

## APPENDIX 2: METHODOLOGY | THE NEW COAL: PLASTICS AND CLIMATE CHANGE

### Appendix 2: Methodology and Additional Observations

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Beyond Plastics’ report, *The New Coal: Plastics and Climate Change*, analyzes and summarizes U.S. government data wherever possible, and supplements it with other published information and original calculations as described in this Appendix.

Data availability for this kind of analysis is rapidly expanding and the current project, constrained by time, does not incorporate all of what can be quantified. Such omissions are listed at the end of this methodology. The report’s estimate that the U.S plastics industry is responsible for 232 million tons of greenhouse gas emissions per year is the floor, not the ceiling.

#### Key Data Sources

U.S. Environmental Protection Agency’s “**Facility Level Information on GreenHouse gases Tool**” (FLIGHT) provides information about greenhouse gas emissions from large facilities in the U.S.<sup>i</sup> These facilities are required to submit annual data to EPA as part of the Greenhouse Gas Reporting Program. Research for this report focused on facilities that reported releasing more than 100,000 tons CO<sub>2</sub>e in the latest available reporting year (2020). Some smaller emitters are included, especially if they are co-located with larger plastics industry emitters.

The Department of Energy’s **Energy Information Administration** (EIA) publishes plant-level data on power plant fuel consumption.<sup>ii</sup> Forty (40) power plants in the database were identified as being largely dedicated to providing electricity and heat for plastics-related production. EIA plant-level data includes the volumes of fuel consumed at each power plant. These throughputs form the basis for calculations of upstream methane leakages from the extraction and delivery of natural gas to the plastic industry’s power plants.

The U.S. International Trade Commission’s **Dataweb** publishes resin-specific data for total imports and exports.<sup>iii</sup>

Environmental Integrity Project’s (EIP) **Emission Increase Database and Pipelines Inventory** (May 3, 2021 version) tracks the environmental and human health impacts of 429 of the largest projects to build or expand capacity at gas processors, liquefied natural gas terminals, refineries, petrochemical plants, and fertilizer manufacturers. At least 100 of these projects support the production of plastics. EIP’s public database includes potential greenhouse gas emissions as listed in permit applications for new and expanded projects. These “potential” emissions are reflected in the projections of increased releases found in *The New Coal: Plastics and*

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*Climate Change.* EIP notes, “actual emissions from new projects may prove to be lower than the maximum amounts their permits allow.”<sup>iv</sup>

