

Dow Inc. (DOW) Vote Yes: Item #5 Shareholder Proposal on Single-Use Plastics

Annual Meeting: April 13, 2023

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THE RESOLUTION

Resolved: Shareholders request that Dow’s Board issue an audited report addressing whether and how a significant reduction in virgin plastic demand, as set forth in *Breaking the Plastic Wave’s* System Change Scenario to reduce ocean plastic pollution, would affect the Company’s financial position and assumptions underlying its financial statements. The report should be at reasonable cost and omit proprietary information.

Supporting Statement: Proponents recommend that, at the Board’s discretion, the report include:

- Quantification (in tons and/or as a percentage of total) of the company’s polymer production for SUP markets;
- A summary or list of the company’s existing and planned investments that may be materially impacted by the SCS;
- Plans or goals to shift its business model from virgin to recycled plastics and utilize recycling technologies that are cost-effective, process and energy efficient, and environmentally sound.

SUMMARY

In this resolution, shareholders ask Dow to follow through on its stated ambition to combat plastic pollution by assessing how the transition toward reduced demand for plastics, which has been called for by corporate, government, and scientific leaders, will impact the Company’s business.

Plastic pollution may be nearing an irreversible tipping point, according to recent scientific analysis.^{1,2} The current plastic lifecycle imposes costs on the environment, climate, and human health. In total, these costs are at least ten times higher than the market price of plastics.³ Yet, plastic waste generation continues to increase despite enhanced consumer, corporate, and regulatory attention.

In 2021, the world generated 139 million metric tons of single-use plastic waste, 6 million more tons than in 2019. At the heart of the plastic pollution problem are single-use plastics, which make up the

¹ <https://scitechdaily.com/global-plastic-pollution-may-be-nearing-an-irreversible-tipping-point>

² <https://scitechdaily.com/earths-safe-planetary-boundary-for-pollutants-including-plastics-exceeded>

³ https://wwf.panda.org/wwf_news/?3507866/These-costs-for-plastic-produced-in-2040-will-rise-to-US71-trillion-unless-urgent-action-is-taken

largest component of the 11 million metric tons of plastics that flow into oceans annually. Without drastic action, this rate is set to triple by 2040.^{4,5}

Dow is the world's third largest producer of plastic resins bound for single-use applications (9.2 million tons), which results in 5.3 million tons of plastic waste according to a recent analysis by Minderoo Foundation. Dow generates an estimated 30% of total revenue from single-use plastics. It is also the fourth largest generator of greenhouse gas emissions within the top 100 petrochemical producers of single-use plastic bound resins.⁶

The Pew Charitable Trusts' widely respected *Breaking the Plastic Wave* report found that ocean plastic pollution can be reduced by 80% while still meeting projected global demand for plastics by 2040 with "roughly the same amount of plastic in the system as today, and 11% lower levels of virgin plastic production."⁷ This is laid out in the study's central pathway, the System Change Scenario ("the Pew Scenario"), which uses a peer-reviewed methodology to conclude that an 80% reduction in ocean plastic pollution can be achieved with lower GHG emissions and costs than business-as-usual growth. While the Pew Scenario leverages multiple solutions like recycling and product substitution, the most significant action is a one-third absolute demand reduction, mostly of virgin single-use plastics, through elimination, reuse, and circular business models.^{8,9} Given the growing global push for reduced plastic waste, the proposal asks the Company to assess the impact of this scenario on its business.

RATIONALE FOR A YES VOTE

1. **Dow is exposed to economic risk as the world transitions away from single-use plastics to combat plastic pollution.**
2. **The Company continues to expand production despite the likelihood of single-use plastic demand reductions.**
3. **Dow has provided inadequate information to investors on the impact of potential plastic demand reductions.**
4. **The Company needs to provide shareholders with analysis and disclosure on the safety and efficacy of commitments to produce recycled resin using chemical recycling technologies.**

DISCUSSION

1. **Dow is exposed to economic risk as global leaders and even corporate brands call for reduction in plastic use and transition away from virgin and single-use plastics.**

