning communities who reside near fossil fuel plants and coal ash dump sites.⁴² TVA has a history of coal ash mismanagement and improper disposal which has led to significant public health and safety hazards in communities of color and low-wealth communities like Memphis and Kingston, Tennessee and Uniontown, Alabama.

Moreover, environmental justice communities are disproportionately vulnerable to and suffer first and worst from the climate emergency.⁴³ This disparate vulnerability is the product of

³⁹ See NAACP *et al.* (2017), *Fumes Across the Fenceline*, http://www.catf.us/wp-content/uploads/2017/11/CATF_Pub_FumesAcrossTheFenceLine.pdf; see also Mikati *et al.* (2018). *Disparities in Distribution of Particulate Matter Emission Sources by Race and Poverty Status*, American Public Health Association, <https://ajph.aphapublications.org/doi/abs/10.2105/AJPH.2017.304297>; see also Sarah Kaplan, “Climate Justice is a Racial Justice Problem,” Washington Post, June 29, 2020.

⁴⁰ Thompson, Andrea. “People of Color Breathe More Than Their Share of Polluted Air.” *Scientific American*, Jun. 1, 2019, <https://www.scientificamerican.com/article/minorities-breathe-more-than-their-share-of-polluted-air/>; see also NAACP, *et. al* (2017); Bullard, Robert D., Paul Mohai, Robin Shaha, and Beverly Wright, *Toxic Wastes and Race at Twenty: 1987-2007*, March 2007, <http://www.ejnet.org/ej/twart.pdf>.

⁴¹ See Greenpeace *et al.* (2021), *Fossil Fuel Racism*, <https://www.greenpeace.org/usa/wp-content/uploads/2021/04/Fossil-Fuel-Racism.pdf>.

⁴² See Earthjustice (2021), *Mapping the Coal Ash Contamination*, <https://earthjustice.org/features/coal-ash-contaminated-sites-map>.

⁴³ Smith, Kelly Anne. “How Communities Of Color Are Hurt Most By Climate Change.” *Forbes*, Jun. 7, 2021, <https://www.forbes.com/advisor/personal-finance/communities-of-color-and-climate-change/>; Chappell, Carmin. “Climate change in the US will hurt poor people the most.” *CNBC*, Nov. 26, 2018, <https://www.cnn.com/2018/11/26/climate-change-will-hurt-poor-people-the-most-federal-report.html>. For example, a 2009 report from the University of Southern California found that African Americans in Los Angeles are nearly twice as likely to die from a heat wave compared to other Los Angeles residents. Morello-Frosch, Rachel, Pastor, Manuel, Sadd, James, and Seth B. Shonkoff. *The Climate Gap: Inequalities in How Climate Change Hurts*

structural racism and injustice. Centuries of discriminatory policies (particularly, around housing and economic development) have left U.S. communities of color — especially, Black, Hispanic, and Indigenous communities, who experience significantly higher poverty rates than their non-Hispanic white and Asian counterparts — at a severe disadvantage in being prepared for climate adaptation and mitigation.⁴⁴

As more frequent and severe disasters driven by climate change compromise the physical integrity of those facilities and fossil fuel energy infrastructure more broadly, communities of color face the greatest risk.⁴⁵ Already, past climate disasters including Hurricane Harvey have damaged highly contaminated Superfund sites, which can leak dangerous pollutants into surrounding communities and dramatically set back essential clean-up efforts.⁴⁶ More recently, severe winter weather in Texas highlighted the risks of climate disasters to fossil fueled electric grids when it caused millions to lose power, hitting Black and Brown Texans particularly hard.⁴⁷ The disproportionate impacts of such outages on communities of color and low-wealth communities is a clear form of energy violence, which can carry life-long consequences for those communities.⁴⁸

Americans & How to Close the Gap, University of Southern California, https://dornsife.usc.edu/assets/sites/242/docs/ClimateGapReport_full_report_web.pdf.

⁴⁴ Creamer, John. “Inequalities Persist Despite Decline in Poverty For All Major Race and Hispanic Origin Groups.” U.S. Census Bureau, Sept. 15, 2020, <https://www.census.gov/library/stories/2020/09/poverty-rates-for-blacks-and-hispanics-reached-historic-lows-in-2019.html>; Hoffman, Jeremy, *et al.*, “The Effects of Historical Housing Policies on Resident Exposure to Intra-Urban Heat: A Study of 108 US Urban Areas.” *Climate, EISSN 2225-1154*, Published by MDPI, Nov. 5, 2019, <https://www.mdpi.com/2225-1154/8/1/12/htm>; Cohen, Ilana. “New York’s Heat-Vulnerable Neighborhoods Need to Go Green to Cool Off.” *Inside Climate News*, Aug. 18, 2020, <https://insideclimatenews.org/news/18082020/new-york-heat-climate-change-coronavirus/>.

