

August 27, 2024

Submitted via ca.gov

Liane M. Randolph, Chair  
California Air Resources Board  
1001 I Street  
Sacramento, CA 95814

**Re: Comments on Modifications to Proposed Low Carbon Fuel Standard Amendments**

Dear Chair Randolph:

Leadership Counsel for Justice & Accountability, Central Valley Defenders of Clean Water & Air, Animal Legal Defense Fund, and Food & Water Watch (collectively, “Commenters”) submit the following comments<sup>1</sup> on the Modifications to the Proposed Low Carbon Fuel Standard Amendments (“Modifications”).<sup>2</sup>

The Modifications double down on lavish incentives and special treatment for fuels derived from factory farm gas. They also continue to inappropriately treat factory farm gas production as an extremely powerful offset mechanism that facilitates business as usual for fossil fuel and dirty hydrogen producers. These factory farm gas policies are a dead end for the climate and a disaster for vulnerable communities, especially residents of the San Joaquin Valley. They are as impractical as they are unjust. The California Air Resources Board (“CARB”) has all the information it needs to reject this expensive, polluting, unjust, and ineffective climate strategy.

Commenters urge CARB to (1) immediately eliminate avoided methane crediting for all pathway types; (2) not increase stringency unless and until CARB first eliminates avoided methane crediting; (3) not accelerate deliverability requirements unless and until CARB first eliminates avoided methane crediting, or, at minimum, clarify how avoided methane crediting and deliverability requirements will interact; and (4) eliminate modifications that sanction hydrogen methane laundering.

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<sup>1</sup> These comments follow Commenters’ initial comments on the proposed amendments to the LCFS. Leadership Counsel for Justice and Accountability et al. Comments on Proposed Amendments to LCFS (Feb. 20, 2024) (hereinafter “Initial Comments”), [https://www.arb.ca.gov/lispub/comm/iframe\\_bccomdisp.php?listname=lcfs2024&comment\\_num=7060&virt\\_num=377](https://www.arb.ca.gov/lispub/comm/iframe_bccomdisp.php?listname=lcfs2024&comment_num=7060&virt_num=377).

<sup>2</sup> CARB, Notice of Public Availability of Modified Text and Availability of Additional Documents and/or Information, Proposed Low Carbon Fuel Standard Amendments (released Aug. 12, 2024) (hereinafter “Modification”), [https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/lcfs2024/15day\\_notice.pdf](https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/lcfs2024/15day_notice.pdf).

## **(1) Avoided Methane Crediting Periods**

CARB staff proposes two changes to shorten the length of time that avoided methane crediting will be available for factory farm gas pathways' carbon intensity calculations. First, staff proposes to shorten the number of 10-year crediting periods using avoided methane crediting for projects that break ground before January 1, 2030, from three to two consecutive periods.<sup>3</sup> Second, staff propose to include electricity alongside hydrogen as pathway types that are ineligible for avoided methane crediting after December 31, 2045 if the project does not break ground before January 1, 2030.<sup>4</sup>

On the first, Commenters appreciate that staff recognize the imperative to phase out biomethane avoided methane crediting. But moving from three to two crediting periods does not address the underlying problem of supercharging factory farm gas build outs in the next five years under the proposed “break ground” cutoff date in 2030. So while we support this change, it does not go far enough and we urge CARB to phase out avoided methane crediting immediately.<sup>5</sup> Offering 20 years of irrational and counterproductive carbon intensity values via avoided methane crediting is better than 30 years, but for all the reasons Commenters explain in our Initial Comments, any continuation of this backward policy undermines the LCFS and perversely encourages harm to vulnerable Californians already dealing with air and water polluted by the dairy industry.

On the second, Commenters oppose avoided methane crediting for factory farm gas-to-electricity pathways and therefore support this change. However, as Commenters have explained, allowing projects to burn factory farm gas in combustion engines causes local air pollution while generating paltry quantities of electricity.<sup>6</sup> No matter the end use, retaining avoided methane crediting for any pathways perpetuates harmful factory farm practices and perversely entrenches and incentivizes methane production at the largest dairies and livestock facilities. We therefore support this proposed change but urge staff to go further and eliminate avoided methane crediting for these electricity pathways immediately.

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<sup>3</sup> *Id.* at 12.

<sup>4</sup> Modification Attachment A-1: Proposed 15-Day Changes to Proposed Regulation Order (Proposed Sections for Amendments) at 171, [https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/lcfs2024/15day\\_atta-1.pdf](https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/lcfs2024/15day_atta-1.pdf).

<sup>5</sup> Relatedly, we reiterate that CARB must initiate SB 1383 rulemaking to adopt direct regulation of manure methane emissions so that California has a chance of meeting SB 1383's 40% reduction mandate. *See* Initial Comments at 28; Cal. Health & Safety Code § 39730.7(b)(1).

<sup>6</sup> *See* Initial Comments at 4, 11; Leadership Counsel for Justice and Accountability et al. Comments on the Draft Environmental Impact Analysis for the Proposed Amendments to LCFS at 11–12 (Feb. 20, 2024), [https://www.arb.ca.gov/lispub/comm/iframe\\_bccomdisp.php?listname=lcfs2024&comment\\_num=6969&virt\\_num=299](https://www.arb.ca.gov/lispub/comm/iframe_bccomdisp.php?listname=lcfs2024&comment_num=6969&virt_num=299).

## **(2) Stringency**

CARB now proposes to further accelerate the stringency of the LCFS's carbon intensity benchmark from a 5% increase to a 9% increase in 2025, with tapering increases through 2029.<sup>7</sup> CARB states this modification is needed “in light of the continued growth in low-carbon fuels and in response to stakeholder feedback requesting an increase in stringency to bring deficits and credits into balance.”<sup>8</sup> In other words, credit generators like factory farm gas producers along with investors in factory farm gas production have requested that CARB raise the price of credits to increase their return on investments.

CARB must not increase the stringency without first eliminating avoided methane crediting, which itself would likely have the effect of increasing credit prices by cutting out the glut of illusory, inflated credit generation by factory farm gas pathways.<sup>9</sup> As we explained in our Initial Comments, the increased stringency paired with increased, short-term factory farm gas incentives, will supercharge factory farm gas development and associated harms.<sup>10</sup> Increasing the stringency even more in the near-term, as CARB now proposes, will only further fan the flames and engender further perverse incentives. Instead of focusing on manufacturing demand, CARB first should rein in this bogus supply of credits.

In our Initial Comments we laid out that the proposed amendments would increase transportation costs for lower income people and people of color.<sup>11</sup> As explained in Jonathan S. Shefftz's Technical Memorandum, attached here as Exhibit 1, CARB's proposal to increase stringency to boost credit prices will cause real harm to California households, and staff's proposal to further increase that burden starting in 2025 makes the problem even worse. Taking a conservative approach in his analysis, Mr. Shefftz concludes that CARB's proposal will force households in the median and 20th percentile income ranges in San Joaquin Valley counties to bear significant financial burden. Mr. Shefftz's analysis shows that, for example, households in the 20th percentile of income in Kern county could end up spending nearly *four times* more of their annual income on gas in 2025 compared to 2024 (1.6% and 0.42%, respectively), and that is without even accounting for the change from 5% to 9% in 2025 that will exacerbate this spike.<sup>12</sup> By 2040 that number is projected to increase to over 3.3% of these household's annual income. Other counties see a similar impact on the most economically vulnerable households' annual income:

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<sup>7</sup> Modifications at 5.

<sup>8</sup> *Id.*

<sup>9</sup> See, e.g., Wara et al., Simulating an “EJ Scenario” for the Low Carbon Fuel Standard Rule Update Using the ARB CATS Model at slide 7 (May 31, 2023), <https://ww2.arb.ca.gov/sites/default/files/2023-05/Stanford%20Presentation.pdf>.

<sup>10</sup> Initial Comments at 10.

<sup>11</sup> *Id.* at 7–8, 38.

<sup>12</sup> Exhibit 1, Shefftz Technical Memorandum at Tbl. 3.

- Fresno (1.38% of annual income for households in the 20th percentile of income in 2025, 2.88% by 2040)
- Kings (1.42% in 2025, 2.95% by 2040)
- Madera (1.54% in 2025, 3.21% by 2040)
- Merced (1.56% in 2025, 3.25% by 2040)
- San Joaquin (1.12% in 2025, 2.33% by 2040)
- Stanislaus (1.23% in 2025, 2.56% by 2040)
- Tulare (1.48% in 2025, 3.09% by 2040)

In sum, the cost of juicing the LCFS to increase credit generators' profit margins will be borne most heavily by lower income Californians, including lower income Californians in the San Joaquin Valley who are concurrently and disproportionately bearing the environmental, economic, and health costs of factory farming and factory farm gas production.

