



COMMENTS OF UTAH PHYSICIANS FOR A HEALTHY ENVIRONMENT
ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR
THE UINTAH BASIN RAILWAY PROJECT

INTRODUCTION AND SUMMARY

Utah's Seven County Infrastructure Coalition (Coalition) has filed a petition with the Surface Transportation Board (Board) requesting authority to construct and operate an approximately 85-mile common-carrier rail line connecting one terminal in Utah's Uinta Basin, either near South Myton Bench or near Leland Bench, to the national rail network.

The Coalition's objective is to triple or quadruple the production of oil in the Uinta Basin. It views the proposed Uinta Basin Railway project (the Railway) as the tool that will achieve this objective. This draft Environmental Impact Statement (DEIS), however, limits itself to evaluating the environmental impact of building and operating the railway itself. It ignores the Coalition's basic purpose for subsidizing this project, which is to induce a massive increase in oil production in the Uinta Basin. No one advocating this project has explained how this effect of building the Railway could avoid causing an equally massive increase in the Uinta Basin's air pollution. Yet this DEIS does not acknowledge, let alone evaluate, the Railway's principal environmental impact—the near certainty that it will at least triple the concentration of key pollutants in the Uinta Basin's air shed—an air shed that is already harmful to human health according to multiple EPA air quality standards.

This DEIS addresses the many significant adverse environmental impacts of physically building the rail bed, including the more than 400 stream crossings that will be necessary to climb and descend the Wasatch Plateau, but it ignores the drastic degradation of the Uinta Basin's air quality that the Railway will enable. This is arbitrary and capricious within the meaning of the Administrative Procedure Act because it arbitrarily ignores highly relevant information about the environmental effects of building the Railway compared to the no-build alternative. The decision to ignore the drastic degradation of the air quality in the Uinta Basin that the Railway will enable is akin to the

company that insured the Titanic deciding to ignore the iceberg dead ahead while it carefully estimates the risk that passengers might turn an ankle while walking the promenade. Arbitrarily limiting of the scope of the DEIS in this manner violates the National Environmental Policy Act.

THE DEIS ARBITRARILY IGNORES THE RAILWAY PROJECT'S MOST SEVERE ENVIRONMENTAL IMPACTS

NEPA has been the Magna Carta of the environmental movement for the past 40 years. It adds to the normal business practices of the Federal government the goal of achieving a sustainable environment for present and future generations of Americans. It mandates that Federal agencies inform themselves of the environmental consequences of the actions that they initiate or approve, that it consult with other agencies, document the analysis, and make the information available to the public prior to making a decision. There is no indication in the DEIS that the Board has done this with respect to the Railway's foreseeable impact on the quality of the air in the Uinta Basin.

NEPA section 101(a) [42 USC § 4231] establishes this as the basic environmental duty of the Federal government:

The Congress, recognizing * * * the critical importance of restoring and maintaining environmental quality to the overall welfare and development of man, declares that it is the continuing policy of the Federal Government * * * to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans.

NEPA section 101(b) lists the goals that the Federal government is to pursue in fulfilling its basic environmental duty established in section 101(a). The Federal government is to administer its programs in a manner that will

- 1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
- 2) assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
- 3) attain the widest range of beneficial uses of the environment *without degradation, risk to health or safety, or other undesirable and unintended consequences*; (emphasis supplied)

* * *

NEPA left the details as to how its environmental goals would be incorporated into Federal decisions up to the Council on Environmental Quality. The bulk of CEQ's implementing regulations focus on preparing Environmental Impact Statements (EISs).

The CEQ also provided for categorical exclusions (CE) and environmental assessments (EA) but the details were left for the agencies to address in agency-specific supplemental regulations and “guidances.”

Courts agree that NEPA requires Federal agencies to follow certain procedures when making decisions that adversely impact the environment but it does not require that they reach a particular conclusion. But they also agree that federal agencies must take a reasonable “hard look” at their proposals in light of available information, analysis, and the potential for environmental impacts, in making informed decisions to implement an action or alternative, *Kleppe v. Sierra Club*, 427 U.S. 390 (1976). Inherent in the “hard look” that courts require is that agencies examine relevant issues using the most appropriate expertise and methodology available. *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989). The Board has not taken a hard look at the most obvious and severe environmental impact that building and operating the Uinta Basin Railway will induce.

The Council on Environmental Quality first adopted regulations implementing NEPA in 1978. For more than 40 years, those regulations required that an EIS be comprehensive. An EIS was required to address both “direct” and “indirect” effects on the resource under review. (See old 40 C.F.R. § 1508.8). It was also required to address “cumulative impacts” on that resource. Cumulative impacts were defined as “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 regardless of what agency (Federal or non-Federal) or person undertakes such other actions.” (See old 40 C.F.R. § 1508.7).

On September 14, 2020, the former Trump Administration’s CEQ revised the CEQ’s NEPA implementing regulations.¹ Among other things, the revisions narrowed the scope required of an EIS. They no longer mention requirements that an EIS address the “indirect” and the “cumulative” environmental effects of the action under review. Instead, the new regulations state that effects “should generally not be considered if they are remote in time, geographically remote, or the product of a lengthy causal chain.” See new 40 C.F.R. § 1508.1(g).

The Coalition’s whole purpose in promoting its Railway project is to induce a massive increase in oil production in the Uinta Basin. This is not a side effect or indirect

¹ Whether the NEPA implementing regulations adopted by the former Trump Administration’s CEQ will end up being the ones that govern the final EIS in this docket is uncertain. They have been challenged in at least four major lawsuits. These include one filed by 23 state attorneys general in Washington, D.C, [see <https://www.law.nyu.edu/centers/state-impact/press-publications/press-releases/ceq-nepa-regs-lawsuit-release>], a lawsuit filed in Virginia by 17 Atlantic coast conservation organizations, another filed in San Francisco by 13 western conservation organizations, and another filed in New York by the National Resource Defense Council and 8 other national environmental organizations. See <https://historichawaii.org/2020/09/04/national-coalitions-files-lawsuit-to-challenge-new-national-environmental-policy-act-regulations/>. These lawsuits challenge the consistency of the Trump CEQ’s NEPA regulations with NEPA’s fundamental goals and objectives, as well as the procedures by which the Trump CEQ regulations were adopted. Additionally, the Biden Administration’s CEQ is expected to issue new NEPA implementing regulations whose reach is at least as broad as those that the CEQ originally issued in 1978.

effect of building the Railway, it is the project's *raison d'être*, its explicitly targeted effect,² and the effect upon which its financial viability depends.³ The massive increases in oil production that the Railway is expected to induce will almost certainly cause equally massive increases in concentrations of nitrogen oxides (NO_x), Volatile Organic Compounds (VOCs), PM2.5, and Hazardous Air Pollutants (HAPS), such as benzene, in the Uinta Basin. These pollutants exceed, or are on the verge of exceeding, EPA health standards at current oil and gas production levels.

Massive increases in the concentrations of these pollutants in the Uinta Basin are effects that this EIS must cover, under either the broader definition of covered effects in the old CEQ regulations or the narrower definition of covered effects in the revised CEQ regulations. It is clear that the massive increase in oil production that the Railway is being built to induce will have a correspondingly massive effect on the concentration of pollutants the Uinta Basin air shed (a resource which should be under review).

It is beyond argument that this impact on air quality is encompassed by the “direct and indirect,” and “cumulative impact” language of the old CEQ regulations. But is also clear that this impact on air quality is covered by the language of new CEQ regulation 40 C.F.R. § 1508.1(g) as well. The air quality impact is not “geographically remote” from the Railway. The Railway is being routed through the heart of the Basin. Neither is building and operating of the Railway “remote in time” from its foreseeable impacts on air quality. Reduced crude oil transportation costs, increased oil production, and degraded air quality will be contemporaneous. Finally, there is no “lengthy causal chain” between the cost savings that rail transport will make available, the increase in oil production that will result, and the increased pollution that increased production will generate. This causal chain is simple and direct. There is no basis, even under the revised NEPA implementation rules, for this draft EIS to ignore the massive increase in pollution in the Uinta Basin that is the unavoidable consequence of building the Railway.

² See R.L. Banks and Associates, Prefeasibility Study of a Prospective Railroad Connecting the Uinta Basin to the National Rail Network, a Submission to the Seven County Infrastructure Coalition, dated August 9, 2018, (Banks Study) at pages at xiv, 1-2, and 14. The Seven County Infrastructure Coalition relies almost entirely on this study for its cost, volume, and revenue estimates, and as its public policy rationale for building the Railway, namely, the increase in oil production that it is expected to induce. A heavily redacted copy of the Banks Study is available at https://www.biologicaldiversity.org/programs/public_lands/pdfs/RL-Banks-SCIC-full-pre-feasibility-study.pdf.

³ For example, see page 14 of the Banks Study, which says

The need to achieve and sustain a high volume of traffic and revenue is even more critical in the case of a railroad such as that investigated herein *because the financial performance of the Uinta Basin Railroad will be tested further by the need to overcome the extremely high capital costs that are a necessary element of a railroad being constructed in excess of 126 miles.* (emphasis added)

In evaluating the economic feasibility of the Railway project, the Banks Study estimates only the impact that transporting crude oil will have on its volumes and revenues.

The Trump CEQ's revised NEPA regulations exclude from NEPA coverage "effects that the agency has no ability to prevent due to its limited statutory authority or would occur regardless of the proposed action." See new 40 C.F.R. § 1508.1(g)(2). This change purports to codify a holding in *Department of Transportation v. Public Citizen*, 541 U.S. 752 (2004) (*Public Citizen*). This revision does not provide grounds for ignoring the air quality impacts that the Railway will cause.

In *Public Citizen*, the Federal Motor Carrier Safety Administration (FMCSA) had authority to issue and enforce the safety permits that Mexican trucks needed if they were to carry freight into the United States, as allowed by NAFTA. The direct Congressional purpose of this permitting requirement was highway safety. The indirect purpose was not to disadvantage American truckers who would otherwise bear the burden of meeting more stringent American safety standards. In separate legislation, Congress had given the President authority to embargo freight hauling in the U.S. by Mexican trucks as long as American trucks were not given certain corresponding privileges to haul freight within Mexico.