⁴⁵ Uja, Wanter. “The Effects of Natural Disasters on Energy Infrastructure - Wanter Uja.” Lewis & Clark Law School, Aug. 19, 2020, <https://law.lclark.edu/live/blogs/132-the-effects-of-natural-disasters-on-energy>.

⁴⁶ “Climate Change and the Nation’s Most Contaminated Hazardous Waste Sites.” U.S. Government Accountability Office, Nov. 18, 2019, <https://www.gao.gov/blog/2019/11/18/climate-change-and-the-nations-most-contaminated-hazardous-waste-sites>.

⁴⁷ Mulcahy, Shawn. “Many Texans have died because of the winter storm.” *The Texas Tribune*, Feb. 19, 2021, <https://www.texastribune.org/2021/02/19/texas-power-outage-winter-storm-deaths/>; Ura, Alexa, and Juan Pablo Garnham. “Already hit hard by pandemic, Black and Hispanic communities suffer the blows of an unforgiving winter storm.” *The Texas Tribune*, Feb. 19, 2021, <https://www.texastribune.org/2021/02/19/Texas-winter-storm-suffering-inequities/>; Neumann, Johanna. “Reliance on fossil fuels will lead to more energy disasters like Texas.” *Business Insider*, Feb. 28, 2021, <https://www.businessinsider.com/fossil-fuel-dependence-texas-energy-green-new-deal-climate-change-2021-2>.

⁴⁸ Su, Jean. “Losing Power in the Time of COVID-19, Climate Change and Racism.” *Rosalux*, Sept. 2, 2020, <https://rosalux.nyc/utility-shut-offs/>.

Black households also pay significantly more than their White counterparts for energy, just as low-wealth households tend to spend more of their income on energy than their higher-wealth counterparts.⁴⁹ Climate-induced disasters risk trapping households in cycles of energy poverty, decreasing their ability to withstand and recover from the inevitable next storm, drought, or other extreme weather event.

Third, the Draft EIS also seriously underestimates the risk of methane leaks, concluding that leaks from the plant and the pipeline will be extremely minor. Draft EIS at 186-87. To the contrary, a recent Study showed that methane leaks are typically *more than 70% higher than had been previously estimated*.⁵⁰ Before TVA can decide to go ahead with building a new pipeline and an enormous, polluting gas facility, it must meaningfully address the methane emissions this infrastructure will bring over the lifetime of these projects and the devastating impacts of that methane on the climate in light of methane's extreme climate impacts.

Fourth, in the Draft EIS TVA notes that the pipeline corridor for the preferred alternative would pose moderate geological hazards as the pipeline would pass through sinkhole-prone limestone bedrock and karst topography. Draft EIS at 101 and 122. However, this terrain is susceptible to erosion which is a pre-cursor to sinkholes.⁵¹ With climate change, the Tennessee Valley is expected to see increased flooding and thereby more extreme erosion, posing a potentially higher risk of sinkholes.⁵² The Bluegrass NGL Pipeline in Kentucky is a case in point, as a combination of sinkholes in karst terrain and gas pipeline leaks resulted in explosions,

⁴⁹ "Low-Income, Black, Hispanic, and Native American Households Face High Energy Burdens." *ACEEE*, <https://www.aceee.org/energy-burden>.

⁵⁰ See Int'l Energy Agency, *Global Methane Tracker 2022* (Apr. 2022), <https://www.iea.org/reports/global-methane-tracker-2022>; see also Methane Emissions Grossly Underreported, Natural Awakenings Publishing ("A recent report by the International Energy Agency (IEA), a Paris-based energy watchdog, found that methane leak emissions from the oil, gas and coal industries are 70 percent higher than official government estimates globally"), <https://www.naturalawakenings.com/2022/04/29/395714/methane-emissions-grossly-underreported#:~:text=A%20recent%20report%20by%20the,than%20official%20government%20estimates%20globally>; Yuanlei Chen, et al., *Quantifying Regional Methane Emissions in the New Mexico Permian Basin with a Comprehensive Aerial Survey*, *Environ. Sci. Technol.* 2022, 56, 4317–4323, <https://pubs.acs.org/doi/pdf/10.1021/acs.est.1c06458?cookieSet=1>; Andrew Myers, *Methane leaks are far worse than estimates, at least in New Mexico, but there's hope*, *Stanford Earth Matters Magazine*, Mar. 24, 2022.

