

# The Fraud of Plastic Recycling

How Big Oil and the plastics industry deceived the public for decades and caused the plastic waste crisis.

February 2024

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## I. INTRODUCTION

Plastic pollution is one of the most serious environmental crises facing the world today. Between 1950 and 2015, over 90% of plastics were landfilled, incinerated, or leaked into the environment.<sup>1</sup> Plastic waste is ubiquitous—from our rivers, lakes, and oceans to roadways and coastlines. It is in “the air we breathe, the food we eat, and the water we drink.”<sup>2</sup> One study estimates that humans ingest up to five grams or the equivalent of one credit card worth of plastic per week.<sup>3</sup> Some of the largest oil and gas companies are among the 20 petrochemical companies responsible for more than half of all single-use plastics generated globally.<sup>4</sup> ExxonMobil, for example, is the world’s top producer of single-use plastic polymers.<sup>5</sup>

**Underpinning this plastic waste crisis is a decades-long campaign of fraud and deception about the recyclability of plastics.** Despite their long-standing knowledge that recycling plastic is neither technically nor economically viable, petrochemical companies—independently and through their industry trade associations and front groups—have engaged in fraudulent marketing and public education campaigns designed to mislead the public about the viability of plastic recycling as a solution to plastic waste. These efforts have effectively protected and expanded plastic markets, while stalling legislative or regulatory action that would meaningfully address plastic waste and pollution. Fossil fuel and other petrochemical companies have used the false promise of plastic recycling to exponentially increase virgin plastic production over the last six decades, creating and perpetuating the global plastic waste crisis and imposing significant costs on communities that are left to pay for the consequences.

Big Oil and the plastics industry—which includes petrochemical companies, their trade associations, and the front groups that represent their interests—should be held accountable for their campaign of deception much like the producers of tobacco, opioids, and toxic chemicals that engaged in similar schemes. This report lays the foundation for such a claim.

- **Part II** provides an overview of the well-established technical and economic limitations of plastic recycling.
- **Part III** describes how—in response to repeated waves of public backlash against plastic waste and subsequent threats of regulation—the plastics industry has “sold” plastic recycling to the American public to sell plastic.
- **Part IV** outlines the evidence of the plastics industry’s fraudulent and deceptive campaigns, which are more fully detailed in Appendix C.

Petrochemical companies and the plastics industry should be held liable for their coordinated campaign of deception and the resulting harms that communities are now facing. True accountability will put an end to the industry’s fraud of plastic recycling and open the door to real solutions to the plastic waste crisis that are currently out of reach.

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1 Roland Geyer, et al., *Production, Use, and Fate of All Plastics Ever Made*, 3 SCIENCE ADVANCES 2-3 (2017), <https://www.science.org/doi/10.1126/sciadv.1700782>.

2 WWF, NO PLASTIC IN NATURE: ASSESSING PLASTIC INGESTION FROM NATURE TO PEOPLE 6-7 (2019), [https://wwfint.awsassets.panda.org/downloads/plastic\\_ingestion\\_web\\_spreads\\_1.pdf](https://wwfint.awsassets.panda.org/downloads/plastic_ingestion_web_spreads_1.pdf).

3 Kala Senathirajah, et al., *Estimation of the Mass of Microplastics Ingested - A Pivotal First Step Towards Human Health Risk Assessment*, 404 JOURNAL OF HAZARDOUS MATERIALS 11 (2021), <https://www.sciencedirect.com/science/article/abs/pii/S0304389420319944>.

4 See Minderoo Foundation, THE PLASTIC WASTE MAKERS INDEX: REVEALING THE SOURCE OF THE SINGLE-USE PLASTICS CRISIS 12, 14 (2021), <https://cdn.minderoo.org/content/uploads/2021/05/27094234/20211105-Plastic-Waste-Makers-Index.pdf>; Minderoo Foundation, THE PLASTIC WASTE MAKERS INDEX 2023 18, 57 (2023), <https://cdn.minderoo.org/content/uploads/2023/02/04205527/Plastic-Waste-Makers-Index-2023.pdf>.

5 Minderoo Foundation, PLASTIC WASTE MAKERS INDEX 2023, *supra* note 4, at 57.

## II. THE MAJORITY OF PLASTICS CANNOT BE RECYCLED— THEY NEVER HAVE BEEN AND NEVER WILL BE

Plastics are part of a sector known as “petrochemicals,” or products made from fossil fuels such as oil and gas.<sup>6</sup> More than 99% of plastics are produced from fossil fuels.<sup>7</sup> There are “thousands of different types of plastic, each with its own chemical composition and characteristics.”<sup>8</sup> The vast majority of these plastics cannot be “recycled”—meaning they cannot be collected, processed, and remanufactured into new products.<sup>9</sup> As of 2021, the U.S. recycling rate for plastic is estimated to be only 5-6%.<sup>10</sup> Despite decades of industry promises, plastic recycling has failed to become a reality due to long-known technical and economic limitations.<sup>11</sup>

First, certain types of plastics have no end markets (i.e., businesses that buy and use recyclable materials to make new products), and therefore are *impossible* to recycle. To date, viable markets only exist for polyethylene terephthalate (PET) and high density polyethylene (HDPE) plastic bottles and jugs.<sup>12</sup> These are known as plastics #1 and #2, respectively, under the industry’s Resin Identification Codes (RICs).<sup>13</sup> After conducting a 10-year review on plastic recycling, in 1991, the U.S. Environmental Protection Agency (EPA) concluded that “it appears that at the present only two types could be considered for making into high quality objects, PET and HDPE,” specifically those sourced from bottles.<sup>14</sup> This remains true more than 30 years later.<sup>15</sup> While a minority of municipal recycling programs across the country may collect plastics with RICs #3-7, they do not actually recycle them.<sup>16</sup> Instead, such plastics are incinerated or sent to landfills.

6 See James G. Speight, *THE REFINERY OF THE FUTURE 1* (2011), <https://www.sciencedirect.com/science/article/abs/pii/B9780815520412100013> (“A petrochemical is any chemical derived from petroleum and natural gas and used for a variety of commercial purposes as distinct from fuels that are burned to release energy.”).

7 Center for International Environmental Law (CIEL), *FUELING PLASTICS: FOSSILS, PLASTICS, AND PETROCHEMICAL FEEDSTOCKS 1* (2017), <https://www.ciel.org/wp-content/uploads/2017/09/Fueling-Plastics-Fossils-Plastics-Petrochemical-Feedstocks.pdf>.

8 Professor Plastics, *Types of Plastic: How Many Kinds of Plastics are There?*, PLASTICS MAKE IT POSSIBLE (Jan. 18, 2012), available at <https://web.archive.org/web/20220611222514/https://www.plasticsmakeitpossible.com/about-plastics/types-of-plastics/professor-plastics-how-many-types-of-plastics-are-there/> (archived June 11, 2022).

9 U.S. EPA, *The U.S. Recycling System*, <https://www.epa.gov/circulareconomy/us-recycling-system> (last visited Oct. 26, 2023) (“In the United States, recycling is the process of collecting and processing materials (that would otherwise be thrown away as trash) and remanufacturing them into new products.”).

10 Beyond Plastics & The Last Beach Cleanup, *THE REAL TRUTH ABOUT THE U.S. PLASTICS RECYCLING RATE 3* (2022), <https://static1.squarespace.com/static/5eda91260bbb7e7a4bf528d8/t/62b2238152acae761414d698/1655841666913/The-Real-Truth-about-the-US-Plastic-Recycling-Rate-2021-Facts-and-Figures-5-4-22.pdf>.

11 The plastic recycling rate in the U.S. has never exceeded the 2014 peak of 9.5%, and even that figure includes a significant amount of exported plastic waste that was dumped or burned rather than recycled. *Id.*; John Hocoever, *CIRCULAR CLAIMS FALL FLAT: COMPREHENSIVE U.S. SURVEY OF PLASTICS RECYCLABILITY 7* (2020), <https://www.greenpeace.org/usa/wp-content/uploads/2020/02/Greenpeace-Report-Circular-Claims-Fall-Flat.pdf>.

12 John Hocoever, *supra* note 11, at 7.

13 Brad Kelechava, *Resin Identification Codes (RICs), as Specified by ASTM D7611*, AMERICAN NATIONAL STANDARDS INSTITUTE (Feb. 21, 2019), <https://blog.ansi.org/2019/02/resin-identification-codes-rics-astm-d7611/>.

14 U.S. EPA, *TEN YEAR REVIEW OF PLASTICS RECYCLING 22* (1991), <https://semspub.epa.gov/work/03/17184.pdf>.

15 John Hocoever, *supra* note 11, at 4 (“Only some PET #1 and HDPE #2 plastic bottles and jugs can be legitimately labeled as recyclable in the U.S. today”); see also Greenpeace, *Circular Claims Fall Flat Again: 2022 Update 27-29* (2022), [https://www.greenpeace.org/usa/wp-content/uploads/2022/10/GPUS\\_FinalReport\\_2022.pdf](https://www.greenpeace.org/usa/wp-content/uploads/2022/10/GPUS_FinalReport_2022.pdf) (estimating that the existing domestic capacity for recycling/reprocessing PET waste is 20.9% and HDPE is 10.3%, while the capacity to recycle other plastics ranges from “negligible” to less than 5%).

16 John Hocoever, *supra* note 11 at 4, 7-9; Greenpeace, *supra* note 15, at 3-4. For example, the City of Knoxville, Tennessee, states on its website that its recycling facility will collect plastics #3-7, but it does not recycle them because “there is no ‘end-market’ buyer.” City of Knoxville, *Recycling*, <https://www.knoxvillemtn.gov/cms/One.aspx?portalId=109562&pageId=200229> (last visited Oct. 26, 2023).

### Definitions of Mechanical Recycling and “Advanced Recycling”

“Mechanical recycling” is the process of recovering plastic waste through mechanical processes—including sorting, washing, grinding, melting, and reprocessing—to form a new plastic product.

“Advanced recycling,” also referred to as “chemical recycling,” is an industry-created term used to describe a category of technologies that break plastics down to their chemical components, usually through exposure to extreme heat or chemical solvents. Some types of “advanced recycling” may produce materials capable of being reprocessed into new plastic (plastic-to-plastic)—however, the majority of these processes produce waste or fuel (plastic-to-fuel), which do not qualify as recycling. As such, plastics cannot be meaningfully recycled through either method.

Second, the thousands of different plastics and the *variation* among them further limit recyclability. When recycling plastic waste, a facility must sort and separate thousands of pieces of plastic by type to maintain a high degree of purity in the recycled material.<sup>17</sup> For this reason, some types of plastic may be technically recyclable but are not recycled in practice. For example, many single-use plastics are made of different types of plastic polymers as well as other materials, such as paper, metals, or adhesives.<sup>18</sup> It is impractical—if not impossible—to separate these different components for recycling.<sup>19</sup>

Even products made of a single type of plastic often cannot be recycled together, because they include different chemical additives or colorants.<sup>20</sup> For example, PET is widely accepted by municipal recycling programs, yet PET bottles cannot be recycled with PET clamshells and other thermoforms, which are made from a PET material with different chemical properties.<sup>21</sup> Similarly, green PET bottles cannot be recycled with clear PET bottles.<sup>22</sup> As with mechanical recycling, plastic-to-plastic “advanced recycling” requires a pure, high-quality feedstock to create valuable output, but the separation required to obtain such purity is technically difficult and economically infeasible.<sup>23</sup>

Third, the *quality* of plastic degrades as it is recycled, limiting both the use of recycled plastic and its continued recyclability. The fossil fuel-derived chemicals that form the basis of plastic are vulnerable to heat and other processes used in recycling.<sup>24</sup> As the chemicals degrade, they lose their quality and integrity, making recycled resins unsuitable for many manufacturers.<sup>25</sup>

17 Judith Enck & Jan Dell, *Plastic Recycling Doesn't Work and Will Never Work*, THE ATLANTIC (May 30, 2022), <https://www.theatlantic.com/ideas/archive/2022/05/single-use-plastic-chemical-recycling-disposal/661141/>.

18 See Jefferson Hopewell et al., *Plastics Recycling: Challenges and Opportunities*, 364 PHILOS. TRANS. R. SOC. LOND. B BIOL. SCI. 2115, 2118 (2009), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2873020/>.

19 *Id.*

20 Judith Enck & Jan Dell, *supra* note 17.

21 *Id.*

22 *Id.*; see also Becky Sullivan, *Sprite Ditches its Iconic green bottle—but Environmentalists Say it's Not Enough*, NPR (July 28, 2022), <https://www.npr.org/2022/07/28/1114242535/sprite-green-bottles-recycle>.

23 See Lee Bell, BEYOND PLASTICS & IPEN, CHEMICAL RECYCLING: A DANGEROUS DECEPTION 154 (Oct. 2023), <https://www.beyondplastics.org/publications/chemical-recycling>.

24 See Huiying Jin et al., *The effect of extensive mechanical recycling on the properties of low density polyethylene*, 97 POLYMER DEGRADATION AND STABILITY 2263 (2012), <https://www.sciencedirect.com/science/article/abs/pii/S0141391012003114> (“[P]roperties of mechanically recycled polymers do not remain the same because of degradation from heat, mechanical stress, oxidation and ultraviolet radiation during reprocessing and lifetime”).

25 See Sarah DeWeerd, *Why It's So Hard to Recycle Plastic*, SCIENTIFIC AMERICAN (Dec. 13, 2022), <https://www.scientificamerican.com/article/why-its-so-hard-to-recycle-plastic/>.

The reality is that plastics can only be recycled—or more accurately “downcycled”—once, rarely twice.<sup>26</sup> For this reason, plastics have a linear rather than circular lifespan—when viable, recycling provides only a brief delay on their inevitable journey to landfills, incinerators, or the environment.

Fourth, the *toxicity* of plastic and its chemical additives limits the recyclability of plastic. Many plastics commonly contain toxic additives such as stabilizers, plasticizers, coatings, catalysts, and flame retardants.<sup>27</sup> Plastic waste may be further contaminated through curbside collection of containers for pesticides, cleaning solvents, and other household items.<sup>28</sup> As plastics degrade through use and the recycling process, they begin to leach these toxic substances.<sup>29</sup> For this reason, a vast majority of plastic products cannot be recycled into food-grade packaging, food-contact surfaces, or other high-contact products.<sup>30</sup>

Finally, the *cost* of producing recycled plastic is much higher than producing virgin plastic, and therefore plastic recycling is not economically viable. The recycling process—from collection to sorting to processing to transport—requires more time, labor, and equipment to achieve a lower quality and less efficient output than the process of making virgin resin from fossil fuels.<sup>31</sup> The petrochemical companies’ increased production of virgin resins further ensures that recycled resins cannot compete and that plastic recycling is not economically viable.<sup>32</sup> “Advanced recycling” requires many of these same processes, plus additional treatment, making it even more costly.<sup>33</sup> A 2023 study estimated that resins recovered through plastic-to-plastic “advanced recycling” are 1.6 times more expensive than virgin resins.<sup>34</sup> “Advanced recycling” is also inefficient. Only 1-14% of plastic material that is processed through “advanced recycling” can be used to manufacture a new plastic product.<sup>35</sup> The remaining 86-99% is used to fuel the advanced recycling system or turned into oil or waste products.<sup>36</sup>

For decades, petrochemical companies and the plastics industry have known of the technical and economic limitations that make plastics unrecyclable and have failed to overcome them. Despite this knowledge, the plastics industry has continued to increase plastic production, while carrying out a well-coordinated campaign to deceive consumers, policymakers, and regulators about plastic recycling.

26 See Roland Geyer et al., *supra* note 1, at 2-3.

27 See Ksenia J. Groh, et al., *Overview of known plastic packaging-associated chemicals and their hazards*, 651 SCI. OF THE TOTAL ENV. 3253, 3257, 3261-63 (2019), <https://www.sciencedirect.com/science/article/pii/S0048969718338828>.

28 Greenpeace, *FOREVER TOXIC: THE SCIENCE ON HEALTH THREATS FROM PLASTIC RECYCLING 4* (2023), [https://www.greenpeace.org/usa/wp-content/uploads/2023/05/GreenpeaceUSA\\_ForeverToxic\\_ENG.pdf](https://www.greenpeace.org/usa/wp-content/uploads/2023/05/GreenpeaceUSA_ForeverToxic_ENG.pdf).

29 *Id.*

30 See Environment & Climate Change Canada, *ASSESSING THE STATE OF FOOD GRADE RECYCLED RESIN IN CANADA AND THE UNITED STATES*, 4, 34 (2021), [https://www.plasticsmarkets.org/jsfcontent/ECCC\\_Food\\_Grade\\_Report\\_Oct\\_2021\\_jsf\\_1.pdf](https://www.plasticsmarkets.org/jsfcontent/ECCC_Food_Grade_Report_Oct_2021_jsf_1.pdf).

31 See Judith Enck & Jan Dell, *supra* note 17.

32 See Matthew Taylor, *\$180bn Investment in Plastic Factories Feeds Global Packaging Binge*, *GUARDIAN* (Dec. 26, 2017), <https://www.theguardian.com/environment/2017/dec/26/180bn-investment-in-plastic-factories-feeds-global-packaging-binge>.

33 See Jefferson Hopewell et al., *supra* note 18, at 2118; see also K.F. Drain et al., *Polymer Waste-Resource Recovery*, 4 CONSERVATION & RECYCLING 201, 216 (1981) (on file with CCI #724.16) (“Whether full-scale pyrolysis plants are built depends on the same constraints that bedevil all plastics recycling: continuity of feed . . . development of markets . . . and the overall economics of the process.”); Jared Paben, *The big issues in chemical recycling? They’ll sound familiar*, *PLASTICS RECY. UPDATE* (Feb. 26, 2020), <https://resource-recycling.com/plastics/2020/02/26/the-big-issues-in-chemical-recycling-theyll-sound-familiar/> (“Bill Cooper, vice president of Agilyx, a pyrolysis company launched in 2018, said that the traditional process of sorting, separating and cleaning recovered plastics doesn’t work for his company . . . ‘For us, there’s too much cost there, and you end up with feedstock that’s too expensive[.]’”).

34 Geetanjali Yadav, et al., *Techno-Economic Analysis and Life Cycle Assessment for Catalytic Fast Pyrolysis of Mixed Plastic Waste*, 16 ENERGY & ENVIRON. SCI. 3643 (June 5, 2023), <https://pubs.rsc.org/en/content/articlepdf/2023/ee/d3ee00749a> (finding that resins produced from mixed plastic waste through “catalytic fast pyrolysis” cost 1.6 times as much as the virgin product).

35 Taylor Uekert et al., *Technical, Economic, and Environmental Comparison of Closed-Loop Recycling Technologies for Common Plastics*, 11 ACS SUSTAINABLE CHEM. ENG. 965, 969 (2023), <https://pubs.acs.org/doi/pdf/10.1021/acssuschemeng.2c05497>.

36 See *id.*

### III. PETROCHEMICAL COMPANIES CREATED AND PERPETUATED RECYCLING AS A FALSE SOLUTION TO PLASTIC WASTE MANAGEMENT

The world's leading petrochemical companies created the plastic waste crisis. Facing growing public backlash against plastic waste and subsequent threats of regulation, the plastics industry has employed a familiar playbook for more than 50 years to escape accountability. Petrochemical companies—independently and through industry trade associations and front groups—have deceived consumers, policymakers, and regulators into believing that they could address the plastic waste crisis through a series of false solutions.

First, the industry promoted landfilling and incineration to hide the plastic from view. But it quickly became clear that these disposal options would not placate a public frustrated by a flood of disposable plastics. People did not want more landfills, did not want incineration, and did not want plastic in the environment. This public outcry led to calls for bans on single-use plastics. To protect their markets, the petrochemical companies began a decades-long, coordinated effort to sell the public on plastic recycling—despite their knowledge that it was neither technically nor economically viable.

Petrochemical companies and the plastics industry continue to employ this same strategy today, using a multi-faceted public relations campaign to sell “advanced recycling” to the public. Yet, a growing body of evidence confirms that the majority of plastic recycling—in any form—is not viable now and never has been. The petrochemical companies responsible for promoting this deception should be held accountable.

#### A. The plastics industry sold the public on disposability (1950s to 1960s)

Beginning in the 1950s, the petrochemical companies that produced plastic resins identified a way to ensure a steady, growing demand for plastic: disposability. If plastic products were used only once, then they would need to be purchased—and thus produced—again and again. At the Society of the Plastics Industry's (SPI) 1956 national conference, participants were told that “developments should be aimed at low cost, big volume, practicability, and *expendability*.”<sup>37</sup> In short, the producers' aim should be for their products to end up “in the garbage wagon.”<sup>38</sup>

The shift to disposables began almost immediately—even for products that had previously been sold to customers on the basis that they could be repurposed.<sup>39</sup> Plastic dry cleaning bags were advertised as durable and reusable throughout the 1950s,<sup>40</sup> but the industry quickly changed tack in 1959 after around 80 children suffocated on plastic dry cleaner bags, leading to immense public backlash against the industry and some of the earliest calls for plastic bans.<sup>41</sup> SPI launched a nationwide public relations campaign, claiming that the bags were meant to

37 *Plastics in Disposables and Expendables*, 34 MODERN PLASTICS 93 (Apr. 1957) (on file with CCI #984.97) (emphasis in original).

38 *Id.*

39 Jeffrey L. Meikle, AMERICAN PLASTIC: A CULTURAL HISTORY 266-67 (Rutgers University Press 1995), [https://www.google.com/books/edition/American\\_Plastic/u\\_1ePU4GEGAC?hl=en&gbpv=0](https://www.google.com/books/edition/American_Plastic/u_1ePU4GEGAC?hl=en&gbpv=0) (chronicling the shift to disposables). The industry's earlier campaigns promoting plastic as durable have also been chronicled. *See id.* at 186-88; Susan Freinkel, PLASTIC: A TOXIC LOVE STORY 145 (2011).

40 *See This Bag Spells Business*, 50 DUPONT MAGAZINE 24, 25 (Feb/Mar. 1956), [https://digital.hagley.org/1956\\_50\\_01](https://digital.hagley.org/1956_50_01) (quoting the general manager of a Providence, Rhode Island dry cleaning company who explained that the film bags combined “maximum transparency as well as the necessary durability.” That durability, the article went on to say, allowed consumers to find additional uses for the bags even after they had received their laundered clothes, stating, “Bags of ‘Alathon’ are reusable, too, as housewives have discovered”).

41 Susan Freinkel, *supra* note 39, at 142-43.

be disposable, essentially shifting the blame to the children’s parents—and it worked.<sup>42</sup> This campaign served as a mechanism to insulate the industry from public and regulatory backlash while simultaneously introducing consumers to the idea of disposable plastics. An SPI pamphlet from 1959 (**Figure 1**) explained that customers should “never keep a plastic bag after it has served its intended usefulness. Destroy it: Tear it up ... or tie it in a knot ... and throw it away.”<sup>43</sup> To do otherwise “is the worst mistake a mother could make.”<sup>44</sup>



**Figure 1**

The Society of the Plastics Industry encouraged consumers to dispose of plastic dry-cleaning bags. SPI, 1959.

The plastics industry’s successful navigation of this crisis—and the corresponding threat of plastic bans—provided a model for the future, both in the way the industry would respond to backlash and the way it would insist on disposability by offering customers no alternative.<sup>45</sup> Even as consumers resisted the shift to single-use plastics, which they found jarring after being told since the 1930s that plastics were too valuable to be thrown away, the plastics industry successfully expanded into new markets—especially single-use packaging—at an unprecedented pace. In 1960, packaging represented just 10% of total plastic production, but amounted to 25% by the end of the decade.<sup>46</sup> By that point, disposable plastics had become the norm for everything from detergent bottles and containers for yogurt and cottage cheese to bread bags, meat trays, plastic milk jugs, and plastic rings for canned beverage six-packs.<sup>47</sup> In 1963, Lloyd Stouffer, editor of the trade journal *Modern Plastics*, congratulated the industry on “filling the trash cans, the rubbish dumps and the incinerators” with single-use plastics.<sup>48</sup> “The happy day has arrived,” Stouffer opined, “when nobody any longer considers the plastics package too good to throw away.”<sup>49</sup>

## B. The plastics industry promoted incineration and landfilling as “solutions” to plastic waste (late 1960s to 1970s)

The industry’s success in “selling” disposability and introducing single-use plastics had predictable consequences. By the end of the decade and into the early 1970s, plastics were identified as a key part of the developing solid waste crisis. Industry insiders denied culpability and claimed they were being unfairly targeted because of the visibility of plastic litter—an argument that has been repeated over the decades.<sup>50</sup> But that visibility was emblematic of two concerns for consumers and policymakers: plastic litter represented a blight on the environment, as well as an indicator the country was failing to properly use and conserve its resources. Just a few years after praising the plastics industry for generating a new and steady stream of disposable

42 Jeffrey L. Meikle, *supra* note 39, at 249-58; see also Hiram McCann, *Hazards in Film Misuse Must Be Taught Parents*, 36 MODERN PLASTICS 262 (June 1959) (on file with CCI #1356.264) (explaining that the bags were “made and costed to be disposable” and lamenting that items ranging from cars to cleaning fluids “kill children every day,” but in those cases “[a]dults are blamed—mainly parents. And rightly so”).

43 Society of the Plastics Industry (SPI), *PLASTIC FILM: CORRECT USE AND MIS-USE 2* (1959) (on file with CCI #896.3).

44 *Id.* at 3 (CCI #896.4).

45 Jeffrey L. Meikle, *supra* note 39, at 249-58.

46 *Id.* at 266.

47 *Id.* at 265-66.

48 See Rebecca Altman, *American Beauties: How Plastic Bags Came to Rule Our Lives, And Why We Can't Quit them*, TOPIC (2018), available at <https://web.archive.org/web/20191113102708/https://www.topic.com/american-beauties> (archived Nov. 13, 2019) (on file with CCI #4817.8) (quoting Lloyd Stouffer, *Plastics Packaging: Today and Tomorrow*, SPI Annual Plastics Conference (Nov. 19-21, 1963)).

49 *Id.*

50 See, e.g., Doug Smock, *Apple Pie, Motherhood, and Bans on Foam Cups*, 46(2) PLASTICS WORLD 9 (Feb. 1988), [https://archive.org/details/sim\\_automotive-plastics\\_1988-02\\_46\\_2](https://archive.org/details/sim_automotive-plastics_1988-02_46_2) (on file with CCI #4833.1) (“Plastics generally are being subjected to a lot of bad legislation right now only because they are the most visible source of pollution.”).

plastics, *Modern Plastics* warned companies that the industry needed to figure out a solution to the pushback they were experiencing before “well meaning but misinformed authorities step in with homemade remedies and regulations.”<sup>51</sup>

Again facing immense public backlash and a genuine threat of regulation,<sup>52</sup> the plastics industry responded with two “solutions.” The first, in response to concerns about litter, was landfilling. Throughout the 1970s, SPI officials argued that plastics were an ideal material for landfilling since “they don’t biodegrade,” they “just sit there.”<sup>53</sup> But the industry favored waste-to-energy (WtE) incineration, which theoretically addressed both concerns by offering the potential to rid the environment of plastic pollution while enabling resource recovery. With landfilling, a Dow Chemical employee explained in 1969, “the problem is merely moved from one place to another.”<sup>54</sup> WtE, by contrast, presented “the most practical solution” to the build-up of plastic waste,<sup>55</sup> replacing one environmental consequence of plastic waste with a less visible one.

Support for WtE was reinforced by individual companies and trade associations representing the industry throughout the decade.<sup>56</sup> At the Packaging Institute’s annual forum in 1971, Judd H. Alexander of the American Can Company spoke to the public’s concerns about plastic packaging, stating, “Recycle plastic packaging? An excellent idea. But let’s recycle it into energy.”<sup>57</sup> He emphasized the inefficiencies of recycling: “I think it would be false economy to recycle plastics by separation, classification, cleaning, transportation, *and* reprocessing when they could have a valuable second use right at the disposal site as an energy source.”<sup>58</sup> As SPI President Ralph Harding, Jr. explained, “we’d rather see plastics . . . go into a municipal power incinerator which was a power plant.”<sup>59</sup>

### C. The plastics industry promoted recycling in response to public backlash (mid-1980s)

These so-called solutions provided little reprieve for the plastics industry. Neither landfilling nor incineration sufficiently assuaged public concerns or regulatory pressure, and the industry again found itself facing proposed bans on single-use plastics in the mid-1980s. This time, it adopted a solution that it knew was popular among consumers and policymakers alike: recycling. SPI established the Plastics Recycling Foundation (PRF), bringing together petrochemical

51 Jeffrey L. Meikle, *supra* note 39, at 265 (quoting Joel Frados, *There’s Something in the Air*, 4 MODERN PLASTICS 89 (Oct. 1966)).

52 See Jerome Heckman, General Counsel, SPI, Presentation at the Meeting of the SPI Plastics Waste Management Committee: Solid Waste and Litter: Legislative Status and Outlook—1972 (Mar. 1, 1972), available at <https://cdn.toxicdocs.org/8R/8Rq8Namx-l3mzogeIjEG7N0pzm/8Rq8Namx-l3mzogeIjEG7N0pzm.pdf> (on file with CCI #5133.5) (claiming that, at the time of the presentation in 1972, there were over “a thousand regulatory proposals . . . at various governmental levels which could adversely affect the interests of the plastics industry”); Lester E. Blaschke, *Analysis of the Resource Recovery Act of 1970 and Its Effect on Implementation of Solid Waste Management Programs*, 34 J. ENVTL. HEALTH 89, 89 (1971), <https://www.jstor.org/stable/44545882> (describing the passage of the Resource Recovery Act in 1970, as an EPA official, represented “a significant shift in emphasis from ‘disposal’ to ‘recycling and recovery of materials and energy’”).

53 Radio Interview with Ralph Harding, President of the Society of the Plastics Industry, in Atlanta, Georgia (n.d.) (transcript on file with CCI #3158.8).

54 Thomas B. Becnel, *Wastes from Plastic Packages*, in FIRST NATIONAL CONFERENCE ON PACKAGING WASTES: PROCEEDINGS, Sept. 22-24, 1969 85, 87 (1971) (on file with CCI #4510.105).

55 *Id.* at 88 (CCI #4510.106).

56 Jeffrey L. Meikle, *supra* note 39, at 272; see also, e.g., Internal Memorandum from Avron B. Magram, Hatco Chemical Division, W.R. Grace Company on PVC/Ecology (May 11, 1971), available at <https://cdn.toxicdocs.org/pe/peX25LzXyN4nbMM8dO6DlZa66/peX25LzXyN4nbMM8dO6DlZa66.pdf> (on file with CCI #5132) (discussing relevant research and updates regarding PVC incineration from January 1970 to May 1971).

57 Judd H. Alexander, Vice President Marketing-General Packaging, American Can Company, Keynote Address at the Packaging Institute’s 33rd Annual Forum, *Packaging the Silent Servant: Silent too Long* 5 (Oct. 4, 1971) (on file with CCI #839.7).

58 *Id.*

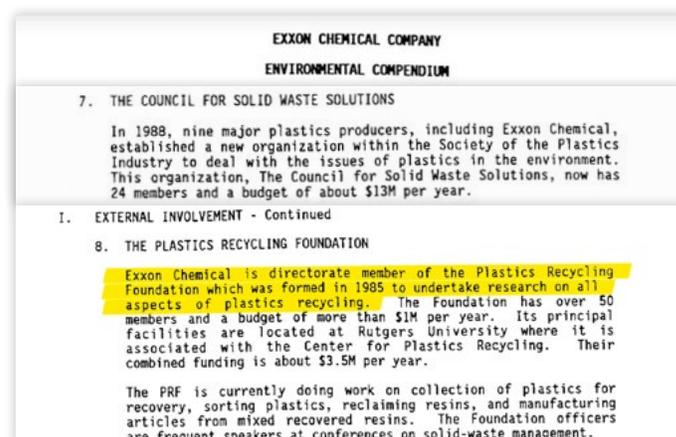
59 Radio Interview with Ralph Harding, *supra* note 53 (CCI #3158.9). In a statement made “on behalf of the plastics industry,” a member of SPI’s Public Affairs Council assured readers that, while incineration did give off “carbon dioxide in the form of black smoke,” it was, “of course, nontoxic.” E. S. Nuspliger, *Letters to the Editor: Plastics in the Environment*, 35 AMERICAN BIOLOGY TEACHER 230, 230 (1973), <https://online.ucpress.edu/abt/article-abstract/35/4/230/2694/A-Much-Deeper-Issue>.

companies and bottlers (**Figure 2**), and PRF immediately began a campaign to demonstrate the industry's supposed commitment to mechanical recycling.<sup>60</sup> For example, in 1984, when New Jersey was considering a recycling bill that would have imposed restrictions on disposable plastics, SPI used PRF to convince lawmakers that they were working toward mechanical recycling as a solution to plastic waste, allowing them “to deflect some harsh, restrictive language singling out plastic as a difficult material to collect and recycle.”<sup>61</sup>

But industry support did little to change the basic problem: plastics *were* notoriously difficult to recycle, as the industry had known for years. Doubts about the viability of municipal solid waste recycling in general went back decades. As the American Chemical Society explained in 1969, “it is always possible that scientists and engineers will learn to recycle or dispose of wastes at a profit, but that does not seem likely to happen soon on a broad basis.”<sup>62</sup> Plastics presented the greatest challenge of any material in the municipal waste stream.