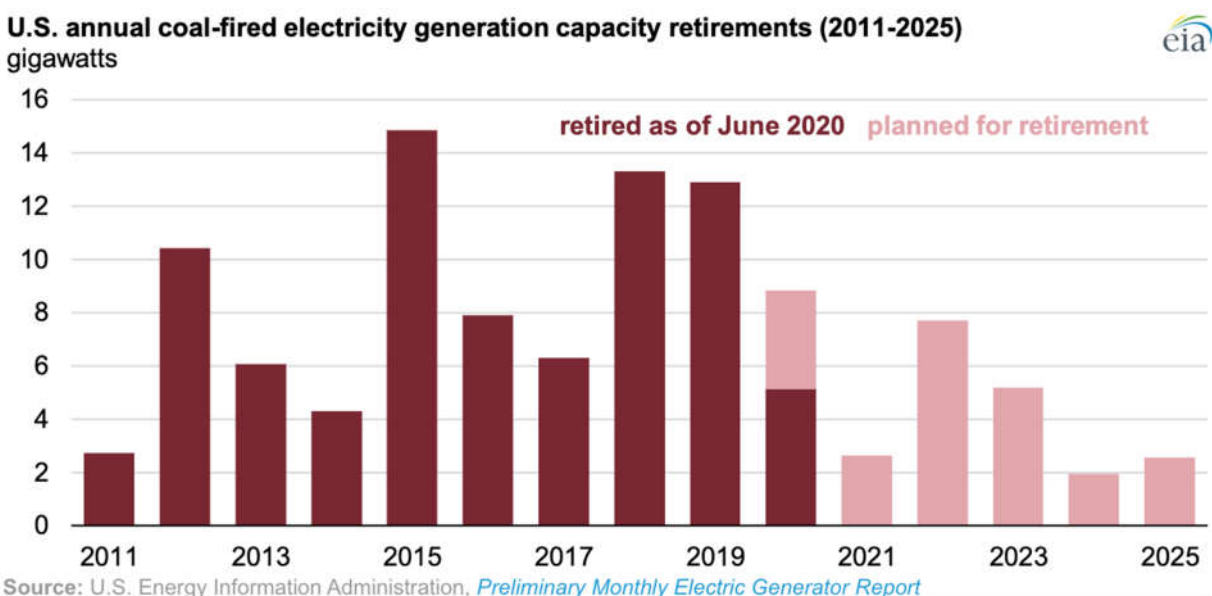
### Mass Measurements

All weights in this report are given in U.S. tons (also called “short tons”), rather than metric tons, including carbon dioxide equivalency even though standard reports for this measure are in metric tons. Most federal government reports, such as solid waste statistics, are in U.S. tons. Rather than have a mixture of U.S. and metric tons, an editorial decision was made to convert all metric tons to U.S. tons, for consistency.

### “Average Coal-Fired Power Plant” Comparisons

Previously published comparisons of the plastic industry’s emissions to coal-fired power plants rely upon EPA’s Greenhouse Gas Equivalencies Calculator.<sup>v</sup> This calculator is not used for comparisons in *The New Coal: Plastics and Climate Change*. EPA’s calculator is based upon outdated 2018 data, and does not define the design capacity in megawatts of what it describes as an “average” coal-fired power plant. Instead it takes the total reported releases of carbon dioxide from 264 coal-fired power plants in 2018 (1.05 billion tons), and divides this weight by the number of power plants. It reports “average” emissions as “3,966,432.97 metric tons CO<sub>2</sub>/power plant.”<sup>vi</sup>

Capacity utilization for coal-fired power plummeted since 2018, the year upon which EPA’s calculations are based. In July 2018, more than 60% of the coal-fired power capacity in the United States was utilized. In 2020, the U.S. coal power fleet operated at an average capacity of just 40.8%. At times, it dipped under 30%.<sup>vii</sup> The Energy Information Administration explains, “Seasonal differences in capacity factor have become more pronounced, largely because coal has been displaced by cheaper generation from natural gas and renewable energy during the shoulder months.”<sup>viii</sup> Capacity factors are declining even as the coal-fired power industry’s overall capacity is dwindling.



Screenshot from U.S. Energy Information Administration [website](#).

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Because EPA’s Greenhouse Gas Calculator does not define the capacity of what it describes as an average coal-fired power plant, and because its assumption of capacity utilization is outdated, *The New Coal: Plastics and Climate Change* uses a more realistic, apples-to-apples, basis for comparing the plastics industry’s releases to an “average” coal-fired power plant in the same year, 2020.

Calculations by the National Renewable Energy Laboratory,<sup>ix</sup> Berkeley Labs,<sup>x</sup> and many others use a design capacity of 500-Megawatt (MW) as the standard for an “average” sized plant. This is the standard applied in the present report.

An average sized, 500-MW capacity power plant running at full capacity all year would produce 4.38 million megawatt-hours (MWh) of energy. In 2020, based on the U.S. coal fleet’s average capacity utilization rate of 40.4%, the average plant would have generated 1,769,520 MWh of electricity. The Energy Information Administration states, coal-fired electricity plants generated 2,210 pounds CO<sub>2</sub> per megawatt-hour.<sup>xi</sup> Based on these factors, the “average” 500-MW coal-fired power plant in 2020 released almost 2,000,000 tons of CO<sub>2</sub>e.