The FMCSA recognized that by issuing permits to Mexican truckers, it might increase overall highway freight traffic and associated emissions in the United States. It decided against preparing a full EIS to address this potential impact, however, reasoning that the connection between its permitting activity and such increases in emissions was too tenuous to require analysis in a full EIS.

The Court in *Public Citizen* agreed. It concluded that FMCSA's permitting duties were essentially ministerial, and that it did not have authority to withhold permits to prevent increases in freight traffic and associated pollution. It characterized the President's decisions to use or not use his authority to embargo Mexican truck traffic as an "intervening cause" that more directly affected levels of Mexican truck traffic and pollution. The Court held that an EIS need not address effects that the reviewing agency has no authority to prevent or that would happen even without the agency action, because they would not have a sufficiently close causal connection to the proposed action. The Court, in effect, applied the familiar tort law concepts of "intervening" or "superseding" causes to determine the appropriate scope of Environmental Impact Statements.

In its Notice adopting its Final Rule, the Trump CEQ asserted that *Sierra Club v. FERC*, 827 F.3d 36, 47-48 (D.C. Cir. 2016) incorporates the principle announced in *Public Citizen*. In *Sierra Club*, the Federal Energy Regulatory Commission (FERC) had authority to permit the reconfiguring of a natural gas terminal to export LNG. The court did not require FERC's EIS to address the domestic environmental impact that might result from producing additional natural gas for export because its parent agency (the Department of Energy) had the authority to grant permits to export natural gas. The court said "[C]ritical to triggering that chain of events is the intervening action of the Department of Energy in granting an export license. The Department's independent decision to allow exports—a decision over which FERC has no regulatory authority—breaks the NEPA causal chain and absolves the Commission of responsibility to include in its NEPA analysis considerations that it 'could not act on'

and for which it cannot be “the legally relevant cause.” (quoting *Pub. Citizen*, 541 U.S. at 769))

Public Citizen and Sierra Club v. FERC might appear to cover the fact pattern underlying the draft EIS in this docket. In this docket, the Board is evaluating the environmental impacts of building and operating the Railway, but is declining to evaluate the environmental impacts of the massive increase in oil production that the Railway is intended to stimulate.⁴

It is clear that the Board does not have authority to grant or withhold permits to drill new oil wells in the Uinta Basin, or directly control oil production or the emissions that they cause. In this regard, the regulatory posture of the Railway project resembles, in a superficial way, the fact patterns in *Public Citizen and Sierra Club v. FERC*. However, there are several important differences between the permitting authority that the Board exercises in this docket and the permitting activities of the FMCSA and FERC that were reviewed in *Public Citizen and Sierra Club*.

As a general matter, the Board has discretion to take into account its broad rail transportation policy mandates when making its “build/don’t build” decisions. These broad policy mandates are, primarily, to foster the building and operating of an economically sound rail infrastructure and, secondarily, to ensure that that infrastructure is used in a way that protects public health and safety.

The basic rail transportation policies that the Board was established to implement are found in in 49 U.S. Code § 10101 Rail transportation policy. They include mandates

* * *

(5) to foster sound economic conditions in transportation and to ensure effective competition and coordination between rail carriers and other modes;

* * *

(8) to operate transportation facilities and equipment without detriment to the public health and safety;

* * *

⁴ Air pollution is not the only serious environmental impact that would result from the massive increase in oil production that the Railway is designed to induce. Such an increase would require correspondingly massive increases in water consumption in the arid Uinta Basin. Most new oil and gas drilling in the Uinta Basin will use hydraulic fracking technology. Anywhere between 1.5 million and 16 million gallons of water is consumed to frack a single well, according to the United States Geological Survey (USGS), depending on the type of well and type of rock formation. Water used for hydraulic fracturing is typically fresh water taken from groundwater and surface water resources. See https://www.usgs.gov/faqs/how-much-water-does-typical-hydraulically-fractured-well-require?qt-news_science_products=0#qt-news_science_products. Spills of water contaminated with fracking chemicals are common. A study of the Bakken region in North Dakota found that nearly half of its oil wells suffer such spills, resulting in widespread contamination of surface and ground water. See <https://www.zmescience.com/ecology/fracking-caused-contamination-in-north-dakota-new-study-finds/>.

These goals would seem to provide the Board with ample discretion in its “build/don’t build” decisions to consider whether it serves the public interest to construct a rail line that runs a considerable risk that it will go bankrupt and become a stranded asset (policy 5). It would also seem that the Board has some discretion as well to consider whether operating that rail line protects public health if it fosters a huge degradation of the quality of the air in the region that the train is being built to serve, especially where the air already violates multiple EPA health standards (policy 8).

Another important distinction between the regulatory posture of this Railway project and activities under review in *Public Citizen* and *Sierra Club v. FERC* is that the proponents of the Railway project straightforwardly admit that the justification for the Railway is the impact that it is expected to have on a single non-freight activity (oil production), while the Railway itself is viable only if it succeeds in becoming the means to that end. (See footnotes 2 and 3, above.)

The design of the Railway project provides further evidence that its narrow objective is to serve the oil industry. To cut costs, its bare-bones design calls for building only one access point in the Basin. It nominates two candidates for becoming that single access point—either Myton or Leland Bench. These are among the smallest settlements in the Basin, but Myton is the hub of the Basin’s largest oil producer (Encana), while Leland Bench is the site for a proposed oil refinery. No access points that would serve the Basin’s larger towns and the businesses they host are contemplated. This disregard for the wider needs of the Uinta Basin’s other towns and businesses has caused the Utah Rail Passengers Association to oppose the Railway project.⁵ This undercuts the argument that the Railway serves a broad public need rather than a narrow private one. It also reinforces how directly the Railway is connected to the increased emissions that it will induce in the Uinta Basin.

As noted, building the Railway project would induce a massive increase in oil production and almost certainly would induce a massive increase in associated emissions. Under traditional tort analysis, it might be argued that decisions by other agencies, such as the BLM or the EPA are potential “intervening” or “superseding” causes of those increased emissions because those agencies might grant or withhold permits that producers would need to increase oil production in the amounts that the proponents of the Railway expect. *Infra*, we explain that if the massive increases in oil production sought by the Coalition materialize, it will be because future oil market conditions turn favorable, not because the BLM or the EPA allowed or did not allow expansion of the industry in the Basin to go forward.

The Eighth Circuit’s decision in *Mid States Coalition for Progress v. Surface Transportation Board*, 345 F.3d 520 (2003) (Mid States) is more instructive to the Board on what the DEIS in this docket is obligated to address than either *Public Citizen* or *Sierra Club* because it deals with a fact pattern that is much closer to the one in this docket.

⁵ See <https://www.upr.org/post/dispute-over-economic-benefits-proposed-uinta-basin-railroad>.

In *Mid States*, a railroad was seeking approval from the Surface Transportation Board to construct and refurbish hundreds of miles of new track to boost its capacity to haul coal. The project was expected to make an additional 100 million tons of coal available for annual usage, yet the Board declined to incorporate the environmental effects of that known increase in coal usage into its analysis. *Id.* at 532.

The *Mid States* court ruled that the Board's EIS was legally insufficient. It said, "even if the full extent of the environmental impact of the increased coal usage was not known, the nature of the ensuing environmental effects plainly was—in fact, it had been identified by the Board itself." The court concluded that "[W]hen the *nature* of the effect is reasonably foreseeable but its *extent* is not," an agency "may not simply ignore the effect" in its NEPA review. (emphasis in original) *Id.* at 549.

Relying on the Banks Study, the Coalition offers highly specific estimates of the additional oil production that the Railway will induce,⁶ as well as very specific estimates of the oil industry activity that would be required to support that added production.⁷ If the Board were to consult the un-redacted Banks Study, it would find highly specific estimates of the impact that the Railway is expected to have on oil production volume. The Board could take the increased well counts and production volumes that proponents of the Railway forecast and multiply them by standard emissions factors developed by the EPA, or more specific ones developed by the BLM's Vernal Office, to estimate the increase that they would likely cause in concentrations of specific pollutants in the Basin.⁸

⁶ See Banks Study at 15-16.

⁷ See, e.g., transcript of radio interview of Rio Grande Pacific Senior Vice President Mark Hemphill and 7 County Infrastructure Coalition Executive Director Mike McKee on Newstalk KVEL AM 920 at <https://basinnow.com/article.php?id=6321>. Mr. Hemphill estimated that building the Railway would induce production of an additional 250,000 barrels of oil a day, which would support 10 rigs working consistently and about 1,500 permanent oil industry jobs, generating additional economic activity of \$2 billion dollars a year in wages, services, and materials. .

⁸ There is a relatively straightforward way that the EIS could have estimated how much emissions in the Basin would increase due to the additional oil production that the Railway would cause. The EIS could have taken the additional barrels of oil that the Coalition expects its Railway to stimulate and divide that amount by an estimated average production per well in the Basin. For detailed oil and gas industry production data see the sources cited in Lyman, S., et al., High Ethylene and Propylene in an Area Dominated by Oil Production, *Atmosphere*, 2021, 12, 1, at 5 of 19, available at <https://www.mdpi.com/2073-4433/12/1/1>.

To the estimated number of wells, the Board could then apply national average per-well emissions factors developed by the EPA or Utah-specific factors developed in the Monument Butte Oil and Gas Development Project Final EIS (BLM 2016) or the Fishlake National Forest Oil and Gas Leasing Analysis FEIS (USDAFS 2013) to get a reasonable estimate of the additional emissions that the additional oil production would generate. An estimate of higher ozone concentrations that would result from the expected increase in emissions could be obtained by inputting emissions estimates into air dispersion models using the Weather Research and Forecasting (WRF) model, (see <https://www.epa.gov/cmaq/cmaq-models-0>), together with the Community Multiscale Air Quality Modeling System (CMAQ) (see <https://www.epa.gov/cmaq/wrf-cmaq-model>).