Crucially, the term “plastics” refers to a set of related synthetic polymers, not a single material. As described in Part II, different types of plastic cannot be recycled together, even when separating out those that cannot be recycled at all (including thermoset polymers like polyurethanes and vulcanized rubber). For example, a PET bottle cannot be recycled with an HDPE bottle, however similar they appear. Further complicating matters, many plastic products are made by incorporating various additives, as well as mixing different polymers to take advantage of their distinct qualities. As explained by researchers in 1969, “[t]he very success of package makers in marrying dissimilar materials has made packaging materials virtually unrecoverable after use.”<sup>63</sup>

As a result, the economics of plastic recycling were—and still are—“virtually hopeless,” as one industry insider put it in 1969.<sup>64</sup> When industry began to promote mechanical recycling in the 1980s, recovery from the municipal waste stream required extensive—and expensive—infrastructure that was not in place, sorting technologies were woefully inadequate to handle the wide variety of plastics, and recycling facilities would need to be built without any guarantee that they would ever see a return. The cost of collecting, sorting, cleaning, processing, and more would have to be borne by someone—namely municipalities and taxpayers.



**Figure 2**

Exxon Chemical, a member of the Society of the Plastics Industry, acknowledged its support for organizations like the Plastics Recycling Foundation and the Council for Solid Waste Solutions in its Environmental Compendium. Exxon, 1990 (*emphasis added*).

60 See Leo H. Carney, *The Environment*, N.Y. TIMES (Sept. 15, 1985) <https://www.nytimes.com/1985/09/15/nyregion/the-environment.html>; see also Judie Neilson, Oregon Dep't of Fish & Wildlife *The Oregon Experience*, in NOAA, PROCEEDINGS OF THE WORKSHOP ON THE FATE AND IMPACT OF MARINE DEBRIS 154, 158 (Richard S. Shomura & Howard O. Yoshida eds., 1985), <https://repository.library.noaa.gov/view/noaa/5680> (noting that “the Society for the Plastics Industry has allocated \$5 million to establish a Plastic Recycling Foundation and Institute to aggressively pursue methods to make it economically feasible to recycle plastic in large quantities”).

61 Letter from Roger Bernstein, Society of the Plastics Industry, to the New Jersey Task Force State Government Affairs Committee, New Jersey's Mandatory Recycling Bill 2 (Dec. 20, 1984), available at <https://www.toxicdocs.org/d/rpQVOR8obVNLbN-5R69K0EJ5p?lightbox=1> (on file with CCI #4147.2).

62 ACS Committee on Chemistry & Public Affairs, *Cleaning Our Environment—The Chemical Basis for Action*, in C&E NEWS, at 58, 60 (Sept. 8, 1969), available at <https://cdn.toxicdocs.org/6b/6bL0mw81KLQjwzb0RQ9mEadx6/6bL0mw81KLQjwzb0RQ9mEadx6.pdf> (on file with CCI #4516.4).

63 Arsen J. Darnay & William E. Franklin, *The Changing Dimensions of Packaging Wastes*, in FIRST NATIONAL CONFERENCE ON PACKAGING WASTES, *supra* note 54, at 11, 16 (on file with CCI #4510.30); see also Thomas B. Becnel, *supra* note 54, at 85 (CCI #4510.103) (stating that “it is ironic that the very molecular structure that has made [plastic] so popular creates certain disposal problems”).

64 Eric B. Outwater, *Packaging - U.S.A.*, in FIRST NATIONAL CONFERENCE ON PACKAGING WASTES, *supra* note 54, at 1, 7 (CCI #4510.21).

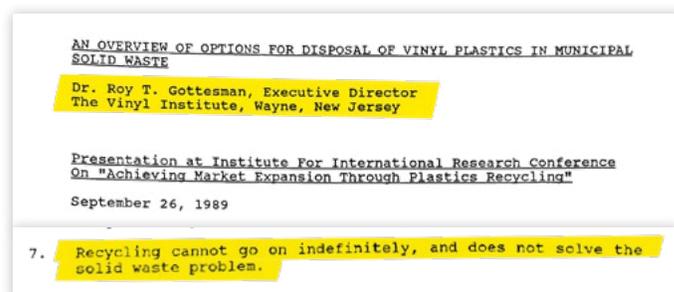
Still, the greatest obstacle to plastic recycling was that no market existed for the final product. Recycled plastic was more expensive and of lower quality than virgin resins. This was, in part, intrinsic to the material. Even under ideal conditions, plastics experienced “a degradation of resin properties and performance . . . during the initial fabrication, through aging, and in any reclamation process,” as explained in a 1973 report commissioned by SPI.<sup>65</sup> As a direct result of these limitations, few manufacturers had any interest in purchasing recycled resins.<sup>66</sup> According to the SPI report, “[r]ecycling of plastics from [municipal sources of plastic waste] poses the greatest challenge,” because “there are no effective marketing mechanisms for trade in contaminated, mixed plastics.”<sup>67</sup> The report was definitive: “When plastics leave fabrication points, they are almost never recovered. There is no recovery from obsolete products.”<sup>68</sup>

Further, the companies had no incentive to support the creation of a market in recycled plastics—and had a vested interest in it *not succeeding* since it could undercut the demand for and profitability of their virgin resins. As Tom Rattray, a retired industry insider and recycling expert, explained in 1996, petrochemical companies and resin producers viewed recycling as “internal competition. They don’t want to see it succeed.”<sup>69</sup>

#### D. The plastics industry faced an existential crisis—“recycle or be banned” (mid-1980s to mid-1990s)

Prior to 1980, the plastics industry consistently reached the same conclusion when it explored the possibility of recycling plastic from the municipal waste stream: mechanical recycling was technically and economically infeasible. Even in the select instances where the technology existed, industry experts were clear that it would not work for the vast majority of plastic products.

In 1986, an industry trade association acknowledged that the situation was virtually the same as it had been decades prior. The Vinyl Institute (VI), a spin-off organization of SPI, explained in a report that “purity and quality demands set for many applications preclude the use of recycled material.”<sup>70</sup> As the organization’s founding director, Roy Gottesman, explained to attendees of an industry conference in 1989 (**Figure 3**), “Recycling cannot go on indefinitely, and does not solve the solid waste problem.”<sup>71</sup> Even if technical obstacles could be overcome, the 1986 VI report explained, the market remained a serious issue, since “supply far outstrips demand for recycled product.”<sup>72</sup>



**Figure 3**

The executive director of the Vinyl Institute shared “key considerations to be made when considering recycling” with other members of the plastics industry. *Gottesman, 1989 (emphasis added).*

65 R.L. Glauz, et al., *THE PLASTICS INDUSTRY IN THE YEAR 2000* 41 (1973), Box 12, Jack Milgrom Papers, Special Collections Research Center, Syracuse University Libraries (on file with CCI #825.25) (prepared by researchers at the Stanford Research Institute for SPI).

66 *Id.*

67 *Id.*

68 *Id.*

69 Elisabeth M. Kirschner, *Recycling’s Rough Adolescence*, C&E NEWS 20 (Nov. 4, 1996), <https://p2infohouse.org/ref/30/29449.pdf>.

70 Vinyl Institute, *SOLID WASTE FACT SHEET—DRAFT 5* (July 18, 1986), available at <https://cdn.toxicdocs.org/6w/6wr0N7GOd-Vw85VaozkQqZp3M9/6wr0N7GOdVw85VaozkQqZp3M9.pdf> (on file with CCI #4568.5).

71 Dr. Roy T. Gottesman, Executive Director, Vinyl Institute, Presentation at the Institute for International Research Conference on Achieving Market Expansion Through Plastics Recycling, *An Overview of Options for Disposal of Vinyl Plastics in Municipal Solid Waste* 1 (Sept. 26, 1989), Box No. 5, Jack Milgrom Papers, Special Collections Research Center, Syracuse University Libraries (on file with CCI #788.44).

72 Vinyl Institute, *supra* note 70, at 5.

The VI report further stated that the most effective solution to plastic waste continued to be incineration: “Unlike other components of the waste stream whose useful lives are best extended by recycling, many plastics contribute the most to resource conservation when they are burned for their energy content.”<sup>73</sup> Ultimately, the VI report (Figure 4) concluded, “recycling cannot be considered a permanent solid waste solution, as it merely prolongs the time until an item is disposed of.”<sup>74</sup>

What led the industry to change its position in the 1980s was not a massive technological breakthrough or an answer to the economic roadblocks to plastic recycling. Rather, the plastics industry began to lie about the viability of recycling as a direct result of the backlash they faced from the public. As SPI officials discussed in a 1984 memo on the threat of a recycling bill (Figure 5), although they were able to shape the bill “to reflect the . . . commitment of our industry to move forward” on recycling, “there is no question that the State of New Jersey must see substantial short-term progress in the recycling of plastic containers or else punitive legislation . . . will attack the problem head-on.”<sup>75</sup>

The industry felt the threat of legislative action acutely throughout the 1980s and 1990s. A 1988 bill to ban polystyrene (PS) and polyvinyl chloride (PVC) food packaging in Suffolk County, New York, was frequently painted by the industry as a harbinger of things to come.<sup>76</sup> Just a few years later, industry insiders claimed that there had been upwards of 500 proposals in 1991 related to plastic waste management introduced across all levels of government.<sup>77</sup> Looking back at the early days of this regulatory uptick, a representative from Occidental Chemical testified to Congress in 1992 that there was a “rush to demonstrate environmental purity. . . . The call was to recycle or be banned.”<sup>78</sup>

Consumer demands that plastics be recycled or banned presented the plastics industry with a serious problem. The industry knew that mechanical recycling was not a viable solution—yet renewed concerns about plastic waste and its impact on the environment meant they needed

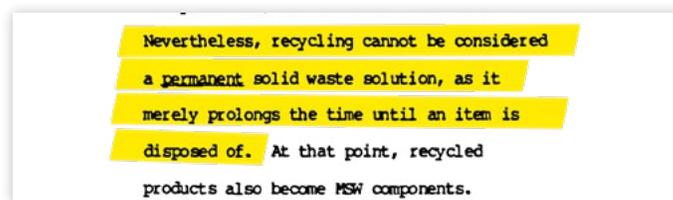


Figure 4

A draft “Solid Waste Fact Sheet,” created by the Vinyl Institute, was stark in its assessment of the viability of recycling to address plastic waste issues. VI, 1986 (emphasis added).

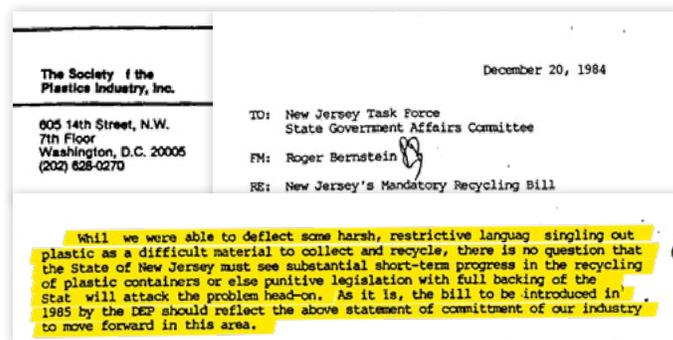


Figure 5

The Society of the Plastics Industry articulating the industry’s support for recycling in the face of potential “punitive legislation” that would attack the plastic waste problem “head-on.” Bernstein, 1991 (emphasis added).

<sup>73</sup> *Id.* at 7.

<sup>74</sup> *Id.* at 2 (emphasis in original).

<sup>75</sup> Letter from Roger Bernstein, *supra* note 61, at 2 (CCI #4147.2). As an SPI employee put it in a different memo, “the NJ Recycling office regards plastics as a problem not shared by competitive materials.” Memorandum from John C. Malloy, Director of Packaging Services, SPI, to Plastic Bottle Institute (Oct. 12, 1984) (on file with CCI #4468.1).

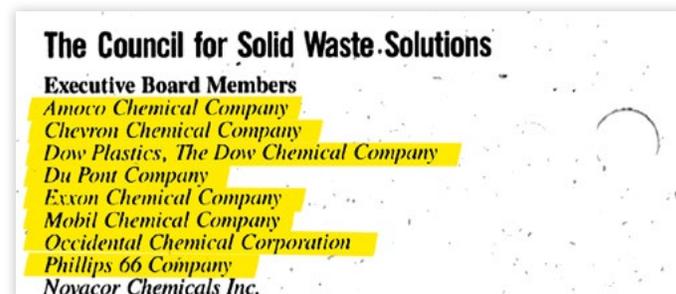
<sup>76</sup> Myra Klockenbrink, *Plastics Industry, Under Pressure, Begins to Invest in Recycling*, N.Y. TIMES (August 30, 1988), <https://www.nytimes.com/1988/08/30/science/plastics-industry-under-pressure-begins-to-invest-in-recycling.html>.

<sup>77</sup> James E. Lohr, Technology Manager, Polymer Recycling, DuPont Polymers, Presenting at ETEX '92: Turn Waste into Profits, *Plastics Waste Management: Keeping the Options Open 2* (Apr. 6-7, 1992), Box No. OS2, Jack Milgrom Papers, Special Collections Research Center, Syracuse University Libraries (on file with CCI #889.6).

<sup>78</sup> *Plastics Recycling: Problems and Possibilities: Hearing Before the Subcomm. on Env't & Emp. of the H. Comm. on Small Bus., 102nd Cong. 121 (1992) (testimony of William F. Carroll, Jr., Ph.D., Director of Commercial Development, Occidental Chemical Corp.) (on file with CCI #3175.124).* The Occidental representative went on to explain the challenge of the situation given the poor state of plastic recycling infrastructure and development: “The plastics industry was made to feel the pressure acutely. Programs for each plastic, and in many cases each grade of plastic, had to be devised and technically proven. Bottles had to be sorted, cleaned, purified and made into pellets for processors.” *Id.*

the public to *believe* recycling could address their concerns, and the industry was invested in its success. The industry took a familiar approach, leaning on its trade associations just as it had in the face of previous crises.<sup>79</sup> SPI's Public Affairs Council (PAC), originally created after SPI successfully defeated a recycling bill in New York City in 1971,<sup>80</sup> served as a model in particular. Initially established as the Plastics Waste Management Fund, PAC brought together 12 petrochemical companies "to fight off restrictive legislation everywhere," in the words of SPI President Ralph Harding, Jr.<sup>81</sup>

Similar trade associations and front groups proliferated during the 1980s and early 1990s. In addition to the Plastics Recycling Foundation and Vinyl Institute, the petrochemical companies, with support from SPI, created a variety of organizations in this brief span,<sup>82</sup> including: the Plastic Bottle Institute (PBI) in the early 1980s; the Center for Plastics Recycling Research (CPRR) at Rutgers University in 1985; the Council on Packaging in the Environment (COPE) in 1986; and the Council for Solid Waste Solutions (CSWS) in 1988 (**Figure 6**), which became known as the Partnership for Plastics Progress (P3) in 1992 before quickly being reorganized as the American Plastics Council (APC).<sup>83</sup> Other trade associations, such as the National Association for PET Container Resources (NAPCOR) and the Flexible Packaging Association (FPA), were established or took on new importance over the same time period. All of these groups had the same directive: defend the plastics industry from restrictive legislation by selling recycling as a viable solution to plastic waste. Or, as Wayne Pearson, the executive director of PRF and long-time marketing director at DuPont, put it in 1988, "No doubt about it, legislation is the single most important reason why we are looking at recycling."<sup>84</sup>



**Figure 6**

The executive board members of the Council for Solid Waste Solutions, including many of the world's largest fossil fuel and petrochemical companies, were listed on the cover of the organization's industry newsletter, *Handlers News*. CSWS, 1991 (emphasis added).

## E. The plastics industry began a coordinated campaign to sell the promise of plastic recycling (mid-1980s to mid-1990s)

The new trade associations and front groups were the face of what Roger Bernstein—an industry veteran who worked for SPI, APC, and the American Chemistry Council over the course of his career—called the petrochemical companies' "strike force."<sup>85</sup> This strategy essentially boiled down to industry throwing money at the recycling problem and seeing what might work. As an APC communications staffer put it in his notes from a January 1994 meeting with

<sup>79</sup> See, e.g., Jerome Heckman, *supra* note 52 (addressing the plastics industry as SPI's general counsel amid fighting proposed taxes on plastic containers and other regulation on plastics in 1972).

<sup>80</sup> *Id.*

<sup>81</sup> Jeffrey L. Meikle, *supra* note 39, at 272-73 (quoting a talk given by Ralph Harding, Jr. entitled "Challenges Facing the Plastics Industry" on December 8, 1971).

<sup>82</sup> These organizations were not necessarily contained within a single umbrella organization. For example, SPI and the Chemical Manufacturers Association both had official roles in the Partnership for Plastics Progress. The board of directors, "made up of the highest level of industry executives," and "function[ed] as a business council under the auspices of the" CMA, while SPI was responsible for "staffing and implementing Partnership programs." Partnership for Plastics Progress, *Introducing the Partnership for Plastics Progress* (Jan. 1992) (on file with CCI #558.3).

<sup>83</sup> Internal notes at APC indicate that the name was changed after it was poorly received by consumers: "The connect betw[ee]n P3 & SPI was clutter—no good[.] Consumers don't like." Bailey Condrey, APC, *Staff Mtg 8/24/92*, in STAFF MEETINGS 53 (1992) (on file with CCI #14.56). These issues had been anticipated a year prior, when internal discussions about organization names concluded: "P3 great internally, but bad externally," and the group would "[n]eed consumer-friendly name." Bailey Condrey, APC, *Outreach TF 8/23/91*, in NOTES 6 (1991) (on file with CCI #244.17). The Task Force praised another unused acronym because it was "[m]ore publicly [sic] focused" and "[n]o conspiracy implied." *Id.* at 7 (CCI #244.18).

<sup>84</sup> Myra Klockenbrink, *supra* note 76.

<sup>85</sup> Susan Freinkel, *supra* note 39, at 162.

the Association of Plastics Manufacturers Europe (APME) (**Figure 7**), “We need to get out at the grass-roots level and do guerilla [*sic*] warfare like our adversaries.”<sup>86</sup> The largest resin producers, including Exxon, Mobil, DuPont, and Dow, invested tens of millions of dollars into various aspects of plastic recycling, including public relations efforts to shape consumer perception of recycling.<sup>87</sup>

**Figure 7**

Meeting notes from January 2, 1994 indicate that the American Plastics Council intended to take an aggressive approach in responding to public outcry about plastic waste. *Condrey, 1994 (emphasis added).*

One of the first and most important steps in this campaign to make consumers believe in plastic recycling was the implementation of a labeling system known as Resin Identification Codes, or RICs. First introduced in 1988 by SPI, the “Voluntary Plastic Container Coding System,” as it was originally known, grouped plastics by resin type and labeled them with a number surrounded by a triangle of “chasing arrows,” the widely recognized symbol for recycling.<sup>88</sup> Despite SPI’s public claims that the RICs were intended to help promote recycling by making sorting easier for recyclers, VI had indicated that the system was unlikely to work two years prior, writing the “trend . . . toward ‘composites’—containers made up of several different materials”—meant that “efforts to simplify source separation by labeling containers as to their material makeup . . . are of limited practicality.”<sup>89</sup>

In fact, recyclers themselves were clear that they did not need, and in some cases actively opposed, SPI’s RIC system. The Connecticut Department of Environmental Conservation (DEC) found that “the users of post-consumer plastic and intermediate processors of mixed recyclables say they do not need the code to distinguish the resin content of a particular bottle,”<sup>90</sup> and members of the San Diego chapter of the California Resource Recovery Association, an organization representing recyclers, protested the RICs by mailing empty plastic containers to SPI’s offices “as an expression that coding system doesn’t work.”<sup>91</sup> The National Recycling Coalition (NRC), an interest group representing recyclers that would presumably benefit from the RICs, attempted to resolve their members’ issues with the codes’ lack of clarity, but found that SPI was unwilling to take action on their concerns.<sup>92</sup>

The opponents of the RIC system shared virtually all of the same concerns from the very beginning. As the Connecticut DEC explained (**Figure 8**), the symbol “suggests that the plastic containers are made of recycled material or that they are recyclable.”<sup>93</sup> But “[t]he fact that a technology may exist to

**Figure 8**

The Connecticut Department of Environmental Conservation discouraged the state government from adopting Society of the Plastics Industry’s resin identification code system because it was unnecessary and likely to confuse consumers. *DEC, 1990 (emphasis added).*

86 Bailey Condrey, *1/12/94 Meeting with APME, in NOTES 1 (1994)* (on file with CCI #79.1).

87 Susan Freinkel, *supra* note 39, at 162-63.

88 *Id.* at 177-78.

89 See Vinyl Institute, *supra* note 70, at 6.

90 Conn. Dep’t of Envtl. Conservation, BACKGROUND STATEMENT: DRAFT REGULATION ESTABLISHING STANDARDS FOR PLASTIC BOTTLE CODING 3 (1990), <https://industrydocuments.ucsf.edu/docs/#id=zggm0031> (on file with CCI #3163.3).

91 Bailey Condrey, *Staff Mtg 4/20/1992, in STAFF MEETINGS, supra* note 83, at 19 (CCI #14.20).

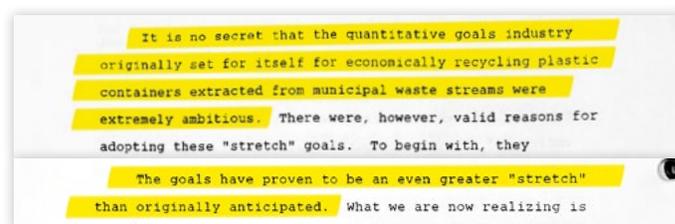
92 Richard Lindsay Stover, et al., ECOLOGY CENTER, REPORT OF THE BERKELEY PLASTICS TASK FORCE 10 (Apr. 8, 1996), <https://ecology-center.org/plastics/pdf/>. The NRC continues to challenge the RICs today. See National Recycling Coalition, *Advocacy, available at https://web.archive.org/web/20230828191736/https://nrcrecycles.org/advocacy/* (archived Aug. 28, 2023) (describing area of agreement number nine: “NRC has made recommendations on changes to the Society of the Plastic Industry (SPI) resin identification code to eliminate confusing and misleading applications of the code”).

93 Conn. Dep’t of Envtl. Conservation, *supra* note 90, at 2 (CCI #3163.2).

recycle a particular container does not guarantee that it is economically recyclable,”<sup>94</sup> a fact acknowledged by the industry itself. The “confusion” caused by consumers’ misinterpretation of the symbols, the DEC predicted, “will have a severe impact on the already marginal economic feasibility of recycling plastics as well as on recycling programs as a whole.”<sup>95</sup>

Despite these concerns, the plastics industry continued to push for the adoption of the codes, with other trade associations like APC joining SPI in the fight to codify the system through state legislation with a clear purpose: “to prevent bans.”<sup>96</sup> The industry encouraged the adoption of the codes not in spite of the confusion the RIC system would cause, but because of it. As APC officials noted in a 1992 meeting, the chasing arrows were a “consumer tested mark” and “most identified.”<sup>97</sup> The RIC system conveyed that plastics are recyclable and, by the mid-1990s, 39 states had adopted legislation requiring the symbols.<sup>98</sup>

Industry trade associations also sought to influence consumer views on plastic recycling through other means. The industry heavily publicized repeated “commitments” to recycling, only to quietly ignore them when they were not achieved.<sup>99</sup> The plastics industry set these goals knowing they were unlikely to meet them, according to a representative of DuPont (Figure 9). “It is no secret that the quantitative goals industry originally set for itself for economically recycling plastic containers extracted from municipal waste streams were extremely ambitious,” James Lohr told attendees at a 1992 recycling conference.<sup>100</sup> But, Lohr argued, the industry groups had “valid reasons for adopting these ‘stretch’ goals.”<sup>101</sup> Chief among them were that “they essentially ratified the realities of society’s expectations for the degree to which plastics wastes required management.”<sup>102</sup> In other words, the commitments matched consumer expectations and placated the public. Unfortunately for the industry, Lohr explained, “[t]he goals have proven to be an even greater ‘stretch’ than originally anticipated.”<sup>103</sup>



**Figure 9**

A DuPont representative, James Lohr, acknowledged that the industry’s recycling commitments had been unrealistic in a presentation at an industry conference. *DuPont, 1992* (emphasis added).

APC internally acknowledged that their publicized goal to recycle 25% of post-consumer plastic bottles and containers by 1995 would be difficult to reach years before. In 1992, staffers at APC noted that “[a]dvocacy doomed to failure unless signif[icant] resources allocated to recy[cling],”<sup>104</sup> and acknowledged that the goal “will be difficult to reach” since the “value of the product is lower than cost to prod[uce].”<sup>105</sup> By January 1994, APC staff again acknowledged

94 *Id.*

95 *Id.* at 2, 3 (CCI #3163.2, 3).

96 Bailey Condrey, *Staff Mtg 8/24/92*, in STAFF MEETINGS, *supra* note 83, at 54 (CCI #14.55).

97 Bailey Condrey, *Monday, Mar 23 Staff Mtg.*, in STAFF MEETINGS, *supra* note 83, at 11 (CCI #14.12).

98 See Richard Lindsay Stover, et al., *supra* note 92, at 9; Steve Toloken, *FTC Cracks Down on Resin Code Placement*, PLASTICS NEWS (May 4, 1998), <https://www.plasticsnews.com/article/19980504/NEWS/305049986/ftc-cracks-down-on-resin-code-placement> (on file with CCI #4832).

99 See, e.g., Tom Ford & Roger King, *APC Retreats from Goal To Recycle 25%*, PLASTICS NEWS (Mar. 25, 1996), <https://www.plasticsnews.com/article/19960325/NEWS/303259995/apc-retreats-from-goal-to-recycle-25> (on file with CCI #4822) (SPI and the Council for Solid Waste Solutions announced in 1991 a goal to recycled 25% of post-consumer bottles and containers by 1995, but abandoned the goal in 1995).

100 James E. Lohr, *supra* note 77, at 4 (CCI #889.8).

101 *Id.*

102 *Id.*

103 *Id.*

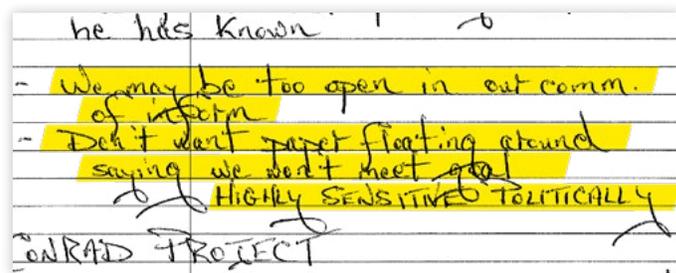
104 Bailey Condrey, *Staff Mtg 4/13/92*, in STAFF MEETINGS, *supra* note 83, at 13 (CCI #14.14).

105 Bailey Condrey, *Staff Mtg 8/24/92*, in STAFF MEETINGS, *supra* note 83, at 53 (CCI #14.54).

that they were unlikely to meet the goal, and began discussing how they hoped the failure would be viewed.<sup>106</sup> Still, they were careful to avoid emphasizing this in public. An Exxon employee warned APC staff (**Figure 10**) that they did not “want paper floating around saying we won’t meet goal” since the issue was “HIGHLY SENSITIVE POLITICALLY.”<sup>107</sup>

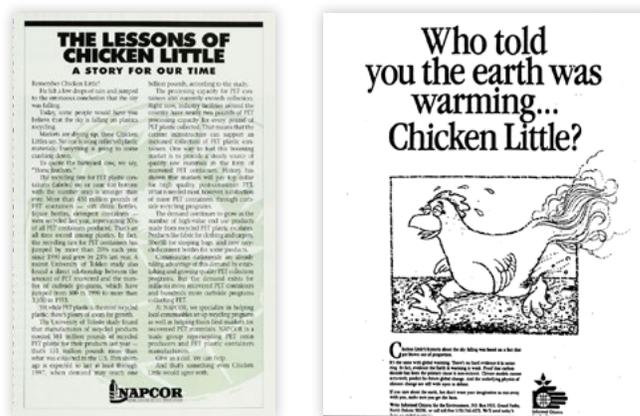
In light of these failures, the industry developed new ways of measuring and presenting recycling rates. Internal APC meeting notes from May 1995, for example, indicate that the organization was “moving from reporting plas[tic] pkg #s [sic] to bottles only,”<sup>108</sup> making it appear that rates had increased more than they actually had. This “roll out of new recy[cling] rates” was appealing because it “helps us justify the new methodology.”<sup>109</sup>

Industry advertisements, whether sponsored by individual petrochemical companies or front groups, normalized the idea that plastics could be recycled among consumers and policymakers. Some of the ads addressed doubts about the viability of plastic recycling directly, such as a 1989 Mobil advertorial that ran in the *New York Times* entitled “Plastics and Recycling: Debunking a Myth.”<sup>110</sup> NAPCOR likewise responded to those “people who would have you believe that the sky is falling on plastics recycling” in 1994, comparing them to Chicken Little (**Figure 11**).<sup>111</sup> Many of these ads misleadingly conflated the early and limited success of PET and HDPE recycling with plastic recycling more broadly. An APC ad from 1993, for example, showed the inside of a refrigerator with the tag line “Your New Carpeting May Already Be in Your Refrigerator.”<sup>112</sup> While the image included several PET bottles and an HDPE milk jug, it also showed a wide variety of other plastics products that were not recyclable.



**Figure 10**

Irwin Levowitz of Exxon Chemical discouraged American Plastics Council staffers from being “too open” in their communications about the trade organization’s recycling goal in a January 1994 meeting. *Condrey, 1994 (emphasis added).*



**Figure 11**

The plastics industry’s attacks on recycling concerns echoed the fossil fuel industry’s prior attacks on climate change concerns. Both the National Association for Plastic Container Recovery in 1994 (left) and the Informed Citizens for the Environment in 1991 (right) compared their critics to Chicken Little. *NAPCOR, 1994; ICE, 1991.*

106 Bailey Condrey, *ART Meeting—Houston 1/26/94*, in *NOTES, supra* note 86, at 24 (CCI #79.24).  
 107 *Id.* at 25 (CCI #79.25) (emphasis in original).  
 108 Bailey Condrey, *Staff Mtg 5/8/95*, in *STAFF & COMMUNICATIONS MTGS. III (1994-1996)* (on file with CCI#39.115).  
 109 Bailey Condrey, *May 5, 1995 Red Mtg., Tech Review Prog.*, in *STAFF & COMMUNICATIONS MTGS., supra* note 108, at 107 (CCI #39.111). An alternative system of measurement and a new phrase, “Recovered for Recycling,” had been developed by NAPCOR in partnership with the accounting firm Ernst & Young. *See generally* R.W. Beck, 1995 NATIONAL POST-CONSUMER PLASTICS RECYCLING RATE STUDY (Sept. 1996), Box No. 12, Jack Milgrom Papers, Special Collections Research Center, Syracuse University Libraries (on file with CCI #822).  
 110 Mobil, *Plastics and Recycling: Debunking a Myth*, *N.Y. TIMES* (Feb. 23, 1989) (on file with CCI #4811.1) (touting advancements in plastic recycling technology, but conceding that “ultimately, the solutions [to America’s waste problem] will include source reduction, recycling, proper incineration, and sanitary landfills”).  
 111 National Association for Plastic Container Recovery, *The Lessons of Chicken Little: A Story for Our Time*, *STATE LEGISLATURES 31* (Oct. 1994) (on file with CCI #4798.1) (advertisement).  
 112 *See* American Plastic Council, *Take Another Look At Plastic*, *BETTER HOMES AND GARDENS 32-33* (Mar. 1993) (on file with CCI #4803.1-2).

But most advertisements simply repeated the same lies about the viability of plastic recycling. According to a NAPCOR ad placed in *Ladies' Home Journal* in 1991 (Figure 12), “a bottle can come back as a bottle, over and over again.”<sup>113</sup> CSWS advertised their materials demonstrating how people could set up plastic recycling programs in their communities, and left little room for doubt: “The proven systems are in place. The talk is over. Plastics recycling is here.”<sup>114</sup> And COPE (then known as the Council on Plastic and Packaging in the Environment) told *Chicago Tribune* readers that they should “Recycle Plastic to Save Landfill Space” to celebrate Earth Day in 1992.<sup>115</sup>

Perhaps most egregiously, plastics industry trade associations representing the petrochemical companies developed “sponsored educational materials” for use in schools.<sup>116</sup> For example, a 1994 educational guide distributed by the California Department of Conservation Division of Recycling promoted materials created by trade associations and petrochemical companies, including free curriculum materials on plastic recycling from Dow,<sup>117</sup> an APC guide to setting up a school recycling program,<sup>118</sup> and a Foodservice Packaging Institute (FPI) video entitled “Foodservice Disposables: Should I Feel Guilty?” discussing “the growing controversy over reusable versus disposables.”<sup>119</sup> Another video, “Working Together for a Healthier Planet,” was produced by APC in 1992—it featured a narrator making blatantly false statements, including the claim that “most plastics can be melted and reused over and over again.”<sup>120</sup>



**Figure 12**

In 1991, The National Association for Plastic Container Recovery ran a seemingly innocuous advertisement in *Ladies' Home Journal*, deceptively telling readers that “PET plastic can now be recycled repeatedly.” NAPCOR, 1991.

## F. The plastics industry made performative investments as part of its campaign to promote plastic recycling (mid-1980s to mid-1990s)

When public backlash prompted threats of legislative and regulatory action, the plastics industry recognized that the appearance of action was its best defense. The industry announced direct investments in recycling initiatives, taking the form of research efforts, pilot programs, and company-owned recycling facilities. Whatever form they took, they shared a common purpose: to prevent bans on single-use plastics. Although heavily publicized in their initial

113 National Association for Plastic Container Recovery, *A Bottle That Can Come Back for New Year's Eve is a Cause for Thanksgiving*, LADIES HOME JOURNAL 92 (Dec. 1991) (on file with CCI #4805.1) (advertisement).