### Basis for “Average” 500-Megawatt Coal-Fired Power Plant Comparison (2020)

|                                   |   |
|-----------------------------------|---|
| Ave. Megawatt hours (MWh) in 2020 | 1,769,520                               |
| Carbon dioxide pounds per MWh     | 2,210                                   |
| Total CO <sub>2</sub> released    | 3,910,639,200 lb. (1,955,319 U.S. tons) |

Therefore, *this report considers a rate of 2 million (short or U.S.) tons CO<sub>2</sub>e per year to be equivalent to current releases from an average coal-fired power plant in the United States.*

According to the EIA, the coal-fired power sector in the U.S. released 786 million tons of CO<sub>2</sub>e gases in 2020. As of October 2021, emissions from the U.S. plastics industry are equivalent to more than 30% of those from coal-fired power. As the plastics industry continues to build infrastructure for export and production, its CO<sub>2</sub>e contributions will increase. Meanwhile, the coal-fired power industry continues a rapid path toward extinction. The financial industry expects it to cease entirely in the U.S. by 2033.<sup>xii</sup> At some point in the near future, almost certainly before 2030, the U.S. plastics industry’s contribution to climate change will exceed that of coal-fired power in this country.

### Production

Connecting releases specifically to plastics production can be challenging. Sites that produce materials for the U.S. plastics industry may also be supplying other industries, such as fuels for transportation, or pesticides and fertilizer for agriculture. Where possible, greenhouse gas-release calculations are adjusted to account for these nuances, site-by-site. Notes in the project spreadsheet (Appendix 1) explain assumptions and sources for making these adjustments.

In 2020, Energy Transitions, a global industry coalition that includes plastics manufacturers BP and Shell stated that “the production process produces on average 2.5 tons of CO<sub>2</sub> per ton of plastics.”<sup>xiii</sup> This factor of 2.5:1 provides a standard conversion for production emissions that are otherwise not specified.

*Ammonia*: Ten percent of releases from ammonia plants are attributed to plastics production. This report’s estimate is based on Clean Production Action’s determination that 10% of ammonia is used in the production *Beyond Plastics at Bennington College, October 2021*

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of plastics, particularly urea used in formaldehyde resins.<sup>xiv</sup> Producing ammonia from natural gas “leads to 2.6 metric tons of life cycle greenhouse gas GHG emissions per metric ton of ammonia produced.”<sup>xv</sup>

*Methanol:* To err on the side of undercounting releases, methanol releases from plants in Louisiana and Texas use a factor of .55 to allocate emissions for production of plastics feedstock. These locations' production is likely higher due to the proximity of plastics producers.

### Impacted Communities (Demographics)

The summary of this report concludes,

“The industry releases more than 90% of its climate pollution into 18 communities along the coastlines of Texas and Louisiana. People living within three miles of these petrochemical clusters earn 28% less than the average U.S. household and are 67% more likely to be people of color.”

This statement is based on the following analysis.

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### Demographics: Plastics/Climate Intersection Communities