In this docket, the Board has available to it considerably more detail than it had in *Mid States* about the volume of freight that would be induced by the project under review and its related economic and geographical impacts. In *Mid States*, the court held that the Board had enough information to evaluate the *nature* of the increase in emissions caused by the project under review, and was, therefore, obligated to address it. In this docket, there is enough information available to the Board to evaluate both the *nature* and the *extent* of the air quality degradation that the Railway project is likely to cause. Under these circumstances, the Board has an even greater obligation than it had in *Mid States* to produce an EIS that evaluates the impact that freight volume induced by the project will have on regional air quality.

THE UINTA BASIN'S DEGRADED AIR QUALITY

The Uinta Basin's air quality is already hazardous to human health. This is due almost entirely to the presence of the oil and gas industry. This industry can be viewed as having two major outputs—fossil fuels and pollutants. It sells the former, and, for the most part, expels the latter into the environment. Emissions from tens of thousands of well heads, flare stacks, compressors, pneumatic controllers, pipes, tanker trucks, storage tanks, and wastewater evaporation ponds all make their way into the Uinta Basin's atmosphere. As a result, concentrations of nitrogen oxides, VOCs, fine particulates (PM_{2.5}),⁹ benzene,¹⁰ and airborne silica either exceed, or are on the verge of exceeding, EPA health standards.

To see how these models could be applied, see, Wyatt Appel, K.; *Description and evaluation of the Community Multiscale Air Quality (CMAQ) modeling system version 5.1*, Geoscientific Model Development, Volume 10, Issue 4, 2017, pp.1703-1732 (2017); Ahmadov, R.; *Understanding high wintertime ozone pollution events in an oil- and natural gas-producing region of the western US*, *Atmospheric Chemistry and Physics*, Volume 15, Issue 1, 2015, pp.411-429 (2015); Edwards, P.M., *Ozone photochemistry in an oil and natural gas extraction region during winter: simulations of a snow-free season in the Uintah Basin, Utah*, *Atmospheric Chemistry and Physics*, Volume 13, Issue 17, 2013, pp.8955-8971 (2013); and, Wilkey, J., et al., *Predicting emissions from oil and gas operations in the Uinta Basin, Utah*, *Journal of the Air & Waste Management Association* Volume 66, 2016 - Issue 5, available at <https://www.tandfonline.com/doi/full/10.1080/10962247.2016.1153529>.

⁹ Uinta Basin Air Quality Research, 2020 Annual Report, Bingham Research Center, Utah State University, at 14., available at

https://binghamresearch.usu.edu/files/reports/UBAQR_2020_AnnualReport.pdf.

PM_{2.5} consists of particulates so fine that they can be inhaled and absorbed into the bloodstream. From there, they can impair all major organ systems. For detailed information about the health impacts of PM_{2.5}, see

<http://www.epa.gov/airquality/particulatemater/health.html>.

¹⁰ Id. Benzene is a neurotoxin and a carcinogen. Concentrations in the Uintah Basin have been measured at 3.1 ppb, which is roughly three times the level of 1.4 ppb at which chronic health effects appear. Helmig, D., *Highly Elevated Atmospheric Levels of Volatile Organic Compounds in the Uintah Basin, Utah*, *Environmental Science and Technology*, (2014) 48, 4707–4715.

Ozone is a powerful oxidant that can literally burn delicate lung tissue, causing or exacerbating bronchitis, emphysema and asthma. Prolonged exposure may permanently scar lung tissue.¹¹ In the Uinta Basin, violations of the EPA's current 8-hour National Ambient Air Quality Standard (NAAQS) of 70 parts per billion (ppb) are common and recurring.¹² Researchers estimate that the amount of ozone-forming compounds coming from oil and gas operations each year in this thinly populated basin is equivalent to the emissions of 100 million cars. At times, its ozone concentrations have exceeded 140 parts per billion. This is more than double to the NAAQS standard, and is higher than summertime concentrations in the Los Angeles Basin, the nation's most polluted major metropolitan area.¹³ The EPA officially designated the Uintah Basin a Non-attainment Area for ozone this past fall.¹⁴

Source of the Basin's Ozone

This DEIS is obligated to evaluate the impact that the Railway project will have on the Basin's already heavily polluted air. It is not possible to do this without estimating its impact on the main source of that pollution—the drilling and storage operations of the Basin's oil and gas industry.

Ground level ozone forms when sunlight causes ozone precursors (nitrogen oxides and VOCs) to interact. The higher the temperature, and the more intense the sunlight, the faster ozone forms. For this reason, concentrations of ozone that violate the EPA's health standards usually occur in urban areas in summer. In the Uinta Basin, however, violations of the EPA's ozone standards usually occur in winter.

There is a consensus in the literature that significant local ozone production during wintertime requires three ingredients-- thermal inversions, snow cover, and abundant precursor emissions. Normally, earth's atmosphere is warmer at ground level and colder aloft. This allows ground-level pollutants, such as ozone precursors, to mix with upper level winds and disperse. During winter inversions, however, warm air aloft traps cold air at ground level, holding ozone precursors in place. The ultraviolet

¹¹ For detailed information about the health impacts of ozone, see <http://www.epa.gov/groundlevelozone/health.html>.

¹² Uinta Basin Air Quality Research, 2020 Annual Report, Bingham Research Center, Utah State University, at 12., available at https://binghamresearch.usu.edu/files/reports/UBAQR_2020_AnnualReport.pdf.

¹³ Helmig, D., et al., "Highly Elevated Atmospheric Levels of Volatile Organic Compounds in the Uintah Basin, Utah." *Environmental Science & Technology*, March 27, 2014. doi:10.1021/es405046r.

¹⁴ <https://deq.utah.gov/air-quality/ozone-marginal-nonattainment-areas-utah>.

component of sunlight promotes their conversion to ozone, especially if snow cover is present to reflect sunlight and amplify that reaction.¹⁵

The Uinta Basin is ringed by mountain ranges and high plateaus. It lies in a snow shadow cast by the surrounding mountains and receives fewer storms than surrounding regions. This geography bottles up pollutants that originate there. Snow cover from a single significant snowstorm early in winter can be enough to stabilize cold pool inversions for the rest of the season, keeping the snowpack from melting until March, and causing ozone to rise above EPA health standards, sometimes for extended periods of time. Without at least one heavy storm, however, the Basin can go an entire winter without significant snow cover. Such winters do not give rise to high concentrations of ozone. Since 2010, winters with significant snow cover have outnumbered those without by nearly 4 to 1.¹⁶

High winter ozone pollution in the Uinta Basin is so atypical of the rest of the intermountain west that it has been extensively studied. These studies measure ozone precursor emissions and ozone formation regionally and at specific oil and gas sources,¹⁷ in real time.¹⁸ They agree that high levels of emissions are required to produce high levels of winter ozone in the Uinta and comparable basins. They conclude that only VOCs and NO_x produced by the oil and gas industry, as opposed to typical urban sources, appear capable of doing this. These studies note that there are a multitude of basins and valleys in the western United States, urban and rural, that do not suffer from high ozone concentrations in winter, even though they are geographically and meteorologically similar to the Uinta Basin. The essential difference, they conclude, is that the Uinta Basin has a large-scale oil and gas extraction industry.¹⁹

Importantly, only the mix of VOCs and NO_x emitted by the oil and gas industry, as opposed to typical urban sources, appear to be capable of generating significant winter ozone. The crucial role of oil and gas emissions in creating high concentrations

¹⁵ See studies summarized in Cumulative Summary of Research Relating to Uinta Basin Air Quality, Bingham Research Center, Utah State University, November, 2019, (Bingham Summary), Meteorology tab, Key Components of Ozone-forming Winter Inversions tab.

¹⁶ Mansfield, M.L.; Lyman, S.N. Winter Ozone Pollution in Utah's Uinta Basin is Attenuating. *Atmosphere* 2021, 12, 4. at 4 of 18, (Mansfield 2021) available at <https://www.mdpi.com/2073-4433/12/1/4>.

¹⁷ See compiled studies in Atmospheric Chemistry and Physics, Special Issue, Uintah Basin Winter Ozone Studies (ACP/AMT inter-journal SI), Seinfeld, J.H., et al., editors, November, 2016, available at https://acp.copernicus.org/articles/special_issue353.html.

¹⁸ Schnell, R.C., et al., Quantifying wintertime boundary layer ozone production from frequent profile measurements in the Uinta Basin, UT, oil and gas region, *Journal of Geophysical Research Atmospheres*, Volume 121, Issue 18, September, 2016, available at <https://research.noaa.gov/article/ArtMid/587/ArticleID/326/NOAA-%E2%80%99Creels-in-%E2%80%99D-data-on-Utah%E2%80%99s-winter-ozone-problem>.

¹⁹ See Bingham Summary, Meteorology tab, Key Components of Ozone-forming Winter Inversions tab.

of ozone in high mountain valleys in winter is attributable to that industry's emissions profile, which has a high ratio of VOCs to NO_x, promoting robust aldehyde photolysis.²⁰

The only regions on earth known to produce high concentrations of ozone in winter are the Uintah Basin and the Upper Green River Basin (near Pinedale, Wyoming), both of which host a large-scale oil and natural gas extraction industry. The Wind River Basin (near Riverton, Wyoming), however, might appear to be an exception. It, too, has ozone precursors emitted by its oil and gas industry, and experiences winter temperature inversions, together with snow cover. Oil and gas activity in the Wind River Basin, however, is only a fraction of that of the Uinta Basin. Researchers note that high concentrations of ozone in winter may appear there as well, if the petroleum industry reaches the size of those in the Upper Green River or the Uinta Basin.²¹

The Uinta Basin is rural and sparsely populated, having less than 50,000 inhabitants. Aside from the oil and gas industry, anthropogenic sources of ozone precursors are insignificant. Oil and gas operations in the Uinta Basin account for 98-99% of its VOC emissions and 57-61% of its NO_x emissions.²² Therefore, the only way to bring the Basin's ozone levels into compliance with the Clean Air Act's standard is to reduce the amount of ozone precursors that the oil and gas industry emits.