114 Council for Solid Waste Solutions, *Plastics Recycling Has Taken Off*, STATE LEGISLATURES 35 (Apr. 1991) (on file with CCI #4802.1) (advertisement); see also Council for Solid Waste Solutions, *Innovations in Recycling: Plastics Industry Offers Step by Step Recycling Program Set Up*, STATE LEGISLATURES a2, special insert at 13 (June 1991) (on file with CCI #4796.7) (advertising a how-to guide to state legislators on the process for setting up a recycling program).

115 Council for Solid Waste Solutions & National Association for Plastic Container Recovery, *Together, We're Working to Improve Products for Our Environment*, CHICAGO TRIBUNE Z21 (Apr. 5, 1992) (on file with CCI #4790.1) (advertisement).

116 *Molding Young Minds: Firms Spend Big to Get Views into Public Schools*, PLASTICS NEWS (Oct. 30, 1995), <https://www.plasticsnews.com/article/19951030/NEWS/310309999/molding-young-minds-firms-spend-big-to-get-views-into-public-schools> (on file with CCI #412).

117 Cal. Dep't of Conservation, Div. of Recycling, EDUCATION & RECYCLING: EDUCATOR'S WASTE MANAGEMENT RESOURCE & ACTIVITY GUIDE 1994 124, 127 (1994) (on file with CCI #4530.128, 131).

118 *Id.* at 131 (CCI #4530.135); see also National Energy Information Center (NEIC), ENERGY EDUCATION RESOURCES 8 (Mar. 1997) (on file with CCI #4531.19) (describing another APC education campaign as “a unique hands-on kit, designed to help middle level science classes explore the world of plastics”).

119 Cal. Dep't of Conservation, *supra* note 117, at 133 (CCI #4530.137); *LAMFES Audio Visual Library*, DAIRY, FOOD, & ENVIRONMENTAL SANITATION 195 (Mar. 1993) (on file with CCI #4813.57) (describing the educational material as a video that “examines such issues as litter, solid waste, recycling, composting and protection of the earth's ozone layer” and “makes for an excellent discussion opener on . . . the environmental trade-offs (convenience, sanitation and family health) that source reduction necessarily entails”).

120 Working Together for a Healthier Planet, at 8:31 (American Plastics Council 1992) (on file with CCI #322.1, #318.1-2).

phases, investments in these projects rarely lasted. The projects were either never built, or the facilities were shut down quietly when the threat of regulation passed.

The plastics industry's most visible research venture was the Center for Plastics Recycling Research at Rutgers University. It was established by SPI in 1985 after a mandatory recycling bill was proposed in New Jersey the year before. An SPI memo from December 1984 explained that, while “discussion of the Plastic Recycling Foundation is viewed as an encouraging sign by those responsible for solving the State’s landfill crisis,” there remained a “mandate to do much more in this arena.”<sup>121</sup> The CPRR was meant to fill this gap by developing new recycling technologies, such as plastic lumber, and the industry readily acknowledged that it was pursuing these goals in response to pending waste management legislation.<sup>122</sup>

Around the same time, “in a reversal of its former opposition,” the *New York Times* reported in 1988, “the plastics industry is now urging states and cities to include plastics in their mandatory recycling programs.”<sup>123</sup> In several strategic locations where such collection programs did not already exist, the industry established pilot programs through its various trade associations. NAPCOR, for instance, was established with the specific goal of developing plastic recycling pilot programs in at least four states—and consequently helped to “deal with the emerging crisis in solid-waste management that’s generating lots of negative publicity and problems for the plastics industry.”<sup>124</sup> These were often targeted efforts to counteract what SPI President Larry Thomas called “stringent and often unrealistic laws and regulations aimed at solving the solid waste problem,”<sup>125</sup> such as the pilot program created by the Council for Solid Waste Solutions in St. Paul, Minnesota, after the city council had voted to ban polystyrene. But the front group never intended to support the recycling effort long-term, according to the person tasked with setting up the program: “The industry attitude was, ‘We’ll set this up and get it going, but if the public wants it, they are going to have to pay for it.’”<sup>126</sup>

In select instances, petrochemical companies built recycling facilities themselves—though the same ethos of the pilot programs, the idea that industry would not be responsible for the long-term economic costs, largely carried through. In a span of just a few years, beginning in the late 1980s, resin producers such as DuPont, Dow, Union Carbide, Occidental, and Eastman all began to build facilities to recycle plastics,<sup>127</sup> ranging from HDPE and PET to films and bags.<sup>128</sup>

121 Letter from Roger Bernstein, *supra* note 61, at 2 (CCI #4147.2).

122 See Myra Klockenbrink, *supra* note 76; Nancy A. Wolf & Ellen E. Feldman, PLASTICS: AMERICA’S PACKAGING DILEMMA 75-76, 80 (1991); see also Elizabeth M. Kirschner, *supra* note 69, at 20 (describing the funding, and closure, of the Rutgers Center for Plastic Products Recycling); Bailey Condrey, *Monday 5/18/92*, in STAFF MEETINGS, *supra* note 83, at 31 (CCI #14.32) (predicting the lack of longevity for the project, stating, “Benches? No political mileage out of this”).

123 Myra Klockenbrink, *supra* note 76.

124 Mike Berins, *News Watch*, 46 PLASTICS WORLD 11-2 (Mar. 1988), available at [https://archive.org/details/sim\\_automotive-plastics\\_1988-03\\_46\\_3](https://archive.org/details/sim_automotive-plastics_1988-03_46_3) (on file with CCI #4847.1)

125 Larry Thomas, President, Society of the Plastics Industry, Dinner Remarks, Tripartite Conference (Sept. 2, 1992), available at <https://cdn.toxicdocs.org/pe/OdBEoGYVEKZJMoYN3DY588w/pe/OdBEoGYVEKZJMoYN3DY588w.pdf> (on file with CCI #3503.2).

126 Laura Sullivan, *Plastic Wars* [documentary], PBS FRONTLINE (Mar. 31, 2020), <https://www.pbs.org/wgbh/frontline/film/plastic-wars/>.

127 See Associated Press, *Kodak Closing Rochester Unit; 80 Jobs Impacted*, MANUFACTURING.NET (May 15, 2012), <https://www.manufacturing.net/home/news/13209289/kodak-closing-rochester-unit-80-jobs-impacted> (Eastman); Wire Reports, *Oxy Chem Plans Recycling Facility*, J. COMMERCE (July 28, 1991), [https://www.joc.com/article/oxy-chem-plans-recycling-facility\\_19910728.html](https://www.joc.com/article/oxy-chem-plans-recycling-facility_19910728.html) (Occidental); Jonathan Weber, *Sorting Out the Problems of Recycling Plastic Waste*, L.A. TIMES (June 13, 1990), <https://www.latimes.com/archives/la-xpm-1990-06-13-fi-210-story.html> (DuPont, Dow, and Union Carbide).

128 See Jan H. Schut, *A Barrage Of News From The Recycling Front*, PLASTICS TECHNOLOGY (July 1, 1990), available at <https://www.the-freeibrary.com/A+barrage+of+news+from+the+recycling+front.-a09201453>. In some cases, industry representatives made explicit that these facilities were not financially viable. Jonathan Weber, *supra* note 127 (quoting Peter Mooney, vice president for plastics at Business Communications Co., a solid-waste consulting company in Norwalk, Conn. saying, “Plastic recycling is going to be mandated. . . . It’s hard to make money on it, but we’ve got to find ways to minimize the losses”).

The largest and arguably most visible industry recycling venture was the National Polystyrene Recycling Company (NPRC). It was established in 1989 as a joint venture among eight of the largest polystyrene resin producers, including Dow, Chevron, Mobil, Amoco (INEOS), ARCO (INEOS), Novacor, Fina Oil, and Huntsman.<sup>129</sup> NPRC quickly opened four regional recycling facilities and announced a goal to recycle 25% of post-consumer packaging and food service polystyrene, or 250 million pounds, by 1995—a commitment that was publicized in ads from Mobil, Huntsman, and NPRC itself.<sup>130</sup> The *New York Times* reported that the companies were driven to start the venture in response to product bans, like the one in Suffolk County, New York, the year prior.<sup>131</sup> “To keep the enacted bans from taking effect, as well as to deter new ones,” the *Times* explained, “the polystyrene producers must keep the recycling program alive.”<sup>132</sup> When those pressures later waned, NPRC was accused of “abandon[ing] the program without telling the public.”<sup>133</sup>

## G. The plastics industry continued its campaign despite the demonstrated limitations of plastic recycling (1990s)

Some industry investments did produce specific, limited successes. For example, the recycling rate for PET bottles increased from under 5% to around 30% over the course of the 1980s.<sup>134</sup> But in general, the “strike force” research mostly reinforced what the plastics industry already knew: plastic recycling was not viable and was unlikely to become so.

Short-term industry investment could not overcome the economic obstacles to plastic recycling. “The basic issue is economics,” the director of environmental solutions at B.F. Goodrich explained to an industry panel in 1992. “[F]or commodity plastics, including PVC, the costs of recycling or recovery either overlap or are greater than the selling price for these materials. This is the essence of the problem and the basic reason why recycling is not growing at faster rates.”<sup>135</sup> Ideally, a representative of Eastman Chemical told attendees of an industry conference in 1994, consumers could put their plastic containers into recycling bins and “be assured that they would be separated into pure streams and would all be sold for viable reuse applications.”<sup>136</sup> But “[w]hile someday this may be a reality,” he explained, “it is more likely that we will wake up and realize that we are not going to recycle our way out of the solid waste issue.”<sup>137</sup>

The industry’s production of low-cost virgin plastic ensured that plastic recycling could not take hold. William Carroll of Occidental Chemical drew the same conclusions in his 1992 testimony to Congress, pointing out that “the quality of virgin material was better—and it cost less.”<sup>138</sup> No

129 Partnership for Plastics Progress, *What Industry is Doing*, P3 10 (Aug. 1992) (on file with CCI #244.223).

130 Mobil, *Earth, Rising*, WASH. POST B3 (July 15, 1990) (on file with CCI #4782.1) (advertisement); Mobil, *Recycling: The Momentum Grows*, L.A. TIMES VCB4 (May 24, 1990) (on file with CCI #4784.1) (advertisement); Huntsman Chemical Corporation, *Think of Them As Your New Home... Think Recycle*, STATE LEGISLATURES 20 (Oct. 1989) (on file with CCI #4795.1) (advertisement); National Polystyrene Recycling Company, *Foam Packaging Fact or Fiction?*, WASH. POST A21 (Feb. 3, 1991) (on file with CCI #4789.1) (advertisement).

131 John Holusha, *A Setback for Polystyrene*, N. Y. TIMES (Nov. 18, 1990), <https://www.nytimes.com/1990/11/18/business/a-setback-for-polystyrene.html>.

132 *Id.*

133 See Clare Goldsberry, *Pasco Charges NPRC Impeded PS Recycling*, PLASTICS NEWS (June 19, 1995), <https://www.plasticsnews.com/article/19950619/NEWS/306199942/pasco-charges-nprc-impeded-ps-recycling>.

134 Statista Research Department, *Recycling Rate of Plastic Containers and Packaging MSW in the United States from 1980 to 2018, By Product*, STATISTA (Mar. 24, 2023), <https://www.statista.com/statistics/1229687/us-plastics-container-packaging-waste-recycling-rates-by-product/>.

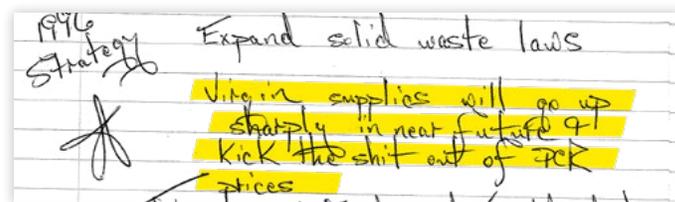
135 F.E. Krause, Director Environmental Solutions, Geon Vinyl Division, BF Goodrich Co., Presentation to The Vinyl Industry Tripartite Meeting, *PVC Recycling—An Overview 1* (Sept. 3-4, 1992), available at <https://www.toxicdocs.org/d/91wxG1YnjQ8KjOnZ-3jE9wLxg?lightbox=1> (on file with CCI #566.2).

136 Noel Malone, Manager Plastics Solid Waste Management, Eastman Chemical Company, Presentation at Bev-Pak America’s ’94 Program, *Automated Sortation of Plastic Containers 1-2* (1994), Box No. 5, Jack Milgrom Papers, Special Collections Research Center, Syracuse University Libraries (on file with CCI #787.11-12).

137 *Id.* at 2.

138 *Plastics Recycling: Problems and Possibilities*, *supra* note 78, at 125 (CCI #3175.128).

amount of “green marketing” could overcome the price-to-quality ratio of recycled plastics, especially after “lucrative markets for recycle[d resins] stopped growing or contracted” and were “replaced by low cost virgin resin. The materials glut resulted.”<sup>139</sup> The petrochemical companies continued to be primarily invested in expanding production, and that meant more virgin resins. As another employee at Occidental, James R. Clark, explained at a 1992 conference, “the economics of virgin production”—meaning the widespread availability of cheap, virgin resins—“have put downward pressure on recycled resin value in the marketplace.”<sup>140</sup> He told attendees that while “[v]irgin resin meets” the criteria of converters—including characteristics like consistent color, low contamination, and processability—“current recycled materials fail in many of these categories.”<sup>141</sup> In 1995, even as APC officials continued their campaign to convince the public that recycling was viable, staffer Bailey Condrey noted internally (**Figure 13**) that “virgin supplies will go up sharply in near future [and] kick the shit out of PCR prices.”<sup>142</sup>

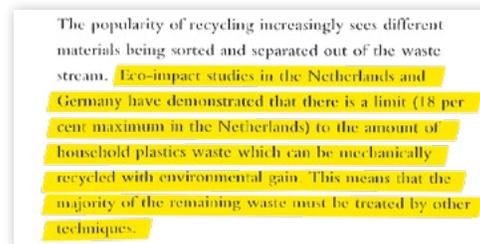


**Figure 13**

Notes from a November 1995 American Plastics Council staff meeting reveal clear knowledge that recycled plastic was not economically competitive with virgin material. Condrey, 1994-1996 (emphasis added).

Even if these economic and technical limitations could be overcome, industry investigations in the 1990s revealed that, in many cases, plastic recycling required more resources than it could even theoretically save. “Recycling is not always the best option as it does not always effect [sic] greatest environmental gain,” explained the European Vinyls Corporation in 1993. “In many instances where mechanical recycling is possible, the energy and other resources consumed outweigh the environmental gain.”<sup>143</sup> Even those who were relatively optimistic about the future of plastic recycling, like James C. McLellan at Amoco, recognized that the same limitations that researchers had previously identified still applied. “For all forms of plastics recycling,” he explained at a 1992 conference, “the capital and operating costs for processing facilities and the economic penalties associated with reclamation and reprocessing are such that, for the foreseeable future, the value of the recycled products may be less than the costs of recycling.”<sup>144</sup>

Additional research only added weight to these concerns. In 1996, APME, in a document shared with APC (**Figure 14**), discussed the findings of a German study which found that “there is a limit . . . to the amount of household plastics waste which can be mechanically recycled with environmental gain.”<sup>145</sup> In the Netherlands, the figure was only 18%



**Figure 14**

A report from the Association of Plastics Manufacturers in Europe acknowledged that recycling could not adequately address plastic waste. APME, 1996 (emphasis added).

<sup>139</sup> *Id.* at 125-26 (CCI #3175.128-29).

<sup>140</sup> James R. Clark, Product Manager Recycling, Occidental Chemical Company, Presenting at ETEX '92: Turn Waste into Profits, *Plastics Recycling Strategy 1* (Apr. 6-7, 1992), Box No. OS2, Jack Milgrom Papers, Special Collections Research Center, Syracuse University Libraries (on file with CCI #890.5).

<sup>141</sup> *Id.* at 3 (CCI #890.7).

<sup>142</sup> Bailey Condrey, *Staff Mtg 11/6/95*, in STAFF & COMMUNICATIONS MTGS., *supra* note 108, at 182 (CCI #39.187).

<sup>143</sup> Rolf Buhl, European Vinyls Corp., UPDATE OF THE PVC RELATED ENVIRONMENTAL DEVELOPMENTS IN EUROPE AS PER JANUARY 1993 25 (Jan. 25, 1993), available at <https://www.toxicdocs.org/d/O19KKZqr3EGM5451dXYGmbr1?lightbox=1> (on file with CCI #3303.25).

<sup>144</sup> James C. McLellan, Director, Solid Waste Management, Amoco Chemical Company, Presenting at ETEX '92: Turn Waste into Profits, *Chemical Recycling: How Does it Fit as a Way of Managing Plastics Wastes? 7* (Apr. 6-7, 1992), Box No. OS2, Jack Milgrom Papers, Special Collections Research Center, Syracuse University Libraries (on file with CCI #882.11).

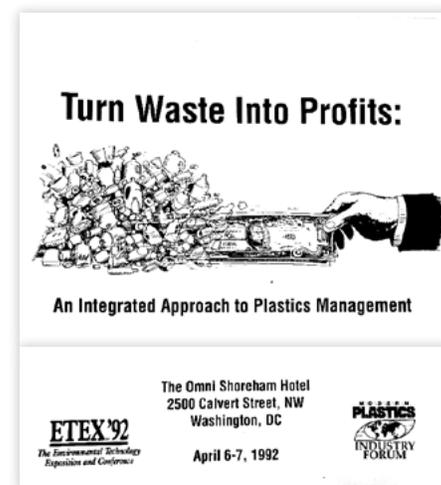
<sup>145</sup> Ass'n of Plastic Mfrs. in Europe (APME), SUMMARY REPORT: SEPARATED MIXED PLASTICS WASTE AS A FUEL SOURCE 2 (1996) (on file with CCI #52.3)

of all post-consumer plastic waste. “This means that the majority of the remaining waste must be treated by other techniques,” APME concluded.<sup>146</sup>

Once again, the industry returned to incineration as the ideal way to manage plastic waste. A 1991 report from the U.S. Congressional Research Service (CRS) explained that it was “clear from discussions with plastics industry executives from many countries that many feel material recycling of plastics from the municipal waste stream makes little sense” compared to energy recovery through incineration.<sup>147</sup> At a conference in 1992, a representative of DuPont’s polymer recycling division complained about bans on incineration, expressing frustration that some uninformed people “see first-time plastics recycle via energy recovery as incompatible with society’s contemporary values regarding material refuse.”<sup>148</sup> The DuPont representative further explained, “Energy recovery may in fact represent the most economically viable option for extracting value from some portions of the plastics waste stream.”<sup>149</sup>

Karl Kamena of Dow Plastics, who served as the first chairman of COPE, agreed. Speaking at the same conference (**Figure 15**), he argued that “the extraction of energy from plastics in municipal incinerators across the country is almost totally unappreciated by an uninformed public.”<sup>150</sup> He explained that “the plastics industry and our customers” had collectively “taken the easy politically correct road regarding incineration of ignoring its existence and value to integrated waste management.”<sup>151</sup> He concluded his remarks by calling on the industry “to build on the popularity of recycling to get the public to understand and appreciate from a broader environmental and economic perspective the value of recycling with overall energy conservation as the primary consideration.”<sup>152</sup>

However, the public remained unconvinced that WtE incineration was the most desirable option for handling plastic waste. “As we all know,” a speaker at a VI meeting explained in 1992, “waste-to-energy or incineration is a logical and likely cost-effective alternative but is almost universally resisted by the public which will not be convinced otherwise until the plastics recycling infrastructure is in place and all the alternatives can be weighed from an economic and environmental point of view.”<sup>153</sup> The 1991 CRS report drew similar conclusions: incineration continued to be marginalized in favor of recycling because “the public is generally aware, partly thanks to industry information efforts, that plastics can be economically recycled as materials,” even if that was not true in practice.<sup>154</sup> In other words, the industry’s



**Figure 15**

A 1992 plastics industry conference entitled “Turn Waste Into Profits”—featuring speakers from Dow, DuPont, Amoco, Occidental, Society of the Plastics Industry, and the Plastic Recycling Foundation—included discussion of the risk recycling regulation posed to the industry, the economic inferiority of recycled plastics, and the use of recycling as a means to promote incineration. *Modern Plastics Industry Forum, 1992.*

146 *Id.*

147 James E. McCarthy, CONG. RSCH. SERV., 91-802 ENR, RECYCLING AND REDUCING PACKAGING WASTE: HOW THE UNITED STATES COMPARES TO OTHER COUNTRIES CRS-74 (Nov. 8, 1991), Box 13, Jack Milgrom Papers, Special Collections Research Center, Syracuse University Libraries (on file with CCI #830.6) (emphasis in original) (quoting materials produced by the Council for Solid Waste Solutions).

148 James E. Lohr, *supra* note 77, at 6-7 (CCI #889.10-11).

149 *Id.* at 7 (CCI #889.11).

150 Karl W. Kamena, Director, Government Affairs/Public Issues, Dow Plastics, Presenting at ETEX '92: Turn Waste into Profits, *Energy-Retrieval of Plastics Waste: Time for a Second Look 3* (Apr. 6-7, 1992), Box No. OS2, Jack Milgrom Papers, Special Collections Research Center, Syracuse University Libraries (on file with CCI #884.7).

151 *Id.*

152 *Id.* at 4 (CCI #884.8).

153 F.E. Krause, *supra* note 135, at 2 (CCI #566.3).

154 James E. McCarthy, *supra* note 147, at CRS-75 (CCI #830.7).

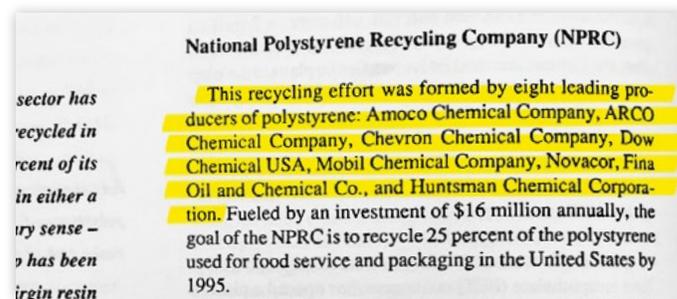
campaign to deceive the public about the viability of plastic recycling had proved successful by the early 1990s.

## H. The plastics industry backed off its commitments when its campaign proved successful and public pressure subsided (mid-1990s to mid-2010s)

The plastics industry's failure to overcome the technical and economic obstacles to mechanical recycling may have suggested the need for additional research and investment, either a doubling-down on the mission of the "strike force" or exploration of additional options in the fight against plastic waste. But in reality, the opposite happened. The Center for Plastics Recycling Research shuttered its doors in 1996, as did several of the plastic recycling facilities owned by various petrochemical corporations, including Union Carbide.<sup>155</sup> NPRC fell well short of its 25% recycling commitment (**Figure 16**)—it recycled under 2% as of 1995,<sup>156</sup> and was sold in 1999.<sup>157</sup> Recycling-oriented industry front groups also shifted to the background or, in the case of groups like COPE, ceased operations.<sup>158</sup> All of these changes reflected a broader shift away from the highly visible campaign for recycling that defined the period between 1985 and 1995.

Recycling research and advocacy were no longer the priorities they once had been because, as far as the industry was concerned, the real problem had been addressed. The public had been successfully convinced that plastics could be recycled, and the actual viability of recycling mattered far less to the industry than perception. By the mid-1990s, public outrage on plastic waste had begun to subside, and plastics fervor waned in state legislatures and city councils across the country.<sup>159</sup> Roger Bernstein, APC's head of government affairs and state legislation, called it "a shift in the political climate."<sup>160</sup> Another industry player put it more bluntly, explaining that the "anti-packaging forces stirred up by 'environmental hooligans' were now in retreat."<sup>161</sup>

With that decline in public pressure came a sense of security that the industry had not felt for some time. APC President Red Cavaney explained that "in the early 1990s the public focus was very much on targets, and they seemed the most easily explained way of showing that something was being done."<sup>162</sup> But while an APC spokesperson assured the public that the



**Figure 16**

The National Polystyrene Recycling Company was formed and lead by a substantial number of fossil fuel companies. *SPI*, 1991 (emphasis added).

155 See Dianne Dumanoski, *Key Events of 1996*, PLASTICS NEWS (Apr 26, 2004), <https://www.plasticsnews.com/article/20040423/NEWS/304239998/key-events-of-1996>

156 Clare Goldsberry, *supra* note 133.

157 Steve Toloken, *Thermoformer Elm Packaging Buys NPRC*, PLASTICS NEWS (July 5, 1999), <https://www.plasticsnews.com/article/19990705/NEWS/307059998/thermoformer-elm-packaging-buys-nprc>.

158 See *Recycling Structure is Worth Salvaging*, PLASTICS NEWS, (Dec. 9, 1996), <https://www.plasticsnews.com/article/19961209/NEWS/312099976/recycling-structure-is-worth-salvaging> (on file with CCI #4838.2). Further confirmation to industry insiders of the declining importance of recycling came in 1996 when Tom Rattray, the recycling expert who explained that petrochemical companies viewed recycling as competition, retired from his position as Procter & Gamble's associate director for environmental quality. The company decided not to fill his position. *Requiem for a Heavyweight*, PLASTICS NEWS (Sept. 16, 1996) (on file with CCI #4839).

159 See Roger King, *Big Reforms Not Likely by State Legislatures*, PLASTICS NEWS (Jan. 16, 1995) (on file with CCI #4823). Internal documents indicate that by this time, industry fears of increased regulation and recycling mandates had largely shifted abroad. In a December 1995 meeting, APC staffers discussed the "European vs. American model" of packaging regulation, noting "more [and] more countries moving toward mandated recycling goals." Bailey Condrey, *Staff Mtg. 12/4/95*, in STAFF & COMMUNICATIONS MTGS., *supra* note 108, at 194 (CCI #39.199).

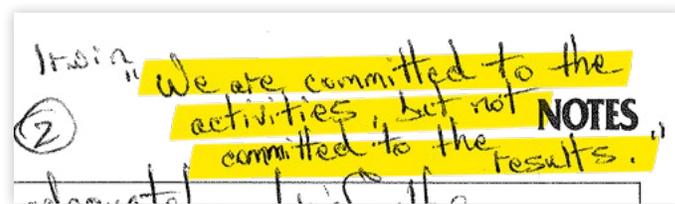
160 Elizabeth M. Kirschner, *supra* note 69, at 20.

161 COPE, CONEG Unit, *PET Recycler to Close*, PACKAGING WORLD (Dec. 31, 1996) (on file with CCI #464.1) (quoting an analyst from an Ohio-based packaging industry research firm).

162 Tom Ford & Roger King, *supra* note 99.

organization remained “very much committed to increased recycling,” the situation was different in 1996 than it had been when they set recycled content goals that had not been reached.<sup>163</sup> “The idea of rates, dates, mandates ... numerical goals, is all very artificial.”<sup>164</sup> The plastics industry had “progressed beyond” these sorts of “targets,” Cavaney explained.<sup>165</sup> This shift reflected the fact that the implementation of a sustainable plastic recycling infrastructure had never been as important to the industry as relieving public and regulatory pressure.

As Exxon Chemical Vice President Irwin Levowitz succinctly explained in a January 1994 meeting with APC staff (**Figure 17**), “We are committed to the activities, but not committed to the results.”<sup>166</sup>



**Figure 17**

Notes from an American Plastics Council meeting in January 1994 quoted Irwin Levowitz of Exxon Chemical. Condrey, 1994 (emphasis added).

In essence, the plastics industry had won, and they knew it. As a *Plastics News* columnist told readers in March 1995, “[t]he plastics recycling war is over. We should declare victory and put the money into cancer research. . . . [T]he level of plastics recycling is about 22 percent and won’t increase greatly for each new dollar spent.”<sup>167</sup> The results of the plastic recycling research and development sprint had been limited, but the public relations campaign accompanying it had been remarkably effective. Working in concert, petrochemical companies and their trade associations had convinced consumers that recycling presented a viable solution to the plastic waste crisis, and that was enough. APC data on the “Impact of Level and Frequency of Advertising” showed that favorability of plastics increased 12% between August 1992 and April 1997, with the most dramatic changes occurring during their advertising blitz between 1992 and 1994.<sup>168</sup> The organization spent \$18 million on advertising over a single nine-month stretch between fall 1992 and summer 1993.<sup>169</sup>

The “Take Another Look at Plastics” ad campaign led 11 attorneys general to bring a lawsuit against APC, alleging that the “advertising campaign, run in 1992 and 1993, was misleading regarding the recycling rates of plastics and the ease with which consumers could recycle plastics.”<sup>170</sup> As part of a multi-state settlement, the organization was required to pay \$110,000, and include disclosures when making any marketing claims about recycling.<sup>171</sup> But this was a small price to pay for the effectiveness of the ad campaign in shaping public opinion. “Favorability toward the plastics industry has improved dramatically among the general public in recent years,” the industry’s polling showed, and by 1997 was “comparable to competitive material industries [like paper, glass, and aluminum] among the general public.”<sup>172</sup>

163 *Id.*

164 *Id.*

165 *Id.*

166 Bailey Condrey, *Gov/Tech Mtg 1/21/94*, in NOTES, *supra* note 86, at 7-8 (CCI #79.7-8).

167 Roger King, *Don't Throw More Money at Recycling*, PLASTICS NEWS (Mar. 13, 1995), <https://www.plasticsnews.com/article/19950313/OPINION02/303139979/don-t-throw-more-money-at-recycling> (on file with CCI #5131.1).

168 Wirthlin Worldwide, Presentation of Strategy Development and Research Findings Presented to American Plastics Council (Apr. 1997) (on file with CCI #56.21).

169 Richard Lindsay Stover, et al., *supra* note 92, at 10.

170 National Association of Attorneys General, *California et al. v. American Plastics Council (Out of Court Settlement Agreement)*, 11 No. 1 NAAG NAT'L ENVTL. ENFORCEMENT J. 25 (Feb. 1996), [https://www.westlaw.com/Document/Iacfab2d1e69811dbbe03ac4425687bc0/View/FullText.html?transitionType=Default&contextData=\(sc.Default\)&VR=3.0&RS=cblt1.0](https://www.westlaw.com/Document/Iacfab2d1e69811dbbe03ac4425687bc0/View/FullText.html?transitionType=Default&contextData=(sc.Default)&VR=3.0&RS=cblt1.0).

171 Scott Allen, *Industry Settles Complaints on Plastics Ads*, BOSTON GLOBE (Dec. 21, 1995) (on file with CCI #4868.1); *Eleven Attorneys General Reach Agreement with Plastics Industry on Recycling Claims*, NAAG CONSUMER PROTECTION REP. 9 (Jan. 1996) [https://www.westlaw.com/Document/Iblc56c31e69611db9c8ce6979b37af64/View/FullText.html?transitionType=Default&contextData=\(sc.Default\)&VR=3.0&RS=cblt1.0](https://www.westlaw.com/Document/Iblc56c31e69611db9c8ce6979b37af64/View/FullText.html?transitionType=Default&contextData=(sc.Default)&VR=3.0&RS=cblt1.0). The agreed upon disclosure reads as follows: “Recycling facilities may not be available in all areas. Check to see if recycling facilities exist in your area.” *Id.*

172 Wirthlin Worldwide, *supra* note 168 (CCI #56.13).

More specifically, consumer views of plastic recycling had become significantly more positive by the mid-1990s—even as the waste management industry lost confidence in the ability of recycling to address plastic waste. Polling conducted for APC in 1997 showed that, while respondents who worked in the waste management field were rapidly losing confidence in recycling and shifting their priorities toward source reduction,<sup>173</sup> “recycling continues to be seen as the best use of a community’s time and money for resource management by the media, government, and customers.”<sup>174</sup> Members of the media in particular had embraced the industry’s narrative on recycling, with a majority favoring plastic recycling over alternatives like reuse or source reduction.<sup>175</sup> Media respondents were also more likely to believe that plastic recycling was economically self-sufficient compared to other groups.<sup>176</sup> Tellingly, all polled groups—consumers, media members, government officials, and even waste management industry representatives—believed that plastic could be economically recycled at a much higher rate than it could be.<sup>177</sup>

## I. The plastics industry has faced renewed public pressure to address plastic waste (2015 to present)

For decades, the plastics industry’s successful campaign to promote the myth of plastic recycling protected the industry from significant public backlash. Between 2007 and 2010, for example, the industry faced a large number of potential plastic bag bans—nearly 400 across all levels of government in 2008 alone.<sup>178</sup> The American Chemistry Council (ACC), which took on new prominence after it absorbed APC in 2002, represented the resin producers in numerous fights against bans on plastic grocery bags.<sup>179</sup> But these periods of backlash never reached the level of industry crises of the past, in large part because of the success of the campaign to deceive consumers about recycling. Through deceptive advertising, front groups that created the illusion of grassroots support, and arbitrary commitments (that were not met), the recycling myth actually expanded to include items such as plastic bags and films.<sup>180</sup> As a result, the industry remained largely effective at placating the public—despite the fact that the U.S. plastic recycling rate never reached 10%.<sup>181</sup>

The situation began to change around 2015. A sudden public awareness of microplastics, combined with increasing visibility of ocean plastics and their impacts on wildlife, led to visceral public backlash.<sup>182</sup> China’s Operation National Sword, a policy implemented in 2018 that stopped the flow of plastic waste from Western countries to China, further compounded

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173 See Cambridge Reports, Research Int’l, RESOURCE MANAGEMENT OPTIONS, PLASTICS, AND THE PLASTICS INDUSTRY: VIEWS OF APC’S TARGET AUDIENCES 1 (May 1997) (on file with CCI #34.2).