⁵¹ See United States Geological Survey, "Sinkholes", (June 9, 2018), <https://www.usgs.gov/special-topics/water-science-school/science/sinkholes>.

⁵² U.S. Global Climate Change Research Program, "Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II: Summary Findings" (November 23, 2018), at 47.

posing alarming public safety and environmental concerns.⁵³ However, thus far TVA's EIS for this new gas plant entirely ignores these serious environmental risks.

Pipelines are subject to extraordinary stresses when crossing areas of karst potential, further exacerbated by increased erosion.⁵⁴ Any leaks or ruptures in the pipeline can have immediate consequences even as far as tens of miles from the site. In the case of a leak, sinkholes can fill with fumes and gas which displace air; caves have become explosion hazards.⁵⁵ Additionally, groundwater that encounters flammable vapors could result in fires and pose another explosion hazard for households that use well water.⁵⁶ The Draft EIS notes that the gas CC plant and pipeline overlie the Mississippian carbonate aquifer system. Draft EIS at 144. The risk of pipeline explosions is a significant concern that TVA must fully address in the EIS, especially as an environmental impact in the agency's public safety analysis.

Fifth, in the Draft EIS TVA also refuses to quantify upstream GHG emissions. Draft EIS at 186 ("This EIS does not attempt to quantify the GHG emissions from upstream" sources). This also runs flatly contrary to NEPA's requirements. *E.g. Sierra Club v. FERC*, 867 F.3d 1357 (D.C. Cir. 2017); 40 C.F.R. § 1508.1(g). NEPA mandates that an agency fully consider both indirect and cumulative effects, and upstream emissions fall well within the scope of such effects. *Id.* Moreover, as the Court made clear in *Sierra Club*, an agency may not decline to address this issue on the grounds that these emissions are too difficult to quantify, as "reasonable forecasting" is plainly available. *Sierra Club*, 867 F.3d at 1374.

Finally, while the EIS includes data based on the Biden Administration's Social Cost of Carbon metric, this approach woefully undervalues the costs that additional GHG emissions will impose on the local and global environment. As the academic literature shows, agencies should be relying on a much lower discount rate – even as low as 0% - to properly account for the impact of GHG emissions on future generations. Accordingly, TVA must evaluate the costs

⁵³ Erica Peterson, *Sinkhole Underscore Opposition to Bluegrass Pipeline*, WFPL News Louisville, (February 13, 2014), <https://wfpl.org/gas-explosion-corvette-museum-sinkhole-underscore-opposition-bluegrass-pipeline/>.

⁵⁴ See Ralph O. Ewers, Ph.D., *Karst and the Proposed Bluegrass NGL Pipeline*, Kentucky Resources Council, (October 10, 2013), <https://www.kyrc.org/news/oil-and-gas/karst-and-the-proposed-bluegrass-ngl-pipeline->

⁵⁵ Kentucky Press News Service, *Expert: Karst topography involves dangers for pipelines*, (February 24, 2015), <https://www.laruecountyherald.com/content/expert-karst-topography-involves-dangers-pipelines>.

⁵⁶ See Ralph O. Ewers, Ph.D., *Karst and the Proposed Bluegrass NGL Pipeline*, Kentucky Resources Council, (October 10, 2013), <https://www.kyrc.org/news/oil-and-gas/karst-and-the-proposed-bluegrass-ngl-pipeline->

associated with the gas plant alternatives using significantly more conservative assumptions than those contained in the Draft EIS.⁵⁷

D. The Draft EIS Is Based On The False Premise That TVA Must Replace The Cumberland Plant’s Centralized Generation To Meet Energy Demand.

By prioritizing new fossil gas development, TVA is both unnecessarily locking in fossil fuels for decades to come and contributing to higher GHG emissions that will only aggravate the climate emergency. However, TVA’s entire project is based on a false premise: that TVA must replace its Cumberland Plant with another form of centralized power generation to meet consumer demand.