The Banks Study concludes that building the Uintah Basin Railway will reduce transportation costs of Uinta Basin oil enough to triple or quadruple oil and gas production from the current average of 80,000 barrels per day.²³ If those forecasts are borne out, the most likely result will be a proportionally massive rise in NO_x and VOC emissions in the Basin. Government agencies that have responsibility for protecting the Uinta Basin's air quality, such as Utah's Division of Air Quality (UDAQ), the BLM, and the EPA, do not have the authority to deny oil and gas drilling permits outright to prevent such pollution. The only way to prevent a proportionally massive increase in emissions would be to apply new draconian and expensive restrictions on NO_x and VOC emissions to oil and gas operations in the Basin, either voluntarily or through government regulation. As will be explained below, there is little prospect that either voluntary restrictions or government regulation could bring the Uinta Basin back into attainment for ozone in the face of the massive increase in oil production that building the Railway is expected to cause, at least for the next decade and a half.

²⁰ See Bingham Summary, Air Chemistry Simulations tab.

²¹ Mansfield ML, Hall CF. A survey of valleys and basins of the western United States for the capacity to produce winter ozone. *Journal of the Air & Waste Management Association* 2018: 1-11.

²² <https://deq.utah.gov/air-quality/uinta-basin-ozone-studies-ubos>.

²³ The Banks Study, at pages 15 and 16, estimates that the availability of the Railway would increase oil production by no less [than] 225,000 bpd on a consistent basis," but also cites with approval an estimate by its consultant of "between 320,000 and 340,000 bpd." It is worth noting that the upper end of this range represents the entire capacity of the Uinta Basin Railway, assuming that the Railway could, at most, accommodate seven 100-car trains per day, carrying 50,000 barrels of oil and nothing else. This provides further evidence that the railway is being designed as infrastructure for the Basin's private oil industry and nothing more.

Voluntary control of pollution in the Uinta Basin will not bring it back into attainment

The prospects of a rigorous voluntary program bringing the Uinta Basin back into attainment for ozone are slim indeed, based upon the history of unsuccessful self-regulation by the industry of emissions there. A good indication of the effectiveness of self-regulation in the oil and gas industry is the rate at which oil and gas extraction leaks methane (natural gas). Methane leaks occur along the entire oil and gas supply chain, from extraction to storage to transmission. The leaks can come from improperly sealed fittings, faulty valves and compressors, improperly closed hatches, and many other sources, stemming from both human error and equipment failure.

Methane is a valuable commodity. By vigilant monitoring, inspection, and repair of leaks, producers can drive the rate at which they leak methane to a small fraction of one percent of production.²⁴ If producers believe that they can sell the recovered gas for enough to offset the cost, they will do it. But the Uinta Basin's methane hygiene is abysmal. According to several studies, it averages an astounding 6 to 9% of total gas production—the highest, or next to highest, leakage rates of all the nation's major producing basins.²⁵

A major reason for this is that the Uinta Basin has a large inventory of older, smaller, low-volume wells. These tend to be widely spaced, have low well-per-pad ratios, and are generally are not equipped with electricity with which to power its thousands of process control devices.²⁶ These characteristics make capital expenditures on pollution control (both of methane and ozone precursors) uneconomic

²⁴ British Petroleum, for example, met its goal of keeping leaked methane to 0.2% of production in 2017 and 2018. See <https://www.reuters.com/article/uk-bp-methane-idUKKCN1VV199>.

²⁵ Karian estimates the Uinta Basin's methane leakage rate at 8.9%. See Karian, et al., Methane emissions estimate from airborne measurements over a western United States natural gas field, *Geophysical Research Letters*, Volume 40, Issue 16, Pages 4393-4397, August 28, 2013, available at <https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/grl.50811>; Zhang estimates the Uinta Basin's methane leakage rate at 6.6%. See Zhang, Y., et al., Quantifying methane emissions from the largest oil-producing basin in the United States from space, *Science Advances*, April 22, 2020, Supplementary Materials, Table S1, available at https://advances.sciencemag.org/content/suppl/2020/04/20/6.17.eaaz5120.DC1/aaz5120_SM.pdf;

Robertson estimates that oil wells in the Uinta Basin leak an astounding 25.8% of the natural gas that they produce. Robertson, A., Variation in Methane Emission Rates from Well Pads in Four Oil and Gas Basins with Contrasting Production Volumes and Compositions, *Environ. Sci. Technol.* 2017, 51, 15, 8832–8840, June 19, 2017, Table S3, available at <https://pubs.acs.org/doi/abs/10.1021/acs.est.7b00571>.

²⁶ Robertson, Id., finds a strong negative correlation between well production and methane leakage rate. See, as well, a comparison of the relatively high-volume emission rates at individual Uinta Basin wells, due in part to their location in low-density fields with relatively primitive infrastructure, with the lower emissions rates at individual wells located in a high-density, more technologically sophisticated, and better regulated field in an adjacent field in Rangeley Colorado. Warneke, C., et al, Volatile organic compound emissions from the oil and natural gas industry in the Uintah Basin, Utah: oil and gas well pad emissions compared to ambient air composition, *Atmos. Chem. Phys.*, 14, 10977–10988, (2014) at 10984, available at <https://acp.copernicus.org/articles/14/10977/2014/acp-14-10977-2014.pdf>.

for the majority of oil and gas wells in the Uinta Basin. This leaves little incentive for voluntary pollution control measures.

Regulatory control of pollution in the Uinta Basin will not bring it back into attainment

In the *Public Citizen* and *Sierra Club* cases discussed above, the courts found that permission from a third-party agency was needed before a particular polluting economic activity could proceed. The courts in those cases relied on that finding to conclude that the agency producing the EIS under review did not have a duty to evaluate the environmental impact of that pollution. However, neither UDAQ, the BLM, nor the EPA have the regulatory tools necessary to block the drilling of new wells and increasing oil production as a means of bringing a nonattainment area into attainment. They have the authority to impose varying degrees of pollution control technologies, depending on the severity of the problem, but they do not have authority to impose pollution controls that are so expensive that they would deprive oil and gas operators of economically viable leaseholds. Unfortunately, in the Uinta Basin, that is the only way to bring the area back into attainment in the face of a quadrupling of oil production, and that drastic option isn't available to regulators.

Under the current regulatory regime that has been built to implement the Clean Air Act, the EPA has two basic kinds of authority to control pollution to protect human health. One is to set limits on ambient air concentrations of six "criteria" pollutants" (NAAQS) that are sufficiently strict to protect human health. One of those "criteria" pollutants is ozone. Persistent violation of a NAAQS limit, such as the 8-hour limit for ozone, in an area leads to designation of that area as a "nonattainment area." That designation obligates the State in which that area is found to devise a State Implementation Plan consisting of area-wide pollution reduction techniques and practices that appear likely to bring the area back into attainment. The more severe the ongoing violation of the NAAQS for a given criteria pollutant is, the higher its designated category of nonattainment will be. The higher the nonattainment designation, the more rigorous the technologies and methods of controlling that pollutant an SIP may require. A NAAQS-based SIP, however, typically does not regulate individual sources of the criteria pollutant. Where the impact of individual sources is important, area-based regulations are not very effective.

The other basic kind of authority that the EPA uses to control pollution is to attempt to control a targeted pollutant at the individual source. Under Section 111 of the CAA, the EPA has authority to list industries that contribute significantly to nationwide levels of a targeted pollutant, and to establish performance standards for the various equipment and processes used by that industry that emit the targeted pollutant. These performance standards typically apply only to "major" sources of the targeted pollutant (usually, above 100 tons per year). More rigorous standards are applied to major new and modified sources (see Section 111(b)) than are applied to major existing sources (see Section 111(d)). As with criteria pollutants, more rigorous controls are authorized where the pollution occurs in those areas where nonattainment is more severe.

The Exploration and Production (E&P) sector of the oil and gas industry is a poor fit for the area control regime that the CAA prescribes, because the chemical

composition of the extracted product (e.g., oil, wet gas, dry gas), and the emissions that extracting it generates, can vary greatly from field to field. The E&P sector of the oil and gas industry is also a poor fit for the individual source control regime that the CAA prescribes, because the number of individual wells can be huge and each contribution to the pollutant's total can be small. Because neither the area approach nor the individual source approach fit the E&P sector of the oil and gas industry well, pollution generated by that sector of the industry has been ineffectively regulated.

The current regulatory regime is ineffective in controlling emissions of VOCs, which are the oil and gas industry's most important contributor to ozone. UDAQ administers the current permitting system, both on State on leases and on BLM leases. Together, however, these comprise only 30% of the oil and gas industry in the Uinta Basin.²⁷ The current emissions permitting regime for the small share of the industry that is subject to Federal and UDAQ authority focuses on tightening emissions controls only on new oil and gas wells that are above a certain threshold in size. Wells below that threshold comprise two-thirds of the total well-count in the Uinta Basin. They produce too little oil and emit too little VOC emissions individually to have their VOC emissions regulated. However, because there are so many unregulated low-producing, low-emitting wells, they emit vastly greater amounts of VOC as a group than the larger, regulated wells emit.²⁸

The large majority of the oil and gas industry in the Uinta Basin is officially exempt from most pollution controls. The small minority of the industry that is officially subject to such controls, however, is also exempt from them in practice, because the State of Utah provides such meager resources to UDAQ that it cannot enforce controls even where such controls officially apply. A recent audit of UDAQ commissioned by the Utah Legislature found that it cannot afford to maintain a common database that would allow its permitting, inspecting, and enforcement branches to coordinate their work. It also found that UDAQ has so few inspectors that it would take more than 13 years for each oil and gas well in the State to be inspected even once.²⁹

Neither the BLM, nor the EPA is in a position to step in and fill the regulatory vacuum that exists over the large majority of oil and gas operations in the State, at least not within the ten-year planning horizon on which oil and gas producers typically base their investment decisions. There are Federal regulations on the books that could bring about a significant reduction in the emission of ozone precursors, but they are ineffective because their applicability is so circumscribed and so conditional.