174 *Id.*

175 *Id.*

176 *Id.* at 2 (CCI #34.3).

177 *See id.*

178 Susan Freinkel, *supra* note 39, at 157.

179 *Id.* at 163-65.

180 ACC announced a voluntary commitment in 2009 for plastic bags to have 40% recycled content by 2015, a goal that was not met. Susan Freinkel, *supra* note 39, at 166-67; Press Release, American Chemistry Council, ACC, SPI Align and Expand Efforts to Defend Plastic Bags and Increase Plastic Film Recycling (Dec. 15, 2011), available at <https://web.archive.org/web/20170721221531/https://www.americanchemistry.com/Media/PressReleases/Transcripts/ACC-news-releases/ACC-SPI-Align-and-Expand-Efforts-to-Defend-Plastic-Bags-and-Increase-Plastic-Film-Recycling.html> (archived July 17, 2021). For an advertisement, *see, e.g.*, American Chemistry Council, *Plastic or Paper: Why Plastic Bags are Better* (2008) (on file with CCI #4848.1).

181 See Beyond Plastics, THE REAL TRUTH ABOUT THE U.S. PLASTIC RECYCLING RATE 2 (May 2022), <https://www.beyondplastics.org/reports/the-real-truth-about-the-us-plastics-recycling-rate>.

182 See Stephen Buranyi, *The Plastic Backlash: What’s Behind Our Sudden Rage—and Will it Make a Difference?*, GUARDIAN (Nov. 13, 2018), <https://www.theguardian.com/environment/2018/nov/13/the-plastic-backlash-whats-behind-our-sudden-rage-and-will-it-make-a-difference>.

the sense that the U.S. faced an impending plastic waste crisis.<sup>183</sup> There had been few signs that this wave of public backlash was coming. “To travel back even to 2015,” Stephen Buranyi of the *Guardian* explained in 2018, “is to enter to a world in which almost all of the things we currently know about plastic are already known, but people aren’t very angry about it.”<sup>184</sup> Just a few years later, plastics had become a central concern among consumers once again, creating another serious crisis for the plastics industry. The failure of mechanical recycling to address the plastic waste crisis was laid bare,<sup>185</sup> and the industry was left scrambling. As with previous periods of intense public anger, regulatory pressure soon followed. “The public backlash has undoubtedly brought a serious environmental problem to the attention of the highest level of government and business, and convinced them it is a winning issue,” Buranyi reported.<sup>186</sup> “Only a fraction of the proposed measures against plastic have been codified by law . . . but the feeling is one of enormous potential.”<sup>187</sup>

The petrochemical companies immediately began to tout new investments in recycling in response to the public’s concerns. Dow, for example, announced a commitment of \$2.8 million to increase recycling rates at the inaugural “Our Ocean” conference in 2016.<sup>188</sup> But with the myth of plastic recycling crumbling, the companies needed a new strategy. Beginning around 2017, the industry began to use the term “advanced recycling,” promising that it was a significant technological breakthrough that would address hard-to-recycle plastics.<sup>189</sup> The plastics industry has positioned “advanced recycling” as its newest “solution” to the plastic waste crisis, significantly overstating and misrepresenting its potential as a means to justify rapidly expanding plastic production.

## J. The plastics industry is promoting an old technology as a new “solution” to plastic waste—“advanced recycling” (2017 to present)

“Advanced recycling,” also known as “chemical recycling,” is an industry catch-all term for a variety of processes—including pyrolysis, gasification, hydrolysis, methanolysis, and more—that are intended to break a polymer down into its basic chemical elements.<sup>190</sup> Contrary to industry representations, these technologies are neither “advanced” nor “recycling.” They are not “advanced,” given that they have been around for decades. These processes have interested chemical researchers since the 1970s, but have never proven to be a viable solution for plastic waste.<sup>191</sup> They are not “recycling,” because they do not result in the manufacture of new plastic products. Rather, by exposing plastic waste to extreme heat or chemicals, these processes create an unrefined oil byproduct (as well as hazardous waste byproducts).<sup>192</sup> Today, the industry argues that the oil produced through “advanced recycling” technologies can be

183 See generally Nicole Javorsky, *China’s Recycling Policy Is Making American Cities Take a New Look at Their Trash*, MOTHER JONES (Apr. 2, 2019), <https://www.motherjones.com/environment/2019/04/chinas-recycling-policy-is-making-american-cities-take-a-new-look-at-their-trash/>.

184 Stephen Buranyi, *supra* note 182.

185 See, e.g., Erin McCormick, et al., *Americans’ Plastic Recycling is Dumped in Landfills, Investigation Shows*, GUARDIAN (June 21, 2019), <https://www.theguardian.com/us-news/2019/jun/21/us-plastic-recycling-landfills>.

186 Stephen Buranyi, *supra* note 182.

187 *Id.*

188 Dow Chemical, *Dow Commits \$2.8 Million Toward Collaborative Efforts to Reduce Marine Debris*, BUS. WIRE (Sept. 16, 2016), <https://www.businesswire.com/news/home/20160916005677/en/Dow-commits-2.8-million-collaborative-efforts-reduce>.

189 An early use of the term “advanced recycling” came from Renewology, a start-up backed by Dow, that claimed to be able to turn single-use plastics into diesel fuel. Joe Brock, et al., *The Recycling Myth: Big Oil’s Solution for Plastic Waste Littered with Failure*, REUTERS (July 29, 2021), <https://www.reuters.com/article/environment-plastic-oil-recycling-idINL8N2P46F0>.

190 See *id.*

191 See, e.g., Arthur D. Little, Inc., *A State-of-the-Art Study of the Pyrolysis of Solid Wastes* 47-50 (July 1973) Box 4, Jack Milgrom Papers, Special Collections Research Center, Syracuse University Libraries (on file with CCI #782.47-50).

192 See Veena Singla, NRDC, RECYCLING LIES: “CHEMICAL RECYCLING” OF PLASTIC IS JUST GREENWASHING INCINERATION 2 (Feb. 2022), <https://www.nrdc.org/sites/default/files/chemical-recycling-greenwashing-incineration-ib.pdf>.

refined and used to manufacture “new plastics and products.”<sup>193</sup> However, the viability of this claim has not been proven at scale.<sup>194</sup>

For decades, petrochemical companies viewed pyrolysis, gasification, and the like as one element of a broader waste-to-energy strategy, capturing the energy content of disposable plastics that would otherwise sit unused. Interested parties believed that these technologies could provide an alternative to incineration, the industry’s historically-favored option for dealing with plastic waste. However, chemical recycling has never been an efficient way to “reclaim” the energy content of plastics. As described in a 1978 research paper, “[i]t has yet to be demonstrated that the energy obtained by combustion of [fuel oils obtained via pyrolysis] is greater than the energy put into the pyrolysis furnace. What is indisputable, however, is that the energy obtainable from the fuel is very much less than the energy used to manufacture the polymer in the first place.”<sup>195</sup> Further research produced similar findings. The “loss of efficiency and emission potential” of pyrolysis presented “an obvious limitation,” according to a 1986 research paper.<sup>196</sup> An article published the following year was even more direct: “[D]estructive technologies, such as incineration and pyrolysis, are quite wasteful.”<sup>197</sup>

The economics of chemical recycling processes are also unfavorable. Industry advertising often implies that all types of plastic can be chemically recycled together—but as with mechanical recycling, the output only has value when the plastic is uniform.<sup>198</sup> A 1973 report on pyrolysis produced by the consulting firm Arthur D. Little, Inc. found that, to produce a usable oil byproduct, the process would require “very pure” plastic stock (**Figure 18**), as with mechanical recycling.<sup>199</sup> Thus, the same constraints that apply to mechanical recycling apply in this context: “Separation of plastics from [municipal solid waste] is neither technically nor economically feasible at the present time, and probably will not be in the future.”<sup>200</sup> A 1981 article published in the journal *Conservation & Recycling* found that “the same constraints that bedevil all plastics recycling processes,” including sufficient quality and quantity inputs, markets for the end-products, and general economics, held true for pyrolysis.<sup>201</sup> The paper concluded that it was “difficult at this time to foresee the building of full-scale plants to pyrolyse municipal refuse.”<sup>202</sup>

The industry is not only promoting these infeasible technologies as a “new” solution to the plastic waste crisis, but also renewing efforts to convince the public that the technologies are “recycling.”

**Figure 18**

A 1973 study concluded that plastic waste is not suitable for pyrolysis (what industry today often calls Advanced Recycling), a process that shared many of the same obstacles as mechanical recycling. Arthur D. Little, 1973 (*emphasis added*).

193 American Chemistry Council, *Advanced Recycling*, <https://www.americanchemistry.com/better-policy-regulation/plastics/advanced-recycling> (last visited Nov. 2, 2023).

194 See Ivy Schlegel, GREENPEACE, DECEPTION BY THE NUMBERS: AMERICAN CHEMISTRY COUNCIL CLAIMS ABOUT CHEMICAL RECYCLING INVESTMENTS FAIL TO HOLD UP TO SCRUTINY 4 (Sept. 9, 2020), [https://www.greenpeace.org/usa/wp-content/uploads/2020/09/GP\\_Deception-by-the-Numbers-3.pdf](https://www.greenpeace.org/usa/wp-content/uploads/2020/09/GP_Deception-by-the-Numbers-3.pdf).

195 H. Verity Smith, *Some Criteria for the Successful Commercial Recycling of Heterogenous Plastics Waste*, 2 CONSERVATION & RECYCLING 197, 198 (1978) (on file with CCI #705.2).

196 A.G. Buekens, et al., *Status of RDF-Production and Utilization in Europe*, 9 CONSERVATION & RECYCLING 233, 249 (1986) (on file with CCI #672.17).

197 E.M. Kampouris, et al., *A Model Recovery Process for Scrap Polystyrene Foam by Means of Solvent Systems*, 10 CONSERVATION & RECYCLING 315, 315 (1987) (on file with CCI #634.1).

198 For an overview of the current state of chemical recycling technologies, see Peter Quicker, et al., *Chemical Recycling: A Critical Assessment of Potential Process Approaches*, 40 WASTE MGMT. & RES. 1494 (2022), <https://doi.org/10.1177/0734242X221084044>.

199 Arthur D. Little, Inc., *supra* note 191, at 49-50 (CCI #782.49-50).

200 *Id.*

201 K. F. Drain et al., *supra* note 33, at 216 (CCI #724.16).

202 *Id.*

The plastics industry has long hoped to capitalize on consumers' preference for recycling, and garner support for incineration by conflating WtE technologies with recycling. In 1986, VI insisted that the “practice of incinerating or burning solid waste to recover energy is really another form of recycling, with heat or light being the final product rather than reprocessed material.”<sup>203</sup> Several years later, in 1994, APC staffers expressed the need to continue to push the idea: internal notes explain that the organization wanted to “[m]ake a bigger deal of tying recy[cling] to WTE.”<sup>204</sup> However, the unwillingness of regulatory agencies to recognize the ultimate burning of plastic waste as “recycling” hampered efforts to sell the public on WtE technologies.

In 1994, recognizing that plastic could not be adequately recycled through mechanical recycling, SPI made a bid to the Attorney General of Oregon, asking that plastic waste processed into fuel at an in-state pyrolysis facility be recognized as “recycled” so it could meet its 25% recycling target. The Oregon Attorney General considered the issue and determined that “pyrolysis is not recycling to the extent the end product of that process is a form of energy.”<sup>205</sup> SPI challenged the Attorney General’s interpretation, seeking a declaratory judgment that its pyrolysis system qualified as recycling under Oregon law, but was ultimately unsuccessful.<sup>206</sup> As internal APC notes indicate (**Figure 19**), “[t]he heart [and] soul of [the] decision is that fuel products are not recycling.”<sup>207</sup>

In recent years, the plastics industry has renewed its lobbying efforts to classify WtE technologies as “recycling,” while also misrepresenting that the unrefined oil byproduct from chemical or feedstock recycling can be refined and turned into new plastic to justify this classification. The industry has planned to promote these technologies for decades, despite knowledge of their limitations. In April 1994, APC staffers held a meeting to strategize about WtE through 2000 and beyond (**Figure 20**). In addition to seeking to have “WTE viewed as recovery,” the trade organization’s staff intended for “[b]oth mechan[ical] & feedstock” to be “accepted as recy[cling].”<sup>208</sup> In 2003, long-time industry consultant Alan Griff criticized the industry for entertaining the idea of plastic-to-plastic chemical recycling, calling it “another example of how non-science got into the minds of industry and environmental

**Figure 19**

On January 24, 1994, staffers at the American Plastics Council discussed the Oregon Attorney General’s decision that waste-to-fuel pyrolysis did not qualify as recycling. *Condrey, 1994 (emphasis added).*

**Figure 20**

Notes from an American Plastics Council “WTE Mtg.” in April 1994 highlight the trade organization’s expectation that mechanical recycling rates would remain static into the 2000s along with their intention to promote chemical recycling and waste-to-energy technologies. *Condrey, 1994 (emphasis added).*

203 See Vinyl Institute, *supra* note 70, at 2.

204 Bailey Condrey, *WTE Mtg. 4/29/94*, in NOTES, *supra* note 86, at 175 (CCI #79.175).

205 Letter of Advice from Jerome S. Lidz, Attorney-in-Charge of Oregon DOJ’s Natural Resources Section to Fred Hansen, Director of Oregon Department of Environmental Quality (Jan. 20, 1994).

206 Complaint for Declaratory Judgment, *Society of the Plastics Industry, Inc. v. State of Oregon* (Or. Cir. Ct. Feb. 18, 1994) (No. 94C-10533).

207 Bailey Condrey, *AG Conrad Mtg 1/24/94*, in NOTES, *supra* note 86, at 19 (CCI #79.19).

208 Bailey Condrey, *WTE Mtg. 4/29/94*, in NOTES, *supra* note 86, at 178 (CCI #79.178).

activists alike.”<sup>209</sup> Chemical recycling, he explained, was inherently “thermodynamically enviro-negative,” meaning it required greater energy inputs than it saved. “Didn’t anyone know this already?” Griff wrote.<sup>210</sup> “It’s disgraceful either way—either people knew it was an energy-loser and didn’t want to let it be known, or else they didn’t bother to figure it out at all.”<sup>211</sup> In fact, they had known that it was not viable for nearly a decade—in a 1994 meeting with APC staffers, Exxon Chemical Vice President Irwin Levowitz called pyrolysis a “fundamentally uneconomical process.”<sup>212</sup>

The industry’s early knowledge that chemical recycling was not viable has held true through the present. Analyses have consistently shown that plastic-to-plastic chemical recycling is not taking place at scale. A 2020 report from the Global Alliance for Incinerator Alternatives identified 37 facilities using chemical recycling technologies that had been proposed or built since the early 2000s.<sup>213</sup> Of the 37, only three were operational, and none were successfully producing new plastic.<sup>214</sup> Greenpeace examined 51 “recycling” facilities the same year, and found that roughly 25% were not engaged in recycling but were instead WtE facilities of various sorts.<sup>215</sup> Only four—three of them owned by petrochemical companies—were plastic-to-plastic facilities, and none were operational or showed indications of future viability.<sup>216</sup>

Investigations by *Reuters* and the Natural Resources Defense Council have produced similar findings. The numerous chemical recycling facilities that the industry has publicly announced since 2017 have mostly turned out to be plastic-to-fuel facilities, years behind schedule, or abandoned altogether.<sup>217</sup> A recent report published by Beyond Plastics and IPEN likewise found that, despite the plastics industry’s alleged commitments, only 11 chemical recycling facilities have been built in the U.S.—of those, just four are fully operational.<sup>218</sup> Even if the 11 facilities *were* fully operational, however, the report concluded that their combined capacity represented just 1.3% of the plastic waste produced in the U.S. each year.<sup>219</sup>

None of this well-established evidence has deterred petrochemical companies from asserting that “advanced recycling” is a viable solution to the plastic waste crisis. In a familiar turn, the plastics industry is investing significant resources in a public relations campaign to sell the public on “advanced recycling” in an effort to nullify public backlash and protect their social license to rapidly expand plastic production. ExxonMobil, Dow, and Chevron Phillips Chemical<sup>220</sup> have each announced their intention to process at least a billion pounds of plastic

209 Allan L. Griff, Consulting Engineer, *IS RECYCLING GOOD FOR THE ENVIRONMENT?* 4 (2003), <https://griffex.com/wp-content/uploads/2020/09/Griff-gpec-and-tables.pdf?c772ab&c772ab>.

210 *Id.*

211 *Id.*

212 Bailey Condrey, *ART Meeting—Houston*, in NOTES, *supra* note 86, at 27 (Jan. 26, 1994) (CCI #79.27).

213 Denise Patel et al., GLOBAL ALLIANCE FOR INCINERATOR ALTERNATIVES, ALL TALK AND NO RECYCLING: AN INVESTIGATION OF THE U.S. “CHEMICAL RECYCLING” INDUSTRY (2020), [https://www.no-burn.org/wp-content/uploads/All-Talk-and-No-Recycling\\_July-28.pdf](https://www.no-burn.org/wp-content/uploads/All-Talk-and-No-Recycling_July-28.pdf).

214 *Id.* at 3.

215 Ivy Schlegel, *supra* note 160, at 8.

216 *Id.* An Eastman plant in Kingsport, TN is reportedly still under construction while a planned Indorama facility in Spartanburg, SC has reportedly faced numerous hurdles and has been on hold since 2020. Jared Paben, *Eastman Provides Updates on Massive PET Recycling Plant*, RESOURCE RECYCLING (Aug. 1, 2023) (on file with CCI #4867); Alexander H. Tullo, *Polyethylene Terephthalate Recycling Plant Planned for Georgia*, CHEMICAL & ENGINEERING NEWS (Jan. 1, 2023) (on file with CCI #4835). The third was established by BP but is now owned by INEOS, which claims that the pilot plant “is expected to prove the technology on a continuous basis,” suggesting the facility is not yet operational. INEOS Aromatics, *Ineos Infinia*, <https://www.ineos.com/businesses/ineos-aromatics/ineos-infinia/> (last visited Nov. 2, 2023) (on file with CCI #4519.2).

217 Joe Brock, et al., *supra* note 189 (reporting on 30 advanced recycling projects); *see also* Veena Singla, *supra* note 192.

218 *See* Beyond Plastics & IPEN, CHEMICAL RECYCLING: A DANGEROUS DECEPTION 81-119 (Oct. 2023), <https://www.beyondplastics.org/publications/chemical-recycling>.

219 *Id.* at 39.

220 Press Release, Chevron Phillips Chemical, Chevron Phillips Chemical Deepens Collaboration with Nexus Circular, Securing Contracted Long-Term Supply of Advanced Recycled Plastic Feedstocks from New Facility (Feb. 7, 2023) <https://www.cpchem.com/media-events/news/news-release/chevron-phillips-chemical-deepens-collaboration-with-nexus-circular> (on file with CCI #4866).

waste in their chemical recycling facilities, with ExxonMobil claiming that it will reach this goal by 2026.<sup>221</sup> Dow has “a series of planned facilities,” which are expected to “add as much as 600 kilotons of annual advanced recycling capacity”—or more than 1 billion pounds—by 2030.<sup>222</sup> Shell’s goal is even more outrageous—with a new “pyrolysis oil upgrader” facility set to open in 2024, they have announced an “ambition” to recycle one million metric tons, or over two billion pounds, of plastic waste by 2025.<sup>223</sup> These goals, like recycling ambitions from the past, will almost certainly not be met.<sup>224</sup> The industry has funded a network of non-profit organizations and front groups that exist to validate the myth of “advanced recycling” and its contribution to the “circular economy.”<sup>225</sup>

Organizations such as The Recycling Partnership, the Alliance to End Plastic Waste (affiliated with ACC), the Sustainable Packaging Coalition (affiliated with GreenBlue), the Consortium for Waste Circularity, the Circular Plastics Fund (affiliated with Closed Loop Partners), the Ellen MacArthur Foundation, the Campaign for Recycling and the Environment (affiliated with FPA), the World Plastics Council, and the Coalition to Advance Molecular Recycling, among others, allow the industry to create an illusion of success with the intent to deceive consumers, just like industry front groups of the past.

Lewis Freeman, who served as a Vice President at SPI from 1978 to 2001, says that the plastics industry’s approach to promoting recycling today mirrors its efforts from decades prior, when they viewed the issue as a problem of public perception rather than a technical or economic one. “They’re viewing it as a communications problem,” he explains, “but there’s another problem and they haven’t devoted, in my opinion, the kind of energy and creativity and ingenuity to the real problem that they are devoting to the communications part.” Freeman remains skeptical of the industry’s promises given their inability to show measurable improvement: “In 30 some-odd years, there have been some slight improvements in the amount of plastics recycling, but for all the effort and the money they spent, they haven’t moved the needle hardly at all. If they used the same measure of success and failure they do in running the rest of their business, they’d be out of business.”<sup>226</sup>

Companies like ExxonMobil, Shell, Chevron Phillips, and Dow—independently and through their industry trade associations—have colluded to deceive the public for half a century, despite extensive evidence that recycling is not a viable solution to the plastic waste problem. “Advanced recycling” is the industry’s most recent false solution intended to shield petrochemical companies from backlash associated with the plastic waste crisis they have created. The industry’s lies and deception have had tangible consequences, diverting resources away from alternative waste management strategies and legitimizing ever-increasing production that has significantly exacerbated the plastic waste crisis.

221 ExxonMobil, ANNUAL REPORT 2022 iv, v (2023), [https://dlia3yog0oux5.cloudfront.net/\\_0525f46847911a3ef8cf04b23fb23196/exxonmobil/db/2301/22049/annual\\_report/2022-Annual-Report.pdf](https://dlia3yog0oux5.cloudfront.net/_0525f46847911a3ef8cf04b23fb23196/exxonmobil/db/2301/22049/annual_report/2022-Annual-Report.pdf) (on file with CCI #3128.6, 7).

222 Dow, 2022 ANNUAL REPORT iv, viii, 8 (2023), [https://s23.q4cdn.com/981382065/files/doc\\_financials/2023/ar/2022\\_Dow\\_Inc\\_Annual\\_Report.pdf](https://s23.q4cdn.com/981382065/files/doc_financials/2023/ar/2022_Dow_Inc_Annual_Report.pdf) (on file with CCI #3146.5, 18).

223 Shell, 2022 ANNUAL REPORT 70 (2023) (on file with CCI #3138.73).

224 All of the companies qualify their claims in anticipation of not meeting their goals. Exxon, for example, explains that “actual future results, including . . . timing to increase the use of plastic waste as feedstock for advanced recycling . . . could differ materially due to a number of factors.” ExxonMobil, Annual Report (Form 10-K) at 42 (Dec. 31, 2022), <https://ir.exxonmobil.com/static-files/d74ed1e0-cb0a-4c8f-8a58-af673056d6bc>. But Dow suggested why they still feel the need to make the commitments in their 2022 annual report, acknowledging that a failure to address consumers’ concerns about plastic waste could negatively impact their business: “Increased concerns regarding plastic waste in the environment, consumers selectively reducing their consumption of plastic products, a lack of plastic waste collection and recycling infrastructure, or new or more restrictive regulations and rules related to plastic waste could reduce demand for the Company’s plastic products and could negatively impact the Company’s financial results.” Dow, *supra* note 222, at 23 (CCI #3146.33).

225 See *infra* Appendix C, subpart A.

226 Virtual Interview with Lewis Freedman, former Vice President, SPI (Dec. 4, 2023).

## IV. PETROCHEMICAL COMPANIES RAN—AND CONTINUE TO RUN—A DECADES-LONG CAMPAIGN OF DECEPTION AND DISINFORMATION ON PLASTIC RECYCLING

The plastics industry—including petrochemical companies and the industry trade associations and front groups that represent them—uses a variety of strategies and tactics to persuade consumers that plastic recycling is viable, despite its knowledge to the contrary. First, trade associations have created and funded a web of front groups to act on the industry’s behalf, while obscuring its role. Next, the plastics industry has promoted plastic recycling through: public relations and advertising campaigns; heavily publicized but short-lived investments; unrealistic goals that have not been met; and educational materials for school children that conflate plastic recycling and environmental stewardship. In more recent years, new campaigns have presented old and unproven technologies as “advanced recycling,” and co-opted the language of a “circular economy” to convince the public that the industry is advancing solutions to the plastic waste crisis. As such, these campaigns deceive the public, policymakers, and regulators about the viability of plastic recycling as a means to sustain and expand plastic production.

These strategies and tactics are generally described as follows (with a more detailed account outlined in **Appendix C** below):

- **Petrochemical companies—independently and through their membership and leadership in plastics industry trade associations—have created and funded front groups** to promote plastic recycling as a false solution. Beginning in the 1980s and continuing to the present, petrochemical companies and their trade associations have formed, funded, and directed front groups to undertake the day-to-day work of promoting plastic recycling. Over several decades, a constellation of plastic recycling advocates has emerged: industry trade associations that represent the plastics industry at large; coalitions that promote the interests of a seemingly narrow segment of producers; and front groups that respond to a specific issue, sometimes quickly disappearing. The major petrochemical companies and trade associations—including ExxonMobil, Shell, Chevron Phillips, Dow, DuPont, LyondellBasell, Eastman, Occidental, the Society of the Plastics Industry (SPI), the Plastics Industry Association (PLASTICS), the American Plastics Council (APC), and the American Chemistry Council (ACC)—have been the driving force behind many of these groups.
- **The plastics industry engaged—and continues to engage—in public communications campaigns to promote plastic recycling as a false solution.** Since the 1980s, petrochemical companies, trade associations, and front groups have engaged in public relations and advertising campaigns to persuade the public that plastic is generally recyclable, and “educate” consumers about how to recycle. In more recent years, advertising campaigns have promoted “advanced recycling” as a solution to overcome stagnant recycling rates. In 2023, the Plastics Industry Association launched yet another deceptive campaign entitled “Recycling is Real.”<sup>227</sup> The campaign seeks to assure consumers that plastic recycling is “real,” by highlighting plastic recycling at facilities across the country, while ignoring the enormous technical and economic realities limiting the recyclability of the majority of post-consumer plastic waste.

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227 PLASTICS, *Recycling is Real*, <https://recyclingisreal.com/> (last visited Jan. 3, 2024).

- **The plastics industry made targeted investments in plastic recycling research and development to mislead consumers and policymakers.** Petrochemical companies have made significant investments in research and development as well as sweeping promises to demonstrate their commitment to plastic recycling. In the 1990s, these investments were largely centered around recycling facilities, which the companies claimed could recycle a wide range of plastics. However, many of these investments in recycling facilities closed within the decade, and few managed to economically recycle any type of plastic besides PET and HDPE bottles and jugs. Despite its failures, the industry continued to promote plastic recycling as an economically viable opportunity to manage plastic waste.
- **The plastics industry established—and continues to establish—unachievable plastic recycling targets, misleading consumers and policymakers.** The petrochemical companies and plastics industry use targets to demonstrate their commitment to plastic recycling without credible plans to meet them. Forward-looking statements are subject to external risks and carry some uncertainty.<sup>228</sup> However, it is deceptive for a company to pledge a goal that it has no legitimate plans to pursue, is incompatible with investments, or is impossible given technical and/or economic limitations. Goal campaigns—which are prevalent during times of public backlash and ensuing calls for regulatory action—often use vague or confusing language that obfuscates any true meaning.
- **The plastics industry developed and promoted sponsored educational materials on the “benefits” of plastic recycling to mislead school children.** The petrochemical companies and trade associations, APC in particular, created educational campaigns targeting school children to promote plastic recycling as a solution to the growing environmental concerns regarding plastic waste.
- **The plastics industry falsely promoted—and continues to promote—“advanced recycling,” which is not recycling.** The plastics industry uses the term “advanced recycling” to refer to technologies and facilities that most often do not produce an output that meets the well-accepted definition of recycling. “Advanced recycling” as a catch-all term for a variety of processes that use heat or chemicals to break down plastic into its chemical building blocks. The industry argues that the chemical byproducts produced through these technologies can be refined and used to manufacture “new plastics and products.”<sup>229</sup> However, this has not been proven viable at scale. The outputs of “advanced recycling” facilities are primarily incinerated waste and plastic-to-fuel feedstocks. Only 1-14% of materials processed via “advanced recycling” can be used to create new plastic products.<sup>230</sup> Despite this knowledge, petrochemical companies and the plastics industry promote these technologies and facilities as recycling (when they are not). They have also launched state legislative campaigns to classify “advanced recycling” as recycling as well as advertising campaigns to support these efforts.

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228 See, e.g., ExxonMobil, *supra* note 224, at 42 (annotating their “goals” and “ambitions” with a legal claim that actual future results, including . . . timing to increase the use of plastic waste as feedstock for advanced recycling . . . could differ materially due to a number of factors”).

229 American Chemistry Council, *supra* note 193.

230 Taylor Uekert et al., *supra* note 1, at 969.

- **The plastics industry falsely promoted—and continues to promote—plastic recycling as a means to achieve a “circular economy.”** In recent years, the plastics industry has co-opted the concept of “circular economy” through misleading and deceptive advertising that promotes the continued and expanded production of plastics and fossil fuels. While there is no generally accepted definition of the term, the concept of circular economy is premised on the protection of natural resources and the elimination of externalized costs (e.g., waste and pollution).<sup>231</sup> Recycling plastics—whether mechanically or through “advanced recycling”—violates the core principles of circularity. Petrochemical companies have no intention to minimize resource extraction, but rather plan to significantly expand extraction for virgin resin production.<sup>232</sup> Underscoring the industry’s misuse of the term, some industry analyses even, paradoxically, emphasize a circular economy’s capacity to expand the oil and gas industry through increased plastic production.<sup>233</sup>

## V. CONCLUSION

By deceiving consumers, policymakers, and regulators about the viability of plastic recycling, petrochemical companies have ensured the continued expansion of plastic production, which has led to a plastic waste and pollution crisis for communities across the country. The costs of managing and cleaning up plastic waste are largely borne by municipal and state governments—and those costs are projected to increase exponentially in the coming decades, given that plastic waste generation in the United States is expected to increase from 73 million metric tons in 2019 to more than 140 million metric tons by 2060.<sup>234</sup>

If not for the Big Oil and the plastic industry’s lies and deception, municipalities and states would not have invested in plastic recycling programs and facilities—many of which have been shut down due to foreseeable economic losses. The industry not only misled municipal and state agencies to believe that plastic recycling was a viable solution to plastic waste but also discouraged them from pursuing other, more sustainable waste management strategies (e.g., waste reduction, reuse, bans, alternative materials) in favor of plastic recycling.<sup>235</sup>

Fossil fuel and other petrochemical companies should now be held accountable for their deliberate campaign of deception and the resulting harms, much like tobacco and opioid companies that employed a similar playbook. Based on the growing body of evidence, municipalities and states are likely to pursue litigation, which could put an end to the industry’s deception, make the companies pay for the devastating harms they have caused to communities, and open the door to real solutions that are currently out of reach.

231 See CIEL, *BEYOND RECYCLING 3-4* (2023), <https://www.ciel.org/wp-content/uploads/2023/03/Beyond-Recycling-Reckoning-with-Plastics-in-a-Circular-Economy.pdf>.

232 *Id.* at 7 (citing Minderoo Foundation, *PLASTIC WASTE MAKERS INDEX 2021*, *supra* note 4, at 40-41).

233 *Id.* (citing *How Can a Circular Plastics Economy Grow the Oil Industry?*, WOOD MACKENZIE (2018), <https://www.woodmac.com/news/feature/circular-plastics-economy>).

234 Bruna Alves, *Projected Plastic Waste Generation in the United States 2019-2060*, STATISTA (July 18, 2023), <https://www.statista.com/statistics/1339223/us-plastic-waste-generation-outlook/>.

235 See Michaela Barnett et al., *Decades of Public Messages About Recycling In The US Have Crowded Out More Sustainable Ways To Manage Waste*, THE CONVERSATION (July 24, 2023), <https://theconversation.com/decades-of-public-messages-about-recycling-in-the-us-have-crowded-out-more-sustainable-ways-to-manage-waste-208924>; Michaela Barnett et al., *Recycling bias and reduction neglect*, NATURE SUSTAINABILITY (2023), <https://doi.org/10.1038/s41893-023-01185-7>.

## APPENDIX A—GLOSSARY

**Advanced recycling:** An industry-created term to describe a category of technologies that break down plastics into their chemical components, usually through exposure to extreme heat or chemical solvents.

**Circular economy:** While there is no standard definition of “circular economy,” the term is generally recognized as an economic system based on reuse and regeneration to keep materials and products cycling through the economy, rather than becoming waste or pollution. It is widely recognized as a sustainable or environmentally-friendly alternative to traditional linear economic systems.

**End market:** In a plastic recycling value chain, this term refers to the purchaser of processed or unprocessed source-separated recyclable plastics, which reprocesses the material into a new plastic product or raw material.

**Front group:** An organization that is structured to appear independent and purports to represent one agenda but may in reality be controlled by a particular interest, such as a company or industry, whose sponsorship is hidden or not readily apparent.

**Gasification:** A process commonly used in “advanced” or “chemical recycling” that partially oxidizes a carbon-based feedstock, such as plastics, to generate syngas. Gasification primarily produces carbon monoxide and hydrogen, but may also create methane or other gases, especially when operating at lower temperatures. The process requires a heat source, such as syngas combustion, char combustion, or steam.

**Mechanical recycling:** The process of recovering plastic waste by mechanical processes, including sorting, washing, grinding, melting, and reprocessing, to form a new plastic product.