A recent decision from the South Carolina Public Service Commission (“PSC”) substantiates this concern.⁵⁸ There, Duke Energy proposed expanding its fossil fuel infrastructure based on a premise of forecasted energy demand growth of more than 1% annually through 2035.⁵⁹ Relying on this forecast, Duke proposed new generation resources with priority on Combined Cycle Combustion Turbine (“CC”) and Simple Cycle Combustion Turbine (“CT”) gas plants.⁶⁰

But the PSC *rejected* this approach, emphasizing that Duke must meaningfully evaluate future energy demand, rather than simply assuming consistently high-growth forecasts.⁶¹

⁵⁷ See Marc Fleurbaey & Stephane Zuber, *Climate Policies Deserve a Negative Discount Rate*, 13 Chi. J. Int’l Law 565 (2013); Kenneth J. Arrow *et al.*, *Should Governments Use a Declining Discount Rate in Policy Analysis*, Review of Env’tl. Econ. & Pol’y (2014); Martin L. Weitzman, *Why the Far-Distant Future Should Be Discounted at the Lowest Possible Rate*, J. Env’tl. Econ & Mgt. 36:201-08 (1998); Frank Ackerman & Elizabeth A. Stanton, *the Social Cost of Carbon* at 2 (Apr. 2010); see also Tamma Carleton and Michael Greenstone, *Updating the United States Government’s Social Cost of Carbon*, Energy Policy Inst. (2021), https://legacy-assets.eenews.net/open_files/assets/2021/01/14/document_cw_01.pdf.

⁵⁸ S.C. Public Service Commission, Docket Nos. 2019-224-E & 2019-225-E, Order of June 17, 2021, available at <https://dms.psc.sc.gov/Attachments/Matter/23971ba9-8352-440d-8516-cfc8d5a1ce93>.

⁵⁹ Dennis Wamsted, *Key Shortcomings in Duke’s North Carolina IRPs: Part 2*, Institute for Energy Economics and Financial Analysis (Feb. 2021), http://ieefa.org/wp-content/uploads/2021/02/Key-Shortcomings-in-Duke-North-Carolina-IRPs_Part-2_February-2021.pdf.

⁶⁰ See Final 2020 Duke Energy Progress IRP, <https://starw1.ncuc.net/NCUC/ViewFile.aspx?Id=7f4b3176-95d8-425d-a36b-390e1e57a175>.

⁶¹ See *supra* n.47; see also Dennis Wamsted, *Key Shortcomings in Duke’s North Carolina IRPs: Part 2*, Institute for Energy Economics and Financial Analysis (Feb. 2021), http://ieefa.org/wp-content/uploads/2021/02/Key-Shortcomings-in-Duke-North-Carolina-IRPs_Part-2_February-2021.pdf.

In TVA service territory, residential demand has remained stagnant in the last decade, and there remains great interest in developing distributed energy and other non-centralized energy approaches.⁶²

Accordingly, TVA cannot proceed on the false assumption that the generation lost from closing the Cumberland Plant needs to be replaced with another form of centralized generation. Rather, TVA needs to consider the extent to which – either because of affirmative TVA actions, changes in demands and markets, or some combination of both – demand for centralized TVA power may decline in coming years, making replacement of this generation unnecessary, in whole or in part.

The Draft EIS has also failed to consider what can be done between now and when the gas CC plant would come online in 2026. TVA has completely ignored energy efficiency, demand response, and distributed energy as more immediate replacement options that could obviate the need for a gas plant by 2026. This is a recipe for delay based on a centralized fuel source, which will inevitably leave customers burdened by stranded assets when the gas plant becomes obsolete in the coming decade.

TVA also errs in concluding that Alternative A – the new fossil gas plant – is “the best overall solution to provide low-cost, reliable, and cleaner energy to the TVA power system.” Draft EIS at iii. As part of the agency’s long-standing claim that gas is an appropriate “bridge fuel” that may eventually lead to more renewables in the Valley,⁶³ TVA claims in the Draft EIS that proposed fossil gas CC plant will somehow provide the flexibility the utility needs to reliably integrate 10 GW of solar onto the system by 2035 – despite providing no plan for how TVA intends to accomplish this. Draft EIS at iii.

To the contrary, recent studies –entirely ignored in the Draft EIS – challenge this assertion, demonstrating that transitioning *immediately* from coal to renewables like solar and wind makes economic sense. Indeed, as one recent Report notes, *the cost of switching from coal to renewable energy has dropped 99% since 2010*.⁶⁴

⁶² TVA 2019 Integrated Resource Plan, Final IRP, available at https://tva-azr-eastus-cdn-ep-tvawcm-prd.azureedge.net/cdn-tvawcma/docs/default-source/default-document-library/site-content/environment/environmental-stewardship/irp/2019-documents/tva-2019-integrated-resource-plan-volume-i-final-resource-plan.pdf?sfvrsn=44251e0a_4.