⁴ <https://www.unep.org/interactives/beat-plastic-pollution/>

⁵ <https://www.nationalgeographic.com/science/article/plastic-trash-in-seas-will-nearly-triple-by-2040-if-nothing-done>

⁶ <https://www.minderoo.org/plastic-waste-makers-index/>

⁷ https://www.pewtrusts.org/-/media/assets/2020/07/breakingtheplasticwave_report.pdf, p. 11

⁸ https://www.pewtrusts.org/-/media/assets/2020/07/breakingtheplasticwave_report.pdf

⁹ <https://www.pewtrusts.org/en/research-and-analysis/articles/2020/07/23/science-study-shows-that-nearly-80-percent-of-the-annual-plastic-flow-into-the-environment>

Global community leaders agree that the current rate of expansion of virgin plastic production is unsustainable, recycling improvements alone are inadequate, and absolute demand reductions are critical. These conclusions are reflected in recent reports by the United Nations Environment Program (“UNEP”), the Organization for Economic Co-operation and Development (“OECD”), and the US National Academies of Science, Engineering, and Medicine (“NAS”), and built into the Pew Scenario of *Breaking the Plastic Wave*.^{10,11,12} The Pew Scenario finds that an absolute demand reduction for virgin single-use plastics is critical to curbing ocean plastic pollution.

A drastic reduction in unnecessary, avoidable, and problematic plastic is crucial to addressing the global pollution crisis, according to UNEP. OECD calls for restraints on demand and NAS suggests a national cap on virgin plastic production. Even the consumer brands that use Dow’s resin products, including the Business Coalition for a Global Plastics Treaty, have stated that the top priority of a global plastics treaty should be “reduction of plastic production and use . . . focusing on virgin fossil fuel-based plastic.” This group includes some of the world’s largest users of single-use plastics: Coca-Cola Co, Nestle, Mars, PepsiCo, Unilever, Walmart, and petrochemical company Borealis.¹³ The group also includes investors with \$5.5 trillion in assets under management (“AUM”): ASN Bank, BNP Paribas Asset Management, Fidelity International, and Robeco.

A recent study funded by the plastics industry (“Plastics Europe”) states that “it is technically feasible and environmentally beneficial to reduce 38% (7.2 million tons) of projected plastic packaging demand by 2050 through elimination actions and development of reuse models without compromising on functionality.”¹⁴

Countries and major brands continue to commit to significant cuts in the use of virgin and single-use plastics.^{15,16} In 2022, California passed the first U.S. law mandating specific cuts in the use of plastic packaging: 25% over 10 years. These actions could have significant implications for Dow as the world’s third largest producer of single-use plastic resins.

Other large companies with significant plastics-related business, such as BP, have assessed the potential impacts of significant plastic regulations to their business model. In its 2019 Energy Outlook, BP found that a global ban on single-use plastics by 2040 would reduce oil demand growth by 60%.¹⁷ In the Pew Scenario, virgin plastic demand would peak by 2027 – leaving an estimated \$400 billion of global investment in virgin plastic production potentially stranded, according to one analysis.¹⁸

¹⁰ <https://www.unep.org/news-and-stories/press-release/comprehensive-assessment-marine-litter-and-plastic-pollution>

¹¹ <https://www.oecd.org/newsroom/plastic-pollution-is-growing-relentlessly-as-waste-management-and-recycling-fall-short.htm>

¹² <https://www.washingtonpost.com/climate-environment/2021/12/01/plastic-waste-ocean-us/>

¹³ <https://www.plasticsnews.com/public-policy/plastics-treaty-talks-open-push-restrain-virgin-resins>

¹⁴ <https://plasticseurope.org/reshaping-plastics/>

¹⁵ <https://www.weforum.org/agenda/2020/10/canada-bans-single-use-plastics/>

¹⁶ <https://www.pbs.org/newshour/science/bold-single-use-plastic-ban-kicks-europes-plastic-purge-into-high-gear>

¹⁷ <https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/energy-outlook/bp-energy-outlook-2019.pdf#page=18>

¹⁸ <https://carbontracker.org/reports/the-futures-not-in-plastics/>

Given these developments, shareholders expect major polymer producers like Dow to begin positioning their businesses for a world in which single-use plastic demand is declining. Investors seek enhanced company disclosure on potential risks and impacts to Dow’s petrochemical investments, including consideration of reduced demand scenarios such as the Pew Scenario.