### **(3) Deliverability**

CARB staff proposes to require that all bio-CNG, bio-LNG and bio-L-CNG pathways meet deliverability requirements after December 31, 2037, if the Executive Officer certifies a pipeline map by July 1, 2026.<sup>13</sup>

Commenters urge CARB not to adopt deliverability requirements, even conditional ones, unless and until it ends avoided methane crediting. If CARB implements deliverability requirements while retaining avoided methane crediting, CARB will concentrate lucrative credit generation for livestock methane in facilities in California and facilities that provide gas to a pipeline connected with California's gas pipeline. In doing so, CARB will accelerate the concentration of factory farming and factory farm gas production in the San Joaquin Valley. This would have the effect of concentrating more animals, more manure, and more pollution in a region that cannot bear those harms.

If CARB elects to retain both avoided methane crediting and these conditional deliverability requirements, it is not clear how the introduction of deliverability requirements would interact with the ending of avoided methane crediting and the 10-year crediting periods for biomethane.

### **(4) Hydrogen Methane Laundering**

CARB's proposed changes to section 95482(h) would reinforce and even intensify CARB's encouragement of methane laundering in the production of dirty hydrogen. Beginning on January 1, 2031, CARB would allow fossil fuel hydrogen to generate credits *only if* it is

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<sup>13</sup> Modifications at 159.

paired with the environmental attributes of biomethane.<sup>14</sup> This modification would have the effect of increasing demand for livestock methane by codifying a monopoly whereby the environmental attributes of biomethane are the only avenue for fossil gas hydrogen producers to generate LCFS credits. Similarly, it will send market signals to biomethane producers and investors that there will be increased demand for biomethane to support hydrogen production in 2031 and thereafter. This modification will only encourage more factory farm gas production along with the air, water, and odor pollution that accompanies the concentration of cows, manure, and gas infrastructure.

As an additional note, CARB lacks authority to adopt LCFS amendments post-2030 or promulgate regulations to encourage hydrogen production.<sup>15</sup> The Legislature has not authorized such rulemaking authority or otherwise directed CARB to use the LCFS as the mechanism for developing hydrogen infrastructure.

### **Conclusion**

For the foregoing reasons, and in the foregoing ways, CARB must update the proposed Modifications to comply with its legal obligations and reform the LCFS. To do otherwise would be arbitrary, capricious, and an environmental injustice.

Respectfully,

Jamie Katz  
Phoebe Seaton  
**Leadership Counsel for Justice & Accountability**  
**Central Valley Defenders of Clean Water & Air**

Brent Newell  
**Law Office of Brent J. Newell**

Tyler Lobdell  
**Food & Water Watch**

Christine Ball-Blakely  
**Animal Legal Defense Fund**

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<sup>14</sup> *Id.* at 37.

<sup>15</sup> Initial Comments at 31–35.

**Exhibit 1, Jonathan S. Shefftz Technical  
Memorandum**

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### **TECHNICAL MEMORANDUM**

To: Leadership Counsel for Justice & Accountability  
From: Jonathan S. Shefftz, d/b/a JShefftz Consulting  
Date: August 27, 2024  
Re: CARB Proposed Updates to LCFS Program

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At the request of the Leadership Counsel for Justice & Accountability and its partner organization, the Environmental Integrity Project, I have reviewed updates proposed by the California Air Resources Board (“CARB”) to the Low Carbon Fuel Standard (“LCFS”) Program.

Attached to this memorandum is my current CV. My background includes a wide range of economic analyses in the public policy context, including those performed under contract to U.S. EPA. In particular, I have previously provided support to EPA on two public comment processes. The first, for the EPA BEN economic benefit computer model and related issues, began with a Federal Register Notice published on September 24 of 1996 and culminated in a Federal Register Notice published on August 26 of 2005. The second, for drinking water affordability in small systems under the Safe Drinking Water Act, began with a Federal Register Notice published on March 2 of 2006. For both of these public comment processes, in addition to performing economic analyses, I supported EPA by reviewing public comments (both written and verbal) and drafting suggested written responses. I also helped to organize stakeholder in-person meetings.

My review in this matter focuses exclusively on the following issue, as formulated by CARB:

The LCFS program aims to benefit all vehicle owners by displacing fossil fuels and supporting deployment of ZEVs and the use of alternative fuels. However, as stated in Section III.D.1, the proposed amendments are likely to indirectly result in increases to the retail price of fossil fuels at the pump, due to cost pass-through by fossil fuel producers and importers. This potential price increase may impact low-income, disadvantaged, and rural communities more than other consumers of fossil fuels, because individuals living in these communities traditionally spend a larger share of their income on transportation fuels. In addition, it is possible that

individuals in these communities may lack the means to effectively make use of ZEV technology as quickly as wealthier individuals, and therefore would rely on more expensive fossil fuels for longer. Low-income and disadvantaged communities are also more likely to be communities of color that face on-going exposure to the highest concentrations of toxic air pollutants from vehicles using fossil fuels because these communities are often located near congested roadways, including near warehouses, ports, and distribution centers.

My focus in this technical memorandum is to quantify the community-specific household impacts of those fossil fuel price increases. My analysis starts with a set of year-specific state-wide inputs and intermediary calculations in Table 1:

- Column “a” lists the year for each row, starting with the current calendar year of 2024 and then extending out through 2046, so as to correspond with the years for which per-gallon price impact forecasts are available from CARB.
- Column “b” provides the per-gallon incremental price differential for each year as a result of the proposed updates, as calculated by CARB’s own economists (SRIA Table 22). The most recent modifications to those proposed updates, with higher stringencies over the next four years, will if anything result in higher price increases. Hence my projected impacts are potentially a significant underestimate for the years 2025 to 2029.
- Column “c” provides the future federal CAFE standards for new vehicle mileage efficiency. These standards most likely overstate future efficiency gains for the purposes of this analysis since the impacts are exclusively upon vehicles powered by gasoline, whereas CAFE standards can be met by battery electric vehicles (“BEV”) and other vehicles fueled by alternative sources.
- Column “d” calculates the actual effective efficiency for new vehicles, based upon the midpoint of the adjustment range as stated in the Federal Register Notice for the new CAFE standards.
- Column “e” calculates a projection for fleet-wide vehicle mileage efficiency. I start with a publicly available current estimate of 31.1 miles per gallon (“mpg”) for California. Then in each year, based upon a 12.6-year national average for vehicle age, I retain  $11/12.6^{\text{th}}$  of the existing vehicles and blend in  $1/12.6^{\text{th}}$  of new vehicles meeting the effective CAFE standards from Column “d” (i.e., the CAFE standard net of the mid-range of the adjustment factor as estimated in the Federal Register Notice).
- Column “f” provides an average of the year-specific forecast for the Consumer Price Index (“CPI”) from the federal Congressional Budget Office (“CBO”) and the Office of Management and Budget (“CBO”), which I include for the purpose of projecting current household income figures from the U.S. Census Bureau out into future years.
- Column “g” calculates the impact of the annual CPI increases on household income.



Next, Table 2 provides the county-specific inputs and my intermediary calculations. I start with eight counties in the San Joaquin valley, which correspond to eight different multi-jurisdictional entities for which CARB has estimated daily vehicle miles traveled (“VMT”) per person. Using U.S. Census data for household size, I convert the daily VMT per person into annual VMT per household. I then provide the county-specific household income figures from the U.S. Census, both at the median (i.e., 50<sup>th</sup> percentile) and 20<sup>th</sup> percentile. Finally, I adjust the 2022 income figures from the U.S. Census to 2024 using the ratios of the respective CPI values (annual for 2022 and July for 2024).

Finally, Table 3 combines all of the information from Table 1 and Table 2 to calculate year-specific impacts from higher gasoline prices expressed as a percentage of household income. Focusing on the 20<sup>th</sup> percentile (i.e., the second column for each county), in 2026, all counties are expected to experience impacts of over a percentage point of household income. Future years are expected to experience even higher impacts, but these are not until over a decade in the future, and hence the detailed projections are subject to more uncertainty.

These specific impacts are only for households whose vehicle miles traveled are via gasoline-powered vehicles. (Diesel-powered vehicles would experience comparable impacts, but passenger diesel-powered vehicles represent only about two percent of California registrations, and are likely to become even lower in the future as such models become even more rare.) But how widespread are such affected households?