| Rank by Plastics CO2e /year | Community   | CO2e/year Plastics Facilities    |            | People who live within 3 miles of the center of production |                                    |                           |   |
|-----------------------------|---|----------------------------------|------------|--|------------------------------------|---------------------------|---|
|                             |   | Reported Releases (million tons) | Share      | Number of People   | % People of Color                  | Per Capita Income         | Social Vulnerability Index <sup>xvi</sup> |
|                             | U.S. (overall)  | <b>114,185,000</b>               | -          | 330 million  | 40% <sup>xvii</sup>                | \$34,102 <sup>xviii</sup> | 0.094                                     |
|                             | <b>Top 18 Plastics/Climate intersection communities</b>   | <b>109,870,000</b>               | <b>96%</b> | <b>388,810</b>   | <b>67% (average)<sup>xix</sup></b> | <b>\$24,567 (average)</b> | <b>0.917 (median)</b>                     |
| 1                           | Houston/Baytown, Texas <sup>xx</sup> (23 sites)           | 20.2                             | 17.7%      | 36,951   | 75%                                | \$24,064                  | 0.933                                     |
| 2                           | Freeport, Texas <sup>xxi</sup> (8 sites)                  | 16.6                             | 14.6%      | 16,194   | 76%                                | \$23,283                  | 0.949                                     |
| 3                           | Norco/Taft, Louisiana <sup>xxii</sup> (3 sites)           | 10.3                             | 9%         | 9,509  | 32%                                | \$26,656                  | 0.802                                     |
| 4                           | Plaquemine/St. Gabriel, La. <sup>xxiii</sup> (9 sites)    | 8.6                              | 7.5%       | 7,274  | 59%                                | \$27,743                  | 0.942                                     |
| 5                           | Beaumont/Port Arthur, Texas <sup>xxiv</sup> (10 sites)    | 7.8                              | 6.8%       | 21,589   | 50%                                | \$25,010                  | 0.933                                     |
| 6                           | Lake Charles, La. <sup>xxv</sup> (8 sites)                | 7.7                              | 6.8%       | 10,076   | 17%                                | \$30,043                  | 0.792                                     |
| 7                           | Baton Rouge, La. <sup>xxvi</sup> (2 sites)                | 6.3                              | 5.5%       | 13,866   | 92%                                | \$20,460                  | 0.954                                     |
| 8                           | Geismar, La. <sup>xxvii</sup> (9 sites)                   | 5.2                              | 4.6%       | 2,148  | 34%                                | \$28,619                  | 0.951                                     |
| 9                           | Point Comfort/Seadrift, Texas <sup>xxviii</sup> (3 sites) | 4.8                              | 4.2%       | 174  | 34%                                | \$23,712                  | 0.907                                     |
| 10                          | Kingsport, Tennessee <sup>xxix</sup> (1 site)             | 4.1                              | 3.6%       | 26,223   | 10%                                | \$27,706                  | 0.911                                     |
| 11                          | Corpus Christi, Texas <sup>xxx</sup> (4 sites)            | 4.0                              | 3.5%       | 8,106  | 57%                                | \$32,743                  | 0.744                                     |
| 12                          | Orange, Texas <sup>xxxi</sup> (5 sites)                   | 3.3                              | 2.9%       | 7,167  | 40%                                | \$27,225                  | 0.944                                     |
| 13                          | Linden, New Jersey <sup>xxxii</sup> (1 site)              | 2.7                              | 2.4%       | 190,186  | 83%                                | \$23,703                  | 0.647                                     |
| 14                          | Longview, Texas <sup>xxxiii</sup> (1 site)                | 2.4                              | 2.1%       | 7,464  | 65%                                | \$22,428                  | 0.68                                      |
| 15                          | Victoria, Texas <sup>xxxiv</sup> (1 site)                 | 1.9                              | 1.7%       | 472  | 62%                                | \$25,684                  | 0.909                                     |
| 16                          | Decatur, Alabama <sup>xxxv</sup> (4 sites)                | 1.4                              | 1.2%       | 4,907  | 66%                                | \$22,380                  | 0.923                                     |
| 17                          | Hopewell, Virginia <sup>xxxvi</sup> (1 site)              | 1.3                              | 1.1%       | 23,073   | 48%                                | \$24,122                  | 0.977                                     |
| 18                          | Calvert City, Kentucky <sup>xxxvii</sup> (2 sites)        | 1.27                             | 1.1%       | 3,431  | 5%                                 | \$28,416                  | 0.754                                     |

Release data are based on site-specific reports to EPA as obtained through the agency's FLIGHT. This table reflects only releases from the plastics industry. Site-specific details are available in Appendix 1.

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### Plastic Flooring Imports

The statement that about half of all floors sold in the U.S. are imported plastic floors is based on the following analysis. In 2020, total flooring sales in the U.S. were around 20 billion square feet.<sup>xxxviii</sup> According to U.S. trade data, the U.S. imported 5.7 billion square feet of plastic resilient flooring (about 29% of this total).<sup>xxxix</sup> Almost all of the PVC flooring sold in the U.S. now is imported (80% from China). In addition, the US imported 4.1 billion square feet of carpet, which is almost always plastic. This figure represents another 20.5% of the flooring sold in the U.S. in 2020 (carpet imports increased by 14% in 2020, according to Floor Covering Weekly).