**Petrochemical:** A chemical substance derived from petroleum or natural gas.

**Plastics industry:** The industry engaged in a range of processes and activities throughout the plastics supply chain, including the manufacturing, processing, distributing, and recycling of goods made of plastic materials.

**Plastic recycling:** The process of collecting, sorting, and reprocessing used plastics into new plastic products.

**Plastic-to-plastic recycling:** A process by which plastics are converted into liquids or gas through pyrolysis, gasification, or other methods of heating, and then are recycled into new plastics. It is sometimes referred to as “repolymerization.”

**Pyrolysis:** The process of heating a carbon-based material, such as plastics, in the absence of oxygen. Pyrolysis primarily produces a mixture of gaseous products, liquid byproducts including various oils, and solids including char and the metals or minerals that were components of the feedstock.

**Single-use plastic:** Any plastic item that is intended to be disposed of immediately after use. Common examples include plastic and polystyrene food and beverage containers, bottles, straws, cups, cutlery, packaging, and disposable plastic bags.

**Trade association:** An association founded and funded by people or companies in a particular business or trade, organized to protect and promote their common interests.

**Virgin plastic:** Newly manufactured resin, produced from a petrochemical feedstock, which has never been previously used or processed.

**Waste-to-energy (WtE):** A process by which plastics are “recovered,” or converted, into a usable form of energy through heating or incineration.

## APPENDIX B—KEY PLAYERS/RESPONSIBLE PARTIES

### A. Petrochemical Companies

**BASF** is a German chemical company and #95 on the Minderoo Foundation’s Plastic Waste Makers Index, a list of the top 100 polymer producers generating single-use plastic waste.<sup>236</sup> Founded in 1865, the company has been making plastics since the 1960s.<sup>237</sup> BASF is or has been a member of the American Chemistry Council,<sup>238</sup> the Alliance to End Plastic Waste,<sup>239</sup> the Sustainable Packaging Coalition,<sup>240</sup> the Vinyl Institute,<sup>241</sup> A Circular Economy for Flexible Packaging,<sup>242</sup> the American Plastics Council,<sup>243</sup> and the Partnership for Plastics Progress.<sup>244</sup>

**Chevron Phillips Chemical**, frequently identified as **CPChem**, is a joint venture of **Chevron Corporation** and **Phillips 66** based in the United States.<sup>245</sup> According to data from the Minderoo Foundation’s Plastic Waste Makers Index, the companies combined have a single-use plastics footprint that is on par with the top 20 in the world.<sup>246</sup> Chevron merged with another petrochemical company, **Gulf Oil**, in 1984.<sup>247</sup> The current iteration of the company was formed when the chemical divisions of Chevron U.S.A., Inc. and Phillips 66 Company were merged in 2000.<sup>248</sup> CPChem is or has been a member of the Plastics Industry Association,<sup>249</sup> the American Chemistry Council,<sup>250</sup> the American Plastics Council,<sup>251</sup> the Flexible Packaging Association,<sup>252</sup> the Alliance to End Plastic Waste,<sup>253</sup> the Council for Solid Waste Solutions,<sup>254</sup> the Partnership for Plastics Progress,<sup>255</sup> and A Circular Economy for Flexible Packaging.<sup>256</sup>

236 Minderoo Foundation, PLASTIC WASTE MAKERS INDEX 2023, *supra* note 4, at 59.

237 BASF, *Chronology - More Than 150 Years of BASF History*, <https://www.basf.com/global/en/who-we-are/history/chronology.html> (last visited Oct. 31, 2023).

238 American Chemistry Council, *Manufacturer Members*, <https://www.americanchemistry.com/about-acc/membership/manufacturer-members> (last visited Oct. 31, 2023).

239 Alliance to End Plastic Waste, *The Network Advancing Plastics Circularity*, <https://endplasticwaste.org/membership> (last visited Oct. 31, 2023).

240 Sustainable Packaging Coalition, *Members*, available at <https://web.archive.org/web/20230131021424/https://dashboard.sustainablepackaging.org/members> (archived Jan. 31, 2023).

241 The Vinyl Institute, *Member List* (Oct. 13, 1993) (on file with CCI #3816.3).

242 CEFLEX, *Who We Are, Consortium Stakeholders*, <https://ceflex.eu/who-we-are/> (last visited Oct. 31, 2023).

243 American Plastics Council, *APC Member Companies*, available at [https://web.archive.org/web/20010801164026/http://www.americanplasticscouncil.org/apcorg/about\\_apc/members.html](https://web.archive.org/web/20010801164026/http://www.americanplasticscouncil.org/apcorg/about_apc/members.html) (archived Aug. 1, 2001).

244 Partnership for Plastics Progress, *supra* note 82 (CCI #558.4).

245 Chevron Phillips Chemical, *Company History*, <https://www.cpchem.com/who-we-are/company-history> (last visited Oct. 31, 2023).

246 Minderoo Foundation, PLASTIC WASTE MAKERS INDEX 2023, *supra* note 4, at 26, 57. The Minderoo Foundation’s methodology separates Chevron and Phillips 66, which are ranked #32 and #29 respectively. Combined, the companies’ net contribution to SUP waste is 1.8 million metric tons. *Id.* at 57.

247 *F.T.C. Approves Chevron-Gulf Deal*, N.Y.TIMES (Oct. 25, 1984), <https://www.nytimes.com/1984/10/25/business/ftc-approves-chevron-gulf-deal.html>.

248 Chevron Phillips Chemical, *supra* note 245.

249 Steve Toloken, *Chevron Exit Fifth for SPI*, PLASTICS NEWS (Jan. 18, 1999) (on file with CCI #4825) (stating that Chevron Chemical was the fifth major manufacturer to withdraw from the Society for Plastics Industry, now the Plastics Industry Association, citing the desire to “see the plastics industry unite under one trade association”).

250 Chevron, CHEVRON JANUARY—JUNE 2023 LOBBYING EXPENDITURES THROUGH TRADE ASSOCIATIONS 2 (2023), <https://www.chevron.com/-/media/chevron/investors/documents/2023-trade-associations.pdf>.

251 American Plastics Council, *supra* note 243.

252 Flexible Packaging Association, *Companies of the Flexible Packaging Association*, <https://www.flexpack.org/membership-directory> (last visited Nov. 1, 2023).

253 Alliance to End Plastic Waste, *supra* note 239.

254 The Council for Solid Waste Solutions, HANDLER’S NEWS, Cover (Spring 1991) (on file with CCI #41.44).

255 Partnership for Plastics Progress, *supra* note 82 (CCI #558.4).

256 CEFLEX, *supra* note 242.

Chevron executives have served on the board of trade organizations including the American Chemistry Council,<sup>257</sup> the Alliance to End Plastic Waste,<sup>258</sup> and American Fuel and Petrochemical Manufacturers.<sup>259</sup>

**Dow Chemical Company** is a petrochemical manufacturer based in the United States and the company with the third largest single-use plastics footprint on the Minderoo Foundation's Plastic Waste Makers Index.<sup>260</sup> Dow was established in 1897<sup>261</sup> and has been producing plastic resins since the 1930s.<sup>262</sup> The current iteration of Dow was created after a series of mergers and divisions. Dow acquired another petrochemical producer, **Union Carbide**, in 2001.<sup>263</sup> Dow and **DuPont** merged in 2015 before splitting in 2019,<sup>264</sup> with Dow maintaining control over the companies' combined plastics division.<sup>265</sup> Dow and DuPont are or have been members of the American Chemistry Council,<sup>266</sup> the Plastics Industry Association,<sup>267</sup> AMERIPEN,<sup>268</sup> the Flexible Packaging Association,<sup>269</sup> The Recycling Partnership,<sup>270</sup> the Vinyl Institute,<sup>271</sup> the Sustainable Packaging Council,<sup>272</sup> the American Plastics Council,<sup>273</sup> the Council for Solid Waste Solutions,<sup>274</sup> the Partnership for Plastics Progress,<sup>275</sup> the Council on Packaging in the Environment,<sup>276</sup> NAPCOR,<sup>277</sup> A Circular Economy for Flexible Packaging,<sup>278</sup> and the Alliance to End Plastic Waste.<sup>279</sup> The company's CEO, Jim Fitterling, has previously served on the boards of the American Chemistry Council<sup>280</sup> and the Alliance to End Plastic Waste.<sup>281</sup>

257 OJ Editors, *Chevron Phillips Chemical Names Hebert COO*, OIL & GAS JOURNAL (Oct. 7, 2020), <https://www.ogj.com/general-interest/personnel-moves-promotions/article/14184818/chevron-phillips-chemical-names-hebert-coo>; American Chemistry Council, IRS Form 990, 17 (2019) (on file with CCI #4872.17) (Burnis J. Hebert); *see also* Press Release, American Chemistry Council, American Chemistry Council Elects New Class to Board of Directors (June 7, 2023), <https://www.americanchemistry.com/chemistry-in-america/news-trends/press-release/2023/american-chemistry-council-elects-new-class-to-board-of-directors> (naming Bruce Chinn, CPChem's CEO, to join the ACC board in January of 2024).

258 OJ Editors, *supra* note 257; Alliance to End Plastic Waste, IRS Form 990, 8 (2019) (on file with CCI #4878.8) (Burnis J. Hebert).

259 OJ Editors, *supra* note 257; American Fuel and Petrochemical Manufacturers, IRS Form 990, 10 (2019) (on file with CCI #4882.10) (Burnis J. Hebert).

260 Minderoo Foundation, PLASTIC WASTE MAKERS INDEX 2023, *supra* note 4, at 57.

261 Dow, *Golden Age of Inorganics (1897-1920)*, <https://corporate.dow.com/en-us/about/company/history/timeline/golden-age-of-inorganics.html> (last visited Nov. 1, 2023).

262 Dow, *A Shift to Organic Chemistry (1920-1940)*, <https://corporate.dow.com/en-us/about/company/history/timeline/shift-to-organic-chemistry.html> (last visited Nov. 1, 2023).

263 Dow, *Market-Facing Products and Diversification (1977-2004)*, <https://corporate.dow.com/en-us/about/company/history/timeline/market-facing-products-and-diversification.html> (last visited Nov. 1, 2023).

264 Dow, *Innovation at the Intersections (2004-Present)*, <https://corporate.dow.com/en-us/about/company/history/timeline/innovation-at-the-intersections.html> (last visited Nov. 1, 2023).

265 Dow, 2019 ANNUAL REPORT 3 (2020) (on file with CCI #3143.17).

266 Dow, TRADE ASSOCIATION LOBBYING EXPENDITURES FOR DOW I (2022), <https://corporate.dow.com/content/dam/corp/documents/legal/066-00435-01-trade-association-lobbying-expenditures%E2%80%902022.pdf>; DuPont, POLITICAL ACTIVITIES POLICY 3 (August 2023), [https://s23.q4cdn.com/116192123/files/doc\\_governance/2023/political-accountability-statement-august-2023.pdf](https://s23.q4cdn.com/116192123/files/doc_governance/2023/political-accountability-statement-august-2023.pdf).

267 DuPont, *supra* note 266, at 5.

268 Dow, *supra* note 266, at 1.

269 DuPont, *supra* note 266, at 3; Flexible Packaging Association, *supra* note 252.

270 Jim Johnson, *Sonoco Joins The Recycling Partnership*, PLASTICS NEWS (Mar. 27, 2017) (on file with CCI #4841.1).

271 The Vinyl Institute, *supra* note 241 (CCI #3816.3).

272 Sustainable Packaging Coalition, *supra* note 240.

273 American Plastics Council, *supra* note 243.

274 Council for Solid Waste Solutions, *supra* note 254 (CCI #41.44).

275 Partnership for Plastics Progress, *supra* note 82 (CCI #558.4).

276 Nancy A. Wolf & Ellen E. Feldman, *supra* note 122, at 81.

277 Anthony M. Montrone, et al., TRENDS AND OPPORTUNITIES IN PLASTICS RECYCLING 104 (June 1991) (on file with CCI #784.115) ("Members of the Association include Amoco Chemical, Eastman Chemical, Du Pont, ICI Americas, and Union Carbide.").

278 CEFLEX, *supra* note 242.

279 Alliance to End Plastic Waste, *supra* note 239.

280 American Chemistry Council, IRS Form 990, 7 (2021) (on file with CCI #4877.7); Dow, *supra* note 222, at 6 (CCI #3146.6).

281 Alliance to End Plastic Waste, IRS Form 990, 8 (2021) (on file with CCI #4879.8); Dow, *supra* note 222, at 6 (CCI #3146.6).

Other Dow executives have served on the boards of The Recycling Partnership<sup>282</sup> and Keep America Beautiful.<sup>283</sup>

**Eastman Chemical Company** is a chemical and plastics producer based in the United States. Eastman has produced plastics since the 1930s.<sup>284</sup> It spun off from its parent company, **Eastman Kodak**, in 1994.<sup>285</sup> Eastman is or has been a member of the American Chemistry Council,<sup>286</sup> the Plastics Industry Association,<sup>287</sup> the Recycling Partnership,<sup>288</sup> the Sustainable Packaging Coalition,<sup>289</sup> the Vinyl Institute,<sup>290</sup> AMERIPEN,<sup>291</sup> NAPCOR,<sup>292</sup> the Council for Solid Waste Solutions,<sup>293</sup> the Partnership for Plastics Progress,<sup>294</sup> and the American Plastics Council.<sup>295</sup>

**ExxonMobil Corporation** is one of the world's largest multinational oil, gas, and chemical companies and the firm with the world's largest single-use plastics footprint according to the Minderoo Foundation's Plastic Waste Makers Index.<sup>296</sup> ExxonMobil Corporation, based in the United States, is the result of the merger between Exxon and Mobil on November 30, 1999.<sup>297</sup> Mobil established a chemical subsidiary, Mobil Chemical Company, in 1960.<sup>298</sup> Exxon followed, creating its own petrochemical manufacturing division (Exxon Chemical) in 1965.<sup>299</sup> ExxonMobil became the world's largest petrochemical company in 1999 upon the merger of Exxon Chemical and Mobil Chemical.<sup>300</sup> The company continues to significantly expand its chemical division, with a 10% increase in their plastic production capacity in 2022<sup>301</sup> and a recent \$2 billion investment in its Baytown, Texas, chemical complex to expand petrochemical production.<sup>302</sup> ExxonMobil is or has been a member or funder of the American Chemistry Council,<sup>303</sup> the Plastics Industry Association,<sup>304</sup> the American Plastics Council,<sup>305</sup> AMERIPEN,<sup>306</sup>

282 Dow, 2021 ANNUAL REPORT 20 (2022) (on file with CCI #3145.30); The Recycling Partnership, IRS Form 990, 7 (2021) (on file with CCI #4924.7) (Diego Donoso).

283 Dow, *supra* note 222, at 6 (CCI #3146.6); Keep America Beautiful, IRS Form 990, 7 (2017) (on file with CCI #4899.7) (Howard Ungerleider).

284 See Eastman, *Our History*, <https://www.eastman.com/images/timeline/> (last visited Nov. 1, 2023).

285 Eastman, *Who We Are, Company Profile*, <https://www.eastman.com/en/who-we-are/our-organization/company-profile> (last visited Nov. 1, 2023).

286 Eastman, *Memberships*, <https://www.eastman.com/en/sustainability/governance/memberships> (last visited Nov. 1, 2023).

287 *Id.*

288 *Id.*

289 Sustainable Packaging Coalition, *supra* note 240.

290 Vinyl Institute, *Our Members*, <https://www.vinylinfo.org/our-members/> (last visited Nov. 1, 2023).

291 AMERIPEN, *Company Member Directory*, <https://members.ameripen.org/company-members/> (last visited Nov. 1, 2023).

292 See Anthony M. Montrone, et al., *supra* note 277; National Association for PET Container Resources, *NAPCOR Members*, <https://napcor.com/napcor-membership/membership-directory-resources/> (last visited Nov. 1, 2023).

293 Council for Solid Waste Solutions, *supra* note 254 (CCI #41.44).

294 Partnership for Plastics Progress, *supra* note 82 (CCI #558.4).

295 American Plastics Council, *supra* note 243.

296 Minderoo Foundation, *PLASTIC WASTE MAKERS INDEX 2023*, *supra* note 4, at 57.

297 ExxonMobil, *Our History*, <https://corporate.exxonmobil.com/who-we-are/our-global-organization/our-history> (last visited Nov. 1, 2023).

298 Chem Europe, *ExxonMobil*, <https://web.archive.org/web/20230321194419/https://www.chemeurope.com/en/encyclopedia/ExxonMobil.html> (archived Mar. 21, 2023).

299 *Id.*

300 Susan Warren, *Exxon-Mobil Deal Will Create Giant in Petrochemical Industry*, WALL STREET JOURNAL (Dec. 4, 1998), <https://www.wsj.com/articles/SB912728818139342000>.

301 ExxonMobil, *ADVANCING CLIMATE SOLUTIONS PROGRESS REPORT 4 (2023)*, <https://corporate.exxonmobil.com/-/media/global/files/advancing-climate-solutions-progress-report/2023/2023-advancing-climate-solutions-progress-report.pdf>.

302 Press Release, ExxonMobil, *ExxonMobil Announces \$2 billion Baytown Chemical Expansion Project; Releases Study Showing Value of Investments to U.S. Economy (May 2, 2019)*, [https://corporate.exxonmobil.com/news/news-releases/2019/0502\\_exxonmobil-announces-2-billion-baytown-chemical-expansion-project](https://corporate.exxonmobil.com/news/news-releases/2019/0502_exxonmobil-announces-2-billion-baytown-chemical-expansion-project).

303 ExxonMobil, *Trade Associations, Think Tanks, and Coalitions*, <https://corporate.exxonmobil.com/who-we-are/policy/lobbying/trade-associations-think-tanks-and-coalitions> (last visited Nov. 1, 2023).

304 *Id.*

305 American Plastics Council, *supra* note 243.

306 AMERIPEN, *supra* note 291.

the Council for Solid Waste Solutions,<sup>307</sup> the Partnership for Plastics Progress,<sup>308</sup> the Council on Packaging in the Environment,<sup>309</sup> the Flexible Packaging Association,<sup>310</sup> the Sustainable Packaging Coalition,<sup>311</sup> the Vinyl Institute,<sup>312</sup> and A Circular Economy for Flexible Packaging.<sup>313</sup> Exxon executives have served on the boards of directors of trade associations and front groups including the American Chemistry Council<sup>314</sup> and the Alliance to End Plastic Waste.<sup>315</sup>

**INEOS Group Limited** is a polymer producer based in England with the ninth largest single-use plastic waste footprint according to the Minderoo Foundation's Plastic Waste Makers Index.<sup>316</sup> Founded in 1992 as Inspec, the company has acquired elements of the chemical divisions of various companies over the years to become the world's fourth largest chemical manufacturing company.<sup>317</sup> Most significantly, INEOS acquired the entire petrochemical wing of **BP** through mergers in 2005 and 2020.<sup>318</sup> BP itself had acquired petrochemical producers **Amoco**<sup>319</sup> and **ARCO**<sup>320</sup> years before. INEOS and the companies it has acquired are or have been members of the American Chemistry Council,<sup>321</sup> the American Plastics Council,<sup>322</sup> NAPCOR,<sup>323</sup> A Circular Economy for Flexible Packaging,<sup>324</sup> and the Council for Solid Waste Solutions.<sup>325</sup>

**Occidental Petroleum** is an oil and petrochemical company based in the United States. Its chemicals subsidiary, **OxyChem**, was established after the company's acquisition of **Hooker Chemical Company** in 1968.<sup>326</sup> Occidental is or has been a member of the American Chemistry Council,<sup>327</sup> the American Plastic Council,<sup>328</sup> the Council for Solid Waste Solutions,<sup>329</sup> the Vinyl Institute,<sup>330</sup> and the Partnership for Plastics Progress.<sup>331</sup>

307 Council for Solid Waste Solutions, *supra* note 254 (CCI #41.44).

308 Partnership for Plastics Progress, *supra* note 82 (CCI #558.4).

309 COPE, RECYCLING RESOURCES DIRECTORY 7 (1993) (on file with CCI #479.8).

310 Flexible Packaging Association, *supra* note 252.

311 Sustainable Packaging Coalition, *supra* note 240.

312 ExxonMobil, *supra* note 303.

313 CEFLEX, *supra* note 242.

314 American Chemistry Council, *supra* note 280, at 9 (CCI #4879.9); ExxonMobil, *supra* note 221, at 29 (CCI #3128.41) (Karen McKee).

315 Alliance to End Plastic Waste, *supra* note 281, at 8 (CCI #4879.8); ExxonMobil, *supra* note 221, at 29 (CCI #3128.41) (Karen McKee).

316 Minderoo Foundation, PLASTIC WASTE MAKERS INDEX 2023, *supra* note 4, at 57.

317 Alexander H. Tullo, *C&EN's Global Top 50 Chemical Firms for 2021*, C&EN (2021), <https://cen.acs.org/business/finance/CENs-Global-Top-50-2021/99/i27>.

318 Staff, *BP Sells Petrochemicals Business to Ineos in \$5-Billion Deal*, PLASTICS TODAY (June 29, 2020) <https://www.plasticstoday.com/ma/bp-sells-petrochemicals-business-ineos-5-billion-deal>; *BP Sells Chemical Unit for £5bn*, BBC NEWS (Oct. 7, 2005), <http://news.bbc.co.uk/1/hi/business/4321046.stm>.

319 Youssef M. Ibrahim, *British Petroleum Is Buying Amoco in \$48.2 Billion Deal*, N.Y. TIMES (Aug. 12, 1998), <https://www.nytimes.com/1998/08/12/business/british-petroleum-is-buying-amoco-in-48.2-billion-deal.html?searchResultPosition=1>.

320 David Stout, *F.T.C. Approves Merger of BP Amoco and ARCO*, N.Y. TIMES, (Apr. 14, 2000), <https://www.nytimes.com/2000/04/14/business/ftc-approves-merger-of-bp-amoco-and-arco.html?searchResultPosition=2>

321 American Chemistry Council, *Member Companies*, available at [https://web.archive.org/web/20091230112349/http://www.americanchemistry.com/s\\_acc/sec\\_directory.asp?CID=250&DID=616](https://web.archive.org/web/20091230112349/http://www.americanchemistry.com/s_acc/sec_directory.asp?CID=250&DID=616) (archived Dec. 30, 2009).

322 American Plastics Council, *supra* note 243.

323 National Association for PET Container Resources, *supra* note 292.

324 CEFLEX, *supra* note 242.

325 Council for Solid Waste Solutions, *supra* note 254 (CCI #41.44).

326 *Chemical Company to Join Occidental*, N.Y. TIMES (Mar. 22, 1968), <https://timesmachine.nytimes.com/timesmachine/1968/03/22/77081759.html?pageNumber=79>.

327 American Chemistry Council, *supra* note 238.

328 American Plastics Council, *supra* note 243.

329 Council for Solid Waste Solutions, *supra* note 254 (CCI #41.44).

330 The Vinyl Institute, *supra* note 241 (CCI #3816.3); Vinyl Institute, *supra* note 290.

331 Partnership for Plastics Progress, *supra* note 82 (CCI #558.4).

**Shell plc** is one of the world's largest oil and gas companies by revenue and is #52 on the Minderoo Foundation's Plastic Waste Makers Index.<sup>332</sup> It is based in England. Its petrochemical division, Shell Chemicals, was founded in 1929.<sup>333</sup> Shell is or has been a member of the American Chemistry Council,<sup>334</sup> the Flexible Packaging Association,<sup>335</sup> the American Plastics Council,<sup>336</sup> the Alliance to End Plastic Waste,<sup>337</sup> the Council on Packaging in the Environment,<sup>338</sup> the Partnership for Plastics Progress,<sup>339</sup> and NAPCOR.<sup>340</sup>

## B. Trade Associations

The **American Chemistry Council (ACC)** represents firms across the chemical industry and is the industry's most important vehicle for disseminating recycling disinformation over the last 20 years. Previously known as the Chemical Manufacturers Association, it adopted its current name in 2000.<sup>341</sup> The organization took on increased significance for the petrochemical industry in 2002 when it absorbed the American Plastics Council.<sup>342</sup> ACC established the Alliance to End Plastic Waste in 2018 with the help of marketing firm Weber Shandwick.<sup>343</sup> ACC's membership includes ExxonMobil, Shell, Chevron Phillips, DuPont, Dow, Eastman, BASF, BP, and Occidental, among many others.<sup>344</sup> In recent years, ACC's board has included executives and board members from Exxon,<sup>345</sup> Chevron,<sup>346</sup> Dow,<sup>347</sup> Shell,<sup>348</sup> the American Petroleum Institute,<sup>349</sup> the Alliance to End Plastic Waste,<sup>350</sup> American Fuel and Petrochemical Manufacturers,<sup>351</sup> the Recycling Partnership,<sup>352</sup> the Vinyl Institute,<sup>353</sup> and Keep America Beautiful.<sup>354</sup>

The **Alliance to End Plastic Waste (AEPW)** is a greenwashing organization and front group backed by the plastics industry. It was established by the American Chemistry Council in 2018

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332 Minderoo Foundation, *PLASTIC WASTE MAKERS INDEX 2023*, *supra* note 4, at 58.

333 Shell Global, *Our History*, <https://web.archive.org/web/20221007054954/https://www.shell.com/business-customers/chemicals/about-shell-chemicals/our-history.html> (archived Oct. 7, 2022).

334 Shell Global, *Industry Associations and Similar Organizations We Are Members Of*, <https://www.shell.com/sustainability/transparency-and-sustainability-reporting/advocacy-and-political-activity/our-work-with-industry-associations/industry-associations-and-similar-organisations-we-are-members-of.html> (last visited Nov. 1, 2023).

335 Flexible Packaging Association, *supra* note 252.

336 American Plastics Council, *supra* note 243.

337 Shell Global, *supra* note 334.

338 Nancy A. Wolf & Ellen E. Feldman, *supra* note 122, at 81 (COPE).

339 Partnership for Plastics Progress, *supra* note 82 (CCI #558.4).

340 National Association for PET Container Resources, *NAPCOR Member Companies*, <https://web.archive.org/web/19971009113924/http://www.napcor.com/members.html> (archived Oct. 9, 1997).

341 *News Clips*, *PLASTICS NEWS* (June 21, 2000) (on file with CCI #4870.2).

342 Steve Toloken, *APC, ACC Seek to Soothe Merger Worries*, *PLASTICS NEWS* (Jan. 7, 2002) (on file with CCI #4869).

343 See Brian Probus Creative, *The Alliance to End Plastic Waste*, <https://archive.ph/zPwqc> (archived Feb. 23, 2023).

344 American Chemistry Council, *supra* note 238.

345 American Chemistry Council, *supra* note 280, at 9 (CCI #4877.9); ExxonMobil, *supra* note 221, at 29 (CCI #3128.41) (Karen McKee).

346 OJ Editors, *supra* note 257; Alliance to End Plastic Waste, *supra* note 258 (CCI #4878.8) (Burnis J. Hebert).

347 American Chemistry Council, *supra* note 280, at 7 (CCI #4877.7); Dow, *supra* note 222, at 6 (CCI #3146.6) (Jim Fitterling).

348 Press Release, American Chemistry Council, *supra* note 257.

349 American Chemistry Council, IRS Form 990, 20 (2017) (on file with CCI #4875.23); American Petroleum Institute, IRS Form 990, 7 (on file with CCI #4886.7) (Debra Phillips).

350 American Chemistry Council, *supra* note 257 (CCI #4872.17); Alliance to End Plastic Waste, *supra* note 258 (CCI #4878.8) (Burnis J. Hebert).

351 American Chemistry Council, *supra* note 257 (CCI #4872.17); American Fuel and Petrochemical Manufacturers, *supra* note 259 (CCI #4882.10) (Burnis J. Hebert).

352 American Chemistry Council, IRS Form 990, 8 (2020) (on file with CCI #4873.8); The Recycling Partnership, IRS Form 990, 7 (2020) (on file with CCI #4923.7) (Keith Christman).

353 Press Release, Vinyl Institute, *Vinyl Institute Elects New Member to Executive Committee* (Jan. 21, 2021), <https://www.vinylinfo.org/pressroom/vinyl-institute-elects-new-member-to-executive-committee/> (Grant Evans).

354 American Chemistry Council, *supra* note 252, at 8 (CCI #4873.8); Keep America Beautiful, IRS Form 990, 7 (2020) (on file with CCI #4902.7) (Steve Russell).

in conjunction with the marketing and public relations firm Weber Shandwick.<sup>355</sup> AEPW's membership includes petrochemical producers like Exxon, Chevron Phillips, Shell, Dow, BASF, and Total, among others.<sup>356</sup> The organization has had shared board members with Exxon,<sup>357</sup> Dow,<sup>358</sup> the American Chemistry Council,<sup>359</sup> American Fuel and Petrochemical Manufacturers,<sup>360</sup> and the Flexible Packaging Association.<sup>361</sup>

The **American Plastics Council (APC)** was a trade association/front group representing the plastics industry from the mid-1990s through 2002, when it was absorbed by the American Chemistry Council.<sup>362</sup> The organization was a successor to the Partnership for Plastics Progress, itself a successor to the Council for Solid Waste Solutions, which was created by the Society of the Plastics Industry.<sup>363</sup> APC played a significant role in publicly promoting the false solution of plastic recycling through advertising, educational campaigns, and more. APC's membership included BP, Exxon, Chevron Phillips, Shell, Dow, DuPont, Eastman, BASF, Occidental, and the Vinyl Institute.<sup>364</sup>

The **Association of Plastic Recyclers (APR)** promotes plastic recycling. Its members include Exxon, Dow, BASF, Eastman, Sonoco, Closed Loop Partners, NAPCOR, and the American Recyclable Plastic Bag Alliance.<sup>365</sup> Members of APR's board of directors have also served on the board for NAPCOR,<sup>366</sup> the Recycling Partnership,<sup>367</sup> and Keep America Beautiful.<sup>368</sup>

The **Plastics Industry Association (PLASTICS)**, known as the **Society of the Plastics Industry (SPI)** prior to 2016,<sup>369</sup> represents companies at every stage in the plastics supply chain. SPI served as the primary industry tool to promote plastic recycling from the 1970s through the 1990s. The organization spawned myriad front groups, including the Vinyl Institute,<sup>370</sup> the Council on Packaging in the Environment,<sup>371</sup> the Council for Solid Waste Solutions,<sup>372</sup> and the Partnership for Plastics Progress.<sup>373</sup> More recently, it has organized front groups to fight plastic

355 See Brian Probus Creative, *supra* note 243.

356 Alliance to End Plastic Waste, *supra* note 239.

357 Alliance to End Plastic Waste, *supra* note 281, at 8 (CCI #4879.8); ExxonMobil, *supra* note 221, at 29 (CCI #3128.41) (Karen Mckee).

358 Alliance to End Plastic Waste, *supra* note 281, at 8 (CCI #4879.8); Dow, *supra* note 222, at 6 (CCI #3146.6) (Jim Fitterling).

359 American Chemistry Council, *supra* note 257 (CCI #4872.17), Alliance to End Plastic Waste, *supra* note 258 (CCI #4878.8) (Burnis J. Hebert).

360 Alliance to End Plastic Waste, *supra* note 281, at 7 (CCI #4879.7); American Fuel and Petrochemical Manufacturers, IRS Form 990, 9 (2020) (on file with CCI #4884.9) (Albert Chao).

361 Alliance to End Plastic Waste, *supra* note 281, at 8 (CCI #4879.8); Flexible Packaging Association, IRS Form 990, 7 (2021) (on file with CCI #4896.7) (Kathy Bolhous).

362 Steve Toloken, *supra* note 342.

363 See Tom Ford & Roger King, *supra* note 99; Steve Toloken, *APC Image Builders Bring Public Around*, PLASTICS NEWS (Mar. 8, 1999), <https://www.plasticsnews.com/article/19990308/NEWS/303089940/apc-image-builders-bring-public-around> (on file with CCI #4821.3).

364 American Plastics Council, *supra* note 243.

365 Association of Plastic Recyclers, *APR Members*, <https://web.archive.org/web/20230306092329/https://plasticsrecycling.org/apr-members> (archived Mar. 6, 2023).

366 Association of Plastic Recyclers, Inc., IRS Form 990, 7 (2018) (on file with CCI #4893.7); National Association for PET Container Resources, IRS Form 990, 7 (2018) (on file with CCI #4907.8) (Byron Geiger).

367 Association of Plastic Recyclers, Inc., IRS Form 990, 7 (2020) (on file with CCI #4891.7); The Recycling Partnership, *supra* note 352, at 8 (CCI #4923.8) (John Caturano).

368 Association of Plastic Recyclers, Inc., *supra* note 367, at 7 (CCI #4891.7); Keep America Beautiful, *supra* note 354, at 8 (CCI #4902.8) (Micheal Westerfield).

369 Steve Toloken, *SPI's New Name and Look to 'Evolve the Way People Think About Plastics'*, PLASTICS NEWS (Dec. 6, 2016) (on file with CCI #552.2).

370 Vinyl Institute, Executive Board Meeting (Sept. 2, 1992) (on file with CCI #3754.30).

371 *Solid Waste: Packaging Coalition Lets Industry Speak Out*, PLASTICS WORLD 16 (Sept. 1986) (on file with CCI #4834.1).

372 Bonnie Merrill Limbach, SPI, PLASTICS AND THE ENVIRONMENT: PROGRESS AND COMMITMENT 4 (1991), Box 12, Jack Milgrom Papers, Special Collections Research Center, Syracuse University Libraries (on file with CCI #824.8).