In the longer-term horizon, California offers many incentives for BEV and PHEV purchases in addition to federal incentives. The proposed LCFS program updates would be accompanied by additional incentives, although such incentives could be implemented even without the other LCFC proposed updates. And California already has a fleet-wide requirement for BEV and PHEV sales leading up to a 100-percent requirement by 2035.

But California is starting now with a relatively trivial level of BEV and PHEV ownership. According to the U.S. Department of Energy, which publishes “2022 Light-Duty Vehicle Registration Counts by State and Fuel Type” for each state, only about 2.5 percent of California vehicle registrations were BEV. Adding in new car sales tracked by the California Energy Commission, and applying the same fleet turnover model that I employed for vehicle efficiency, I estimate that during the period of the first peak in my Table 3 for the household income impacts, about 90 percent of passenger vehicle models will still be powered by gasoline (with PHEV models counted as half a BEV for this purpose). Furthermore, based on current vehicle ownership, recent vehicle sales patterns, and consumer surveys of vehicle purchase plans,<sup>1</sup> continued reliance on gasoline-powered vehicles will be more prevalent among the types of lower-income rural households that are the focus of my Table 3.

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<sup>1</sup> See, for example, “EV Ownership Ticks Up, but Fewer Nonowners Want to Buy One,” by Jeffrey M. Jones, April 8, 2024, <https://news.gallup.com/poll/643334/ownership-ticks-fewer-nonowners-buy-one.aspx>.

Table 1						
STATE-WIDE INPUTS: PRICE INCREASES, MPG, INCOME FORECAST						
(a)	(b)	(c)	(d)	(e)	(f)	(g)
<u>Year</u>	<u>\$/g</u>	<u>CAFE</u>	<u>25%</u>	<u>Fleet</u>	<u>CPI fx</u>	<u>Impact</u>
2024	\$0.12			31.1		1.00
2025	\$0.47			31.1	2.25%	1.02
2026	\$0.52			31.1	2.15%	1.04
2027	\$0.49	55.2	41.4	31.9	2.20%	1.07
2028	\$0.39	56.3	42.2	32.7	2.25%	1.09
2029	\$0.38	57.5	43.1	33.6	2.30%	1.12
2030	\$0.25	58.6	44.0	34.4	2.30%	1.14
2031	\$0.47	59.8	44.9	35.2	2.30%	1.17
2032	\$0.59	61.1	45.8	36.1	2.30%	1.20
2033	\$0.66	61.1	45.8	36.8	2.30%	1.22
2034	\$0.72	61.1	45.8	37.5	2.30%	1.25
2035	\$0.79	61.1	45.8	38.2	2.30%	1.28
2036	\$0.86	61.1	45.8	38.8	2.30%	1.31
2037	\$1.25	61.1	45.8	39.4	2.30%	1.34
2038	\$1.44	61.1	45.8	39.9	2.30%	1.37
2039	\$1.69	61.1	45.8	40.3	2.30%	1.40
2040	\$1.80	61.1	45.8	40.8	2.30%	1.43
2041	\$1.83	61.1	45.8	41.2	2.30%	1.47
2042	\$1.61	61.1	45.8	41.6	2.30%	1.50
2043	\$1.42	61.1	45.8	41.9	2.30%	1.54
2044	\$1.21	61.1	45.8	42.2	2.30%	1.57
2045	\$1.02	61.1	45.8	42.5	2.30%	1.61
2046	\$1.02	61.1	45.8	42.8	2.30%	1.64
<b>Notes:</b>						
(a)	Year for data or calculation.					
(b)	SRIA Table 22.					
(c)	Corporate Average Fuel Economy Standards for Passenger Cars and Light Trucks for Model Years 2027 and Beyond and Fuel Efficiency Standards for Heavy-Duty Pickup Trucks and Vans for Model Years 2030 and Beyond, 49 CFR Parts 523, 531, 533, 535, 536, and 537.					
(d)	Calculated as (c) x (1 -25%), so as to incorporate the 25% mid-point from the above FRN for estimated loss of actual mpg compared to CAFE min.					
(e)	Average mpg, set through 2026 at: <a href="https://www.iseecars.com/green-car-adoption-study">https://www.iseecars.com/green-car-adoption-study</a>					
	... then blending in the CAFE min for each year at 1/12.6 to approximately fleet turnover based upon 12.6-year average vehicle age.					
(f)	Average of CBO & OMB forecast for CPI.					
(g)	Impact on income projection.					

Table 2
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COUNTY-SPECIFIC INPUTS: HOUSEHOLD SIZE, VEHICLE MILES TRAVELED, CURRENT INCOME

[illegible]

Table 3

**COUNTY-LEVEL PRICE INCREASE INPUTS AS A PERCENT OF HOUSEHOLD INCOME, BOTH MEDIAN/50th PERCENTILE AND 20th PERCENTILE**

	Fresno		Kern		Kings		Madera		Merced		San Joaquin		Stanislaus		Tulare	
Year	Median	20th	Median	20th	Median	20th	Median	20th	Median	20th	Median	20th	Median	20th	Median	20th
2024	0.14%	0.36%	0.17%	0.42%	0.20%	0.37%	0.16%	0.40%	0.16%	0.41%	0.12%	0.29%	0.13%	0.32%	0.17%	0.39%
2025	0.53%	1.38%	0.65%	1.60%	0.76%	1.42%	0.61%	1.54%	0.63%	1.56%	0.48%	1.12%	0.51%	1.23%	0.65%	1.48%
2026	0.58%	1.50%	0.70%	1.74%	0.82%	1.54%	0.66%	1.67%	0.68%	1.69%	0.52%	1.21%	0.55%	1.33%	0.70%	1.61%
2027	0.52%	1.35%	0.63%	1.56%	0.74%	1.38%	0.59%	1.50%	0.61%	1.52%	0.46%	1.09%	0.50%	1.20%	0.63%	1.44%
2028	0.39%	1.02%	0.48%	1.18%	0.56%	1.05%	0.45%	1.14%	0.47%	1.15%	0.35%	0.83%	0.38%	0.91%	0.48%	1.10%
2029	0.36%	0.95%	0.44%	1.10%	0.52%	0.97%	0.42%	1.06%	0.43%	1.07%	0.33%	0.77%	0.35%	0.84%	0.45%	1.02%
2030	0.23%	0.60%	0.28%	0.69%	0.33%	0.61%	0.26%	0.66%	0.27%	0.67%	0.21%	0.48%	0.22%	0.53%	0.28%	0.64%
2031	0.41%	1.07%	0.50%	1.24%	0.59%	1.10%	0.47%	1.19%	0.49%	1.21%	0.37%	0.86%	0.39%	0.95%	0.50%	1.15%
2032	0.49%	1.28%	0.60%	1.48%	0.70%	1.31%	0.56%	1.43%	0.58%	1.44%	0.44%	1.03%	0.47%	1.14%	0.60%	1.37%
2033	0.53%	1.37%	0.64%	1.59%	0.75%	1.41%	0.60%	1.53%	0.62%	1.55%	0.47%	1.11%	0.50%	1.22%	0.64%	1.47%
2034	0.55%	1.43%	0.67%	1.66%	0.79%	1.47%	0.63%	1.60%	0.65%	1.62%	0.49%	1.16%	0.53%	1.27%	0.67%	1.54%
2035	0.58%	1.51%	0.71%	1.75%	0.83%	1.55%	0.66%	1.68%	0.69%	1.70%	0.52%	1.22%	0.56%	1.34%	0.71%	1.62%
2036	0.61%	1.58%	0.74%	1.84%	0.87%	1.62%	0.70%	1.76%	0.72%	1.79%	0.55%	1.28%	0.58%	1.41%	0.74%	1.70%
2037	0.85%	2.22%	1.04%	2.57%	1.22%	2.28%	0.98%	2.47%	1.01%	2.50%	0.76%	1.79%	0.82%	1.97%	1.04%	2.38%
2038	0.95%	2.47%	1.15%	2.86%	1.35%	2.53%	1.08%	2.75%	1.12%	2.78%	0.85%	1.99%	0.91%	2.19%	1.16%	2.64%
2039	1.08%	2.80%	1.31%	3.24%	1.53%	2.87%	1.23%	3.12%	1.27%	3.15%	0.96%	2.26%	1.03%	2.48%	1.31%	3.00%
2040	1.11%	2.88%	1.35%	3.34%	1.58%	2.95%	1.27%	3.21%	1.31%	3.25%	0.99%	2.33%	1.06%	2.56%	1.35%	3.09%
2041	1.09%	2.84%	1.33%	3.29%	1.56%	2.91%	1.25%	3.16%	1.29%	3.20%	0.98%	2.29%	1.04%	2.52%	1.33%	3.04%
2042	0.93%	2.42%	1.13%	2.80%	1.33%	2.48%	1.06%	2.69%	1.10%	2.72%	0.83%	1.95%	0.89%	2.15%	1.13%	2.59%
2043	0.79%	2.07%	0.97%	2.39%	1.13%	2.12%	0.91%	2.30%	0.94%	2.33%	0.71%	1.67%	0.76%	1.84%	0.97%	2.22%
2044	0.66%	1.71%	0.80%	1.98%	0.94%	1.75%	0.75%	1.90%	0.78%	1.93%	0.59%	1.38%	0.63%	1.52%	0.80%	1.83%
2045	0.54%	1.40%	0.65%	1.62%	0.77%	1.43%	0.61%	1.56%	0.64%	1.58%	0.48%	1.13%	0.51%	1.24%	0.66%	1.50%
2046	0.52%	1.36%	0.64%	1.57%	0.75%	1.39%	0.60%	1.51%	0.62%	1.53%	0.47%	1.10%	0.50%	1.21%	0.64%	1.46%