2. The Company continues to expand production capacity for plastics despite the likelihood of single-use plastic demand reduction.

In its latest annual report, Dow announced projects across its global asset network that will deliver approximately 350,000 *additional* tons per year of polyethylene production. This is in spite of near-term cuts in global demand which, in August 2022, forced Dow to temporarily reduce by 15% its production of polyethylene for use in packaging.¹⁹

3. Dow has provided inadequate information to investors on the impact of potential plastic demand reductions.

In its statement in opposition to the proposal, Dow states that currently enacted or contemplated single-use plastic bans would not materially impact the Company. This is not responsive to the proposal. While the proposal asks the Company to look at the impact of a 30% reduction in demand through 2040, the Company instead assesses the impact of a 3.5% reduction based on 2022 revenues. By looking only at current or contemplated bans, it considers only near-term impact. Further, it does not provide source material to back up its claim of no material near-term impact.

Further, the information provided by the Company regarding impact is scant at best, consisting of two pie chart graphics with no access to the assumptions, definitions, or methodology used to reach its conclusion. The graphic states that the conclusion is based on data generated by Chemical Market Analytics, but access to the data itself is not provided, only the conclusion. There is no identification of what specific bans were used in the calculation or how single-use plastic was defined.

Ironically, while denying material impact based on opaque data in its statement in opposition, the Company has already acknowledged this possibility of harm its annual report, stating that “increased pressure on the use of plastics. . . could cause reduced demand for the Company’s polyethylene products which could negatively impact the Company’s financial condition, results of operations and cash flows.” Proponents agree and are asking the Company to provide a more thorough and transparent analysis of impact.

4. The Company’s argument that producing recycled resin through chemical recycling technologies will reduce single-use plastic waste fails to provide adequate analysis and disclosure regarding the safety and efficacy of these methods.

¹⁹ <https://www.barrons.com/articles/dow-stock-lyondellbasell-chemicals-downgrade-51661781336>

Dow argues that it will be able to address plastic reduction concerns through chemical recycling. However, chemical recycling has a broad range of impacts that must be addressed before investors can be assured that it will resolve the global demand for reduced plastic use.

As petrochemical companies begin to commit using recycled plastics, it is important to understand if the proposed recycling processing technologies are cost-effective, process and energy efficient, and environmentally sound.

Technologies known as chemical or advanced recycling are being touted by the petrochemical industry as a critical element in reducing plastic pollution. Traditionally, plastics recycling has been achieved through mechanical recycling, such as reuse of PET plastic soda bottles, which are crushed and melted into a granulate used to form new bottles which preserves the molecular structure of the polymers. Plastic, however, cannot be endlessly recycled mechanically without reducing properties and quality, and not all plastic types can be mechanically recycled. These limitations have led to the promotion of a variety of existing and emerging technologies referred to as chemical recycling, which can split polymer chains back to their original monomer form, making it possible to recycle many more kinds of plastic.

The most developed forms of chemical recycling are pyrolysis and gasification, which convert plastic waste into liquid or gaseous hydrocarbon products that can be converted back into plastics or fuels. Dow recently reached an agreement with Nexus Circular to process 26,000 tons of plastic into circular feedstock using pyrolysis.²⁰ There are numerous concerns about pyrolysis, including high energy use, toxic residues, and low processing efficiency. A recent report from the National Renewable Energy Laboratory stated that pyrolysis, based on data available, has very low processing efficiency rates, destroying between 86 and 99% of feedstock plastic in the conversion process.²¹ Another study put the efficiency rate slightly higher at 42%.²² Investors are concerned that a large majority of input materials may be consumed in the process of converting plastic waste into much smaller outputs of hydrocarbons and potential plastic product. Pyrolysis can also generate ash containing halogens and heavy metals that need to be properly managed. Pyrolysis oil often needs further refining to remove impurities before it can be converted into plastic products, requiring more cost and effort. Finally, there are significant environmental justice concerns regarding hazardous waste, air pollutants, and greenhouse gas emissions from chemical recycling facilities, which are often sited in low-income communities, communities of color, or other marginalized communities.