373 *Partnership Sets Its Course for FY 92-93*, HANDLERS NEWS 1, 3 (Summer 1992) (on file with CCI #41.27).

bag bans, including the American Recyclable Plastic Bag Alliance (originally founded by the American Chemistry Council).<sup>374</sup> Its membership includes Dow, Eastman, Exxon, Chevron Phillips, DuPont, and more.<sup>375</sup> PLASTICS has recently shared board members with the Vinyl Institute,<sup>376</sup> the Recycling Partnership,<sup>377</sup> and the Foodservice Packaging Institute.<sup>378</sup>

The **Council for Solid Waste Solutions (CSWS)** was a front group established by the Society of the Plastics Industry and petrochemical companies in 1988 to promote plastic recycling disinformation and to encourage local communities to establish recycling programs.<sup>379</sup> Its executive board membership included Exxon, Mobil, Phillips, Chevron, Amoco, Dow, DuPont, Occidental, and Union Carbide.<sup>380</sup> The group eventually became the Partnership for Plastics Progress.<sup>381</sup>

The **Council on Packaging in the Environment (COPE)**, originally founded as the **Council on Plastics and Packaging in the Environment (COPPE)**, was a front group created by the Society of the Plastics Industry and petrochemical companies to promote plastic recycling. It was established in 1986 with a Dow executive as its chairman and SPI as its secretariat.<sup>382</sup> COPE's steering committee members included DuPont, Shell, Dow, and the Flexible Packaging Association.<sup>383</sup> Mobil was also a member company.<sup>384</sup> The organization was disbanded in 1996.<sup>385</sup>

The **Partnership for Plastics Progress (P3)** was a front group established in 1992 through a joint initiative between the Society of the Plastics Industry and the Society of Plastics Engineers.<sup>386</sup> The group, originally established as the Council for Solid Waste Solutions, eventually turned into the American Plastics Council, which would later merge with the American Chemistry Council.<sup>387</sup>

The **Vinyl Institute (VI)**, a trade association representing the interests of polyvinyl chloride producers, was established as a division of the Society of the Plastics Industry in 1982.<sup>388</sup> VI later joined the American Plastics Council, remaining a member during its merger with the American Chemistry Council, before becoming an independent organization in 2008.<sup>389</sup> It has promoted plastic recycling as a false solution since its founding. Today, it continues to deceptively present vinyl as recyclable through its Vinyl Sustainability Council and +Vantage

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374 Deanne Toto, *American Progressive Bag Alliance Becomes American Recyclable Plastic Bag Alliance*, RECYCLING TODAY (Feb. 4, 2020) <https://www.recyclingtoday.com/news/american-progressive-bag-alliance-changes-name-sets-sustainability-goals/>; American Chemistry Council, *ACC, SPI Align and Expand Efforts to Defend Plastic Bags and Increase Plastic Film Recycling*, <https://web.archive.org/web/20170721221531/https://www.americanchemistry.com/Media/PressReleases/Transcripts/ACC-news-releases/ACC-SPI-Align-and-Expand-Efforts-to-Defend-Plastic-Bags-and-Increase-Plastic-Film-Recycling.html> (archived July 21, 2017).

375 See Dow, *supra* note 266; Eastman, *supra* note 286; ExxonMobil, *supra* note 303; Steve Toloken, *supra* note 369 (Chevron Phillips); DuPont, *supra* note 266.

376 Society of the Plastics Industry, Inc., IRS Form 990, 13 (2016) (on file with CCI #4910.15); Vinyl Institute, IRS Form 990, 7 (2017) (on file with CCI #4920.7) (Peter de la Cruz).

377 Plastics Industry Association, IRS Form 990, 16 (2018) (on file with CCI #4912.19); The Recycling Partnership, *supra* note 282 (CCI #4924.7) (Scott Defife).

378 Plastics Industry Association, IRS Form 990, 7 (2017) (on file with CCI #4911.7); Foodservice Packaging Institute, Inc., IRS Form 990, 7 (2017) (on file with CCI #4897.7) (Wylie Royce).

379 See Steve Toloken, *supra* note 363.

380 Council for Solid Waste Solutions, *supra* note 254 (CCI #41.44).

381 See *id.*; Tom Ford & Roger King, *supra* note 99.

382 *Solid Waste*, *supra* note 371 (CCI #4834.1).

383 *Recycling Structure is Worth Salvaging*, *supra* note 158 (CCI #4838.2).

384 COPE, *supra* note 309, at 7 (CCI #479.8).

385 *Recycling Structure is Worth Salvaging*, *supra* note 158 (CCI #4838.2).

386 *Partnership Sets Its Course*, *supra* note 371 (CCI #41.27).

387 See Tom Ford & Roger King, *supra* note 99; Steve Toloken, *supra* note 363 (CCI #4821.3).

388 Vinyl Institute, *supra* note 370 (CCI #3754.30).

389 Mike Verespej, *Vinyl Institute Steps Out on Own, Exits ACC*, PLASTICS NEWS (July 14, 2008) (on file with CCI #4871).

Vinyl certification.<sup>390</sup> VI's membership includes Occidental, Dow, Eastman, and Exxon.<sup>391</sup> In recent years, VI has had shared board members with the American Chemistry Council<sup>392</sup> and PLASTICS.<sup>393</sup>

The **National Association for PET Container Resources (NAPCOR)**, previously known as the **National Association for Plastic Container Recovery (NAPCOR)**, represents producers and manufacturers of PET plastic resin and products that was founded in 1987.<sup>394</sup> Eastman, INEOS, Shell, Sonoco, and Amoco are or have been members of NAPCOR.<sup>395</sup> The trade association has recently shared board members with the Association of Plastic Recyclers,<sup>396</sup> the Recycling Partnership,<sup>397</sup> and Keep America Beautiful.<sup>398</sup>

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390 See +Vantage Vinyl, *Impact Categories*, <https://vantagevinyl.com/impact-categories/> (last visited Nov. 2, 2023) (setting an industry goal to "increase post-consumer recycling to 160 million pounds by 2035.").

391 See Vinyl Institute, *supra* note 290.

392 Press Release, Vinyl Institute, *supra* note 353 (Grant Evans).

393 Society of the Plastics Industry, Inc., *supra* note 376, at 13 (CCI #4910.15); Vinyl Institute, *supra* note 376, at 7 (CCI #4920.7) (Peter de la Cruz).

394 National Association of PET Container Resources, *What is NAPCOR?*, <https://web.archive.org/web/20230630165337/https://napcor.com/what-is-napcor/> (archived June 30, 2023).

395 National Association for PET Container Resources, *supra* note 340; National Association for PET Container Resources, *supra* note 292.

396 Association of Plastic Recyclers, Inc., *supra* note 366, at 7 (CCI #4893.7); National Association for PET Container Resources, *supra* note 366, at 7 (CCI #4907.8) (Byron Geiger).

397 National Association for PET Container Resources, IRS Form 990, 7 (2020) (on file with CCI #4908.8); The Recycling Partnership, *supra* note 352, at 8 (CCI #4923.8) (Michael Hodges).

398 Keep America Beautiful, *supra* note 354, at 8 (CCI #4902.8); National Association for PET Container Resources, *supra* note 397, at 7 (CCI #4908.8) (Michael Westerfield).

## APPENDIX C—EVIDENCE OF CAMPAIGNS

This appendix outlines the growing body of evidence of specific campaigns, identified in Part IV, that the petrochemical companies and plastics industry have engaged, and continue to engage, in to deceive the public about the viability of plastic recycling.

### A. Petrochemical companies—independently and through their membership and leadership in plastics industry trade associations—have created and funded front groups to promote plastic recycling as a false solution.

The front groups described below are emblematic of the well-coordinated efforts of the petrochemical companies and their trade associations:

#### Vinyl Institute (VI)

In 1983, the Vinyl Institute was founded as a division of SPI. Another spin-off, the Vinyl Institute Group on Recycling (VIGOR), was established in 1990. VI joined APC in 1999, then became an independent organization in 2004. Past and present members of VI include ExxonMobil, Dow, Eastman, and Occidental (as OxyChem).<sup>399</sup>

#### Plastics Recycling Foundation (PRF)

In 1984, SPI established the Plastics Recycling Foundation (PRF). Members included both bottlers and petrochemical companies, including DuPont.<sup>400</sup> PRF was an early champion of mechanical recycling as a solution to plastic waste as evidenced in its communications with lawmakers.<sup>401</sup>

#### Council on Packaging in the Environment (COPE)

The Council on Packaging in the Environment (COPE), initially established as Council on Plastics and Packaging in the Environment (COPPE), was founded in 1986 by SPI.<sup>402</sup> When the group was initially founded, Karl Kamena—then manager of government relations/public issues for Dow Chemical—served as the chairman, while SPI assumed the role of secretariat. COPE’s steering committee members later included Dow, DuPont, Shell, and the Flexible Packaging Association.<sup>403</sup> COPE shut down in 1996 after the legislative backlash on plastics waned.<sup>404</sup> *Plastics News* later called COPE’s shuttering a “casualty of the ‘let’s declare victory and go home’ syndrome that seems to have afflicted plastics recycling in recent years.”<sup>405</sup>

#### Council for Solid Waste Solutions (CSWS)

In 1988, SPI created the Council for Solid Waste Solutions (CSWS), whose executive board members included Exxon, Mobil, Chevron, Phillips 66, Amoco, Dow, DuPont, Union Carbide, and Occidental.<sup>406</sup> A primary focus of CSWS was to “emphasize viable recycling”—and the group was viewed by commentators as “the first really serious effort of the plastics industry.”<sup>407</sup>

399 See Vinyl Institute, *supra* note 290 (identifying current members).

400 Myra Klockenbrink, *supra* note 76.

401 See, e.g., Letter from Roger Bernstein, *supra* note 61 (on file with CCI #4147); Myra Klockenbrink, *supra* note 76.

402 *Solid Waste: Packaging Coalition Lets Industry Speak Out*, PLASTICS WORLD 16 (Sept. 1986) (on file with CCI #4834.1)

403 Nancy A. Wolf & Ellen E. Feldman, *supra* note 122, at 81.

404 *Recycling Structure is Worth Salvaging*, *supra* note 158 (CCI #4838.2).

405 Don Loopp, *This Year’s Report Card Not Pretty*, PLASTICS NEWS (Apr. 7, 1997), <https://www.plasticsnews.com/article/19970407/NEWS/304079998/this-year-s-report-card-not-pretty> (on file with CCI #4846.5).

406 Council for Solid Waste Solutions, *supra* note 254 (CCI #41.44).

407 Nancy A. Wolf & Ellen E. Feldman, *supra* note 122, at 83 (quoting Massachusetts recycling program author Gretchen Brewer).

### Partnership for Plastics Progress (P3 or PPP)

In 1992, SPI and the Society of Plastic Engineers (SPE) established a joint initiative known as the Partnership for Plastics Progress (P3), a spin-off from CSWS.<sup>408</sup> The new partnership “brought together 27 of the nation’s leading plastic resin producers, downstream customers, and representatives of the broader plastics processor community.”<sup>409</sup> P3’s mission was “to develop and implement a strategic, industry-supported program for the responsible use, recovery, and conservation of plastics that addresses recognized public interests and concerns.”<sup>410</sup> P3 later became the American Plastics Council (APC),<sup>411</sup> which then merged with the American Chemistry Council (ACC) in the early 2000s.

### Sustainable Packaging Coalition (SPC)

In 2004, GreenBlue launched the Sustainable Packaging Coalition (SPC) with 20 founding members, including Cargill Dow and Dow Chemical.<sup>412</sup> SPC now boasts over 550 members including ExxonMobil Chemical, Dow, and Eastman (currently serving on the Executive Committee).<sup>413</sup>

### The Recycling Partnership

In 2014, Curbside Value Partnership (CVP) launched The Recycling Partnership, a project to improve residential recycling infrastructure.<sup>414</sup> When the project was first launched, Craig Cookson, director of sustainability and recycling for the plastics division at ACC, joined as a board member.<sup>415</sup> That same year, ACC and SPI became inaugural members of The Recycling Partnership.<sup>416</sup> Funders include several petrochemical companies and their trade associations—including ExxonMobil, TotalEnergies, Dow, Eastman, ACC, PLASTICS, the Flexible Packaging Association, the Foodservice Packaging Institute, NAPCOR, and AMERIPEN.<sup>417</sup>

408 See Steve Toloken, *supra* note 363 (CCI #4821.3).

409 *Partnership for Plastics Progress Responds to Critics*, PLASTICS ENGINEERING (Oct. 1, 1992), available at <https://www.thefreelibrary.com/Partnership+for+Plastics+Progress+responds+to+critics.-a013528698>.

410 *Id.*; see also SPI, *From CSWS to the Partnership for Plastics Progress*, HANDLERS NEWS 1, 3 (Spring 1992) (on file with CCI #41.29) (reporting that the Partnership for Plastics Progress was intended to allow industry executives to “coordinate and improve existing recycling conservation and resource recovery activities”).

411 See Tom Ford & Roger King, *supra* note 99; Steve Toloken, *supra* note 363 (CCI #4821.3).

412 Sustainable Packaging Coalition, *About Us*, available at <https://web.archive.org/web/20041207035127/http://www.sustainablepackaging.org/about.htm> (archived Dec. 7, 2004); see also Joseph James Whitworth, *SPC: Role of Sustainable Packaging*, BAKERY & SNACKS (June 16, 2015), <https://www.bakeryandsnacks.com/Article/2015/06/17/Three-branches-of-sustainability-from-packaging-perspective>.

413 Sustainable Packaging Coalition, *Member Search*, available at <https://web.archive.org/web/20230619192921/https://dashboard.sustainablepackaging.org/members> (archived June 19, 2023).

414 Curbside Value Partnership, *The Recycling Partnership*, available at <https://archive.ph/Vq3Hl> (archived Aug. 11, 2014). Curbside Value Partnership was a former Keep America Beautiful program and the predecessor to the Recycling Partnership. Keep America Beautiful, *Our History*, <https://kab.org/our-history/> (last visited Nov. 2, 2023).

415 *CVP Board of Directors*, CURBSIDE VALUE PARTNERSHIP, available at <https://archive.ph/20140811213931/http://www.recyclecurbside.org/about/board-of-directors/> (archived Aug. 11, 2014).

416 Allan Gerlat, *American Chemistry Council Plastics Unit Joins Recycling Partnership*, WASTE 360, (May 22, 2014), available at <https://archive.ph/FsC5s> (archived Aug. 11, 2023); *SPI Joins Recycling Partnership*, RECYCLING TODAY (July 2, 2014), available at <https://www.recyclingtoday.com/news/spi-plastics-recycling-partnership-cvp/>; Curbside Value Partnership, *supra* note 414.

417 The Recycling Partnership, *Funding Partners*, available at <https://archive.ph/ZPOAR> (archived Aug. 11, 2023)

**The Alliance to End Plastic Waste (AEPW)**

In 2018, ACC hired public relations firm Weber Shandwick to establish The Alliance to End Plastic Waste (AEPW), a non-profit organization based in Singapore.<sup>418</sup> In 2019, ACC reported that it had paid Weber Shandwick \$2,069,759 for their services.<sup>419</sup> The Alliance “was founded by companies that make, use, sell, process, collect and recycle plastics.”<sup>420</sup> Many of the Alliance’s board members hold executive leadership positions or serve on the board of directors at major petrochemical companies and their trade associations. Board members include: B.J. Hebert, former president and COO at Chevron Phillips Chemical; Jim Fitterling, chairman and CEO at Dow Chemical; Karen McKee, president of ExxonMobil Chemical; Luis Sierra, president of the BP Aromatics’ Americas, Europe, and Middle East division; Mark Lashier, CEO at Phillips 66; and Neil Ackerman, president of OxyChem at Occidental Petroleum.

**Polypropylene Recycling Coalition**

In July 2020, The Recycling Partnership launched the Polypropylene Recycling Coalition, which focuses on increasing curbside collection, recycling, and end-markets for polypropylene (#5) plastics.<sup>421</sup> The Coalition’s funders include petrochemical companies (Braskem, LyondellBasell, EFS Plastics, and TotalEnergies), as well as NextGenConsortium (a project of Closed Loop Partners).<sup>422</sup>

**Vinyl Sustainability Council (VCS)**

Created by the Vinyl Institute, VCS is a “voluntary membership organization that is taking a leadership role in uniting the industry to advance sustainable performance throughout the vinyl value chain,”<sup>423</sup> which includes an industry goal to increase post-consumer recycling to 160 million pounds by 2025.<sup>424</sup> Its membership includes both petrochemical companies (ExxonMobil, Eastman, and Dow) and their trade associations (VI and PLASTICS).<sup>425</sup>

**B. The plastics industry engaged—and continues to engage—in public communications campaigns to promote plastic recycling as a false solution .****1988: SPI Introduces the Resin Identification Code System**

First introduced in 1988 by SPI, Resin Identification Codes (RICs) grouped plastics by resin type and labeled them with a number surrounded by the widely recognized symbol for recycling: a triangle of “chasing arrows.”<sup>426</sup> SPI made public claims that the RICs were intended to help

418 See Brian Probus Creative, *supra* note 343.

419 Internal Revenue Service Form 990: Return of Organization Exempt from Income Tax: American Chemistry Council 2019, ProPublica, <https://projects.propublica.org/nonprofits/organizations/530104410/202043179349301534/full>. Weber Shandwick received several public relations industry awards for setting up the Alliance, including the 2019 Gold Sabre Award in the Chemicals & Industrials category and PR Week’s 2020 award for Best in Corporate Branding. PROVOKEMedia, *2019 SABRE Awards North America Winners*, <https://www.provokemedia.com/events-awards/sabre-awards/sabre-awards-north-america/2019-sabre-awards-north-america/2019-winners> (last visited Nov. 2, 2023); Press Release, Weber Shandwick, *Celebrating Large Agency & Campaign of the Year Wins at 2020 PRWeek U.S. Awards* (July 31, 2020), <https://webershandwick.com/news/celebrating-large-agency-campaign-of-the-year-wins-at-2020-prweek-u-s-awards>.

420 World Business Council for Sustainable Development, *The Alliance to End Plastic Waste*, available at <https://archive.ph/DiVRs> (archived Mar. 8, 2023).

421 The Recycling Partnership, *Polypropylene Recycling Coalition*, <https://recyclingpartnership.org/polypropylene-coalition/> (last visited Nov. 2, 2023).

422 *Id.*

423 +Vantage Vinyl, *Vinyl Sustainability Council: About Us*, <https://vantagevinyl.com/vinyl-sustainability-council/#about-us> (last visited Nov. 2, 2023).

424 +Vantage Vinyl, *Impact Categories*, <https://vantagevinyl.com/impact-categories/> (last visited Nov. 2, 2023).

425 *Id.*

426 Susan Freinkel, *supra* note 39, at 172, 177-78. RICs were originally known as “Voluntary Plastic Container Coding System.” Vinyl Institute, *PARTNERSHIPS FOR A NEW CENTURY: THE VINYL INDUSTRY IN THE 1990’S AND BEYOND* (1990) (on file with CCI #523.3).

promote recycling,<sup>427</sup> despite earlier industry statements that the system was unlikely to work.<sup>428</sup> Various governing bodies have highlighted the deceptive nature of the RICs in recent years. In its comment to the Federal Trade Commission urging the agency to update its “Green Guides,” the U.S. EPA claimed that it “believes the use of the RIC with the chasing arrows symbol constitutes a misrepresentation and violation of claims prohibited under Section 5 of the FTC Act.”<sup>429</sup> Similarly, in 2021, California passed SB 343, which prohibits the use of the chasing arrows on products that do not meet the state’s standard for of “recyclable.”<sup>430</sup>

### 1989: Mobil Advertorial “Plastics and Recycling: Debunking A Myth”

In 1989, the *New York Times* ran a Mobil advertorial entitled “Plastics and Recycling: Debunking a Myth.”<sup>431</sup> The advertorial described how members of the plastics industry were treated like “environmental villains” and told “there ought to be a law against the things you make” because of a myth that their products could not be recycled. The advertorial continues to “debunk” that myth by touting the advancements the industry has seen, despite its nascent existence compared to paper and glass. The advertorial specifically promoted the industry goal of recycling 50% of PET bottles by 1992 and a new polystyrene recycling plant—neither of which proved successful.

### 1990: Mobil Chemical “Recycling Momentum Grows” Ad Campaign

In 1990, Mobil Chemical ran a print advertisement named “Recycling Momentum Grows,” featured in the *Los Angeles Times*.<sup>432</sup> In the ad, the company made claims regarding the environmental benefits of plastic grocery bags and their recyclability, touted its role in creating the National Polystyrene Recycling Company (NPRC) and CSWS, and portrayed “every American” as part of the problem, while positioning itself as “part of the solution” to the plastic waste crisis. Notable excerpts include:

- “In the near future, even fewer plastic grocery sacks will wind up as garbage. Instead, they’ll be recycled into new, useful plastic products.”
- “Mobil Chemical Company . . . is pioneering this national recycling effort.”
- “[I]t adds to the momentum the plastics industry has attained as a responsible recycler.”
- “Every American throws stuff away, and every American is therefore part of the country’s nagging solid waste problem. Mobil Chemical, we’re proud to say, is also part of the solution.”

### 1991: NPRC Runs Misleading Advertisement, “Foam Packaging: Fact or Fiction?”

In February 1991, the National Polystyrene Recycling Company (NPRC)—founded by eight of the U.S.’ largest producers of polystyrene resins—ran a print advertisement in several major newspapers titled “Foam Packaging: Fact or Fiction?”<sup>433</sup> The advertisement announced that “polystyrene is recyclable,” and is “being recycled back into packaging as well as durable goods such as office supplies, house and garden products, construction materials, video cassettes and other useful consumer products.”

427 See Conn. Dep’t of Env’tl. Conservation, *supra* note 90, at 2 (CCI #3163.2) (providing SPI’s position on the use of RICs on plastic containers to the Connecticut government officials, stating that the code “is meant to facilitate recycling by assisting intermediate processors and manufacturers . . . in distinguishing the content of post-consumer plastic”).

428 See Vinyl Institute, *supra* note 70, at 6 (stating that labeling by material makeup was “of limited practicality”).

429 U.S. EPA Comments on Green Guides Review, Matter No. P954591, at 15 (Apr. 20, 2023), <https://s3.documentcloud.org/documents/23789593/epa-comments-to-ftc.pdf>.

430 Cal. S.B. 343, 2021-2022 Leg., Reg. Sess. (Cal. 2021) (amending Cal. Bus. & Prof. Code, Section 17580(a)(6)), [https://leginfo.ca.gov/faces/billNavClient.xhtml?bill\\_id=202120220SB343](https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=202120220SB343).

431 Mobil, *supra* note 110 (CCI #4811.1).

432 Mobil, *supra* note 130 (CCI #4784.1).

433 See National Polystyrene Recycling Company, *supra* note 130 (CCI #4789.1) (a version of this advertisement also ran in *The New York Times*, *The Los Angeles Times*, and *The Baltimore Sun*).

**1990s: Beach Clean Ups**

Throughout the 1990s, SPI and many resin producers—including DuPont, Amoco, Dow, Exxon, ARCO, and BASF—provided financial support for beach cleanups, and P3 donated recycled plastics bags to the California Coastal Commission for beach, roadside, and park cleanups.<sup>434</sup>

**1991: CSWS Advertorials Promoting Efforts to Meet Recycling Goals**

In two 1991 advertorials, CSWS discussed how they created a guide to help the industry as well as municipalities reach their recycling targets:

- CSWS boasted that its publication “How to Implement a Plastics Recycling Program” would help the industry reach its goal to recycle 25% of plastic bottles and containers by 1995.<sup>435</sup>
- “Plastics Recycling Has Taken Off. Here’s How To Get On Board” highlights CSWS’s “Blueprint for Plastics Recycling”; “It comes down to information. And we have it to share. This is no blue-sky thinking. The proven systems are in place. The talk is over. Plastics recycling is here”; “Once your community’s plastics recycling program takes off, we guarantee no one will want to turn back.”<sup>436</sup>

**1991: P3 Solid Waste Workshops**

In 1991, P3 launched a solid waste workshop pilot program in Atlanta in partnership with the League of Women Voters. As described by Glenn Braswell, President of FPA, in a letter to Randy Randol at Exxon Chemical, the workshops were created “in response to the very real threat that consumers, in their rush to join the environmental recycling bandwagon, will forget the vital role packaging plays in their lifestyle, and forego convenience and safety out of a misdirected sense of guilt.”<sup>437</sup> Braswell continued, stating that the workshops “translate[] to say that packaging should not be legislated on the basis of recyclability alone.”<sup>438</sup>

**1991-94: NAPCOR Advertisements on Viability of Plastic Recycling**

In the early 1990s, NAPCOR ran a series of advertisements overstating the viability of plastic recycling and downplaying concerns. For example, in 1991 NAPCOR placed an advertisement in *Ladies’ Home Journal* stating, “a bottle can come back as a bottle, over and over again.”<sup>439</sup> And in 1994, NAPCOR advertised in *State Legislatures* that those who questioned plastic recycling were like Chicken Little, “jump[ing] to [an] erroneous conclusion.”<sup>440</sup>

**1992: COPPE Runs Earth Day Ad to Encourage Plastic Film Recycling**

In 1992, COPPE ran a print advertisement in the *Chicago Tribune* that called on consumers to “Recycle Plastic to Save Landfill Space” for Earth Day. The advertisement claimed, “Each year, more than a million pounds of shrink and stretch wrap is recycled.”<sup>441</sup>

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434 See, e.g., Partnership for Plastics Progress, *supra* note 129, at 10 (Aug. 1992) (CCI #244.225); Letter from Karen J. Wilson, Manager Adopt-A-Beach Program, California State Parks Foundation, to Bailey Condrey, Manager Technical Communications, Partnership for Plastics Progress (May 15, 1992) (on file with CCI #176.2); Letter from Karen J. Wilson, Manager Adopt-A-Beach Program, California Coastal Commission, to Bailey Condrey, Manager Technical Communications, Partnership for Plastics Progress (Oct. 5, 1992) (on file with CCI #202.1).

435 Council for Solid Waste Solutions, *supra* note 114(2) (CCI #4796.7) (advertisement).

436 Council for Solid Waste Solutions, *supra* note 114(1) (CCI #4802.1) (advertisement).

437 Letter from Glenn E. Braswell, President, Flexible Packaging Association, to Randy Randol, Manager, Public Affairs, Exxon Mobil Chemical Company 1 (July 31, 1992) (on file with CCI #244.203).

438 *Id.*

439 National Association for Plastic Container Recovery, *supra* note 113 (on file with CCI #4805.1) (advertisement).

440 National Association for Plastic Container Recovery, *supra* note 111 (CCI #4798.1) (advertisement).

441 Council on Plastic and Packaging in the Environment & National Association for Plastic Container Recovery, *supra* note 115 (CCI #4790.1) (advertisement).

### 1992-97: APC Advertising Blitz

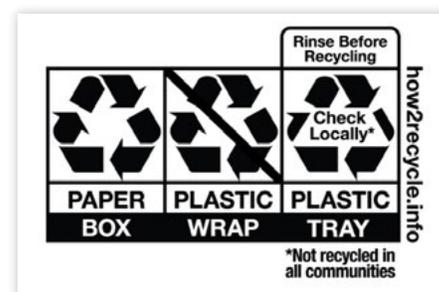
Data in an APC presentation on the “Impact of Level and Frequency of Advertising” showed that favorability of plastics increased 12 points between August 1992 and April 1997, with the most dramatic changes occurring during their advertising blitz between 1992 and 1994.<sup>442</sup> The organization spent \$18 million on advertising over a nine-month stretch between fall 1992 and summer 1993.<sup>443</sup>

In 1993, ads from APC’s “Take Another Look at Plastic” campaign ran in a variety of magazines—it showed various types of plastic packaging and told readers that “Your New Carpeting May Already Be in Your Refrigerator.”<sup>444</sup> The ad went on to explain that “plastic bottles [are] turning into toys, pillows, garbage cans, sailboat sails, even plastic ‘lumber.’ Not to mention back into new bottles.” It also claimed that “polystyrene foam dishes and cups [are] recycled into building insulation, office accessories and VCR tape cassettes.”

Notably, in December 1995, APC reached a settlement with 11 state attorneys general, who alleged that the organization made misleading claims about recycling rates and the recyclability of plastics in its advertising campaigns.<sup>445</sup> APC paid \$110,000 in damages, and agreed to include the following disclosure when making any future recycling claims: “Recycling facilities may not be available in all areas. Check to see if recycling facilities exist in your area.”<sup>446</sup>

### 2008: GreenBlue launches How2Recycle, a project of the Sustainable Packaging Coalition

In 2008, GreenBlue’s SPC launched How2Recycle, a project with the goal of “reduc[ing] confusion by creating a clear, well-understood, and nationally harmonized label that enables companies to convey to consumers how to recycle a package.”<sup>447</sup> The voluntary labeling program has resulted in some products seeming easier to recycle than they actually are.<sup>448</sup>



### 2008: ACC Advertisements Promoting Lumber Made from Recycled Plastics

In 2008, ACC ran ads promoting plastic lumber made from recycled plastics:

- ACC’s “essential2” campaign promoted the role of American chemistry in sustainability and recyclability: “American chemistry helps engineer the technologies that make it possible for plastics to be recycled. ... And we’re working to increase recycling through public partnerships and consumer education.”<sup>449</sup>
- ACC promoted plastic bags over paper: “Recycling of plastic bags and film has increased 24 percent between 2005 and 2006, enough to build 1.5 million medium-sized decks” with the tag line “Plastics. Too valuable to Waste. Recycle.”<sup>450</sup>

442 Wirthlin Worldwide, *supra* note 168, at 21 (CCI #56.21).

443 Richard Lindsay Stover, et al., *supra* note 92, at 10.

444 See American Plastic Council, *supra* note 112, at 32-33 (on file with CCI #4803.1-2).

445 Scott Allen, *supra* note 171.

446 National Association of Attorneys General, *supra* note 170170; *Eleven Attorneys General Reach Agreement with Plastics Industry on Recycling Claims*, *supra* note 171.

447 How2Recycle, *About*, <https://how2recycle.info/about> (last visited Nov. 2, 2023); How2Recycle, *Clear. Consistent. Concise.: Recycling Labels That Make Sense.*, <https://how2recycle.info/labels> (last visited Nov. 2, 2023).

448 See Sharon Lerner, *Waste Only*, INTERCEPT (July 20, 2019), <https://theintercept.com/2019/07/20/plastics-industry-plastic-recycling/>.

449 American Chemistry Council, *essential2reuse* (on file with CCI #4849.1) (advertisement).

450 American Chemistry Council, *supra* note 180 (CCI #4848.1) (advertisement).

### **2012: Curbside Value Partnership (CVP) Creates “Recycle First. Trash Last.” Campaign for SWALCO**

In 2012, CVP helped the Solid Waste Agency of Lake County, Illinois (SWALCO) launch its “Recycle First. Trash Last” campaign.<sup>451</sup> According to an internal messaging document, the goal of the campaign was to increase residential recycling by encouraging consumers to “shift the priority from throwing items in the trash to instead recycling first and visualizing what’s left over as trash.”<sup>452</sup> The campaign also sought to “simplify the guidelines for recycling plastics and encourage the recycling of large rigid plastics by residents.”<sup>453</sup> In a promotional video for the campaign, SWALCO claimed “Forget about the numbers [RIC Codes] like you were once told, all hard, rigid plastic containers with or without a symbol can now go in your curbside cart.”<sup>454</sup>

### **2013: How2Recycle partners with ACC and the Wisconsin Department of Natural Resources to Pilot WRAP**

In 2013, GreenBlue and SPC partnered with ACC’s Flexible Film Recycling Group (FFRG) and the Wisconsin Department of Natural Resources for the Wisconsin WRAP project (Wrap Recycling Action Project).<sup>455</sup> According to How2Recycle’s 2013 Annual Report, the campaign aimed to “significantly increase recycling of plastic wraps used for everyday consumer products.”<sup>456</sup> Wisconsin WRAP chose Milwaukee as the location for the pilot public awareness campaign,<sup>457</sup> which aimed to “test effective and easily replicable educational tools and tactics to increase both the quantity and quality of recyclable film with minimal contamination.”<sup>458</sup> According to ACC, the campaign resulted in a 25% increase in plastic film and bag material collected for recycling during the eight-week campaign.<sup>459</sup> However, ACC did not provide data on the amount of collected materials that were effectively recycled.

### **2014: ACC launches WRAP to encourage plastic bag recycling**

ACC’s WRAP campaign launched in earnest in 2014, encouraging customers to return plastic bags to drop-off locations at grocery and big box stores.<sup>460</sup> The now-defunct website encouraged consumers and businesses to recycle plastic bags and film.<sup>461</sup> Under the subheading “What Happens to Recycled Materials?,” ACC claimed “Like all plastics collected for recycling, plastic film can be recycled into many useful products. Plastic film can be used to make composite

451 Solid Waste Agency of Lake County, IL, *SWALCO Recycling Education Campaign Overview* (Aug. 15, 2012) (on file with CCI #4533.10-12). The campaign launched on the heels of Governor Quinn’s veto of the Plastic Bag and Film Recycling Act (SB 3442), of which SWALCO was a main proponent. *Lake County Hoping to Boost Recycling Level to 60 Percent*, CBS NEWS CHICAGO (Sept. 13, 2012), <https://www.cbsnews.com/chicago/news/lake-county-hoping-to-boost-recycling-level-to-60-percent/>; Walter S. Willis, *Letter: Context for Plastic Bag Bill*, STATE JOURNAL REGISTER (June 8, 2012), <https://www.sj-r.com/story/opinion/letters/2012/06/08/letter-context-for-plastic-bag/42943474007/>. The bill would have required towns to implement plastic-bag recycling programs but prohibited them from banning or charging for plastic bags. Illinois General Assembly, 97th Gen. Assembly, Witness Slips For SB3442, <https://www.ilga.gov/legislation/witnessslip.asp?DocNum=3442&DocTypeID=SB&LegID=&GAID=11&SessionID=84&GA=97&SpecSess=>; *Girl Petitions Quinn to Ban Plastic Bags*, NBC CHICAGO (July 2, 2012), <https://www.nbcchicago.com/news/local/girl-petitions-quinn-to-ban-plastic-bags/1930786/>.