²⁷ The remaining 70% of the oil and gas industry production is located on tribal land in the Ute and Ouray Reservation. Air pollution controls there are under tribal jurisdiction, with certain limited Federal oversight. See <https://www.bia.gov/sites/bia.gov/files/assets/as-ia/raca/pdf/19%20-%20Ute%20Indian%20Tribe.pdf>.

²⁸ See Powerpoint presentation by the Utah Legislative Auditor General, October 19, 2020, "A Performance Audit of The Division of Air Quality" (UDAQ Audit), Slide 16, available at <https://le.utah.gov/interim/2020/pdf/00004103.pdf>.

²⁹ Id. at Slide 14.

The regulatory community has, over the last decade, become increasingly concerned about the harm that loosely controlled emissions from oil and gas extraction operations are doing to the climate and to public health. Consequently, restrictions on emissions from oil and gas facilities at both the state and federal level have tightened over the last decade. For example, over the period 2012-15, the EPA phased in its so-called “Quad-O” restrictions of the VOCs that oil and gas wells could emit. These restrictions consist of Control Technique Guidelines that the EPA has drawn up covering various categories of equipment used in drilling for and retrieving oil and gas.³⁰

Quad-O regulations have little potential to reduce per-well VOC emissions in the circumstances that the Uinta Basin currently faces, so they offer little prospect of effectively preventing a massive increase in ozone induced by the Railway project. Quad-O regulations have not caused a substantial improvement in VOC levels in the Uinta Basin for two reasons. The first reason is that they only apply to oil and gas wells drilled after their effective date. Eighty-five percent of the operating oil and gas wells in the Uinta Basin are not subject to the regulation because they were completed before October, 2013 when the first of the Quad-O provisions that affect well-site operations took effect.³¹

The second reason that Quad-O regulations have not reduced VOC levels in the Uinta Basin is that even with respect to new oil and gas drilling and production, they don’t yet apply to the Basin and won’t for many years to come. They only apply to ozone non-attainment areas that are officially designated as “Moderate” or worse and where a State Implementation Plan to cure the non-attainment is in force.³² UDAQ has three more years to submit its SIP for ozone to the EPA for approval, after which more than a dozen years of regulatory review and revision can be expected, followed by up to five years of phase in delay before they fully apply.

In addition, the Uinta Basin ozone nonattainment area has been designated as “Marginal,” the mildest of six possible designations of ozone nonattainment.³³ A

³⁰ Quad-O regulations set standards for VOC and methane emissions from a number of previously unregulated sources (i.e., oil well completions, fugitive emissions at well sites and compressor stations, and pneumatic pumps). See Code of Federal Regulations (CFR) 40, Part 60, Subpart OOOO. Federal Register, Environmental Protection Agency. Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources, at pp. 35840-41, available online at <https://www.gpo.gov/fdsys/pkg/FR-2016-06-03/pdf/2016-11971.pdf>.

³¹ Mansfield, 2021, at 15 of 18.

³² See memo of October 2016, from Anna Marie Wood, Director, Air Quality Policy Division, Office of Air Quality Planning and Standards, United State Environmental Protection Agency, to Regional Air Division Directors, available at https://www.epa.gov/sites/production/files/2016-10/documents/implementing_reasonably_available_control_technology_requirements_for_sources_covered_by_the_2016_control_techniques_guidelines_for_the_oil_and_natural_gas_industry.pdf.

³³ Designation categories for ozone nonattainment areas and their concentration thresholds upon which they are based can be found at <https://www.epa.gov/green-book/ozone-designation-and-classification-information>.

“Marginal” designation authorizes a nonattainment area SIP only to require the mildest mitigation steps. For example, in Marginal nonattainment areas, even Quad-O regulations don’t apply, let alone the authority to deny drilling and production permits outright. This means that before Quad-O regulations take effect, the Basin’s air quality (with impetus provided by the Railway project), will have to continue to worsen for many more years until the nonattainment area designation can be officially revised upward and a new, more restrictive SIP can be adopted. As a result of this regulatory dysfunction, QUAD-O regulations are not likely to actually have any mitigating effect on ozone pollution until there have been as many as 15 intervening years of deteriorating air quality.³⁴

Even if all of the prerequisites for applying Quad-O regulations are eventually met, the consequence would be that oil and gas producers would only have to apply pollution reduction measures that are considered to be Reasonably Available Control Technology (RACT). RACT is a low bar to clear. If a control technology can be shown to be expensive enough to threaten profitable operation--something that can be easy to do with the Basin’s many low-production wells--producers can be excused from their obligation to apply RACT to their operations. With their deferred implementation horizon, narrow reach, and conditional applicability, Quad-O regulations cannot be expected to begin slowing down the massive increase in ozone pollution that building the Railway would cause for about 15 years after it is built. Even then, its modest mitigating effect is likely to be completely overwhelmed by the huge impact on air quality that a four-fold increase in oil production would cause.

The EPA has adopted other important ozone pollution control regulations, but they, too, have little potential to mitigate the pollution surge that the Railway will bring. For example, in 2012, the EPA issued a separate rule restricting emissions of VOCs from glycol dehydrators to a total of less than 25 tons/year.³⁵ This rule applies to new and existing dehydrators, and was also phased in between 2012 and 2015. An emissions inventory developed by UDAQ for the year 2014 showed that of 1,904 glycol dehydrators in the Uinta Basin, only 0.2% emitted total VOCs greater than 25 tons/year.³⁶ Because this regulation applies to only a small fraction of one percent of

³⁴ SIPs comparable to the ozone SIP that UDAQ is currently preparing took more than a decade to win final approval from the EPA, after which there is a grace period for compliance of up to 5 years. See <https://deq.utah.gov/air-quality/pm-2-5-serious-sips-2017-2019> (UDAQ’s PM2.5 SIP) and <https://www.epa.gov/sites/production/files/2016-01/documents/utahregionalhazepublichearingfactsheet.pdf>, (UDAQ’s Regional Haze SIP). Brock LeBaron, Deputy Division Director of the Utah Department of Environmental Quality, acknowledges that it is not realistic to expect the EPA’s nonattainment area regulations to provide timely, effective reductions in air pollution in the Uinta Basin. He says, “Let’s get the ozone down now and not wait through the years and years that nonattainment planning takes,” says LeBaron. “I’ll be dead before that process wraps up. Seriously.” See <https://www.hcn.org/articles/officials-chisel-away-at-the-uintah-basins-tricky-ozone-problem>.

³⁵ Carbonell, T., EPA Issues Final Emission Standards for Oil and Gas Sector. 2012. Available online: https://www.vnf.com/webfiles/VNF_Alert_4-20-12.pdf. (accessed on 12 October 2020).

³⁶ Utah Division of Air Quality, 2014 Air Agencies Oil and Gas Emissions Inventory: Uinta Basin, available at <https://deq.utah.gov/air-quality/2014-air-agencies-oil-and-gas-emissions-inventory-uinta-basin>.

the targeted equipment, it offers little hope of significantly restraining the growth of VOC concentrations in the Basin.

In 2016, the EPA adopted another regulation referred to as Quad-Oa.³⁷ It requires companies that construct new oil and gas facilities to inspect those facilities twice a year for natural gas leaks and to repair any leaks found.³⁸ Utah's Division of Air Quality has adopted standards modelled upon the EPA's Quad-O and Quad-Oa regulations.³⁹ These have not significantly reduced VOC emissions in the Uinta Basin for the same reason that the Federal Quad-O and Quad-Oa rules have not.

The Uinta Basin has been violating the NAAQS ozone standard even though UDAQ has a program to limit emissions of NO_x and VOCs, the precursors to the formation of ozone. The program restricts emissions from oil and gas storage tanks, dehydrators, and requires upgrades to Leak Detection and Repair (LDAR) systems. It also includes a new permit-by-rule system designed to cover small oil and gas operators.⁴⁰ Such programs, however, have not brought the Uinta Basin back into compliance with the EPA's 8-hour ozone standard at current production levels.⁴¹ They clearly will not be enough to achieve compliance if there is a tripling or quadrupling of oil production in the Basin if the Railway is built.

As described above, state and federal agencies responsible for bringing the main source of ozone pollution in the Uinta Basin (the VOCs emitted by its oil and gas industry) under control over the past decade have made attempts to apply their imperfect regulatory tools to solve the problem at the national level, but their attempts have not had a discernable impact on VOCs in the Uinta Basin.

A study appearing earlier this year in the publication *Atmosphere* demonstrated that in the Uinta Basin over the period 2010-2020, there has been a statistically

³⁷ CFR 40, Part 60, Subpart OOOOa.

³⁸ Federal Register, Environmental Protection Agency. Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources, available at <https://www.gpo.gov/fdsys/pkg/FR-2016-06-03/pdf/2016-11971.pdf>.

³⁹ Utah Division of Air Quality, Centralized Air Emissions Reporting System, available at <https://deq.utah.gov/air-quality/centralized-air-emissions-reporting-system>.

⁴⁰ Under EPA rules applicable to nonattainment areas, Utah's State Implementation Plan for bringing the Uinta Basin back into attainment for ozone, when developed and approved by the EPA, may elect to reduce other sources of ozone precursors to offset those emitted by the oil and gas industry. As a practical matter, this option is unavailable, since there are no other significant sources of ozone precursors in this sparsely-populated rural basin.

⁴¹ In the Uinta Basin, there were numerous violations of the NAAQS 8-hour ozone standard of 70 ppb in the winter of 2019. In the winter of 2020, there were no violations. Research attributes the lack of violations in 2020 to the cloud cover that consistently accompanied the inversions occurring that winter. Lyman, s., et al., High Ethylene and Propylene in an Area Dominated by Oil Production, *Atmosphere*, 2021, 12, 1, at 6 of 19, available at <https://www.mdpi.com/2073-4433/12/1/1>.

significant decline in ozone concentrations, accompanied by a statistically significant decline in concentrations of NO_x, one of the precursors of ozone. The study also noted that there was no statistically significant trend in concentrations of VOCs—the other precursor of ozone—over that period.