This report estimates that the overseas manufacturing of imported plastic floors releases about 17 million tons of CO<sub>2</sub>e gases. That estimate is based on average weights of plastics in these floors, and was calculated as follows.

#### Carpet

- The mean proportion of plastics in carpet is 83.35% according to the Quartz Project.<sup>xi</sup>
- The average weight of carpet is 2.69 pounds per square foot.<sup>xii</sup>
- 4.1 billion square feet of carpet therefore contains an estimated 4,591,515 pounds of plastic.
- At the standard emissions ratio of 2.1:1, the production of this plastic overseas released 11,478,788 U.S. (short) tons of CO<sub>2</sub>e gases.

#### Resilient Flooring

- Product declarations were reviewed for three representative vinyl tile products.<sup>xlii</sup> On average, these floors are 40% plastic (filler comprises much of the balance).
- According to the Resilient Floor Covering Institute, these types of floors typically weigh 9,200 grams per square meter, or 1.88 pounds per square foot, of which 0.75 pounds are plastic.<sup>xliii</sup>
- 5.7 billion square feet of resilient flooring therefore contains an estimated 2,140,863 tons of plastic.
- At the standard emissions ratio of 2.5:1, the production of this plastic overseas released 5,352,159 U.S. (short) tons of CO<sub>2</sub>e gases.

### Ethane Shipping Emissions

Estimates of carbon dioxide emissions from shipping ethane are based on known weights and trade-route distances.

Weights are based on barrel equivalents, converted to U.S. (short) tons (19.4 barrels per short ton). Trade routes are apparent from trade literature. Barrels by country were obtained from the U.S. Energy Information Administration database.<sup>xliv</sup>

The carbon dioxide footprint calculator, Pier2Pier.com, <https://www.pier2pier.com/Co2/>, was used.

This calculation does not include shipments to Canada or Mexico, which are assumed to be via pipeline, and represented about almost half of U.S. ethane exports in 2020.

**2020 Estimated CO2e Releases by VLECs**

| <b>Ethane Route</b>                                  | <b>Carbon dioxide released en route (U.S. tons)<sup>xlv</sup></b> | <b>Ethane carried (U.S. tons)</b> |
|--|---|-----------------------------------|
| <b>Total</b>   | <b>734,086</b>  | <b>3,705,201</b>                  |
| Morgan’s Point (Houston) to Dahej (Hazira), India    | 451,430   | 1,666,053                         |
| Nederland (Port Arthur) to Taixing (Shanghai), China | 128,221   | 452,447                           |
| Marcus Hook (Philadelphia) to Grangemouth, Scotland  | 73,565  | 787,525                           |
| Marcus Hook to Rafnes (Fredrikstad), Norway          | 63,302  | 638,525                           |
| Marcus Hook to Stenungsund (Gothenburg), Sweden      | 10,609  | 106,911                           |
| Morgan’s Point to Aratu (Salvador), Brazil           | 6,956   | 53,737                            |

***Uncertainties, Underestimates, and Omissions***

- **20-Year vs. 100-Year Time Frame**

Global Warming Potentials, developed when climate change seemed to be a more distant prospect, are based on projected impacts over a 100-year period. The ongoing, intensifying chaos in Earth’s climate suggests an urgency that is not reflected in 100-year GWPs. Some chemicals, including methane, have much greater impacts in the short-term than is reflected by standard CO2e conversions and GHG inventories. In 2019, New York State enacted a 20-year time frame for reporting greenhouse gases. The state found that, for New York, **the global warming potential of releases was 29% greater for the next twenty years compared to releases over a 100-year period.**<sup>xlvi</sup>

- **Methane Releases**

In an August 2021 study, scientists from the U.S. government National Renewable Energy Laboratory found that EPA’s Greenhouse Gas Inventory underestimates methane emissions from oil and gas production by more than 100% and noted “many of the underlying data sources were published in the 1990s and may be outdated.”<sup>xlvii</sup>

- **Omissions**

Analysis of emissions data reported to the government focused on facilities that release more than 100,000 tons per year of CO2e. Some emissions sources below this threshold were included in this analysis mainly when they were located in a petrochemical cluster. Releases from hundreds of plastic-related sites were below this threshold.