**Notes:**

Each county-specific household percentage is calculated as the county-specific annual household VMT (Table 2, column e), divided by the year-specific mpg (Table 1, column e), multiplied by the year-specific SRIA \$/gallon fx (Table 1, column b), divided by the county-specific 2024 income value (Table 2, either column h for median or column i for 20th percentile), multiplied by the MHI year-specific increase factor (Table 1, column g).

## **Attachment A: Curriculum Vitae**

### **JONATHAN S. SHEFFTZ**

**d/b/a JShefftz Consulting  
14 Moody Field Road  
Amherst MA 01002**

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Mr. Shefftz is an independent consultant who specializes in the application of financial economics to litigation disputes, regulatory enforcement, and public policy decisions. Previously he was a consultant with Industrial Economics, Incorporated (“IEc”) from 1992 until 2006 when he moved to western Massachusetts. Mr. Shefftz has extensive experience in settlement and litigation support, and has been qualified as an expert witness in U.S. District Court, a federal agency’s Administrative Court, and state courts.

Mr. Shefftz’s recent experience includes work in the following areas.

- Calculating the economic damages suffered by companies and individuals from alleged wrongful actions.
- Applying financial economics to civil penalty factors in regulatory enforcement actions.
- Analyzing financial economic issues related to public policy decisions.

Mr. Shefftz has performed this work in a variety of contexts, including expert witness testimony, computer model development, training course delivery, and regulatory review. He has supervised project teams comprising economists, accountants, paralegals, and software developers, as well as worked in parallel with engineers, scientists, lawyers, and lobbyists. His clients have included federal and state governmental agencies, private litigators, and other private-sector entities.

Mr. Shefftz holds a B.A. *magna cum laude* and *Phi Beta Kappa* in Economics and Political Economy from Amherst College, and an M.P.P. degree, with concentrations in Government & Business and Energy & Environmental Policy, from the John F. Kennedy School of Government at Harvard University.

Mr. Shefftz’s positions have included Eastern Vice President for the National Association of Forensic Economics, Chair for the Town of Amherst Planning Board, referee for the *Journal of Forensic Economics*, Course Liaison for the “Engineering Economic Decision Making” course at the University of Massachusetts Amherst, and Treasurer for the Jewish Community of Amherst, American Avalanche Association, Moody Field Homeowner Association, and U.S. Ski Mountaineering Association. He is also a member of the Government Finance Officers Association, American Academy of Economic and Financial Experts, and Amherst Area Chamber of Commerce.

## JONATHAN S. SHEFFTZ

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### **Economic Damages and Unjust Enrichment**

Mr. Shefftz has experience with the following work on economic damages and unjust enrichment, including expert witness testimony both in deposition and at trial. He has also applied his expertise in unjust enrichment calculation, financial statement analysis, municipal financial assessment, and corporate control / ownership issues in the context of environmental regulatory enforcement cases, as described in a separate section on a successive page.

#### *Business Damages and Unjust Enrichment*

Mr. Shefftz has modeled companies' cash flows under hypothetical "but-for" states of the world versus actual states of the world to calculate business damages in numerous cases. Sample contexts include allegations by: an engineering firm that lost business to a spin-off competitor, timber companies whose contracts were breached via implementation of Congressional legislation, a furniture company whose joint venture was interfered with by a key customer, a fixed base operator prohibited from selling jet fuel by a municipal airport commission, a brownfields remediation firm whose key principal became incapacitated, a state-chartered joint underwriting association whose servicing carrier incorrectly determined premiums, a transportation company that received contaminated fuel, a social networking website imperiled by a developer's nondelivery, an entrepreneur whose computer code was discarded by a demolition crew, an industrial facility whose environmental control facility was undersized by an engineering consultant, a data center operator whose contracting officer received kickbacks, a whistleblower who reported environmental violations under the New York False Claims Act, a whistleblower who reported prescribing practices by a specialty pharmacy, a sports organization whose apparel licensee breached a contract, a food processor whose operations were interrupted by an industrial boiler's natural gas explosion, a solar power panel installation company whose supplier provided defective equipment, a commercial real estate owner subjected to default interest, and an IT company that suffered tortious interference upon losing an exclusive distributorship.

#### *Personal Damages / Losses*

Mr. Shefftz has assessed lost earnings and household services along with incurred and anticipated medical costs in numerous cases involving wrongful death, personal injury, wrongful termination, estate disputes, credit card interest overcharges, divorce, child neglect, and inhumane treatment. Sample contexts include allegations of employment discrimination, medical malpractice, workplace injuries, vehicular accidents, physical assault, retail store accidents, outdoor recreation, below-market earnings, lead poisoning, professional license revocation, violations of the Servicemembers Civil Relief Act, an arrest instigated by a former spouse, inadequate child welfare supervision, judicial incarceration, and delayed payments covered by Massachusetts Chapter 93A.

## JONATHAN S. SHEFFTZ

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### **Economic Damages and Unjust Enrichment (continued)**

#### *FIFRA Pesticide Data Compensation*

Mr. Shefftz assessed the data compensation amounts owed by a follow-on registrant to the original product registrant under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

#### *Class Actions*

Mr. Shefftz's work here has included: analyzing whether the minimum damages threshold had been established to certify the class, creating a streamlined model to calculate pecuniary damages across class members, and assessing the economic factors for the presence of a reverse auction.

#### *Present Value of Life Care Plans*

Mr. Shefftz has calculated the present value of life care plan projections in numerous cases, both on their own and in connection with personal damages and losses. He has extensive experience in efficiently adjusting the varying periodicities of life care plans into a standardized format.

#### *Water Contamination*

For a real estate development, Mr. Shefftz analyzed the diminution in value by projecting the groundwater contamination-induced delayed schedule versus the original schedule. On a claim to have developed groundwater assets but for contamination, he testified on the municipality's impaired financial condition at the time. On a class action lawsuit by property owners, he evaluated the defense economist's statistical analysis of property values. On other water contamination lawsuits, he has calculated the damages from the need to switch to alternative sources of water, including a desalination plant, whole-house drinking water systems, and a neighboring utility.

#### *Intellectual Property*

For defense counsel in a copyright infringement lawsuit, Mr. Shefftz assessed declarations from the plaintiff's expert economist who asserted that a "companion" book would damage the author of the original series of novels. He also assisted counsel with preparation for trial cross examination.

#### *Computer Model Development*

For the U.S. Department of Justice Commercial Litigation Branch, Mr. Shefftz developed a standalone computer model for statutorily determined interest under the Contract Disputes Act.

## JONATHAN S. SHEFFTZ

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### **Financial Factors in Environmental Regulatory Enforcement**

Mr. Shefftz is experienced with the following work on environmental regulatory enforcement actions brought under the Asbestos Hazard Emergency Response Act (AHERA), Clean Air Act (CAA), Clean Water Act (CWA), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Emergency Planning and Community Right-to-Know Act (EPCRA), False Claims Act (FSA), Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), Oil Pollution Act (OPA), Resource Conservation and Recovery Act (RCRA), Safe Drinking Water Act (SDWA), Spill Prevention, Control and Countermeasure (SPCC) rule, Toxic Substances Control Act (TSCA), Underground Storage Tank (UST) program, as well as various state statutes. Mr. Shefftz has been qualified as an expert witness on numerous occasions in federal, administrative, and state courts. His clients for this work have included the U.S. Environmental Protection Agency (EPA), U.S. Department of Justice (DOJ), private litigators, state Attorneys General, and defense counsel.