In analyzing the possible causes of these inconsistent trends, the study hypothesized that the reduction in NO_x, by itself, might be sufficient to have caused the reduction in ozone concentrations, since NO_x is known to be a limiting factor in the production of ozone if the ratio of NO_x to VOCs falls below a certain level. In explaining the downward trends in NO_x, the study noted that over the 2010-2020 time period, well completions dropped precipitously, as did the production of natural gas, both of which are major sources of NO_x. The study took note of the nationally significant regulations that the EPA and UDAQ have issued since 2012 that are designed to reduce the VOCs emitted by oil and gas drilling and production. It found it perplexing that promulgating those regulations did not seem to have a discernable effect on VOC concentrations in the Uinta Basin. The study observes that despite the declining trend in ozone concentrations in the Basin, “there could very well be a resurgence of winter ozone if fossil fuel extraction activity increases in the Basin.”⁴² This provides further evidence that with respect to oil and gas extraction activity in the Uinta Basin, market forces, rather than air quality regulations, will be the main determinant of levels of ozone pollution.

TORT ANALYSIS

According to its proponents, building the Uintah Railway would lead directly to a massive increase in oil production. If so, it would almost certainly cause a massive increase in associated emissions, as well. Under traditional tort analysis, it might be argued that decisions by other agencies, such as UDAQ, the BLM or the EPA are potential “intervening” or “superseding” causes of those increased emissions because those agencies might grant or withhold permits that producers would need to increase oil production in the amounts that the proponents of the Railway forecast. The regulatory tools available to these agencies, however, are too ineffective to be viewed as superseding causes of the degradation in Uinta Basin air quality that the Railway will bring. The air quality of the Basin will be massively degraded regardless of the application of those regulations.

The majority of the oil and two-thirds of the gas that is produced in the Uinta Basin is extracted from tribal lands. The State of Utah only has regulatory authority over the oil and gas extraction activity on the remainder of leased state and Federal land.⁴³ State and tribal regulators are too thinly staffed and lack the political support to devise rigorous regulatory standards and oversee their application. As their regulatory history confirms, and they themselves admit, neither UDAQ, the BLM, nor the EPA,

⁴² Mansfield, 2021 at pp. 11-18.

⁴³ See <https://deg.utah.gov/air-quality/ozone-in-the-uinta-basin>

have the regulatory tools in place that would allow them to use their permitting authority to block the expansion of oil production in order to restrain associated emissions.⁴⁴

Under the Biden Administration, the BLM might adopt a temporary moratorium on new oil and gas leasing on federal land, but producers with federal leases in the Uinta Basin already have nearly a million unused acres under lease,⁴⁵ with lease approvals authorizing nearly 10,000 new wells.⁴⁶ This is enough to double the number of active wells in the Basin, with at least a proportional increase in production. Such expansion is on hold, not for regulatory reasons. It is simply due to an inadequate price for oil. This expansion awaits either a sustained period where the price for WTI benchmark crude is above \$60 per barrel (about 18% above the breakeven price for Uinta Waxy Crude)⁴⁷

⁴⁴ Utah's Department of Environmental Quality's website, at <https://deq.utah.gov/air-quality/ozone-in-the-uinta-basin>., says:

Utah has jurisdictional responsibility for the lands outside of Indian Country, where approximately 90 percent of the population is located. Normally, the State uses a program called [New Source Review \(NSR\)](#) to regulate oil and gas emissions. NSR is effective because sources are subject to Best Available Control Technology (BACT) review, [National Ambient Air Quality Standards](#) (179 KB) and public comment before sources receive a permit. To qualify for NSR, sources must meet a minimum threshold of emissions: 5 tons per year of any criteria pollutant, less than 500 pounds per year of any single hazardous air pollutant, or less than 2,000 pounds per year of combined hazardous air pollutants. If the source emits less than the threshold, they fall outside of NSR regulations.

In the Basin, many of the oil and gas emission sources, including wellheads and tanks, do not meet the NSR threshold and are not regulated through this program. DAQ and its partners in the Basin are working with stakeholders to determine the feasibility of other regulatory measures for sources that fall outside of NSR to establish better pollution controls for smaller sources. (emphasis added)

⁴⁵ See <https://archive.slttrib.com/article.php?id=3316725&itype=CMSID>.

⁴⁶ Major new BLM authorizations that have yet to be exploited include drilling of 5,750 new wells in the Monument Butte lease, See <https://www.blm.gov/press-release/Monument-Butte-oil-gas-project-decision-allows-energy-development-to-proceed-while-protecting-sensitive-resources>, and drilling of 4,000 new wells in the former Crescent Point lease. See <https://www.deseret.com/2016/5/25/20589206/energy-summit-details-massive-project-planned-for-uinta-basin#a-oil-pump-sits-idle-near-ouray-utah-on-thursday-feb-4-2016-crescent-point-energy-is-in-the-early-phases-of-planning-a-nearly-4000-well-oil-and-gas-project-in-the-uinta-basin-which-could-help-jump-start-the-economy>. Crescent Point CEO Scott Saxburg candidly remarked at the time the lease approval was announced that "[w]e're (starting) now, and by the time oil prices come back, we can pursue the project in a greater way."

⁴⁷ There is a consensus of opinion among industry analysts that a sustained price for WTI Crude above \$60/barrel will be necessary to induce expansion of oil and gas production in the Uinta Basin. See <https://www.argusmedia.com/news/1000310-falling-crude-prices-catch-up-with-utah-refiners>; <https://mineralrightspodcast.com/mrp-41-uinta-basin-overview/>; and <https://ihsmarkit.com/research-analysis/horizontal-oil-production-in-the-uinta-basin.html>. Similarly, analysts forecast that expansion of the oil and gas extraction industry in basins in neighboring Colorado and Wyoming will also require a sustained period of WYI oil prices above \$60 per barrel. See <https://www.denverpost.com/2019/11/10/colorado-oil-gas-industry-drilling-debt-cash-flow/>, (Denver

or the cost of producing and transporting Uinta Waxy crude declines by approximately 18%.

The barrier to such an increase in oil production and associated emissions is economic, not regulatory.⁴⁸ The price of oil in recent years has been too low and too volatile to justify the investment needed to exploit their unused acres and activate their unused permits. The Railway project is designed to overcome the effect of inadequate oil prices in the Uintah Basin by reducing transportation costs. If this happens, it would greatly stimulate the use of already approved but unused acreage and permits, as well as stimulate new leasing and permitting.

The causal link between building the Railway, stimulating massive increases in oil production, and massively increasing associated pollution is short and simple. It obligates this Board to address the impact of the Railway on Basin air quality in its Final EIS. If the Board applies traditional distinctions in tort law between proximate and intervening causes to the EPA's role, the EPA cannot realistically be viewed as an "intervening cause" either, at least not in the next 15 or more years.

As discussed above, even though the Uinta Basin is already an ozone nonattainment area, using the EPA's New Source Review authority could not significantly restrain new pollution in the Basin because almost none of the sources that produce those emissions (wellheads, pneumatic valves, pipes and storage tanks) individually meets the emissions volume threshold that triggers use of that authority.⁴⁹

The State of Utah has to formulate and submit an SIP to the EPA designed to reduce the level of ozone pollution in the Basin. Once an EPA-approved SIP is in place, UDAQ will have the authority to impose somewhat more effective emission control measures on oil extraction activities.⁵⁰ As noted above, even this modest level of ozone

Julesburg Basin), and https://trib.com/business/energy/as-oil-prices-dive-wyoming-operators-hope-to-weather-the/article_b8315d77-94ee-5656-8c29-dd41bd7c76bd.html, (Powder River Basin)

See generally, and at page 11, the demand analysis for Uinta Waxy Crudes in Uinta Basin Oil Pipeline Study, Final Report, submitted to the Seven County Infrastructure Coalition in September, 2017, available at <https://scic-utah.org/storage/app/uploads/public/5d0/27e/9ad/5d027e9ad1453049115378.pdf>.

⁴⁸ On January 15, 2021, responding to the prospect that the Biden Administration would restrict new oil leasing on Federal land, BLM spokesman Chris Tollefson asserted that "Markets, not the BLM, determine how oil and gas developers decide to acquire and develop leases." Industry analysts agreed, noting that the industry as a whole had stockpiled over 10,000 unused drilling permits, enough to sustain production of Federal land at the current pace through the entire Biden Administration. See <https://www.houmatoday.com/story/business/2021/01/13/oil-companies-stock-up-drilling-permits-challenging-biden-climate/4148996001/>.

⁴⁹ See <https://deq.utah.gov/air-quality/ozone-in-the-uinta-basin>.

⁵⁰ Once an EPA-approved SIP is adopted for the Uinta Basin ozone Non-attainment Area, UDAQ would have authority to require sources of NOx or VOC emissions in the Basin to implement Reasonably Available Control Technology (RACT). However, most of the wells in the Uinta Basin are low-volume, low-revenue wells. Owners of those wells would not even have to apply RACT to their wellheads, storage tanks, pumps, or pipes if doing so would make those wells unprofitable, as they likely would.

mitigation could easily take 15 years before it begins to take effect. In the intervening 15 years, the only way that the Uinta Basin could come anywhere near meeting the current NAAQS for ozone in the face of a quadrupling of oil production would be to prohibit most of the expected expansion of production. Under current law, however, no government body has the legal authority to prohibit increases in either drilling or production to prevent increases in air pollution.

In other words, if economic conditions allow oil production in the Basin to quadruple, it will result in an ongoing violation of the EPA's air quality standards for ozone—an ongoing violation that no government has the legal tools to prevent. Although the eventual implementation of an SIP would give the State of Utah additional authority to order more stringent emissions controls as drilling and oil production grow, use of that additional authority will not have a significant impact on emissions until it is too late to undo what the building of the Railway enabled.