452 SWALCO, “Recycle First Trash Last.” Campaign Key Messages, (on file with CCI #4529).

453 *Id.*

454 LakeCountyTV, *Recycle First Trash Last*, YouTube (Nov. 8, 2022), <https://youtu.be/laqlpLiZvCc?feature=shared>.

455 Sustainable Packaging Coalition, *How2RECYCLE 2013 ANNUAL REPORT 5* (2014), <http://gb.assets.s3.amazonaws.com/files/how-2recycle/How2RecycleAnnualReport2013.pdf>; Wis. Dept. of Nat. Resources, *Reducing, Reusing and Recycling Plastic Bags and Wrap*, <https://dnr.wisconsin.gov/topic/Recycling/bags.html> (last visited Nov. 6, 2023).

456 Sustainable Packaging Coalition, *supra* note 455, at 15.

457 American Chemistry Council, *WISCONSIN WRAP 2015 CAMPAIGN EVALUATION EXECUTIVE SUMMARY* (2015), available at <https://web.archive.org/web/20221020125701/https://www.plasticfilmrecycling.org/wp-content/uploads/2017/06/WI-WRAP-Report-Exec-Summary-2015.pdf>.

458 *Id.*

459 *Id.*

460 See Plastic Film Recycling, *W.R.A.P.*, available at <https://web.archive.org/web/20141028174851/http://www.plasticfilmrecycling.org/wrap/wrap-1.html> (archived Oct. 28, 2014) (this website was administered by Moore Recycling Associates through the support of the ACC).

461 See Plastic Film Recycling, available at <https://web.archive.org/web/20190325072356/https://www.plasticfilmrecycling.org/> (archived Mar. 25, 2019) (an ACC project).

lumber for making decks, benches, and playground sets. Plastic film can also be reprocessed into small pellets, which can be made into new bags, pallets, containers, crates, and pipe.<sup>462</sup>

A 2023 ABC News investigation demonstrated that, even if there are recycling facilities are capable of recycling plastic bags, few bags ever make it to these facilities.<sup>463</sup> Of 46 trackers placed in bags and returned to WRAP drop-off points, only four made it to facilities that claim to recycle plastic bags.<sup>464</sup>

### 2016: How2Recycle’s “Think You Know How To Recycle? Think Again” Campaign

In 2016, How2Recycle released its first consumer education video entitled “Think you know how to recycle? Think again,” on Mother Nature Network. According to a 2017 article, the How2Recycle team stated in the video: “When we see packaging as trash, we’re missing out. When we see packaging as valuable, recycling makes a lot of sense: Not only is it good for the environment, but it’s good for the economy as well.”<sup>465</sup>

### 2016-18: ACC and How2Recycle Continue Promotion of WRAP

ACC published an example of a poster teaching consumers how to recycle plastic film packaging, bags, and wraps (left image).<sup>466</sup> The campaign was launched throughout the U.S., with ads placed in local newspapers like the Granby Drummer (right image) and other media outlets.<sup>467</sup>

### 2020-present: America’s Plastic Makers Advertisement Campaigns

America’s Plastic Makers is “comprised of the American Chemistry Council’s Plastics Division and its member companies,” including BASF, Chevron Phillips Chemical, Dow, DuPont, Eastman, ExxonMobil, INEOS, and Shell.<sup>468</sup> APM has launched a campaign promoting its goal to make 100% of plastic packaging recyclable or recoverable by 2030 by advertising the benefits of “advanced recycling” along with language and imagery suggesting circularity:

- 2020: “The plastic mailing wrap containing your favorite Meredith magazine is recyclable everywhere #4 plastic is accepted. Scan the smart code to visit PlasticFilmRecycling.org for collection locations near you.”<sup>469</sup>
- 2020: “Imagine a shampoo bottle becoming your kid’s slide.”<sup>470</sup>



462 Plastic Film Recycling, *What Happens to Recycled Materials?*, available at <https://web.archive.org/web/20190209040825/https://www.plasticfilmrecycling.org/recycling-bags-and-wraps/plastic-film-education-individuals/happens-recycled-materials/> (archived Feb. 9, 2019) (an ACC project).

463 Matt Gutman et al., *We Put Dozens of Trackers in Plastic Bags for Recycling. Many Were Trashed.*, ABC (May 23, 2023), <https://abc-news.go.com/US/put-dozens-trackers-plastic-bags-recycling-trashed/story?id=99509422>.

464 *Id.*

465 See Mary Mazzoni, *Millennials Are Less Likely to Recycle, but More Likely to Buy From Green Companies*, ALTERNET (Sept. 29, 2017), <https://www.alternet.org/2017/09/millennials-are-less-likely-recycle-more-likely-buy-green-companies>. The webpage and video have since been taken down on the *Mother Nature Network* website. See *Think You Know How to Recycle? Think Again*, MOTHER NATURE NETWORK, <https://www.treehugger.com/green-tech/research-innovations/sponsorvideo/think-you-know-how-recycle-think-again>.

466 American Chemistry Council, *Recycle Here*, PLASTICS ENGINEERING 45 (May 2016) (on file with CCI #4850.1).

467 Conn. W.R.A.P., *Recycle It! WRAP CT*, GRANBY DRUMMER 31 (Mar. 2018) (on file with CCI #4865.1) (advertisement).

468 America’s Plastic Makers, *Our Members*, <https://plasticmakers.org/who-we-are/members/> (last visited Nov. 6, 2023).

469 American Chemistry Council, *Don’t Trash It Recycle It*, TRAVEL + LEISURE (2020) (on file with CCI #4851.1).

470 American Chemistry Council, *Plastic Makers, From Single Use to Reuse: Shampoo Bottle*, FAST COMPANY (2020) (on file with CCI #4852.1).

- 2020: “Imagine a takeout container” accompanied by an image of a plastic takeout container turning into luggage.<sup>471</sup>
- 2020: “A milk jug can be used to create a detergent bottle. . . . [W]e’re working to make all plastic packaging used in the U.S. reusable, recyclable or recoverable by 2030.”<sup>472</sup>
- 2020: “Worried about marine waste? from single use to reuse.”<sup>473</sup>
- 2021: “How can we keep 91% of America’s plastics from going to waste?” and an alternative version asking, “How can we reduce the 91% of America’s plastics that go to waste?” with an image of plastics going to a recycling bin, turning into hexagons, and then becoming new plastic products. On the larger version, the text suggests advanced recycling is the solution and that [w]e all play a role in ending plastic waste.”<sup>474</sup>
- 2022: “We finally have the technology to remake tough-to-recycle plastics,” promoting advanced recycling.<sup>475</sup>
- 2022: “Did you know advanced recycling can help us reduce our reliance on natural resources?”<sup>476</sup>
- 2022: “90% of plastics aren’t recycled today. Advanced recycling is changing that.”<sup>477</sup>
- 2022: “What makes advanced recycling so advanced?”<sup>478</sup>
- 2022: “Advanced recycling is keeping used plastic out of the environment and in the economy.”<sup>479</sup>

### 2022: How2Recycle changes polypropylene #5 plastics designation to “widely recyclable”

In July 2022, the Polypropylene Recycling Coalition’s campaign to promote the recyclability of polypropylene led How2Recycle to upgrade the status of polypropylene rigid containers to “Widely Recyclable” in the U.S.<sup>480</sup> On the same day this designation took effect, Greenpeace responded, arguing that The Recycling Partnership and How2Recycle’s claims about the recyclability of polypropylene #5 were misleading and that fewer than 30% of Americans have access to recycling streams that accept these plastics.<sup>481</sup> Greenpeace further claimed that “the vast majority of polypropylene packaging will end up in landfills and incinerators regardless of whether people put them in recycling bins.”<sup>482</sup>

### 2023: PLASTICS Launches the “Recycling is Real” Campaign

In a 2023 campaign entitled “Recycling is Real,” the Plastics Industry Association (PLASTICS) states, “[i]t’s undeniable that recycling is not only real, but feasible and economical.”<sup>483</sup> The website includes a map identifying recycling facilities across the country, including those

471 American Chemistry Council, *Plastic Makers, From Single Use to Reuse: Takeout Container*, DEMOCRAT & CHRONICLE (2020) (on file with CCI #4853.1).

472 American Chemistry Council, *From Single Use to Reuse: Milk Jug*, Inc. (2020) (on file with CCI #4864.1).

473 American Chemistry Council, *From Single Use to Reuse: Marine Waste*, ABC 9 CINCINNATI (2020) (on file with CCI #4863.1).

474 American Chemistry Council, *Plastic Makers, 5 Actions: 91% Small*, BUSINESS INSIDER (2021) (on file with CCI #4857.1); American Chemistry Council, *5 Actions: 91% Big*, FORTUNE (Oct.–Nov. 2021) (on file with CCI #4855.1); American Chemistry Council, *5 Actions: 91% Big*, CHEMICAL WEEK (Nov. 1-8, 2021) (on file with CCI #4856.1).

475 American Chemistry Council, *Advanced Recycling: Hard-to-Recycle*, ABC 2 BALTIMORE (May 13, 2022) (on file with CCI #4861.1).

476 America’s Plastic Makers, *Advanced Recycling: Reduce Reliance*, ABC-13 HOUSTON (July 15, 2022) (on file with CCI #4862.1).

477 American Chemistry Council, *Advanced Recycling: 90% Not Recycled*, POLITICO (Mar. 4, 2022) (on file with CCI #4859.1).

478 American Chemistry Council, *Advanced Recycling: Advanced*, POLITICO (Mar. 7, 2022) (on file with CCI #4860.1).

479 American Chemistry Council, *Advanced Recycling: Advanced Recycling*, CBS 19 CLEVELAND (Apr. 12, 2022) (on file with CCI #4858.1).

480 Press Release, The Recycling Partnership, The Recycling Partnership’s Polypropylene Recycling Coalition Celebrates “Widely Recyclable” Upgrade (July 28, 2022), <https://recyclingpartnership.org/the-recycling-partnerships-polypropylene-recycling-coalition-celebrates-widely-recycled-upgrade/>; How2Recycle, *How2Recycle Upgrades Polypropylene to ‘Widely Recyclable’* (Aug. 3, 2022) <https://www.recyclingtoday.com/news/how2recycle-upgrades-polypropylene-recyclability/>.

481 Press Release, Greenpeace, Polypropylene #5 Plastics Classified as “Widely Recyclable” Despite Less Than 30% of Americans Having Access to Recycling Systems That Accept It (July 28, 2022), <https://www.greenpeace.org/usa/news/polypropylene-5-plastics-classified-as-widely-recyclable-despite-less-than-30-of-americans-having-access-to-recycling-systems-that-accept-it/>.

482 *Id.*

483 PLASTICS, *supra* note 227.

owned and operated by ExxonMobil, Chevron Phillips Chemical Co., Dow, The Recycling Partnership, and Shell. Videos on the campaign website interview workers who repeatedly state, “I know that recycling is real because I see it every day.” The campaign treats these facilities as representative while ignoring the reality that the majority of plastic cannot be technically or economically recycled.

Specific quotes in the campaigns video include tropes common to the industry’s campaign to promote recycling, including outright false statements:

- “The more we could get the customers or the consumers or the general public, if you will, to treat the material with care and see its value, we could absolutely recycle it, reuse it, over and over again.” (Grant Burgert, Manager, Process and Development, Novolex)
- “It’s something that you can just keep using over and over again. . . . You can still get the same bottle back out of it again, just keep using it over and over and over.” (Connie Williams, Resin Handler, Amcor)

As well as statements shifting the blame to consumers:

- “We all need to do more to drive up recycling rates.” (Rali Sanderson, President, Niagara)
- “If people would separate trash from plastics we could recycle more.” (Mariah Russell, Lead Operator, Novolex)

But the campaign also includes several acknowledgements of the limitations of recycling:

- “There’s often the perception that ‘oh, only certain plastics can be recycled.’ As an engineer, and as a company that actually makes equipment, I can assure you, in principle, every plastic can actually be recycled.” (Martin Baumann, General Manager and VP, MAAG Group)
- “We want to get to a point where a recycled pellet can be of the same quality as a virgin pellet, and that’s how you ultimately achieve circularity.” (Martin Baumann, General Manager and VP, MAAG Group)

### C. Plastics industry made targeted investments in plastic recycling research and development to mislead consumers and policymakers

#### 1985: SPI founds the Center for Plastic Recycling Research at Rutgers (CPRR)

In 1985, SPI founded the Center for Plastic Recycling Research (originally the Plastic Recycling Institute) at Rutgers University, after the Plastic Bottle Institute (also created by SPI) “proposed the formation of a nonprofit recycling foundation and a recycling institute to conduct further research on plastics recycling.”<sup>484</sup> The Center, in partnership with the Plastic Bottle Institute and the Plastic Recycling Foundation, helped to legitimize the idea that the industry was invested in recycling, even though its researchers were primarily concerned with plastic lumber.<sup>485</sup> While in operation, plastic from pilot recycling programs was sent to CPRR.<sup>486</sup> CPRR was ultimately shut down in 1996 after budget cuts.<sup>487</sup>

484 Nancy A. Wolf & Ellen E. Feldman, *supra* note 122, at 80.

485 Myra Klockenbrink, *supra* note 76; Nancy A. Wolf & Ellen E. Feldman, *supra* note 122, at 75-6, 80; Elizabeth M. Kirschner, *supra* note 69, at 20 (describing the Rutgers Center for Plastic Products Recycling as “serv[ing] its role by getting recycling off the ground” despite not becoming a “leader in recycling technology” as originally expected).

486 Nancy A. Wolf & Ellen E. Feldman, *supra* note 122, at 75-6, 80.

487 BuildingGreen, *Rutgers Center for Plastics Recycling Research Closing* (Nov. 1, 1996), <https://www.buildinggreen.com/newsbrief/rutgers-center-plastics-recycling-research-closing>.

### 1989-99: NPRC's Investments in Polystyrene Recycling Amid Product Bans

In 1989, eight of the U.S.' largest producers of polystyrene resins joined together to found the National Polystyrene Recycling Company (NPRC). The companies—including Amoco (INEOS), ARCO (INEOS), Chevron, Dow, Fina Oil and Chemical (Total), Huntsman Chemical, Mobil (ExxonMobil), and Polysar—invested \$16 million to build and operate recycling facilities for polystyrene (PS). By 1991, NPRC had opened four recycling facilities with plans to open one more.<sup>488</sup> NPRC developed and distributed a Polystyrene Recycling Tool Kit to encourage municipalities to include PS in their recycling programs, and provided educational materials for municipalities to share with residents and schools.<sup>489</sup> Mobil's polystyrene recycling group, for instance, instituted recycling programs in schools, and sent polystyrene trays, plates, bowl cups, and other foodservice items to NPRC's facilities and "Mobil-assisted polystyrene recycling operations in Texas, Oregon, and Virginia."<sup>490</sup>

NPRC set a goal to recycle 25% of post-consumer PS food service and packaging (around 250 million pounds) per year by 1995 but fell short of its goal.<sup>491</sup> By 1997, NPRC was operating just two facilities (Chicago, IL, and Corona, CA). NPRC was sold in 1999, after the resin producers had invested \$85 million into the recycling operations. A few years later, the remaining facilities were shut down by the company that purchased them from NPRC.<sup>492</sup>

### 1989: DuPont and Waste Management PET and HDPE Facilities

In 1989, DuPont and Waste Management, Inc. created the Plastics Recycling Alliance (PRA) to build new plastic recycling facilities.<sup>493</sup> The PRA constructed facilities in Chicago and Philadelphia, and intended to build additional regional plants by 1994 (with an intended investment of \$30-60 million). In June 1992, DuPont sold PRA to ITW, Inc.,<sup>494</sup> which ultimately shut down the Chicago facility in February 1997.<sup>495</sup> *Plastics News* explained that "it was a victim of the free market—resin prices were low enough that it no longer made sense to continue to recycle."<sup>496</sup>

### 1990: Dow/Domtar, Inc. PET and HDPE Recycling Facility Canceled

In 1990, a representative of SPI testified to Congress that Dow intended to open a PET and HDPE recycling facility in partnership with the Canadian company Domtar, Inc.<sup>497</sup> The facility was expected to recycle 80 million pounds per year but was canceled later that year. Officials

488 Long-Term Strategies for Programs and Issues Within the Jurisdiction of the Committee: Hearing Before the H. Comm. on Ways & Means, 101st Cong. 881 (1990) (statement of the Society of the Plastics Industry), available at [https://www.google.com/books/edition/The\\_Environment/LOpQV\\_008j8C?hl=en&gbpv=1&bsq;Amoco+Foam+Products+Halts+Polystyrene+Recycling+Operations](https://www.google.com/books/edition/The_Environment/LOpQV_008j8C?hl=en&gbpv=1&bsq;Amoco+Foam+Products+Halts+Polystyrene+Recycling+Operations), J. COMMERCE (July 1, 1991), [https://www.joc.com/article/amoco-foam-products-halts-polystyrene-recycling-operations\\_19910701.html](https://www.joc.com/article/amoco-foam-products-halts-polystyrene-recycling-operations_19910701.html). The *New York Times* reported that the companies were concerned about a wave of product bans: "[M]ost of these bans include exceptions for materials that are, or can be, recycled. To keep the enacted bans from taking effect, as well as to deter new ones, the polystyrene producers must keep the recycling program alive." John Holusha, *supra* note 131.

489 National Polystyrene Recycling Company, POLYSTYRENE RECYCLING TOOLKIT (1992), <https://p2infohouse.org/ref/30/29484.pdf>.

490 Partnership for Plastics Progress, *supra* note 129, at 7 (CCI #244.222).

491 Clare Goldsberry, *Pasco Charges NPRC Impeded PS Recycling*, PLASTICS NEWS (June 19, 1995), <https://www.plasticsnews.com/article/19950619/NEWS/306199942/pasco-charges-nprc-impeded-ps-recycling>. In June 1995, only 15 million pounds of post-consumer PS was being recycled per year. *Id.* A Denver-based recycler brought anti-trust charges against NPRC for price-fixing recycled polystyrene, which the trial court granted, but on appeal the court found that NPRC lacked the monopoly power in the relevant market to uphold the ruling. *Pasco Indus., Inc. v. Talco Recycling, Inc.*, 985 P.2d 535, 542 (Ariz. Ct. App. 1998).

492 Steve Toloken, *NPRC To Shut Failing Ps Recycling Plant*, PLASTICS NEWS (Aug. 4, 1997), <https://www.plasticsnews.com/article/19970804/NEWS/308049997/nprc-to-shut-failing-ps-recycling-plant>; Steve Toloken, *Thermoformer Elm Packaging Buys NPRC*, PLASTICS NEWS (July 5, 1999), <https://www.plasticsnews.com/article/19990705/NEWS/307059998/thermoformer-elm-packaging-buys-nprc>.

493 Long-Term Strategies for Programs and Issues Within the Jurisdiction of the Committee, *supra* note 488, at 879 (statement of the Society of the Plastics Industry); see also John Maggs, *Waste Management Joins Dupont To Recycle Plastic*, J. COMMERCE (Apr. 25, 1989), [https://www.joc.com/article/waste-management-joins-du-pont-recycle-plastic\\_19890425.html](https://www.joc.com/article/waste-management-joins-du-pont-recycle-plastic_19890425.html).

494 *Recycling Structure Is Worth Salvaging*, *supra* note 158 (CCI #4838.2).

495 John Maggs, *supra* note 493; Jan Schut, *supra* note 128.

496 Don Loepp, *supra* note 405 (CCI #4846.5).

497 Long-Term Strategies for Programs and Issues Within the Jurisdiction of the Committee, *supra* note 488, at 878-79 (statement of the Society of the Plastics Industry).

cited as reasons for terminating the agreement “high capital and operating costs, insufficient quality and adverse economics surrounding the recycling process, environmental concerns, and difficulty in separating PET and PVC.”<sup>498</sup> *Plastics Technology* reported that Domtar was looking for a buyer for the 11 million pounds of plastic the companies had collected for the project so far.<sup>499</sup>

### 1990: Mobil Chemical Bag Recycling Program

In 1990, a few years after establishing its Solid Waste Management Solutions Group, Mobil Chemical announced that it would begin accepting plastic bags for recycling at supermarkets. By the end of 1991, more than 4,000 stores were participating in the program.<sup>500</sup> The company claimed that the bags could be recycled into other products made of polyethylene, including plastic garbage cans.<sup>501</sup> The bags that were collected were sent to a Mobil recycling facility in Winchester, Virginia, but many of the bags were too dirty to recycle.<sup>502</sup> In 1996, Mobil sold the facility to a company now known as Trex.<sup>503</sup> At the time, Mobil produced more than five of the 23 billion plastic bags used in the U.S. annually.<sup>504</sup>

### 1990: ARCO Pilot Programs in Pennsylvania

In 1990, ARCO (now BP) established pilot programs in two Delaware County, Pennsylvania, communities. By 1992, this program expanded to seven communities.<sup>505</sup>

### 1990s: Eastman venture with Waste Management, Inc.

Eastman established “a multi-material recycling venture” with Waste Management, Inc., building a MRF “to process not only components of Eastman’s waste stream, but also to handle the recyclables from 100,000 homes in the region.”<sup>506</sup> P3 wrote that the “venture will greatly reduce costs to communities interested in starting curbside collection programs for recyclables.”<sup>507</sup>

### 1991: Union Carbide HDPE and PET recycling facility (New Jersey)

In 1991, Union Carbide (now Dow) opened a \$10 million facility in Piscataway, New Jersey, to recycle HDPE and PET. A company representative explained that “we have seen increasing demand from our virgin resin customers for recycled plastics. We see recycling of plastics becoming a fairly large business by the year 2000. Our customers are going to want these materials along with virgin resin.”<sup>508</sup> The company claimed that the facility wasn’t profitable and, as a result, shut it down in October 1996.<sup>509</sup>

498 Anthony M. Montrone, et al., *supra* note 277, at 105 (CCI #784.116).

499 Jan Schut, *supra* note 128.

500 Partnership for Plastics Progress, *supra* note 129, at 7 (CCI #244.222).

501 Martha Hamilton, *Mobil Offers To Recycle Plastic Bags*, WASH. POST (May 17, 1990), <https://www.washingtonpost.com/archive/business/1990/05/17/mobil-offers-to-recycle-plastic-bags/157288c0-7e55-4a50-96aa-dff5fc5159/>; Walter Andrews, *Two Companies Announce Plastic Bag Recycling*, UPI (May 16, 1990), <https://www.upi.com/amp/Archives/1990/05/16/Two-companies-announce-plastic-bag-recycling/7883642830400/>.

502 See, e.g., John T. Aquino, *WASTE AGE AND RECYCLING TIMES* (CRC Press, 2020), <https://books.google.com/books?id=-TPNDwAAQBAJ&printsec=frontcover#v=onepage&q&f=false> (discussing how Mobil Chemical told New York City that bales of plastic bags that had been used to collect recycling were “too soiled to recycle”).

503 Plastics Make it Possible, *A Look at Plastic Film Recycling: Growing with Lots of Opportunity* (Mar. 13, 2016), available at <https://web.archive.org/web/20180921034019/https://www.plasticsmakeitpossible.com/plastics-recycling/look-plastic-film-recycling-growing-lots-opportunity/> (archived Sept. 21, 2018); Funding Universe, *Trex Company, Inc. History*, <http://www.fundinguniverse.com/company-histories/trex-company-inc-history/> (last visited Nov. 6, 2023).

504 *Mobil Recycling Plastic Bags*, BUFFALO NEWS (May 17, 1990), [https://buffalonews.com/news/mobil-recycling-plastic-bags/article\\_e078e847-4a53-5a50-b4a4-a67331461696.html](https://buffalonews.com/news/mobil-recycling-plastic-bags/article_e078e847-4a53-5a50-b4a4-a67331461696.html).

505 Partnership for Plastics Progress, *supra* note 129, at 7 (CCI #244.222).

506 *Id.* at 4 (CCI #244.219).

507 *Id.*

508 Patricia Crisafulli, *Carbide Invests \$10 Million In Plastics Recycling Facility*, J. COMMERCE (Aug. 6, 1991), [https://www.joc.com/article/carbide-invests-10-million-plastics-recycling-facility\\_19910806.html](https://www.joc.com/article/carbide-invests-10-million-plastics-recycling-facility_19910806.html).

509 See Tom Ford & Roger King, *Union Carbide to Close HDPE Recycling Plant*, PLASTICS NEWS (July 22, 1996), <https://www.plastics-news.com/article/19960722/NEWS/307229997/union-carbide-to-close-hdpe-recycling-plant>.

**1991: Occidental Recycling Facility in Texas**

In 1991, Occidental Chemical announced plans to build a recycling plant in the Dallas, Texas, area. The \$5 million facility was expected to process up to 40 million pounds of plastic waste (including PET, HDPE, and PVC) per year.<sup>510</sup> In 1996, Occidental recognized that the operation wasn't economically viable, and sold the operation to Bayshore for one dollar.<sup>511</sup> After investing \$3 million in equipment, Bayshore stopped reprocessing PVC just two months after it bought the facility from Occidental.<sup>512</sup>

**1991: Eastman Methanolysis Recycling Facility in Rochester, New York**

In 1991, Eastman Chemical announced plans to use chemical recycling (methanolysis) technologies to recycle plastic food packaging, estimating that the facility could produce up to 50 million pounds of recycled plastic resin annually.<sup>513</sup> There is no evidence indicating that the facility ever operated at full capacity before it closed in 2012.<sup>514</sup>

**1991: Chevron Chemical Recycling Support in Texas**

In 1991, industry representatives testified to Congress that Chevron Chemical was sponsoring local plastics recyclers (e.g., CARP, Inc.) that intended to recycle plastic films. However, there is no evidence that these programs were ever implemented.<sup>515</sup>

**1992: Quantum Chemical (LyondellBasell) Recycling Facility in Ohio**

In 1992, Quantum Chemical (now LyondellBasell) opened a recycling facility in Heath, Ohio, that was reportedly able to produce 40 million pounds of post-consumer resins per year.<sup>516</sup> The facility was expected to process a variety of plastics (including PET, HDPE, PP, and PE), but never expanded beyond HDPE.<sup>517</sup> Quantum shut the facility down just three years later in 1995.<sup>518</sup> As CEO Ronald Yocum explained at the time, “we thought we should get into recycling six years ago to prove we are a leader. We put a lot of money into that operation, and we never made money there.”<sup>519</sup>

**1992: Exxon Recycling Facility in Summerville, South Carolina**

A representative of CSWS testified to Congress, in 1991, that Exxon was building a recycling center that could reclaim 19 million pounds of polypropylene per year from used bale wrap, industrial fabrics, bottles, and other products.<sup>520</sup> Located in Summerville, South Carolina,

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510 Wire Reports, *supra* note 127.

511 Sarah S. Smith, *Bayshore Buys Oxychem's Ecovinyl Line*, PLASTICS NEWS (July 1, 1996), <https://www.plasticsnews.com/article/19960701/NEWS/307019967/bayshore-buys-oxychem-s-ecovi-nyl-line>.

512 Sarah S. Smith, *Recycled PVC Unprofitable for Bayshore*, PLASTICS NEWS, (Mar. 3, 1997), <https://www.plasticsnews.com/article/19970303/NEWS/303039981/recycled-pvc-unprofitable-for-bayshore>.

513 Development of Recycling Markets: Hearing Before the Subcomm. on Transportation & Hazardous Materials of the H. Comm. on Energy & Commerce, 102nd Cong. 526 (1991) (statement of Bruce Perlson, Ph.D., Manager, Plastics Environmental Affairs, Quantum Chemical Corp. on behalf of the Council for Solid Waste Solutions), available at [https://books.google.com/books/about/Development\\_of\\_Recycling\\_Markets.html?id=BKwr6jCPCyC; FDA Approves Kodak Plan To Recycle Plastic For Food Containers](https://books.google.com/books/about/Development_of_Recycling_Markets.html?id=BKwr6jCPCyC; FDA Approves Kodak Plan To Recycle Plastic For Food Containers), APNews (Aug. 22, 1991), available at <https://web.archive.org/web/20221219020128/https://apnews.com/article/f213b7b3c5254e-1842344222cd87a46e> (archived Dec. 19, 2022).

514 See Associated Press, *supra* note 127.

515 Development of Recycling Markets, *supra* note 513, at 526 (statement of Bruce Perlson, Ph.D., Manager, Plastics Environmental Affairs, Quantum Chemical Corp. on behalf of the Council for Solid Waste Solutions).

516 *Id.* at 525-26.

517 Elizabeth M. Kirschner, *supra* note 69, at 20.

518 *Id.*; *Quantum Sells Recycling Plant*, PLASTICS NEWS (Apr. 15, 1996), <https://www.plasticsnews.com/article/19960415/NEWS/304159984/quantum-sells-recycling-plant>.

519 *Quantum Considers Exiting Recycling*, PLASTICS NEWS (May 22, 1995), <https://www.plasticsnews.com/article/19950522/NEWS/305229994/quantum-considers-exiting-recycling>.

520 Development of Recycling Markets, *supra* note 513, at 526 (statement of Bruce Perlson, Ph.D., Manager, Plastics Environmental Affairs, Quantum Chemical Corp. on behalf of the Council for Solid Waste Solutions).

the facility opened in March 1992, at a price tag of \$4 million.<sup>521</sup> In 1994, Exxon sold the facility to Washington Penn,<sup>522</sup> which ultimately shut it down because it wasn't economically viable.<sup>523</sup>

### 1992: Phillips 66 and Partek HDPE Recycling Facility in Oklahoma

In 1991, Phillips 66 entered into a partnership with Partek, known as the Phillips Plastics Recycling Partnership, which was intended to recycle 20 million pounds of HDPE containers like milk jugs and detergent bottles annually.<sup>524</sup> The facility opened in 1992 but closed by 1998, after operating below maximum capacity for several years.<sup>525</sup> According to a company spokesperson, “the plastics recycling markets didn't take off as we expected them to, and we don't see them getting any better any time soon.”<sup>526</sup> He further stated that the company did not “have any plans” to recycle in the future, explaining that “we don't see the market conditions as such that we'd change our minds.”<sup>527</sup>

### 1995: DuPont (Dow) PET Chemical Recycling Facility, North Carolina

After a pilot program demonstrated the potential viability of a new chemical recycling process (known as Petretec), DuPont Films spent \$16 million to convert a dimethyl terephthalate (DMT) production facility into a recycling plant. By turning post-consumer PET into DMT and ethylene glycol via chemical recycling, the Cape Fear, North Carolina, facility aimed to produce 100 million pounds of PET resin annually.<sup>528</sup> However, in September 1998, the company shut down the experimental Petretec operations. The firm had “proved that Petretec is a success technologically and in manufacturing,” but did not “feel market conditions allow us to operate the facility.”<sup>529</sup>

### 2016: Dow Announces \$2.8 Million Investment to Increase Recycling Rates

During the inaugural “Our Ocean” conference in 2016, Dow announced a commitment of \$2.8 million to increase recycling rates.<sup>530</sup>

### 2021: Alliance to End Plastic Waste (AEPW) Funds the “Incubation Network”

Between 2020 and 2021, AEPW donated \$5,555,556 million to The Circulate Initiative, an investment management firm founded by the Ocean Conservancy and Closed Loop Partners that is “dedicated to financing companies, projects and infrastructure to prevent ocean plastic pollution.”<sup>531</sup> AEPW's contributions to The Circulate Initiative were directed to the firm's

521 Jan Schut, *PP Recycling Gets a Boost*, PLASTICS TECHNOLOGY 73 (Nov. 1992), <https://p2infohouse.org/ref/30/29810.pdf>.

522 See Steve Toloken, *Firms Merge Recycling To Cut Losses*, PLASTICS NEWS (Aug. 27, 2001), <https://www.plasticsnews.com/article/20010827/NEWS/308279996/firms-merge-recycling-units-to-cut-losses>.

523 Frank Esposito, *Spartech Recycling JV Shuts*, PLASTICS NEWS (Dec. 22, 2008), <https://www.plasticsnews.com/article/20081222/NEWS/312229985/spartech-recycling-jv-shuts>.

524 Development of Recycling Markets, *supra* note 513, at 525 (statement of Bruce Perlson, Ph.D., Manager, Plastics Environmental Affairs, Quantum Chemical Corp. on behalf of the Council for Solid Waste Solutions).

525 Mary Jo Nelson, *Recycling Plant Opens for Phillips*, OKLAHOMAN (Jan. 31, 1992), <https://www.oklahoman.com/story/news/1992/01/31/recycling-plant-opens-for-phillips/62503608007/>; Sarah S. Smith, *Phillips Joins Resin Makers' Recycling Exodus*, PLASTICS NEWS (Sept. 28, 1998) <https://www.plasticsnews.com/article/19980928/NEWS/309289998/phillips-joins-resin-makers-recycling-exodus>.