⁶³ Robert Houk, *TVA head says his public utility is prepared for the future*, Johnson City Press, (October 26, 2021), https://www.johnsoncitypress.com/news/tva-head-says-his-public-utility-is-prepared-for-the-future/article_7e577bac-36ab-11ec-bc31-33b3d1d67944.html.

⁶⁴ Matthew Gray, *Fuel Switching 2.0: Carbon Price Index for Coal-to-Clean Electricity*, TransitionZero, (May 10, 2022), <https://www.transitionzero.org/blog/fuel-switching-coal-to-clean>.

Accordingly, rather than proceeding on the premise that the lost Cumberland Plant generation must be replaced by a new form of centralized power, TVA must add the necessary alternative(s) discussed above that will advance its rapid transition to zero emissions through DER, energy efficiency, and related measures that would obviate the need for more centralized power in an environment where energy demand is no longer increasing.

Under the current preferred alternative, TVA will continue to be one of the largest emitters that are fueling climate change, and thus will continue to be responsible for the devastating impacts that are certain to come in the country and around the world as we continue to increase the concentrations of GHGs in the atmosphere. Alternatively, under a renewable energy alternative that maximizes DER, storage, and energy efficiency, as well as an expedited retirement timeline, TVA would not only commit its requisite part in phasing out fossil fuels and lowering GHG emissions, but also in addressing environmental justice concerns associated with a reliance on false solutions like fossil gas.

E. The Draft EIS Fails To Address The Impacts On Species In The Manner Required By NEPA.

The Draft EIS fails to fulfill the EIS's purpose to inform the public and decisionmakers of the project's environmental consequences by ignoring reasonably foreseeable environmental effects of pipeline construction and operations or minimizing effects as "insignificant" without evidentiary basis, in violation of the National Environmental Policy Act (NEPA).

1. The Draft EIS Lacks a Site-Specific Analysis for Impacts to Listed Species.

The Draft EIS arbitrarily provides an unsupported conclusion that the project would not cause any significant impacts to listed species, but it contains no site-specific data on—or analysis of—impacts to listed species whatsoever. Instead of a species-specific analysis based on on-the-ground surveys for habitat and individuals of listed species, the Draft EIS simply provides acreages of different land use types along the pipeline route as a proxy for habitat analysis.⁶⁵ The Draft EIS explicitly states that:

- TVA does not know what the precise route of the pipeline would be;
- species surveys have not completed for any prospective pipeline route;
- any significant impacts to listed species would be avoided via unspecified mitigation measures, which would be fashioned in response to the unknown results of species surveys to be conducted at some point in the future; and

⁶⁵ See, e.g., Draft EIS at 269.

- the species analysis will be a part of regulatory processes such as FERC proceedings and Section 7 ESA consultations, which will take place at some undefined future time and are entirely separate from the NEPA process.

For example, the Draft EIS states with regards to pipeline construction for Alternative A:

Construction of the natural gas pipeline lateral would require clearing forested areas (694 acres) and maintenance of early successional and/or herbaceous habitat (pastures, cultivated fields, residential areas). Detailed analyses of effects to state- and federal listed species are being conducted by TGP as part of their future FERC filings. As suitable habitats are identified by TGP, the pipeline route may be adjusted to avoid these habitats and effects to federal and state listed species. TGP is also consulting with the USFWS and state agencies on the potential effects to threatened and endangered species. Adherence to any Conservation Measures resulting from these consultations is expected to ensure proposed actions would not result in significant effects to listed species.

Draft EIS at 279-280. Without knowledge of the precise route of the pipeline, TVA is prevented from examining the site-specific direct, indirect, and cumulative impacts to listed species required by NEPA. 40 C.F.R. §§ 1502.16; 1508.7-1508.8.

Try as TVA might to suggest that impacts analysis for listed species may be deferred until after the NEPA process, the agency remains under an obligation to examine and disclose all foreseeable impacts of the project to the public, on a site-specific basis, in the EIS, before any decision is made. Otherwise, the agency has failed its basic duty under NEPA to take a “hard look” at the project’s effects prior to making a decision. *See, e.g., Native Ecosystems Council v. Tidwell*, 599 F.3d 926, 934 (9th Cir. 2010); *Neighbors of Cuddy Mt. v. U.S. Forest Serv.*, 137 F.3d 1372, 1379 (9th Cir. 1998); 40 C.F.R. §1502.24; *Metcalf v. Daley*, 214 F.3d 1135, 1142 (9th Cir. 2000).