The State of Utah has three more years to submit its SIP for review. The process of EPA review and rejection, followed by the State reformulating and resubmitting its plan, is likely to take a decade or more, as it has with other SIPs. If the Coalition's expectations were to be fulfilled, and oil production in the Basin were to swiftly triple or quadruple in response to building the Railway, an enormous amount of capital would have to be spent to make that increased production possible (\$1.5 billion on the railway itself, and several billion more on new wells, gathering pipelines, and storage). Any tightening of air pollution controls that will be made possible by actually implementing an SIP for ozone 15 years from now will not prevent a tripling or quadrupling of ozone concentrations prior to that time. By then, the infrastructure needed to achieve that increase in production will have been built, and the corresponding increase in pollution will have become a *fait accompli*, all before more stringent pollution controls would begin to even slow down the rate of increase.

Once the Railway-induced industry buildout has occurred, no government agency could realistically order production and pollution levels to be rolled back to pre-Railway levels. Bringing the Uinta Basin back into attainment for ozone will not be possible until the spate of newly-drilled wells runs dry.⁵¹ Bringing the air quality in the Uinta Basin into compliance with the EPA's ozone standard, therefore, will have been effectively foreclosed if the Board decides to approve the building of the Railway.

Building the Railway, higher levels of oil production in the Uinta Basin, and associated air quality consequences, are inextricably linked

The Railway is being designed to serve as infrastructure for the Basin's private oil industry almost exclusively. Its proponents have made it clear that its commercial viability depends on its ability to stimulate dramatic increases in the volume of oil produced in the Basin. They note that the Railway also might profitably carry fracking

⁵¹ Most new wells drilled in the Uinta Basin will use hydraulic fracking technology. Fracked wells deplete at a much faster rate than conventional wells. Average decline rates for fracked wells are estimated to be between 30 and 40% per year. See <https://btuanalytics.com/shale-production/pdp-decline-forecasts-its-all-downhill-from-here/>.

sand and steel pipe to serve the Basin's oil and gas industry, but they do not claim that its trains will carry passenger traffic, or other minerals⁵² or agricultural commodities, in commercially meaningful amounts.

The Coalition commissioned the Banks Study on the economic and environmental feasibility of building a Uinta Basin Railway.⁵³ It concludes that such a railway would transport between 130,000 and 350,000 barrels of oil per day from the Uintah Basin to the Gulf Coast, where it could be shipped overseas. The Study forthrightly asserts that stimulating such additional oil production would be necessary if the Railway is to be commercially viable. The Executive Summary, at page xiv, declares that

*** the viability and competitiveness of the prospective railroad is directly related to the volumes of traffic which would be shipped over the line.”

It also observes

Assuming the forecasted volumes can be achieved, it appears that the proposed railroad can offer cost competitive transportation to prospective Uinta Basin rail shippers, as compared with the most practical identified transport alternatives. (emphasis added).

The Study, at 14, observes that constructing new railroads entails very high fixed costs, which makes high sustained volume essential to their profitability. It notes that

The need to achieve and sustain a high volume of traffic and revenue is even more critical in the case of a railroad such as that investigated herein because the financial performance of the Uinta Basin Railroad will be tested further by the need to overcome the extremely high capital costs that are a necessary element of a railroad being constructed in excess of 126 miles.

The Study, beginning at page 14, lists four “challenges” (i.e., obstacles) to achieving the massive volume increases that will be necessary to make the Railway economically viable. The Study uses the labels in bold below to describe these obstacles:

1) Instability of the Future Price of Oil

⁵² Gilsonite (naturally occurring asphalt) is the other mineral most often mentioned as a potential source of freight revenue, but with an industry output of less than 400 tons per day (see http://archives.datapages.com/data/grand-junction-geo-soc/data/013/013001/87_gigs-sp0130087.htm) its output would fill about four freight cars a day.

⁵³ Pre-Feasibility Study of a Railroad Connecting the Uinta Basin to the National Rail Network, by R.L. Banks and Associates, Inc., submitted to Seven County Infrastructure Coalition, August 9, 2018 (redacted).

After recognizing that world oil prices are unstable, the Report simply wishes this obstacle away. It says,

The world oil market has been anything but stable since 1973, *and there is every reason to think that such volatility might continue*. The viability of [the Railway] is grounded on the assumption that oil markets will be stable or favorable, which is a reasonable assumption to make. However, a significant and long-term downturn in the price of [oil], particularly in the early years of the prospective railroad, could result in significant shortfalls from the performance indicated herein *** (emphasis added)

Cutting through the euphemisms, this says that if the instability displayed by world oil markets over the past 47 years continues, the Railway won't have enough volume to be commercially viable.

The Report fails to note that there is a consensus among industry analysts that the Uinta Basin is a marginal oil play because it is remote from refining centers and because its waxy crude is difficult to store, transport, and refine. As noted above, this leads most analysts to conclude that for production to expand in the Uinta Basin, the price for WTI benchmark crude must rise above \$60 per barrel and the industry must be confident that it will remain above that level for the life of newly-drilled wells. WTI prices were comfortably above that level when the Banks Study was written in late 2018, but they have fluctuated wildly above and below that level since.

2) The Railway needs prompt approvals from environmental and economic regulators and support from lenders that it may not get

About these obstacles, the Report says

There are risks that permits or financing associated with the [Railway] might be denied or delayed significantly, to the point that prospective Uinta Basin rail shippers might seek alternative "take away" capability or divert investment dollars to other regions, thereby diverting or postponing volumes of crude oil and other commodities which otherwise might traverse the [Railway];

The Biden Administration's BLM and EPA might, indeed, adopt an unprecedentedly serious approach to restraining the growth of the oil and gas industry, even if the economic impact of such a shift will probably not be felt until the end of his Administration.

- 3) The Railway may not win the approvals it needs from environmental regulators, economic regulators, financial backers, or prospective customers to obtain the massive volume increases required to be commercially viable.

As the Coalition's oil pipeline study makes clear, there are only a half dozen oil refineries outside of Salt Lake City that could realistically configure their facilities to accept and process Uinta Basin Waxy Crudes. It also notes that for reasons having to do with chemical contamination, once a refinery commits to configure its facility to accept Uintah Waxy Crudes, it cannot later repurpose that facility to process any other kind of crude.⁵⁴ Therefore, if one of these refineries decides to commit to Utah Waxy Crude, it will insist on contractual assurances from Uinta Basin oil producers that they will guarantee that they will ship a full 100-car train load of Uinta crude (50,000 barrels) daily for at least a decade.⁵⁵ As of this writing, there is no evidence that any refinery has taken that necessary initiative, and no evidence that the Basin's oil producers have given the necessary contractual guarantees. Until there are several refineries seeking and getting such guarantees, the Railway will not be commercially viable.

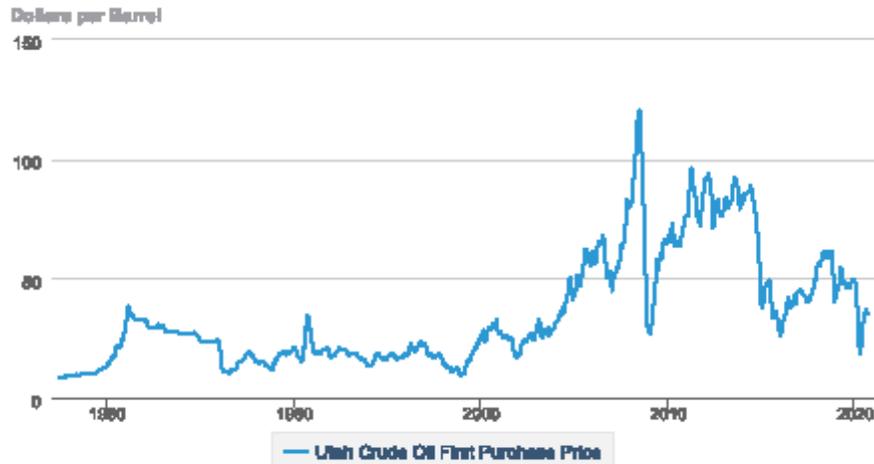
The commercial viability of the Railway is in serious doubt

As private industry infrastructure, the Uintah Basin Railway is on economically shaky ground. Over the last 20 years, Uinta Basin oil has been a boom and bust industry--notoriously so, as the chart below illustrates.

⁵⁴ Uinta Waxy Crudes cause "asphaltene precipitation," which apparently contaminates equipment to the point that the refining facilities dedicated to refining Uinta Waxy Crude cannot be used any other way. See Coalition Pipeline Study, *supra*, at page 11. This disqualifies Uinta Waxy Crude from serving as a replacement for stocks of heavy crude from Canada or Venezuela that will not be available to Gulf Coast refineries going forward.

⁵⁵ *Id.* at pages 10-11.

Utah Crude Oil First Purchase Price



Source: U.S. Energy Information Administration

This chart shows that prices for Uinta Basin Waxy Crude have fluctuated between roughly \$120 dollars per barrel in 2008 to \$18 dollars per barrel in 2020. These volatile prices for Uinta Basin oil partly reflect unstable world oil markets which are heavily impacted by the maneuverings of OPEC and non-OPEC producers for market position, and are also heavily impacted when major overseas producers experience war or the internal collapse of governments.

Because it is more difficult than most oil to transport and refine, Uinta Basin Waxy Crude has a higher break-even price than most varieties of domestic oil. This makes the price of Uinta Basin crude even more volatile than that of competing domestic oil. This has caused the railway's most fervent proponents to lament that in the American oil industry, the Uinta Basin is always the "last to boom and the first to bust."⁵⁶

The Railway will not turn a profit unless it gets commitments from the Basin's oil producers to make long term commitments to ship enough new production to fill two train loads daily to ship to refineries that commit to take them. Such producer commitments have yet to be announced. Until they make such commitments, the Railway has no reasonable assurance that it can cover its costs. Only decade-long commitments of this kind can shelter the Uinta Railway investors from the almost certain continuation of the historic boom and bust cycle of Uinta Waxy Crude oil prices.