Trade data were analyzed only for exports of resins and fracked gases, and imports of plastic flooring. There are many feedstocks, resins, and plastic products not included in this analysis.

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Other significant sources not included in this report's data and findings include:

- Landfills, incinerators, underground injection wells, and other disposal of hazardous waste generated by plastics production.
- Facilities that report less than 100,000 tons of CO<sub>2</sub>e per year to EPA.
- Manufacture and leaks of fluorochemical gases used in infrastructure such as propane dehydrogenation units.
- Industrial gas plants that are collocated with plastics production infrastructure and/or support infrastructure with refrigeration etc.
- Desalination plants that support plastics industrial operations.
- Incidents such as explosions and leaks that are not routine.
- Clearcutting for pipelines and other infrastructure.
- Future methane releases from the extraction and distribution of feedstocks for projects that are under construction or planned projects.
- Transportation costs (except for VLEC shipments).
- Leakage from closed wells that supplied the plastics industry.<sup>xlviii</sup>



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### END NOTES

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- <sup>xiv</sup> Rossi, Mark, and Ann Blake. Plastics Scorecard, Evaluating the Chemical Footprint of Plastics. Clean Production Action, 2014. [https://www.bizngo.org/images/ee\\_images/uploads/plastics/plastics\\_scorecard\\_2015\\_2\\_25e.pdf](https://www.bizngo.org/images/ee_images/uploads/plastics/plastics_scorecard_2015_2_25e.pdf)
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- <sup>xxviii</sup> Environmental Protection Agency. EJScreen ACS Summary Report (2014-2018). Location: User-specified point center at 28.512464,-96.770282 (Dow plant in Seadrift, TX). <https://ejscreen.epa.gov/mapper/demogreportpdf.aspx?featype=point&radius=3.0&coords=-96.770282,28.512464>
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- <sup>xxxiii</sup> Environmental Protection Agency. EJScreen ACS Summary Report (2014-2018). Location: User-specified point center at 40.637492,-74.213789 (Phillips 66 plant in Linden, NJ). <https://ejscreen.epa.gov/mapper/demogreportpdf.aspx?featype=point&radius=3.0&coords=-74.213789,40.637492>
- <sup>xxxiiii</sup> Environmental Protection Agency. EJScreen ACS Summary Report (2014-2018). Location: User-specified point center at 32.439845,-94.687917 (Eastman plant in Longview, TX). <https://ejscreen.epa.gov/mapper/demogreportpdf.aspx?featype=point&radius=3.0&coords=-94.687917,32.439845>
- <sup>xxxv</sup> Environmental Protection Agency. EJScreen ACS Summary Report (2014-2018). Location: User-specified point center at 28.675475,-96.954263 (Invista plant in Victoria, TX). <https://ejscreen.epa.gov/mapper/demogreportpdf.aspx?featype=point&radius=3.0&coords=-96.954263,28.675475>
- <sup>xxxvi</sup> Environmental Protection Agency. EJScreen ACS Summary Report (2014-2018). Location: User-specified point center at 34.630000,-87.039000 (Daikin plant in Decatur, AL). <https://ejscreen.epa.gov/mapper/demogreportpdf.aspx?featype=point&radius=3.0&coords=-87.039000,34.630000>
- <sup>xxxvii</sup> Environmental Protection Agency. EJScreen ACS Summary Report (2014-2018). Location: User-specified point center at 37.2985763,-77.274642 (AdvanSix plant in Hopewell, VA). <https://ejscreen.epa.gov/mapper/demogreportpdf.aspx?featype=point&radius=3.0&coords=-77.274642,37.2985763>
- <sup>xxxviii</sup> Environmental Protection Agency. EJScreen ACS Summary Report (2014-2018). Location: User-specified point center at 37.043366,-88.347603 (Chemical plant complex in Calvert City, KY). <https://ejscreen.epa.gov/mapper/demogreportpdf.aspx?featype=point&radius=3.0&coords=-88.347603,37.043366>
- <sup>xxxviii</sup> According to two trade journals, between 19 and 23 million square feet of floor coverings were sold in 2020. Floor Covering Weekly, Statistical Report 2020. July 26, 2021. <https://cdn.coverstand.com/26543/716283/3fa0d3392bccfad62714b6d81856c382df26fe7.1.pdf> and Floor Covering News. STATS: Flooring sales trend slightly lower in 2020. <https://www.fcnews.net/2021/05/stats-2020-flooring-sales-industry-stats/>
- <sup>xxxix</sup> US International Trade Commission Dataweb, HTS Number 3918.1 and 3918.9. <https://dataweb.usitc.gov/>
- <sup>xi</sup> Quartz Project. Common Product: Carpet. 2015. <https://quartzproject.org/p/CP152-a04/q/carpet#cp>
- <sup>xii</sup> Carpet Tiles Outlet. Frequently Asked Questions. Undated. Last accessed October 18, 2021. <https://carpettilesoutlet.com/information/frequently-asked-questions#:~:text=Heuga%20and%20Interface%20carpet%20tiles%20weigh,per%20square%20meter%20on%20average>
- <sup>xiii</sup> Health Product Declarations from three manufacturers. [https://hpdrepository.hpd-collaborative.org/repository/HPDs/409\\_Luxury\\_Vinyl\\_Tile\\_and\\_Plank.pdf](https://hpdrepository.hpd-collaborative.org/repository/HPDs/409_Luxury_Vinyl_Tile_and_Plank.pdf)  
[https://hpdrepository.hpd-collaborative.org/repository/HPDs/666\\_Metrostone\\_Waterproof\\_SPC.pdf](https://hpdrepository.hpd-collaborative.org/repository/HPDs/666_Metrostone_Waterproof_SPC.pdf)  
[https://hpdrepository.hpd-collaborative.org/repository/HPDs/733\\_Commercial\\_Multilayer\\_SPC\\_Cover\\_et\\_al\\_.pdf](https://hpdrepository.hpd-collaborative.org/repository/HPDs/733_Commercial_Multilayer_SPC_Cover_et_al_.pdf)
- <sup>xliii</sup> Resilient Floor Covering Institute. Rigid Core Flooring. Industry-Wide Environmental Product Declaration. January 1, 2019. <https://qmsview.shawinc.com/viewer/doc/5021>