The Draft EIS arbitrarily fails to present an adequate baseline for assessing the impacts to listed species from implementing the proposal, thereby making it impossible to reasonably conclude that the impacts to listed species will not be significant. Rather than establish the necessary baseline data, the Draft EIS errs, instead providing for further investigation of species habitat as post-approval mitigation measures. This approach arbitrarily presupposes that the results of these investigations will not result in the discovery of significant and unmitigable impacts. This approach has previously been rejected as unlawful:

NEPA aims (1) to ensure that agencies carefully consider information about significant environmental impacts and (2) to guarantee relevant information is

available to the public. . . The use of mitigation measures as a proxy for baseline data does not further either purpose.

N. Plains Res. Council, Inc. v. Surface Transp. Bd., 668 F.3d 1067, 1072 (9th Cir. 2011). In *Northern Plains*, plaintiffs challenged the defendant’s approval of construction of a rail line that would transport coal from mines to markets, arguing that the defendant had failed to take the requisite “hard look” at the proposed project. Among the issues considered was whether the defendant’s imposition of post-approval mitigation measures to conduct additional studies and surveys to further assess the impacts of the project on various species was sufficient to satisfy its obligations under NEPA. The court held that it was not sufficient, noting that “NEPA requires that an agency provide the data on which it bases its environmental analysis,” and that “[s]uch analyses must occur before the proposed action is approved, not afterward.” *Id.* at 1083. The court noted that conducting additional studies or surveys after approval did nothing to help evaluate and understand the impact before construction: “In a way, reliance on mitigation measures presupposes approval. It assumes that – regardless of what effects construction may have on resources – there are mitigation measures that might counteract the effect without first understanding the extent of the problem.” *Id.* at 1084-85. Regarding the defendant’s arguments that it was unable to conduct some surveys prior to approval due to rough terrain and restricted access to private land, the court noted that these excuses did not explain how conducting these surveys after approval rather than before would alleviate the issue.” *Id.* at 1085.

The Draft EIS’s mitigation measures (calling for post-approval investigation of baseline conditions for listed species and project impacts to listed species) constitute precisely the same sort of impermissible deferral of environmental analysis observed by the court in *Northern Plains*. Rather than adequately assessing Alternative A’s potential effects of land clearing, construction, permanent land use alteration, and water pollution, all of which are reasonably foreseeable risks that are actually foreseen by TVA, the agency calls for identification of these risks in site-specific locations *after* approval. These measures presuppose the project’s approval, even though the effects of the project are not understood because the precise route of the pipeline is unknown, and because the requisite data has not yet been collected. Moreover, TVA has provided no reason why these investigations cannot be conducted prior to approval. That a final, definitive route has yet to be finalized is no excuse for deferring the gathering of this information. Indeed, site-specific baseline habitat data and species impacts analysis are necessary to compare each alternative’s impacts to listed species and *inform* the TVA’s selection of an alternative and the project’s final design and engineering.

a. Occurrence of Listed Species in the Project Area Must be Documented.

The Draft EIS only accounts for “potential habitat” for listed species in the project area, based on land use types in the area. There is no actual textual analysis of baseline conditions for listed species; the Draft EIS rather refers all inquiries to Table 3.8-2, which only lists the general types of environments listed species prefer. Draft EIS at 248-259. Table 3.8-2 contains no information about whether such habitats are present in the 32-mile pipeline construction corridor for Alternative A. *Id.* For example, for Alternative A, the Draft EIS simply states:

Species that may be impacted by the construction and maintenance of the natural gas pipeline lateral include those associated with forest and field habitats or stream and wetland habitats as listed in Table 3.8-2.

Draft EIS at 280. The Draft EIS does not address whether, where, and to what extent the listed plants occur in the project area. It appears that this information would not be collected until *after* the project is approved.

But baseline conditions, including population occurrences and habitat use, should *inform* the selection of the action alternative and final engineering plans and therefore must be disclosed in the EIS. In *Northern Plains*—, a NEPA challenge to an agency’s approval of a railroad in Montana—the EIS merely assessed “the number of acres of *potential* sage grouse habitat within the 200-foot railroad right of way” rather than documenting the extent of sage-grouse habitat use and activity throughout the entire area that sage-grouse could be harmed. *See N. Plains Res. Council, Inc. v. Surface Transp. Bd.*, 668 F.3d 1067, 1084 (9th Cir. 2011) (emphasis added). As a condition of project approval, the defendant adopted a mitigation measure requiring “pre-construction surveys . . . to determine the extent of sage grouse habitats and activity in the project area.” *Id.* The Ninth Circuit held that the failure to gather this baseline data prior to approving the railroad fell short of NEPA’s “hard look” requirement, because “without this [baseline] data, an agency cannot carefully consider information about significant environment impacts.” *Id.* at 1085. Likewise, the court held unlawful the agency’s postponement of plant field surveys until after project approval. *Id.* at 1084-85.