526 Sarah S. Smith, *supra* note 525.

527 *Id.*

528 *Dupont Films Spending \$16 Million On DMT*, Plastics News (Aug. 28, 1995), <https://www.plasticsnews.com/article/19950828/NEWS/308289951/dupont-films-spending-16-million-on-dmt>; Tom Ford, *Recycled Nylon Resin Output Up*, Plastics News (Sept. 11, 1995), <https://www.plasticsnews.com/article/19950911/NEWS/309119956/recycled-nylon-resin-output-up>.

529 *Dupont Ends Recycling Experiment*, PLASTICS NEWS (Nov. 2, 1998), <https://www.plasticsnews.com/article/19981102/NEWS/311029985/dupont-ends-recycling-experiment>.

530 See Dow Chemical, *supra* note 188.

531 Internal Revenue Service Form 990: Return of Organization Exempt from Income Tax: Alliance to End Plastic Waste 2020, PROPUBLICA, <https://projects.propublica.org/nonprofits/organizations/832463179/202143169349311794/full>; Internal Revenue Service Form 990: Return of Organization Exempt from Income Tax: Alliance to End Plastic Waste 2021, PROPUBLICA, <https://projects.propublica.org/nonprofits/organizations/832463179/202243189349310454/full>; Ocean Conservancy, *Trash Free Seas Alliance*, <https://oceanconservancy.org/trash-free-seas/plastics-in-the-ocean/trash-free-seas-alliance/> (last visited Nov. 6, 2023).

Incubation Network project, which seeks “to optimize land-based plastic waste management, and advance a circular economy in South and Southeast Asia.”<sup>532</sup> The Incubation Network project also received funding from petrochemical companies Dow Chemical and Chevron Phillips.<sup>533</sup>

#### **D. Plastics industry established—and continues to establish—unachievable plastic recycling targets, misleading consumers and policymakers**

##### **Recycle 25% Bottles and Containers by 1995**

The plastics industry set its first recycling goal in 1991, aiming to recycle 25% of post-consumer plastic bottles and containers by 1995.<sup>534</sup> APC reaffirmed this goal a year later, but backpedaled in 1995. With respect to its unmet goal, APC stated that “The idea of rates, dates, mandates ... numerical goals, is all very artificial.”<sup>535</sup> Red Cavaney, then president and chief executive officer of APC, further justified its decision to set a target as “the most easily explained way of showing that something was being done. But what has happened in the industry since is that it has progressed beyond the targets and rates and dates.”<sup>536</sup>

##### **Majority of Americans Recycling by 1995**

In 1991, the Council for Waste Solutions announced the plastics industry’s goal to “have a majority of American consumers participating in plastics recycling programs by 1995, compared to the 10 percent today.”<sup>537</sup> The announcement was accompanied by a “scientific plan that will allow the industry to reach that goal.”

##### **40% Recycled Content in Plastic Bags by 2015**

In 2009, ACC (formerly APC) set a new goal: 40% recycled content, including at least 25% post-consumer recycled plastic, in all plastic bags by 2015.<sup>538</sup> This new goal arose at the same time as intense public backlash and legislative pressure to ban or tax plastic bags. It was championed by the front group Progressive Bag Affiliates, whose membership included Dow Chemical, ExxonMobil, and Total Petrochemicals.<sup>539</sup> To meet this goal, the industry recognized that additional collection efforts were needed, which led to the creation of Wrap Recycling Action Program (WRAP) in 2013 and the introduction of drop-off plastic bag return bins. The industry quietly abandoned this 40% goal, which it has not come close to meeting.

##### **100% Recyclable or Recoverable by 2030**

In 2018, in the aftermath of public backlash after China stopped accepting American plastics for recycling, the ACC announced an ambitious new goal: 100% of plastics packaging recyclable or recoverable by 2030, and 100% of plastics packaging reused, recycled, or recovered

532 Internal Revenue Service Form 990: Return of Organization Exempt from Income Tax: Alliance to End Plastic Waste 2020, *supra* note 531; Incubation Network, *About Us*, <https://www.incubationnetwork.com/> (last visited Nov. 6, 2023).

533 Incubation Network, <https://www.incubationnetwork.com/> (last visited Nov. 6, 2023).

534 *Partnership Sets Its Course for FY 92-93*, HANDLERS NEWS 1 (Summer 1992) (on file with CCI #41.25).

535 Tom Ford & Roger King, *supra* note 99 (quote by APC spokeswoman Susan Moore, who went on to reaffirm APC’s commitment to increase recycling).

536 *Id.*

537 Press Release, Council for Solid Waste Solutions, The Nation’s Leading Plastics Producers and Users Announce Groundwork is Complete for Massive Nationwide Plastics Recycling; “Majority of Americans Will Recycle Plastics by 1995” 1 (Mar. 28, 1991) (on file with CCI #257.1).

538 Susan Freinkel, *supra* note 39, at 166-67; Tony Deligio, *ACC Announces Aggressive Bag Recycling Goals*, PLASTICS TODAY (Apr. 22, 2009), <https://www.plasticstoday.com/acc-announces-aggressive-bag-recycling-goals>.

539 Tony Deligio, *ACC Announces Aggressive Bag Recycling Goals*, PLASTICS TODAY (Apr. 22, 2009), <https://www.plasticstoday.com/acc-announces-aggressive-bag-recycling-goals>. The Progressive Bag Affiliates was formerly known as the Progressive Bag Alliance and is an arm of the ACC.

by 2040.<sup>540</sup> “Recovery” refers to energy recovery, described by Dow as “tak[ing] end-of-life plastics through a conversion process and us[ing] the resulting energy value as a fuel.”<sup>541</sup> This process, also known as plastic-to-fuel processing, creates a product that will be burned rather than brought back into production. The plastics industry continues to mislead the public and policymakers by conflating the words “recyclable” and “recoverable” in its advertising campaigns and stated goals.

### 30% Recycled Plastic in All Plastic Packaging by 2030

In 2021, the plastics industry returned to a recycled content goal, this time aimed at the federal government. Introduced by the ACC, the “national recycled plastics standard” would require all plastic packaging to include at least 30% recycled plastic by 2030.<sup>542</sup> Self-servingly, an analysis by ICIS found that “advanced recycling” is “essential to meet ambitious recycling targets” such as this one.<sup>543</sup>

### One Billion+ Pounds of Advanced Recycling Capacity

ExxonMobil recently publicized a target of 1 billion pounds of “advanced recycling” capacity by 2026<sup>544</sup>—down from its earlier goal of 500,000 metric tons (1.1 billion pounds) by 2026.<sup>545</sup> But this target references *capacity* not recycled content *output*—in other words, ExxonMobil has committed to developing the production capacity to manage this volume of waste but does not guarantee that this volume will be processed. Meanwhile, ExxonMobil plans to add nearly eight times that capacity in virgin plastic production through 2025.<sup>546</sup> In total, the company’s current “advanced recycling” commitments are estimated to account for no more than 5% of its plastic production volumes by 2026.

Other petrochemical companies have also made billion-pound targets. Dow has plans to scale up its “advanced recycling” capacity to 600 kilotons or 1.2 billion pounds, but its “planned facilities across the U.S. and Europe to rapidly scale advanced recycling of plastics” have not yet been built.<sup>547</sup> Chevron Phillips Chemical has stated a target of “annual production volume of 1 billion pounds” of a patented polyethene (via “advanced recycling”) by 2030, but does

540 Press Release, American Chemistry Council, U.S. Plastics Resin Producers Set Circular Economy Goals to Recycle or Recover 100% of Plastic Packaging by 2040 (May 9, 2018), <https://www.americanchemistry.com/chemistry-in-america/news-trends/press-release/2018/us-plastics-resin-producers-set-circular-economy-goals-to-recycle-or-recover-100-of-plastic-packaging-by-2040>.

541 Heather Caliendo, *Dow Chemical Adding “Recover” to “Reduce, Reuse, Recycle”*, PLASTICS TODAY (Jan. 24, 2013), <https://www.plasticstoday.com/dow-chemical-adding-%E2%80%9Crecover%E2%80%9D-%E2%80%9Creduce-reuse-recycle%E2%80%9D>.

542 America’s Plastic Makers & American Chemistry Council, A PLAN FOR CONGRESS TO ACCELERATE A CIRCULAR ECONOMY FOR PLASTICS (2021), <https://web.archive.org/web/20210713133306/https://www.plasticmakers.org/files/d6b3a34b9a88b1a6ee4d-a0a73b24562d740f80e4.pdf>; see also America’s Plastic Makers, *5 Actions for Sustainable Change: Text*, CHEMICAL WEEK (Nov. 2 - Dec. 6, 2021) (on file with CCI #4854.1) (advertisement outlining the 5 actions that the ACC called on Congress to take that would “create a comprehensive national strategy and standards to accelerate a sustainable, circular economy and to confront the challenges of plastic waste head on”).

543 Jennifer Killinger, *Plastic Makers Outline 5 Actions Congress Can Take to Advance Circular Economy, End Plastic Waste*, AMERICAN CHEMISTRY COUNCIL (July 13, 2021), <https://web.archive.org/web/20210713133231/https://www.americanchemistry.com/Media/PressReleases/Transcripts/ACC-news-releases/Plastic-Makers-Outline-5-Actions-Congress-Can-Take-To-Advance-Circular-Economy-End-Plastic-Waste.html>; Prashanth Sabbineni et al., *Insight: How the US Can Achieve High Plastic Recycling Rates*, ICIS (July 6, 2021), [https://www.icis.com/explore/resources/news/2021/07/06/10660235/insight-how-the-us-can-achieve-high-plastic-recycling-rates/?utm\\_content=buffer00dc4&utm\\_medium=social&utm\\_source=linkedin.com&utm\\_campaign=buffer](https://www.icis.com/explore/resources/news/2021/07/06/10660235/insight-how-the-us-can-achieve-high-plastic-recycling-rates/?utm_content=buffer00dc4&utm_medium=social&utm_source=linkedin.com&utm_campaign=buffer).

544 ExxonMobil, *supra* note 221, at iv (CCI #3128.6).

545 ExxonMobil, ANNUAL REPORT 2021 xv (2022), [https://dlio3yog0oux5.cloudfront.net/\\_0525f46847911a3ef8ef04b23fb23196/exxonmobil/db/2301/21384/annual\\_report/2021-Annual-Report.pdf](https://dlio3yog0oux5.cloudfront.net/_0525f46847911a3ef8ef04b23fb23196/exxonmobil/db/2301/21384/annual_report/2021-Annual-Report.pdf).

546 Press Release, ExxonMobil, SABIC Start Operations at Gulf Coast Manufacturing Facility (Jan. 20, 2022), [https://corporate.exxonmobil.com/news/news-releases/2022/0120\\_exxonmobil-and-sabic-start-operations-at-gulf-coast-manufacturing-facility](https://corporate.exxonmobil.com/news/news-releases/2022/0120_exxonmobil-and-sabic-start-operations-at-gulf-coast-manufacturing-facility).

547 Dow writes that one facility in Germany is “targeted for a final investment decision by the end of 2023.” Dow, *supra* note 222, at 8 (CCI #3146.18).

not indicate how much will be post-consumer plastics.<sup>548</sup> Shell has announced its ambition to recycle one million metric tons (over two billion pounds) of plastic waste by 2025 with the help of a new “pyrolysis oil upgrader” facility set to open in 2024.<sup>549</sup>

## E. Plastics industry developed and promoted sponsored educational materials on the “benefits” of plastic recycling to mislead school children

### 1990: Dow Chemical Releases “Recycle This!” Educational Video

In 1990, Dow Chemical released a recycling education video titled “Recycle This!” recommended by the EPA for grades 4 through 12.<sup>550</sup> According to the EPA, the video “uses music, skits, and a game show entitled ‘Environmental Jeopardy’ to discuss the dangers of rapidly depleting landfill space. Beginning with the theme song of ‘We Didn’t Start the Landfills,’ the film presents statistics on plastic, glass, and aluminum recycling as well as information on biodegradable substances and their contribution to landfill space.”<sup>551</sup>

### 1992: APC Launches “Working Together for a Healthier Planet” Educational Video

In 1992, APC created a video for use in schools titled “Working Together for a Healthier Planet.” The video featured a narrator making blatantly false statements, including the claim that “most plastics can be melted and reused over and over again.”<sup>552</sup>

### 1992: CSWS Launches “The Resource Revolution” Educational Video

In 1992, APC created “The Resource Revolution,” a 12-minute educational film about the revolution in plastics recycling” recommended for grades 7 through 12.<sup>553</sup> APC promotes the video as “show[ing] students the incredible gains in plastics recycling and the role recycling plays in dealing with our nation’s garbage crisis” and “will inspire students to get involved in recycling.”<sup>554</sup>

### 1992: DuPont Solid Waste Management Curriculum

In the 1990s DuPont worked with a panel of teachers to create 27 interdisciplinary lessons for K-12 on solid waste management. The curriculum was “introduced through DuPont plant sites and customers for distribution in their education communities.”<sup>555</sup>

### 1994: Plastics Industry Recycling Educational Videos Featured in School Guides

The “Education & Recycling: Educator’s Waste Management Resource and Activity Guide”—published by the California Department of Conservation Division of Recycling in 1994—promoted educational materials developed by industry trade associations, as a means to educate K-12 students about recycling and plastics.<sup>556</sup> These materials included:

548 Press Release, Chevron Phillips Chemical, *supra* note 220.

549 Press Release, Shell Global, Shell Chemicals Park Moerdijk Accelerates Transition to Become Net Zero Emissions and Produce More Sustainable Chemicals (July 13, 2022), <https://www.shell.com/business-customers/chemicals/media-releases/2022-media-releases/shell-chemicals-park-moerdijk-accelerates-transition-to-become-net-zero-emissions-and-more-sustainable-chemicals.html>.

550 U.S. EPA, A RESOURCE GUIDE OF SOLID WASTE EDUCATIONAL MATERIALS 19 (1997), <https://nepis.epa.gov/Exe/ZyPDF.cgi/10000H78.PDF?Dockey=10000H78.PDF>.

551 *Id.* at 20.

552 Working Together for a Healthier Planet, *supra* note 120, at 8:31 (CCI #322.1, #318.1-2).

553 The Resource Revolution, cassette sleeve (American Plastics Council 1992) (on file with CCI #319.2).

554 *Id.*; see also Cal. Dep’t of Conservation, *supra* note 117, at 136 (CCI #4530.140) (providing a description of the video to school teachers in California).

555 Partnership for Plastics Progress, *supra* note 129, at 4 (CCI #244.219).

556 See generally Cal. Dep’t of Conservation, *supra* note 117 (CCI #4530).

- **Curricula**
  - “Classroom Activities Booklet,” APC, *Grades K-12*<sup>557</sup>
  - “Recycle This!” Dow, *Grades 7-12*<sup>558</sup>
  - “What’s It Made Of?” Dow, *Grades 3-8*<sup>559</sup>
- **Program Guides**
  - “How to Set Up a School Recycling Program,” APC and SPI, 1993, *Grades K-12*<sup>560</sup>
- **Videos**
  - “Convenience Recycled,” Polystyrene Packaging Council, *Grades 7-12*<sup>561</sup>
  - “Do The Right Thing - Recycle and Recycling Riddles,” NPRC, *Grades 6-12*<sup>562</sup>
  - “Mister Rogers’ Recycling Video,” Keep America Beautiful, *Grades preschool-3*<sup>563</sup>
  - “The Pyrolysis Story,” Conrad Industries Inc., No grade specified<sup>564</sup>

In an APC meeting that took place on April 4, 1994, staff members discussed a promotional/educational video about the Conrad Industries pyrolysis plant. Speaking on the video, Jean Satler, Vice President of Communications at APC, stated: “Fits in nicely with our overall message, it is propaganda but the resource management messages are important.”<sup>565</sup>

- “The Resource Revolution,” APC, 1992, *Grades 7-12*<sup>566</sup>
- “Working Together for a Healthier Planet,” APC, 1992, *Grades 6-12*<sup>567</sup>

### 1994 - Early 2000s: APC’s Hands on Plastic

APC developed an educational toolkit in partnership with the National Middle Level Science Teachers Association (NMLSTA) titled “Hands on Plastics: A Scientific Investigation Kit.” According to NMLSTA, “[t]he kit was designed for middle level science students by middle level science teachers in partnership with The American Plastics Council. Since the introduction of the kit in March of 1994, more than 25,000 kits have been distributed to teachers across the United States impacting more than two million students. These students have experienced the excitement of a hands-on scientific investigation into the plastics they use every day.”<sup>568</sup> Produced and distributed by APC for free, the kit contained “six recycled plastic pellet samples, ... background information on polymers and plastics, and pictures of a recycled plastic lumber factory.”<sup>569</sup> The kit appeared in the Department of Energy’s March 1997 Energy Education Resources publication.<sup>570</sup>

557 *Id.* at 120 (CCI #4530.124).

558 *Id.* at 124 (CCI #4530.128); Vinnie Rattolle, *Recycle This! Rock ‘N’ Roll and Recycling*, YouTube (June 11, 2013), <https://youtu.be/VdlrwdSIVco?feature=shared>; see also *One Bin to Rule Them All*, OUTSIDE/IN (Mar. 29, 2018), <http://outsideinradio.org/shows/onebin-torulethemall>.

559 Cal. Dep’t of Conservation, *supra* note 117, at 127 (CCI #4530.131).

560 *Id.* at 131 (on file with CCI #4530.135); see also Los Angeles County Department of Public Works Elementary School Environmental Education Program, ORGANIZING CAFETERIA RECYCLING PROGRAMS IN ELEMENTARY SCHOOLS: A HOW-TO GUIDE (1996), <https://lad-pw.org/cpd/envdef/Teacher-PrincipalPacket.pdf> (providing an example of how APC’s educational campaign was utilized by the Los Angeles County school district).

561 Cal. Dep’t of Conservation, *supra* note 117, at 132 (CCI #4530.136).

562 *Id.*

563 *Id.* at 135 (CCI #4530.139).

564 *Id.* at 136 (CCI #4530.140).

565 Bailey Condrey, *Conrad Mtg 4/4/94*, in NOTES, *supra* note 86, at 133 (Apr. 4, 1994) (CCI #79.133).

566 Cal. Dep’t of Conservation, *supra* note 117, at 136 (CCI #4530.140).

567 *Id.* at 137 (CCI #4530.141); Working Together for a Healthier Planet, *supra* note 120 (CCI #322.1, #318.1-2).

568 NMLSTA, *Hands on Plastics: A Scientific Investigation Kit*, available at <https://web.archive.org/web/20020219151232/http://www.nsta.org/nmlsta/kit.htm> (archived Feb. 19, 2002).

569 *Id.*

570 NEIC, *supra* note 118, at 8 (on file with CCI #4531.19).

APC also supported the Intersociety Polymer Education Council (IPEC), a “non-profit organization of polymer-related professional societies.”<sup>571</sup> The IPEC promoted “science education by encouraging and facilitating the incorporation of polymer topics in K-12 classrooms.”<sup>572</sup> One of its workshops was described as “tak[ing] participants on a journey that involves topics from polymerization to common plastic product manufacturing to post-consumer plastic recycling.”<sup>573</sup>

### 1995: Plastic Bag Association “Don’t Let a Good Thing Go to Waste”

The Plastic Bag Association (PBA) created a 25-page informational booklet called “Don’t Let a Good Thing Go to Waste,” which “focused on the six R’s—reading, ‘riting, ‘rithmetic, recycling, reuse and reduce.”<sup>574</sup> The recycling lesson lists a number of materials as recyclable trash, accompanied by illustrations of plastic bags. The campaign cost over \$150,000 with over 10,000 copies distributed to teachers and schools by 1995. PBA president, Ron Schmieder said he didn’t “think anyone reading [the booklet] [could] determine that a plastics group produced it.”<sup>575</sup>

## F. Plastics industry falsely promoted—and continues to promote—“advanced recycling,” which is not recycling

Recent investigations have revealed that the majority of proposed “advanced recycling” facilities are not operational, are unlikely to be viable, or are not recycling plastics into new plastic products:

- 2020: Global Alliance for Incinerator Alternatives found that, of the 37 “advanced” or “chemical” recycling facilities proposed since the early 2000s, only three were currently operational and none were successfully recycling plastics into new plastic products.<sup>576</sup>
- 2020: Greenpeace examined 52 “advanced” or “chemical” recycling projects financed by the ACC, and found that many were unlikely to be viable or misleadingly promoted as recycling when they mostly produce fuels and waxes.<sup>577</sup>
- July 2021: Reuters investigated 30 projects by “advanced recycling” companies operating globally, finding that most of the endeavors were agreements between these small firms and major fossil fuel and petrochemical companies, including ExxonMobil and Shell. All of the operations were either operating at a modest scale or shut down, and more than half were years behind schedule.<sup>578</sup>
- February 2022: The Natural Resources Defense Council examined eight “chemical recycling” plants and found that the majority of facilities are actually burning, rather than recycling, plastics.<sup>579</sup>
- October 2023: Beyond Plastics and the International Pollutants Elimination Network reviewed the 11 chemical recycling facilities that have been constructed in the U.S. to date and found that at least eight of them produce fuel rather than plastic resins, and eight of them are still in the testing stages or have not achieved commercial capacity. Moreover,

571 IPEC, *What is IPEC?*, available at [https://web.archive.org/web/20020209210905/http://www.uwsp.edu/chemistry/ipec/home\\_frame.htm](https://web.archive.org/web/20020209210905/http://www.uwsp.edu/chemistry/ipec/home_frame.htm) (archived Feb. 9, 2002).

572 *Id.*

573 IPEC, *Discovery in Plastic Processes*, available at [https://web.archive.org/web/20020209210905/http://www.uwsp.edu/chemistry/ipec/home\\_frame.htm](https://web.archive.org/web/20020209210905/http://www.uwsp.edu/chemistry/ipec/home_frame.htm) (archived Feb. 9, 2002).

574 *Molding Young Minds: Firms Spend Big to Get Views into Public Schools*, *supra* note 116 (on file with CCI #412.2).

575 *Id.*

576 Denise Patel et al., *supra* note 213, at 3 (identifying Agilyx, Brightmark, and New Hope Energy as the three facilities commercially operating). GALA’s report goes on to note that, though Agilyx is “frequently upheld as a model of plastic-to-plastic recycling,” their investigation found “that the majority of its output is sent for combustion in cement kilns.” *Id.*

577 *See generally* Ivy Schlegel, *supra* note 160.

578 Joe Brock, et al., *supra* note 189.

579 Veena Singla, *supra* note 192.

the investigation found that, even if all 11 facilities were operating at their full rated capacity, they would process less than 1.3% of the plastic waste generated in the U.S. each year.<sup>580</sup>

In 2023, petrochemical companies have continued to promote their commitment to “advanced recycling” by opening new facilities. For example, Exxon added a new pyrolysis unit to its existing facility in Baytown, Texas, using its proprietary “Exxtend” technology, which ExxonMobil claims “complements traditional mechanical recycling’ by turning hard-to-recycle plastics into raw materials which can be used to make new plastics for food packaging, medical equipment and personal hygiene products.”<sup>581</sup> An ExxonMobil advertisement boasts of Baytown, “Discover the facility capable of processing 80M+ pounds of plastic waste per year, through advanced recycling.”<sup>582</sup> Publicly available information shows that the unit is not operating at full capacity.<sup>583</sup>

In addition, in January 2023, Phillips 66 announced its plans to “process oil made from waste plastics into feedstocks for new plastics” at its Sweeny Refinery in Texas.<sup>584</sup> As pyrolysis and other technologies have been given a second life as “advanced recycling,” so have industry efforts to label the process as recycling. In 1994, the Oregon Attorney General considered the issue, and determined that “pyrolysis is not recycling to the extent the end product of that process is a form of energy.”<sup>585</sup> SPI challenged the Oregon AG’s interpretation, seeking a declaratory judgment that its pyrolysis system run by Conrad Industries qualified as recycling under Oregon law, but was ultimately unsuccessful.<sup>586</sup> Today, efforts are underway to enact legislation that would classify plastic waste sent to these facilities as “recycled.” Just Zero identified legislative proposals that have been introduced in California, Colorado, Connecticut, and Washington.<sup>587</sup>

### Ocean Conservancy Promotion of Waste-to-Energy Chemical Recycling

In 2015, the Ocean Conservancy published a report, “Stemming the Tide: Land-Based Strategies for a Plastic-Free Ocean,” that encouraged the use of WtE chemical recycling technologies as part of a strategy to reduce plastic waste in the environment. The report—published with support from ACC, Dow Chemical, and the Ellen MacArthur Foundation—explained that “[l]arge-scale deployment of waste-to-energy technology (such as gasification, pyrolysis, or incineration with energy recovery) . . . may help solve the pollution problem associated with today’s plastics,” with a caveat that it needed to be “done thoughtfully.”<sup>588</sup>

The Ocean Conservancy later retracted the report and explained that they “unequivocally rescind any direct or indirect endorsement of incineration as a solution to ocean plastic pollution.”<sup>589</sup>

580 Lee Bell, *supra* note 23, at 39.

581 Maddie Stone, *Exxon’s New ‘Advanced Recycling’ Plant Raises Environmental Concerns*, *GUARDIAN* (Apr. 10, 2023), <https://www.theguardian.com/us-news/2023/apr/10/exxon-advanced-recycling-plastic-environment>.

582 ExxonMobil, *Enabling a More Circular Economy: Trash to Treasure*, META (Library ID: 285263837465642, Sept. 6, 2023), <https://www.facebook.com/ads/library/?id=285263837465642>.

583 Lee Bell, *supra* note 23, at 100.

584 Press Release, Phillips 66, Phillips 66 Achieves ISCC PLUS Certification to Turn Oil from Waste Plastics into Feedstocks at its Sweeny Refinery (Jan. 24, 2023), <https://investor.phillips66.com/financial-information/news-releases/news-release-details/2023/Phillips-66-Achieves-ISCC-PLUS-Certification-to-Turn-Oil-from-Waste-Plastics-into-Feedstocks-at-its-Sweeny-Refinery/default.aspx>.

585 Letter of Advice from Jerome S. Lidz, *supra* note 205.

586 Complaint for Declaratory Judgment, *supra* note 206.

587 Kevin Budris, Just Zero, LOOPHOLES, INJUSTICE, & THE “ADVANCED RECYCLING” MYTH 22-24 (2022), <https://just-zero.org/wp-content/uploads/2022/12/2022-12-14-Just-Zero-Advanced-Recycling-Report.pdf>.

588 Ocean Conservancy, *STEMMING THE TIDE: LAND-BASED STRATEGIES FOR A PLASTIC-FREE OCEAN 4* (2015), <https://waste-free-oceans.prezly.com/stemming-the-tide-land-based-strategies-for-a-plastic-free-ocean>.

589 Ocean Conservancy, *Stemming the Tide Statement of Accountability* (July 10, 2022), available at <https://web.archive.org/web/20240109031127/https://oceanconservancy.org/trash-free-seas/take-deep-dive/stemming-the-tide/> (archived Jan. 9, 2024) (on file with CCI #5135.1).

**ExxonMobil Targeted Advertisements to Support Advanced Recycling in Legislation**

ExxonMobil launched campaigns in various states—including Delaware, New York, Oregon, and Pennsylvania—to encourage legislative action on “advanced recycling” to purportedly accelerate a circular economy:

- Oregon: “Tell Oregon lawmakers that you support investing in a more circular economy by addressing the issue of plastic waste through advanced recycling!”<sup>590</sup> An alternative version says, “Tell Oregon lawmakers to support a circular economy for plastics through advanced recycling—because plastics are too valuable to waste!”<sup>591</sup>
- Delaware: “TELL LAWMAKERS: . . . Advanced recycling expands the materials able to be recycled, including plastics essential to modern life, while contributing to a more circular economy.”<sup>592</sup> Another version claims, “Advanced recycling is a proven technology that can help address plastic waste.”<sup>593</sup>
- Pennsylvania: “Tell Pennsylvania lawmakers that you support investing in a more circular economy by addressing the issue of plastic waste!”<sup>594</sup> and a “proven technology.”<sup>595</sup>
- New York: “Will you defend advanced recycling . . . a crucial technology that can help address the challenges of plastic waste” and “Urge NY Lawmakers to support policies for a circular economy.”<sup>596</sup> In another version, advanced recycling is not even mentioned, stating only, “We need YOU to raise your voice to support a technology that helps accelerate a circular economy.”<sup>597</sup>

**G. Plastics industry falsely promoted—and continues to promote—plastic recycling as a means to achieve a “circular economy”****ExxonMobil and ACC Promote Advanced Recycling Through Circular Economy Claims**

In 2022 and 2023, ExxonMobil and ACC, through America’s Plastic Makers, have promoted “advanced recycling” in online advertisements by connecting it with a “circular economy”:

- “We’re focused on supporting a circular economy by diverting hard-to-recycle plastics from landfills and transforming them into new valuable products needed for modern life.”<sup>598</sup>
- “Did you know that less than 10% of plastics produced are recycled? If you support solutions for a more circular economy, take the pledge!” and “Pledge to help fix it.”<sup>599</sup>

590 ExxonMobil, *Speak Out, Oregon!*, META (Library ID: 877322917401935, Aug. 17, 2023), <https://www.facebook.com/ads/library/?id=877322917401935>.

591 ExxonMobil, *Support Advanced Recycling: Oregon*, META (Library ID: 962058668426164, Aug. 18, 2023), <https://www.facebook.com/ads/library/?id=962058668426164>.

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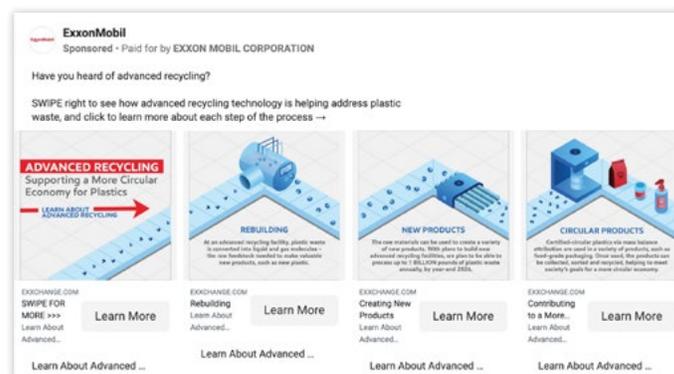
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598 ExxonMobil, *Exchange: Grade The System*, META (Library ID: 623208426597156, Sept. 6, 2023), <https://www.facebook.com/ads/library/?id=623208426597156>.

599 ExxonMobil, *Exchange: Pledge*, META (Library ID: 1389523918263992, Sept. 10, 2023), <https://www.facebook.com/ads/library/?id=1389523918263992>.

- A series of images that starts with a panel that states “ADVANCED RECYCLING: Supporting a More Circular Economy for Plastics.” The series shows a conveyor belt with plastics moving through the “advanced recycling” process, coming back out as “circular products” at the end.
- “Want to see how your trash becomes treasure? . . . By leveraging advanced recycling technology, our Baytown facility is helping divert plastic waste from landfill or incineration and increase the circularity of plastic.”<sup>600</sup>
- A campaign asking for consumers to send a comment to the FTC states, “Only 9% of plastics are recycled globally. Advanced recycling can help increase recycling rates while creating a more circular economy.”<sup>601</sup>
- Support “America’s change makers” that are “helping to keep plastic out of the environment.”<sup>602</sup> The link navigates to a page stating, “linking innovation with sustainability to create a circular economy.”<sup>603</sup>
- “[T]he process of remaking used plastic is becoming more and more efficient” and “keep plastics in a circular economy and out of the environment.”<sup>604</sup>
- “Advanced recycling is helping advance a circular economy by turning more types of used plastic into the building blocks for new materials.”<sup>605</sup>
- “Advanced recycling technologies help keep plastic out of our environment and in our economy by remaking ‘hard-to-recycle’ plastic into new plastic, again and again.”<sup>606</sup>
- “In honor of #WorldOceansDay, we reaffirm our goal of eliminating plastic waste and build toward a brighter future with a more circular economy. Thanks to breakthrough innovations and #AdvancedRecycling, we have an important part of the solution.”<sup>607</sup>



### Agilyx Circular Economy Promotions

An “advanced recycling” facility in Oregon has run a series of online advertisements connecting “advanced recycling” to a “circular economy.” These ads state “By making plastic a circular resource, chemical recycling can help reduce plastic waste and ease the transition to a low-carbon economy.”<sup>608</sup> And “Have you ever heard of a ‘circular economy’? Based on the “reduce-reuse-recycle” model, a circular economy focuses on designing out waste to create a circular lifecycle for valuable materials. A circular economy can help redefine our relationship with the natural world and build a more sustainable future.”

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601 ExxonMobil, *Exxchange: FTC Comment*, META (Library ID: 601793668524256, Apr. 9, 2023), <https://www.facebook.com/ads/library/?id=601793668524256>.

602 American Chemistry Council, *America’s Plastic Makers: Meet Jesus*, META (Library ID: 752318226601029, Apr. 17, 2023), <https://www.facebook.com/ads/library/?id=752318226601029>.

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**Figure 5** Letter from Roger Bernstein, Society of the Plastics Industry, to the New Jersey Task Force State Government Affairs Committee, New Jersey's Mandatory Recycling Bill 2 (Dec. 20, 1984), available at <https://www.toxicdocs.org/d/rpQVO-R8obVNLbN5R69K0EJ5pJ?lightbox=1> (on file with CCI #4147.2).

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**Figure 7** Bailey Condrey, *1/12/94 Meeting with APME*, in *NOTES 1* (1994) (on file with CCI #79.1).

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**Figure 13** Bailey Condrey, *Staff Mtg 11/6/95*, in *STAFF & COMMUNICATIONS MTGS. 182* (1994-1996) (on file with CCI #39.187).

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