## APPENDIX 2: METHODOLOGY | THE NEW COAL: PLASTICS AND CLIMATE CHANGE

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<sup>xliiv</sup> US Energy Information Agency. Exports by Destination. Ethane.

[https://www.eia.gov/dnav/pet/pet\\_move\\_expc\\_a\\_EPLLEA\\_EEX\\_mbb1\\_a.htm](https://www.eia.gov/dnav/pet/pet_move_expc_a_EPLLEA_EEX_mbb1_a.htm)

<sup>xliv</sup> Carbon dioxide footprint calculator, Pier2Pier.com, <https://www.pier2pier.com/Co2/>.

<sup>xlvi</sup> Revised Regulatory Impact Statement, 6 NYCRR Part 496, Statewide Greenhouse Gas Emission Limits. n.d.

[https://www.dec.ny.gov/docs/administration\\_pdf/revisedris496.pdf](https://www.dec.ny.gov/docs/administration_pdf/revisedris496.pdf) Comparing Table 1 to Table 2.

<sup>xlvii</sup> Rutherford, J.S., Sherwin, E.D., Ravikumar, A.P. *et al.* Closing the methane gap in US oil and natural gas production emissions inventories. *Nature Communications* 12, 4715 (2021). <https://doi.org/10.1038/s41467-021-25017-4>

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<sup>xlviii</sup> Groom, Nichola. “Special Report: Millions of Abandoned Oil Wells Are Leaking Methane, a Climate Menace.” *Reuters*, June 16, 2020. <https://www.reuters.com/article/us-usa-drilling-abandoned-specialreport/special-report-millions-of-abandoned-oil-wells-are-leaking-methane-a-climate-menace-idUSKBN23N1NL>.