Merely documenting “potential habitat” in the EIS is insufficient, even if the EIS assumes it is occupied. The EIS must disclose whether and where *actual* occupied habitat exists within the project area, and the total number of plant occurrences and health of these populations. “Potential habitat” is not an adequate proxy. Potential habitat could contain a species’ entire population or no individual plant occurrences. The failure to disclose this information inhibits informed decision making. *See Idaho Conserv’n. League v. U.S. Forest Serv.*, No. 1:16-CV-0025-EJL, 2016 U.S. Dist. LEXIS 90371, at *29, *25 (D. Idaho July 11, 2016) (“Without accurate baseline data before the Project begins, it is impossible to know whether and to what extent the Project’s activities will impact [rare bitterroot plant],” including “how many plants will be destroyed” or “how much habitat fragmentation will occur”).

TVA must therefore conduct field surveys for all of the listed species and disclose the project area's baseline population levels or species occurrences in the EIS. The timing of these surveys is critically important, and species-specific.⁶⁶ Field surveys must also be conducted along the entire pipeline route for Alternative A. Habitat suitable for the Indiana bat, gray bat, Northern Long Eared Bat, and tan riffleshell appears to span the entire length of the pipeline.

b. Specific Impacts Analysis for each Listed Species is Missing from the Draft EIS.

As mentioned above, the Draft EIS completely skips any analysis of site-specific impacts to listed species. For example, the Draft EIS states that “[w]ater used during construction would be provided by delivery via water trucks and via water uptake from surface waterbodies.” Draft EIS at 148. However, TVA does not specify which surface water bodies the project would take water from, where and when the water would be taken from water bodies, how much water would be taken how often, and in what manner it would be taken. *Id.* Without this information, no analysis of the project's impacts to aquatic species, including listed aquatic species like the tan riffleshell, pink mucket, and rabbitsfoot can be provided. Without a full description of all direct, indirect, and cumulative impacts that would be inflicted by the project, TVA cannot meet its obligations under NEPA. 40 C.F.R. §§ 1502.16; 1508.7-1508.8.

The Draft EIS acknowledges that the gray bat, Indiana bat, and northern long-eared bat have prevalent habitat in the project area and are known to inhabit the area around the project area. Draft EIS at 265. The document mentions that forested habitat is essential for all three species' habitat needs, and that Alternative A would eliminate hundreds of acres of forested habitat. Draft EIS at 219. However, the Draft EIS still fails to provide any site-specific impacts analysis for these listed bats. The Draft EIS also acknowledges that karst habitats are essential for winter hibernacula and roosting. Draft EIS at 265. The document also acknowledges that hibernacula are known to exist nearby the project area, *id.*, and acknowledges that sinkholes are likely to impact the pipeline route. *Id.* at 101, 122. However, the Draft EIS completely ignores the presence of karst habitat for bats along the pipeline construction route in Alternative A.

The Draft EIS also relies on a local mussel survey from 2011 to determine that no listed rabbitsfoot or pink mucket mussels are present in the river adjacent to the CUF. Draft EIS at 267. TVA states that this is true because the 2011 survey turned up no listed mussels. However, the rabbitsfoot was not listed until 2013⁶⁷, making this survey not only outdated, but useless to the

⁶⁶ See, e.g., U.S. Fish and Wildlife Service. Supplemental Indiana Bat Survey Guidance for Kentucky (May 1, 2017), at 3.

⁶⁷ See, e.g., U.S. Fish and Wildlife Service. Rabbitsfoot (*Quadrula cylindrica cylindrica*), at <https://ecos.fws.gov/ecp/species/5165>.

analysis as it is constructed by TVA. Without current, on-the-ground data, TVA's analysis is without merit.

c. The Draft EIS lacks any Cumulative Effects Analysis for Alternative A's Impacts on Listed Species.

The Draft EIS purports to put forward a cumulative effects analysis for Alternative A, which states:

Cumulative effects to threatened and endangered species are not anticipated as past/present and RFFAs have or would likely complete Section 7 consultation and would adhere to conservation and mitigation measures. Cumulative loss of habitats may occur but would be minimized through the use of BMPs and proper siting of facilities.