### *Financial Statement Analysis / Ability-to-Pay / Economic Impact / Corporate Control & Ownership*

Mr. Shefftz has examined the tax returns, financial statements, and other financial documentation for individuals, businesses, not-for-profits, municipalities, and all four unincorporated organized U.S. territories, to assess the ability to pay for – and/or economic impact of – sought environmental expenditures, e.g., compliance costs, penalty demands, and cleanup/remediation costs. He has reviewed discovery documents and conducted research in many cases to assess the extent to which subsidiaries can rely on their corporate parents for financial support and the extent to which corporate control of subsidiaries goes beyond that exercised by mere ownership.

### *Financial Gain / Economic Benefit / Unjust Enrichment*

Mr. Shefftz has modeled companies' and municipalities' cash flows under hypothetical full and timely compliance states of the world versus actual delayed compliance states of the world to calculate the economic benefit (i.e., financial gain or unjust enrichment) on numerous enforcement actions. Such modeling has focused both on incremental compliance costs that were delayed and/or avoided as well as compliance scenarios that would have entailed impacts on a company's revenues (i.e., so-called illegal profits, competitive advantage, or Beyond BEN Benefit). As part of this work, he has estimated the weighted-average cost of capital for a wide variety of companies and industries.



## JONATHAN S. SHEFFTZ

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### **Financial Factors in Environmental Regulatory Enforcement (continued)**

#### *Other Financial Factors in Environmental Regulatory Enforcement Actions*

Mr. Shefftz has performed work on other financial factors in regulatory enforcement actions: the “size of violator” penalty element; the potential impact on the penalty calculation from alternative inputs for other “gravity” factors; the relative weight of different financial indicators for establishing deterrence; and, the adequacy of financing plans to ensure environmental compliance.

#### *Computer Model Development, Training, and Support*

Mr. Shefftz has managed the development of the Windows operating system versions of the BEN, PROJECT, ABEL, INDIPAY, and MUNIPAY computer models that U.S. EPA’s Office of Enforcement and Compliance Assurance applies to financial economics issues in enforcement actions. He has prepared the models’ help systems and training materials, as well as presented training courses and provided related support for federal and state enforcement staff. Mr. Shefftz has also assisted in several U.S. EPA academic peer reviews and public comment processes for the BEN computer model and related economic benefit recapture issues. And he has created versions of the models for other nations: Canada (BEN), Chile (BEN and ABEL), and El Salvador (BEN).

## JONATHAN S. SHEFFTZ

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### **Public Policy**

#### *Cost of Capital Estimation*

For the U.S. EPA Office of Ground Water and Drinking Water, Mr. Shefftz assessed peer reviewer comments and then revised a draft report on cost of capital estimation for water systems. His work included applying the capital asset pricing model to the commercial drinking water industry and correcting for the earlier draft's assumptions regarding capital structure and industry-level business risk.

#### *Financial Assurance*

For a state agency, Mr. Shefftz proposed appropriate inflation forecasts and discount rates, drafted a guidance document, and then developed a stand-alone computer model to calculate the net present value of future remediation costs. For EPA's Office of Solid Waste, he provided recommendations on discounting future cleanup costs; for the Office of Site Remediation and Enforcement, he created a computer model to assess the combined affordability of financial assurance and cleanup costs; for another EPA office, he created a spreadsheet model to calculate the insurance and/or trust fund amounts necessary to provide for post-closure care. For the U.S. Department of the Interior's Office of Surface Mining Reclamation and Enforcement, he reviewed other agencies' approaches and developed a spreadsheet model to calculate initial trust fund amounts and then recalculate subsequent years' annual rebalancings to reflect actual returns and additional future costs. For a not-for-profit, he reviewed draft reports on the potential role of financial assurance in the regulation of hydraulic fracturing (i.e., "fracking").

#### *Proposed Legislation and Regulations*

For an industry association, Mr. Shefftz designed and implemented a survey and analyzed its results to predict the impacts of a proposed national lead tax upon lead consumption and dependent industrial sectors. For a national waste management firm, he analyzed the financial impacts of a proposed state tax on hazardous waste land disposal. For a citizen group, Mr. Shefftz assessed the economic efficiency of proposed state regulations for municipal water treatment intended to mitigate degradation of coastal waters. For another citizen group, Mr. Shefftz assessed EPA's proposed new regulations for restricting water pollution from meat processing facilities.

## JONATHAN S. SHEFFTZ

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### **Public Policy (continued)**

#### *Joint Cost Allocation*

For a study of Bureau of Reclamation rate setting for California's Central Valley Project, Mr. Shefftz researched economically efficient methods for allocating water project costs to user classes.

#### *Superfund Impacts*

Mr. Shefftz examined the Department of Energy SURE model's predictions of economic impacts from Superfund liability and cost allocation reform. At a Superfund site, he critiqued a small city's claims that a proposed contaminated soil cleanup would lead to widespread economic disruptions.

#### *Legislative and Regulatory Review*

For the 1990 Clean Air Act amendments, Mr. Shefftz investigated the potential of fuel oxygenation requirements to cause petroleum refinery closures. For the Safe Drinking Water Act, he reviewed EPA's national-level drinking water affordability criteria, assessed their implications for small water systems' finances, proposed alternative criteria, created databases to predict how many systems would be judged unable to afford drinking water rules, evaluated public comments, drafted text of a report in response to a Congressional charge, and provided additional support to U.S. EPA Office of Ground Water and Drinking Water staff t stakeholder meetings. For a coalition of citizen groups, Mr. Shefftz assessed the incentive structures and market impacts from California Low Carbon Fuel Standard.

#### *Permit Applications*

For a citizen group, Mr. Shefftz assessed the economic analysis report accompanying a permit application for a crude oil export terminal with regard to the criteria specified in the state constitution. For another citizen group, he assessed an engineering report and its companion economic and fiscal impact report accompanying a permit application for a wastewater treatment plant with regard to the social and economic factors specified in the state antidegradation regulations.

## JONATHAN S. SHEFFTZ

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### Representative Clients

Mr. Shefftz has been retained by the following clients, whether directly as an independent consultant, during his prior employment at Industrial Economics, Incorporated (“IEc”), and/or as an independent consultant via subcontract with IEc.

#### *State and Local Agencies:*

California	Connecticut
Illinois	Indiana
Massachusetts	Michigan
New Hampshire	New Mexico
Ohio	Pennsylvania
Texas	Virginia
Washington	Wisconsin
Allegheny County Health Department (PA)	

#### *Federal / National Agencies:*

U.S. Department of Justice (Civil Division – Commercial Litigation Branch; Environment and Natural Resources Division – Environmental Enforcement Section, Environmental Defense Section)

U.S. Environmental Protection Agency (various Headquarters Offices and Regional Counsels)

U.S. Fish and Wildlife Service (within U.S. Department of Interior)

National Oceanic and Atmospheric Administration (within U.S. Department of Commerce)

Office of Surface Mining Reclamation and Enforcement (within U.S. Department of Interior)

Superintendencia del Medio Ambiente (Chile)

Ministerio de Medio Ambiente y Recursos Naturales (El Salvador)

## JONATHAN S. SHEFFTZ

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### **Representative Clients (continued)**

#### *Industry:*

Bouncing Cranberries LLC	Circle Environmental, Inc.
Country Villa Bay Vista Healthcare Center	CWM Chemical Services, Incorporated
ERL Medical Corporation	
Fortune 500 automobile parts distributor [identity kept confidential as per counsel request]	
Fortune 500 manufacturing company [identity kept confidential as per counsel request]	
Fortune Global 500 chemicals company [identity kept confidential as per counsel request]	
Frasco Fuel Oil	French Heritage, Inc.
Infinity Fluids Corporation	Kinder Morgan
Kroger Specialty Pharmacy	Manassas NCP FF, LLC
National Coating Corporation	Lead Industries Association
MedMal Joint Underwriting Ass'n of RI	Musco Family Olive
NSIPI Administrative Manager	
Privately held automobile parts manufacturer [identity kept confidential as per counsel request]	
Privately held diesel parts wholesale distributor [identity kept confidential as per counsel request]	
Pro AV Systems	Professional Contract Sterilization, Inc.
Prolerized New England Co., Inc.	Rectrix Aerodome Centers, Inc.
Schnitzer Steel Industries, Inc. dba Radius Recycling	
Stebbins-Duffy, Inc.	Sterling NCP FF, LLC
Taotao USA, Inc.	Valley Solar
WDC Holdings LLC d/b/a Northstar Commercial Partners	

In addition to the industry clients listed above, Mr. Shefftz has also performed work on behalf of numerous other industry clients and their insurers on economic damages cases, but without any direct interaction with such parties and their insurers or any analytical focus on them.