Given the volatility of world oil markets, and the greater ability of trucking than railroads to adjust to volume fluctuations, it makes more economic sense to continue to truck surplus Uinta Basin oil to connect with the national rail network than to sink \$1.5

⁵⁶ See minute 7 of <https://www.youtube.com/watch?v=L40Vtvof1Ds&t=626s> (Broadcast interview of Greg Miles, Duchesne County Commissioner, November 22, 2019).

billion into fixed infrastructure that runs a high risk of becoming a stranded asset. The operating costs of trucking are marginally higher, but the risks are far less.

Adding to the risks described above is the reality that oil and gas is a rapidly depleting asset, particularly where fracking is the primary technology employed. The industry is neither physically nor economically sustainable over the long term. With regard to the rapid depletion rate of fracked wells, the Wall Street Journal reports that

Two-thirds of projections made by the fracking companies between 2014 and 2017 in America's four hottest drilling regions appear to have been overly optimistic, according to the analysis of some 16,000 wells operated by 29 of the biggest producers in oil basins in Texas and North Dakota," it reported. "Collectively, the companies that made projections are on track to pump nearly 10 percent less oil and gas than they forecast for those areas, according to the analysis of data from Rystad Energy AS, an energy consulting firm.

* * *

The Journal concludes that widespread reliance on unrealistic depletion rate estimates have had serious financial ramifications. "So far, investors have largely lost money," the newspaper pointed out, adding that a review of 29 drillers showed companies have spent \$112 billion more than they earned from drilling in the past decade. "Since 2008, an index of U.S. oil and gas companies has fallen 43 percent, while the S&P 500 index has more than doubled in that time, including dividends."⁵⁷ Bloomberg, as well, concludes that the oil industry's financial crisis has been building for a decade, well before the onset of the COVID pandemic. It estimates that the oil and gas sector in the United States has sustained net losses of more than \$340 billion over the last ten years.⁵⁸

Because the Railway's profitability depends completely on the future profitability of the oil and gas sector, its long-term viability is in serious doubt. In fact, it is highly doubtful that the Railway will be financially sustainable even in the short term. Because Uinta Waxy Crude is unusually difficult to ship and refine, and because the Basin is remote from major markets, it is widely recognized that the risks that the Uinta Basin industry faces are even greater than the risks that plague the industry as a whole. In the much richer deposits of the Marcellus and Permian Basins, oil is cheaper to extract, cheaper to transport, and cheaper to refine.

Oil from the Uinta Basin comes in two forms, Yellow Waxy Crude and Black Waxy Crude. They have the consistency of wax candles at room temperature. This means that they must be stored at high temperatures and transported in special heated

⁵⁷ See <https://www.desmogblog.com/2019/01/10/fracking-shale-oil-wells-drying-faster-predicted-wall-street-journal>.

⁵⁸ See <https://www.bloomberg.com/news/features/2020-07-21/u-s-oil-shale-industry-faces-extinction-amid-shutdowns>.

and insulated trucks or rail cars. They can be refined only in facilities that are specially equipped to handle this kind of waxy crude.⁵⁹

The Uinta Basin reserves are some of the most inaccessible in the lower 48. The nearest oil refineries equipped to handle such crude are a hundred miles away in Salt Lake City. Those refineries are already operating at capacity (about 75,000 barrels a day). There are only a half-dozen other refineries in the nation that are configured to process Uinta Waxy Crude, and only one of them is less than 1,500 miles away.⁶⁰

The Banks Study recognizes that the six Salt Lake City refineries that currently process Uinta Waxy Crude would not use the Railway to transport it even if it is built, because they would still enjoy a transportation cost advantage bringing that oil in by truck. It is telling that the Salt Lake City refineries that already have lower transportation costs than the Railway would offer have no interest, and have no plans, to expand their facilities to process more Uinta Waxy Crude at today's WTI oil prices. If reducing transportation costs is all it would take to trigger a tripling or quadrupling of oil production in the Uinta Basin, the Salt Lake refineries would have a cost advantage in accommodating that expansion. If they did, there would be no need for the Railway. The fact the Salt Lake City refineries have no interest in exploiting their cost advantage in processing additional Uinta Basin Crude strongly implies that there is little pent up demand for that crude, and only little market demand for the Railway.

Because waxy crude oil from the Uintah Basin is unusually difficult to store, transport and refine, it has sold at an average discount with respect to the WTI benchmark of 18% over the last 15 years.⁶¹ Only half of that discount can be attributed to the Basin's remote location, and therefore only half of that discount could be reduced (but not eliminated) by building the Railway. The remaining half of that discount can be attributed to Utah Waxy Crude's below-benchmark quality, i.e., the added cost and loss of operating flexibility that a refinery incurs if it configures its plant to process Utah Waxy Crude.⁶² Remoteness of location and below-benchmark quality combine to make the Uinta Basin a marginal oil and gas resource play. That is why benchmark (WTI) prices well above \$60 per barrel will be necessary to induce any oil company with a diversified reserve portfolio to increase its investments in the Uintah Basin.

⁵⁹ Coalition Pipeline Study, at page 10.

⁶⁰ *Id.*

⁶¹ Energy News: Development Of New Markets for Uinta Basin Crude Via Rail, by David Tabet, Utah Geological Survey, available at <https://geology.utah.gov/map-pub/survey-notes/energy-news/energy-news-crude-oil-via-rail/>.

⁶² As of January 24, 2021, the price of West Texas Intermediate crude is \$52.21. <https://www.macrotrends.net/2516/wti-crude-oil-prices-10-year-daily-chart>. The price for Utah Yellow and Utah Black Waxy Crude is \$36.02 per barrel. The discount Utah Waxy Crude is \$16.19. The price of Utah Sweet Crude is \$42.97, which is a discount from WTI of \$9.24. By implication, \$9.24 represents a discount for remoteness of location. The difference between the total discount of \$16.19 for Utah Waxy Crude and the location discount for Utah Sweet Crude (\$9.24) is \$7.66. This portion of the total discount for Utah Waxy Crude represents the portion of the discount attributable to its below-benchmark quality.

World oil prices have slumped in the two years preceding the COVID pandemic. This has caused the three major drillers in the Uintah Basin (Encana, EP Energy, and Crescent Point's successor) to either sell their assets or to cancel plans to expand their investments in the Uintah Basin. They have shifted most of their capital spending to the Permian, Bakken, and other basins, where development costs are lower, and margins are higher.⁶³

In view of the dim short-run economic outlook for Uintah Basin waxy crude, it has been difficult to sell the Uintah Basin Railway project to the private investment banking community on its merits. The project has needed a \$28 million government subsidy for project development and, apparently, still needs a sales tax exemption exceeding \$50 million per year to shore up its prospects. Utah's State Treasurer summed up the Railway's economic prospects this way:⁶⁴

Many things could go wrong with the project, especially given the rushed nature of the project. * * * The return on investment here could be significant — and it could be zero. * * * This grant differs from pretty much everything else this board does with public resources.

As a stranded asset, the Railway is an environmental risk.

A discussion of the precarious economics of the Uintah Basin Railway project is relevant to the Board's decision as to whether building the proposed railways will make the nation's railways more economically sound and serve a public need, but it is also relevant to an analysis of the project's environmental impact. The considerable risk that the railway will go bankrupt when the Basin's oil and gas industry enters a bust cycle brings with it the risk that the railway will become a \$1.5 billion stranded asset. The need to avoid this unpleasant prospect will put intense pressure state and federal regulatory bodies to weaken the engineering standards and/or waive the environmental safeguards and stipulations incorporated into the drilling permits under which the Basin's oil and gas industry operates to prop up oil production and repair the Railway's balance sheet.

Legal infirmities of the draft EIS

This draft EIS does not take any of the basic analytical steps that would be necessary to adequately evaluate the impact of building the railway on air quality in the Uinta Basin. For that reason, it does not comply with the National Environmental Quality Act. To be legally sufficient, this EIS would first have to make a credible effort to calculate the increase in NOx and VOC emissions that a quadrupling of oil and gas operations in the Uinta Basin. It would then have to make a best effort to estimate the impact that the estimated increase in NOx and VOC emissions would have on

⁶³ See <https://btuanalytics.com/shale-production/uinta-basin-economics/>.

⁶⁴ See <https://www.utahinvestigative.org/1258-2/>.

concentrations of ozone in the Basin, which currently is an ozone nonattainment area. It would also have to make a best effort to do the same kind of evaluation of the Railway's impact on levels of benzene in the Basin. While the authors of the EIS could not be expected to design their own models of the complex topography, meteorological conditions, and the chemistry of ozone formation, they could be expected to make use of some of the many thoroughly researched models that already exist of ozone formation in the Basin.

Benzene is among the VOC's that are emitted by the Basin's oil and gas industry. Levels of this powerful carcinogen are triple the action level set by the EPA. A legally sufficient EIS would include a "hard look" at the impact that tripling or quadrupling oil production in the Basin would have on concentrations of benzene.

Most new drilling of oil wells in the Uinta Basin is expected to use hydraulic fracking techniques. Fracking requires a prodigious quantity of fresh water and produces prodigious amounts of waste water. The Uinta Basin is currently in a critical drought period. Climate research indicates that extended droughts on the Colorado Plateau will become the new norm as the climate warms. A legally sufficient EIS would include a "hard look" at the impact that tripling or quadrupling oil production in the Basin would have on the supply and quality of the Basin's surface and ground water.

Finally, an adequate EIS should evaluate whether the Railway project is sufficiently commercially viable to weather the boom and bust cycle of the oil industry generally, and in the Uinta Basin. If it finds that there is a substantial risk that the Railway will become a stranded asset, it should evaluate the associated risk that environmental standards administered by UDAQ, the BLM, and the EPA will be weakened in order to prop up a bankrupt Uintah Railway.

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