Draft EIS at 280. This analysis suggests that no cumulative impacts could occur because Section 7 consultation will eventually occur. This argument falls flat because Section 7 consultation does not prevent impacts and may even result in an incidental take statement that allows listed species to be killed by the project. 16 U.S.C. § 1536(b)(4); 50 C.F.R. § 402.14(i)(1). TVA quickly turns around and contradicts itself, stating that cumulative loss of habitats may be caused by the project. However, TVA never reconciles this fact with its prior contradictory statement, thus producing an arbitrary and capricious decision by "offer[ing] an explanation for its decision that runs counter to the evidence before the agency." *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto Ins. Co.*, 463 U.S. 29, 43 (1983). The Draft EIS thus fails to provide an adequate cumulative effects analysis.

The Draft EIS' cumulative effects analysis also ignores TVA's own admissions that Alternative A's pipeline would be constructed adjacent to an existing transmission line right of way. The Draft EIS makes contradictory statements, acknowledging that construction of the pipeline will involve clearing 694 acres of forest, 359 acres of herbaceous vegetation, and 10.9 acres of scrub/shrub habitat, wetlands, and open ponds, Draft EIS at 219, but then states:

Limited land clearing activities and associated equipment are expected as most of the pipeline will be located adjacent to an existing electrical transmission line right-of-way.

Draft EIS at 205. TVA's reliance on the pipeline corridor running parallel to an existing electrical transmission line clearly does not eliminate concerns around habitat impacts, as the Draft EIS acknowledges that over a thousand acres of habitat may be cleared for the pipeline.

After attempting such logical gymnastics, the Draft EIS then turns around to state that pipeline construction's impacts to wildlife habitat would be mitigated by the presence of other habitat nearby:

Species that may be impacted by the construction and maintenance of the natural gas pipeline lateral include those associated with forest and field habitats or stream and wetland habitats as listed in Table 3.8-2. Prevalent habitat in the adjacent and surrounding area of the pipeline would minimize effects to species within the corridor.

Draft EIS at 280. However, this analysis again dodges the purpose of a cumulative effects analysis, which is to catalogue the cumulative impacts of a project. Here, TVA ignores the fact that habitat removal is being concentrated, cumulatively, in one compact area where one right of way will now be joined by a second. The cumulative impacts analysis of listed species impacts under Alternative A is faulty and nonexistent.

d. TVA Failed to Follow Procedures for Proceeding with Incomplete Impacts Information.

NEPA lays out specific requirements in the instance where an agency wishes to proceed without including all relevant information. Under NEPA:

When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an environmental impact statement, and there is incomplete or unavailable information, the agency shall make clear that such information is lacking.

40 C.F.R. § 1502.21(a). Plainly, TVA has not made clear that there is no available or complete information on which to base an adequate evaluation of the rail line's cumulative impacts on air quality. Rather, the agency suggests that an analysis of raw land use type acreages is good enough for purposes of the species impacts inquiry. Because TVA has not accounted for the availability of sufficient species impacts information, the agency has run afoul of 40 C.F.R. § 1502.21(a). Further:

If the information relevant to reasonably foreseeable significant adverse impacts cannot be obtained because the overall costs of obtaining it are unreasonable or the means to obtain it are not known, the agency shall include within the environmental impact statement:

- (1) A statement that such information is incomplete or unavailable;

(2) A statement of the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant adverse impacts on the human environment;

(3) A summary of existing credible scientific evidence that is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment; and

(4) The agency's evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community.

40 C.F.R. § 1502.21(c). Here, TVA is choosing to proceed with NEPA without waiting for necessary species survey results to be available to support the analysis. However, the agency did not follow the above procedures in its Draft EIS, as required by NEPA. Given that TVA contends that information that would allow it to accurately evaluate cumulative air quality impacts is incomplete or unavailable, the agency is legally required to follow the dictates of 40 C.F.R. § 1502.21(c). Because it did not do so, the agency has violated NEPA.

* * *

The urgency of the climate and energy crises demand that large utilities, especially TVA, step up and meet the moment. It is now on power providers to not only rapidly phase out their fossil fuel fleets but to replace that energy with genuinely renewable sources that will provide communities with equitable access to resilient, affordable, and safe electricity. With the Cumberland Plant retirement, TVA has an opportunity to be a model this country needs for what a just and truly renewable energy transition should look like. TVA can and should lay the groundwork for the very technological solutions that other utilities can deploy to meet President Biden's decarbonization goal.

We look forward to seeing a substantially revised Cumberland Plant Final EIS that fully addresses these concerns. In the meantime, please contact us should there be any further information we can provide.

Sincerely yours,

CENTER FOR BIOLOGICAL DIVERSITY

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Comments re: Draft Environmental Impact Statement For TVA Cumberland Fossil Plant

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