## JONATHAN S. SHEFFTZ

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### **Representative Clients (continued)**

#### *Citizen Groups:*

Advance Etowah  
Alabama Environmental Council  
Appalachian Mountain Advocates  
Biodiversity Conservation Alliance  
Blue Water Baltimore, Inc.  
Center for Biological Diversity  
Center for Justice  
Citizens Against Ruining the Environment  
Communities for a Healthy Bay  
Coosa Riverkeeper  
Earthrise Law Center  
Environment America Research & Policy  
Environment Ohio  
Environmental Defense Center  
Environmental Law and Policy Center  
Food & Water Watch  
Friends of Lick Creek  
Frontier Group  
Gulf Restoration Network  
Hoosier Environmental Council  
Idaho Conservation League  
Inst. Governance & Sustainable Development  
Leadership Counsel Justice & Accountability  
Louisiana Environmental Action Network  
National Environmental Law Center  
Natural Resources Defense Council  
Northwest Environmental Defense Center  
Okanogan Highlands Alliance  
Orange County Coastkeeper  
Our Children's Earth Foundation

Advocates for the West  
Animal Legal Defense Fund  
Appalachian Voices  
Black Warrior Riverkeeper  
California Coastkeeper Alliance  
Center for Comm. Action & Environ. Justice  
Chesapeake Legal Alliance  
Clean Air Council  
Conservation Law Foundation  
Earthjustice  
Ecological Rights Foundation  
Environment California  
Environmental Advocates of New York  
Environmental Integrity Project  
Environment Texas Citizen Lobby, Inc.  
Friends of Hurricane Creek  
Friends of the Lower Keys  
Grand Canyon Trust  
High Country Conservation Advocates  
Hurricane Creekkeeper  
Inland Empire Waterkeeper  
Lake Erie Waterkeeper  
Louisiana Bucket Brigade  
Lower Susquehanna Riverkeeper Association  
National Parks Conservation Association  
Newark Education Workers Caucus  
Ohio Valley Environmental Coalition  
Olympic Forest Coalition  
Oregon Public Interest Research Group  
Pacific Environmental Advocacy Center

## JONATHAN S. SHEFFTZ

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### **Representative Clients (continued)**

#### *Citizen Groups (continued):*

PennEnvironment  
Prairie Rivers Network  
Puget Soundkeeper Alliance  
RE Sources for Sustainable Communities  
St. Bernard Citizens for Environ. Quality  
San Francisco Baykeeper  
Sierra Club  
Southern Environmental Law Center  
Suncoast Waterkeeper  
Texas Rio Grande Legal Aid, Inc.  
Tulane Environmental Law Clinic  
Univ. of Denver Environmental Law Clinic  
West Virginia Highlands Conservancy  
WildEarth Guardians

Potomac Riverkeeper  
Public Justice  
Raritan (NY/NJ) Baykeeper  
Respiratory Health Association  
San Antonio Bay Estuarine Waterkeeper  
Save the Sound  
South River Watershed Alliance, Inc.  
Spokane Riverkeeper  
Tampa Bay Waterkeeper  
Toxics Action Center, Inc.  
United States Public Interest Research Group  
Waste Action Project  
Wild Fish Conservancy  
Willamette Riverkeeper

## JONATHAN S. SHEFFTZ

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### **Representative Clients (continued)**

#### *Law Firms:*

Adler, Cohen, Harvey, Wakeman & Guekguezian	Law Office of Jacqueline L. Allen
Allyn & Ball, P.C.	Aqua Terra Aeris Law Group
Arnold & Porter LLP	Baker, Braverman & Barbadoro P.C.
Barton Gilman LLP	Bayh, Connaughton and Malone
Beveridge & Diamond PC	Bricklin & Newman, LLP
Brown Legal PLLC	Brownstein Hyatt Farber Schreck, LLP
Butler Snow LLP	Cain, Sherry, Geller & Vachereau
Calderón & Williams	ChasenBoscolo
Chihak & Martel	The Law Offices of William Chu
Clinton & Muzyka, P.C.	The Collins Law Firm, P.C.
Cooper & Lewand-Martin, Inc.	D'Ambrosio Law Offices
DarrowEverett LLP	Davison Law, LLC
DeCotiis, FitzPatrick & Cole, LLP	Law Offices of John K. Dema, P.C.
DLA Piper	Doherty, Wallace, Pillsbury & Murphy
Donovan Hatem LLP	Downey Brand LLP
Dreyer Boyajian LLP	Frederick, Perales, Allmon & Rockwell, PC
Law Office of Austin J. Freeley	Gallagher & Cavanaugh LLP
Gallant & Ervin, LLC	The Garcia Law Firm
Garnett Powell Maximon Barlow	German Rubenstein LLP
Gordon Rees Scully Mansukhani, LLP	David S. Hammer, Esq.
Hanson Curran LLP	George E. Hays, Esq.
Henrichsen Siegel Moore, PLLC	Hoffner PLLC
Hogan Lovells US LLP	Hunsucker Goodstein PC
Kampmeier & Knutsen PLLC	Kaplan, Massamillo & Andrews, LLC
Kasowitz, Benson, Torres & Friedman LLP	Keches Law Group
Law Office of David E. Keller	Keller Rohrback L.L.P.
Kirby McInerney LLP	James E. Kolenich, Esq.
Law Office of Amy Kropke	Meryl A. Kukura, Esq.
Kenneth Lieberman, Esq.	Lawson & Weitzen, LLP
Lexington Law Group	Lozeau Drury LLP
Lucentini & Lucentini LLP	Mackie Shea O'Brien, PC



## JONATHAN S. SHEFFTZ

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### **Representative Clients (continued)**

#### *Law Firms (continued):*

Manson Bolves Donaldson Varn	Mark, Migdal & Hayden LLC
Marr Law Offices	McCarter & English, LLP
Meyers Nave	Meyner and Landis LLP
MFI Law Group PLLC	Law Offices of Keith A. Minoff, P.C.
Morrison & Foerster LLP	Morrison Mahoney LLP
Motley Rice LLC	Law Office of Jennifer F. Novak
Nelson Mullins Riley & Scarborough LLP	Oliver Law Group
Law Office of Michael D. Parker	Patton Boggs LLC
Pierce Atwood LLP	Edward M. Pikula, Esq.
Pillsbury Winthrop Shaw Pittman LLP	Plaza Law Group
Powell Environmental Law	Ransmeier & Spellman P.C.
Raymond Law Group LLC	Reardon Law Office LLC
Reed Smith LLP	Rubin and Rudman LLP
Law Offices of Russo & Minchoff	Ryan & Kuehler PLLC
Ryan, Ryan, Johnson & Deluca, LLP	Ryan Whaley Coldiron Shandy PLLC
Sartini Law, PC	Sasson, Turnbull, Ryan & Hoose
Saul Ewing LLP	The Schreiber Law Firm
Jon L. Schwartz, Attorney at Law, P.C.	Richard Schwartz & Associates, P.A.
Sheff & Cook, LLC	Silverstein, Silverstein & Silverstein P.A.
Simonds, Winslow, Willis & Abbott	Smith & Lowney, PLLC
Steve Harvey Law LLC	Stoel Rives LLP
Sycamore Law	Todd & Weld LLP
Van Ness Feldman LLP	Vorys, Sater, Seymour and Pease LLP
Law Offices of Charles G. Walker	Waltzer Wiygul & Garside LLC
Wilson Elser Moskowitz Edelman & Dicker	Reed Zars, Esq.
Zaytoun Ballew & Taylor, PLLC	

## JONATHAN S. SHEFFTZ

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### **Publications and Presentations**

*Structural Changes in Interest Rates*, paper discussant at Western Economic Association International Conference (on-line), 7/1/22.

*Cause and Effect: The Asymmetry in Deducing Effect and Inferring Cause*, paper discussant at National Association of Forensic Economics Eastern Meeting (on-line), 2/25/22.

*How Good Is My Degree? Economic Damages from False Claims by Colleges*, paper discussant at Western Economic Association International Annual Conference (on-line), 6/27/21.

*Social Security Losses in Personal Injury*, paper discussant at Western Economic Association International Annual Conference (Portland OR), 7/1/16.

*The “Loss of Chance” Rule in the Various States*, paper discussant at Allied Social Sciences Association Annual Conference (Philadelphia PA), 1/4/14.

*Foreign Net Discount Rates: The Case of Undocumented Mexican Workers*, paper discussant at Western Economic Association International Annual Conference (Seattle WA), 6/30/13.

*Evolving Transition Probabilities and Worklives*, paper discussant at Allied Social Sciences Association Annual Conference (San Diego CA), 1/5/13.

*Commercial Damages Calculations*, panelist at Eastern Economic Association Annual Conference (Boston MA), 3/10/12.

*Medical Net Discount Rates: 1980 - 2011*, paper discussant at Eastern Economic Association Annual Conference (Boston MA), 3/10/12.

*The Value of Future Earnings in Perfect Foresight Equilibrium*, paper discussant at Allied Social Sciences Association Annual Conference (Denver CO), 1/8/11.

*The Role of the Economic Expert in Litigation Directed at Piercing the Corporate Veil*, presentation at Fall Forensic Economics Workshop (Durango CO), 10/8/10.

*Alternative Perspectives for Breach-Nonbreach Scenario Specifications in Commercial Litigation*, paper presentation at Western Economic Association International Annual Conference (Portland OR), 7/1/10.

*Sampling Issues in Commercial Damages Cases*, paper discussant at Western Economic Association International Annual Conference (Vancouver BC), 7/1/09.

*Net Discount Rates: Does Duration Matter?*, paper discussant at Eastern Economic Association Annual Conference (Boston MA), 3/7/08.

## JONATHAN S. SHEFFTZ

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### **Publications and Presentations (continued)**

*Enforcement Economics: Deterrence, Economic Benefit, & Ability to Pay*, presentation at California Environmental Protection Agency State Water Resources Control Board “Enforcenomics” Workshop (Berkeley CA), 1/11/08.

*Alternative Focuses for “But-For” Scenario Specification in Commercial Litigation*, paper presentation at Western Economic Association International Annual Conference (Seattle WA), 6/30/07.

*Expert Witness Role Play*, presentation at U.S. EPA 9<sup>th</sup> Financial Analyst Workshop (Atlanta GA), 5/3/07.

*Working with Experts in Environmental Cases: An Expert Economist’s Perspective on Expert Testimony*, presentation at Public Interest Environmental Law Conference (Eugene OR), 3/2/07.

*Alternative Measures and Focuses for Economic Damages Calculations*, paper presentation at Eastern Economic Association Annual Conference (New York NY), 2/23/07.

*Lost Profit as a Measure of Lost Earning Capacity*, panelist at Western Economic Association International Annual Conference (San Francisco CA), 7/7/05

“EPA’s Economic Benefit Analysis Policy and Practice,” *Natural Resources and Environment*, Fall 2004.

“Taxation Considerations in Economic Damages Calculations,” *Litigation Economics Review*, Summer 2004.

*Economic Benefit and Wrongful Profits in the Calculation of Penalties for Environmental Violations*, presentation to Boston Bar Association Environmental Litigation Committee, 9/23/04.

*Business Valuation/Commercial Damages*, panelist at Western Economic Association International Annual Conference (Vancouver BC), 7/1/04.

“Wrongful Profits: Setting the Record, and the Concept, Straight,” *Environment Reporter*, 1/2/04.

*Present Value Sensitivity to Ex Ante vs. Ex Post Perspective*, paper presentation at Western Economic Association International Annual Conference (Denver CO), 7/12/03.

*Taxation Considerations in Economic Damages Calculations*, paper presentation at Eastern Economic Association Annual Conference (New York NY), 2/22/03.

## JONATHAN S. SHEFFTZ

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### **Publications and Presentations (continued)**

*Economic Benefit from Illegal Competitive Advantage and Complex Economic Benefit Scenarios*, presentation at U.S. EPA 5<sup>th</sup> Financial Analyst Workshop (Boston MA), 7/26/00.

*Economic Benefit in Wetlands Cases: Financial Analysis Issues*, presentation at U.S. EPA Wetlands Enforcement Conference (Alexandria VA), 3/22/00.

*Economic Benefit*, presentation at U.S. EPA 4<sup>th</sup> Analyst Workshop (Denver CO), 3/10/99.

In addition to the publications and presentations listed above, Mr. Shefftz has published and presented extensively on topics unrelated to his economics consulting practice, mainly in the area of avalanche safety. He also holds various memberships and certifications in that field.

## JONATHAN S. SHEFFTZ

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### Testimony History

*Lower Susquehanna Riverkeeper Association v. Republic Services of Pennsylvania LLC* (USDC MD Penn.), deposition 8/12/24.

*California Coastkeeper Alliance v. Cosumnes Corporation dba Murieta Equestrian Center* (USDC ED Calif.), deposition 3/26/24.

*Paula Appleton a/k/a Paula Sweet v. National Union Fire Insurance Company of Pittsburgh, PA, and AIG Claims, Inc.* (USDC Mass), deposition 10/30/23.

*Sierra Club et al. v. Midwest Generation, LLC* (Illinois Pollution Control Board), deposition 10/28/21 and hearing testimony 5/16&17/23.

*The State of New York, et al. v. Covanta Hempstead Company and Covanta Holding Corporation* (NY Supreme Court), affidavit 5/04/23.

*James F. Riley, Jr. and Pamela B. Bankert v. Timothy S. Martinez, D.M.D. et al.* (Mass. Superior Court), courtroom testimony 03/20/23.

*Amazon.com, Inc. and Amazon Data Services, Inc. v. WDC Holdings LLC dba Northstar Commercial Partners et al.* (USDC ED Va), deposition 12/21/22.

*Sierra Club, Inc. and Conservation Law Foundation, Inc. v. Granite Shore Power LLC et al.* (USDC ED NH), deposition 11/11/20 and courtroom testimony 10/20/22.

*San Francisco Baykeeper v. City of Mountain View and San Francisco Baykeeper v. City of Sunnyvale* (USDC ND Calif.), deposition 8/18/21.

*Sierra Club v. Woodville Pellets, LLC* (USDC ED Texas), deposition 7/29/21.

*Environmental Law & Policy Center and Hoosier Environmental Council v. Cleveland-Cliffs Burns Harbor, LLC and Cleveland-Cliffs Steel* (USDC ND Indiana), deposition 7/14/21.

*PennEnvironment, Inc., and Clean Air Council v. United States Steel Corporation* (USDC WD Penn), deposition 2/10/21.

*Ohio Valley Environmental Coalition and The Sierra Club v. Eagle Natrium LLC* (USDC ND West Virginia), deposition 8/19/20.

*Gary and Anne Childress, et al. v. JP Morgan Chase & Co., et al.* (USDC ED North Carolina), deposition 1/24/19 and affidavit 3/17/20.

*Seneca Economics and Environment, LLC v. Manson Bolves Donaldson Varn, P.A.* (Florida Circuit Court), affidavit 2/26/20.

## JONATHAN S. SHEFFTZ

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### **Testimony History (continued)**

*Permit application for Plaquemines Liquids Terminal, LLC* (Louisiana DEQ), affidavit 1/27/20.

*Newark Education Workers Caucus and Natural Resources Defense Council, Inc. v. City of Newark et al.* (USDC NJ), courtroom testimony 8/15/19.

*Wild Fish Conservancy v. Cooke Aquaculture Pacific, LLC* (USDC WD Wash), deposition 8/02/19.

*Waste Action Project v. Port of Olympia* (USDC WD Wash), deposition 7/17/19.

*Toxics Action Center, Inc. and Conservation Law Foundation v. Casella Waste Systems, Inc. and North Country Environmental Services, Inc.* (USDC NH), deposition 5/15/19.

*Suncoast Waterkeeper, Our Children's Earth Foundation, and Ecological Rights Foundation v. City of Gulfport* (USDC MD Fla), deposition 5/7/19.

*San Antonio Bay Estuarine Waterkeeper and S. Diane Wilson v. Formosa Plastics Corp., Texas, et al.* (USDC SD Tex), deposition 1/16/19.

*Infinity Fluids Corporation v. Eemax*, testimony at binding arbitration hearing, 12/6/18.

*Puget Soundkeeper Alliance v. Seattle Iron & Metals, Corp.* (USDC WD Wash), deposition 10/4/18.

*Natural Resources Defense Council, Respiratory Health Association, and Sierra Club, Inc. v. Illinois Power Resources, LLC and Illinois Power Resources Generating, LLC* (USDC CD Illinois), deposition 6/12/18.

*Louisiana Environmental Action Network and Stephanie Anthony v. Exxon Mobil Corp. d/b/a/ ExxonMobil Chemical Co.* (USDC MD Louisiana), deposition 10/26/17.

*Jeffrey Palmer v. Inn Serve Corporation d/b/a Hampton Inn & Suites, Inn of Daphne, Inc. d/b/a Hampton Inn et al.* (Court of Lauderdale County, Mississippi), affidavits 6/2/17 & 10/23/17.

*In the Matter of Taotao USA, Inc., Taotao Group Co., Ltd., and Jinyun County Xiangyuan Industry Co., Ltd.* (U.S. EPA Administrative Court), deposition 9/26/17, courtroom testimony 10/19/17.

*Puget Soundkeeper Alliance v. Louis Dreyfus Commodities LLC et al.* (USDC WD Wash), deposition 3/2/16.

*Gulf Restoration Network, Louisiana Environmental Action Network, and Sierra Club v. United Bulk Terminals Davant, L.L.C.* (USDC ED Louisiana), deposition 5/5/15.

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### **Testimony History (continued)**

*Village of Stillwater, Town of Stillwater, Town of Waterford, Water Commissioners of the Town of Waterford, Village of Waterford, Town of Halfmoon, and County of Saratoga v. General Electric Company et al.; and Saratoga County Water Authority v. General Electric Company* (USDC ND New York), deposition 4/2/14.

*Environment Texas Citizen Lobby, Inc. and Sierra Club v. ExxonMobil Corporation, et al.* (USDC SD Tex), deposition 6/1/12, courtroom testimony 2/14/14.

*Waste Action Project v. Draper Valley Holdings LLC dba Draper Valley Farms* (USDC WD Wash), deposition 1/21/14.

*RE Sources for Sustainable Communities v. Pacific International Terminals, Inc.* (USDC WD Wash), deposition 4/11/13.

*WildEarth Guardians v. Lamar Utilities Board doing business as Lamar Light and Power, and Arkansas Power Authority* (USDC Colo), deposition 3/22/13.

*Tina A. Rhodes, Individually and as Administratrix of David C. Rhodes, et al. v. Tyrone Gadsen and GP&T Transport, Inc.* (Mass. Superior Court), deposition 12/11/12, courtroom testimony 1/23/13.

*Waste Action Project v. Sierra Pacific Industries dba Sierra Junction City Sawmills* (USDC WD Wash), deposition 12/28/12.

*People of the State of California and The City of San Diego v. Kinder Morgan Energy Partners, L.P., et al.* (USDC SD Cal), deposition 4/26/12.

*Marvin Evans v. Certain Underwriters at Lloyd's London, KMS Associates, Inc., Greenwich Insurance Company, W. Brown & Associates, Inc. and Hub International Gulf South Limited f/k/a/ Hibernia Rosenthal Insurance Agency, LLC d/b/a Hibernia Rosenthal* (Florida Circuit Court), depositions 9/15/11 and 11/15/10.

*Bouncing Cranberries LLC v. CommonPlaces eSolutions, LLC*, testimony at binding arbitration hearing 8/18/11.

*Puget Soundkeeper Alliance v. BNSF Railway Company* (USDC WD Wash), deposition 7/7/11.

*State of Texas v. BP Products North America Inc.* (Texas District Court), deposition 6/7/11.

*Chevron Corporation v. Jonathan S. Shefftz* (USDC Mass) and *Maria Aguinda et al. v. Chevron Corporation* (Court of Justice of Nueva Loja, Ecuador), deposition 12/16/10.

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### **Testimony History (continued)**

*Elizabeth Russell and Katherine Gates v. Joseph Reilly and James Georges, Executors of the Estate of K. Mildred Dooling, a/k/a Mildred K. Dooling, and Patrick Curtin, Individually and as Trustee of the M.D. Realty Trust* (Mass. Superior Court), courtroom testimony 7/21/10.

*Hildagarde Bartling, et al. v. Country Villa Bay Vista Healthcare Center, et al.* (California State Court), deposition 1/29/10.

*Joseph J. Zajac III v. Pamela J. Trueblood, et al.* (USDC MD Fla), affidavit 9/16/09.

*In the matter of 99 Cents Only Stores* (U.S. EPA Administrative Court), courtroom testimony 6/24/09.

*U.S. v. Government of Guam* (USDC Guam), courtroom testimony 12/9/08 and 4/13/09.

*U.S. v. James and Nancy Oliver d/b/a Safety Waste Incineration* (USDC Alaska), courtroom testimony 3/25/09 and 3/27/09.

*In the matter of Valimet, Inc.* (U.S. EPA Administrative Court), courtroom testimony 12/10/08.

*Rectrix Aerodome Centers, Inc. v. Barnstable Municipal Airport Commission, et al.* (USDC Mass), deposition 12/2/08.

*State of Ohio v. The Shelly Holding Company et al.* (Franklin County Municipal Court), depositions 7/30/08 and 9/19/08, courtroom testimony 10/16/08 and 10/17/08.

*In the matter of Lowell Vos Feedlot* (U.S. EPA Administrative Court), courtroom testimony 9/17/08.

*French Heritage, Inc. v. Ethan Allen, Inc.* (Connecticut State Court), deposition 6/28/06 and 6/29/06.

*Oregon Public Interest Research Group, Diane Heintz, and Rena Taylor v. Pacific Coast Seafoods Company, Pacific Surimi Joint Venture, LLC, Pacific Surimi Co., Inc., and Dulcich Inc. d/b/a Pacific Seafood Group* (USDC Oregon), deposition 4/18/06.

*In the matter of Rizing Sun LLC* (U.S. EPA Administrative Court), courtroom testimony 2/7/06.

*State of Ohio v. Container Recyclers, Inc.* (Franklin County Municipal Court), deposition 4/1/05.

*In the matter of Vico Construction Corporation and Smith Farm Enterprises* (U.S. EPA Administrative Court), courtroom testimony 6/20/02 and 10/8/03.

*U.S. v. The New Portland Meadows, Inc.* (USDC Oregon), courtroom testimony 5/20/03.

*In the matter of Vico Construction Corporation and Amelia Venture Properties* (U.S. EPA Administrative Court), courtroom testimony 1/14/03.



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### **Testimony History (continued)**

*United States Public Interest Research Group, Stephen E. Crawford, and Charles Fitzgerald v. Heritage Salmon, Inc.; U.S. PIRG et al. v. Stolt Sea Farm, Inc.; U.S. PIRG et al. v. Atlantic Salmon of Maine LLC* (USDC Maine), deposition 6/5/01, courtroom testimony 10/15/02.

*U.S. v. Murphy Oil USA, Inc.* (USDC WD Wis), deposition 4/24/01.

*U.S. v. Royal Oak Enterprises, Inc.* (USDC ED Va), depositions 3/22/00 and 5/19/00.

*In the matter of Titan Wheel Corp. of Iowa* (U.S. EPA Administrative Court), affidavit 11/24/99.

*U.S. v. Gulf States Steel, Inc.* (USDC ND Ala), affidavit 12/30/98, deposition 10/22/99.

*U.S. v. Koch Industries, Inc.* (USDC ND Okla and SD Tex), depositions 5/24/99 and 6/1/99.

*State of Wisconsin v. I-K-I Manufacturing Company, Inc.*, deposition 4/13/99.

*U.S. v. Borden Chemicals & Plastics* (USDC MD La), deposition 2/5/98.

*State of New Hampshire v. Johnson Products, Incorporated*, deposition 2/3/98.

*In the matter of EK Associates, L.P., d/b/a EKCO/GLACO, and EK Management Corporation* (U.S. EPA Administrative Court), courtroom testimony 8/14/97.

*U.S. v. Smithfield Foods, Inc., et al.* (USDC ED Va), deposition 7/9/97.

*U.S. v. Nucor Corporation* (USDC ND Ala), deposition 6/12/97.

*U.S. v. U.S. Metallics, Inc., and Town of Onalaska, Wis.* (USDC WD Wis), affidavit 10/21/96.