To the extent that Dow relies on chemical recycling to address global concerns about plastic pollution, the Company should disclose the outputs, waste emissions, and processing efficiency of chemical recycling processes and procedures followed to ensure safe and responsible operation, to protect nearby residents from harmful plant emissions, and to include communities in the facility siting process.

²⁰ <https://corporate.dow.com/en-us/news/press-releases/dow-and-nexus-circular-announce-plans-to-build-new-advanced-recycling-facility-in-dallas-tx>

²¹ <https://www.nrel.gov/docs/fy14osti/62368.pdf>

²² <https://www.sciencedirect.com/science/article/pii/S1364032122006049>

Aside from these issues, there is concern that chemical recycling will scale too slowly to have a substantial impact. A National Academy of Sciences study concluded that chemical recycling technologies are “unproven to handle the current plastic waste stream and existing high-production plastics.”²³ Processes can take 17 years to reach commercial scale operation. The Pew report stated that plastic-to-plastic chemical recycling at scale is likely to begin only after 2030 and can handle only 6% of plastic waste by 2040.

RESPONSE TO DOW’S BOARD OF DIRECTORS’ STATEMENT IN OPPOSITION

See Section 3 above for discussion of the statement in opposition’s questionable assertion that currently enacted or contemplated single-use plastic bans would not materially impact the Company. The Company further asserts that materials identified as “single-use plastics” targeted by plastic bans do not include “essential” products in which Dow materials can be found, such as food packaging. There is no evidence provided that the plastic packaging provided by Dow is “essential” or irreplaceable. **In fact, an estimated 85% of Dow’s contribution to single-use plastic waste comes from its flexible plastic format products, which cannot be widely recycled, and may be phased out soon due to pressure on companies to reduce non-recyclable packaging.**²⁴ Many consumer brands have pledged to make all packaging recyclable by 2025; such commitments are likely to force a switch to other materials if flexible plastic format products, such as those produced by Dow, have few recycling options. This could significantly impact Dow’s future revenue.

The Company touts its commitment to “transform plastic waste and other forms of alternative feedstock to commercialize three million metric tons of circular and renewable solutions annually” by 2030, presumably to show that it will retain the ability to make and sell plastics in a world of declining demand. This sounds impressive, but the Company does not commit to process a specific amount of plastic waste, unlike competitor Chevron Phillips Chemical, which clearly states that it will use plastic waste to attain a goal of 500,000 tons of recycled content plastic by 2030. Given the severity of the plastic pollution crisis, it is essential that companies clearly state how much plastic waste they commit to process and whether that total is input or final output, since huge amounts of input can be lost in some processes like pyrolysis.

The Company also claims a leadership role in reporting on spills of its plastic pellet products. While this information is not responsive to the proposal’s request to assess the impact from reduced demand for plastics, even this information is minimal and inadequate. Spills are not discussed in sufficient detail for stakeholders to understand their scope, cause, or impact. Dow’s entire “report” on spills in its latest ESG report consisted of one sentence: “In 2021, two events occurred that resulted in greater than 0.5kg of plastic pellet losses outside our company-operated facilities.”²⁵ Reporting is limited to spills that migrate from company property and do not include spills occurring during transport. Thus a 2020 spill of an estimated 750 million Dow pellets by a transporter on the Mississippi River near New Orleans was not reported or discussed by the Company.²⁶

²³ <https://nap.nationalacademies.org/catalog/26132/reckoning-with-the-us-role-in-global-ocean-plastic-waste>

²⁴ <https://www.minderoo.org/plastic-waste-makers-index/>

²⁵ <https://corporate.dow.com/content/dam/corp/documents/about/066-00397-01-2021-esg-report.pdf>

²⁶ https://www.nola.com/news/environment/no-cleanup-planned-as-millions-of-plastic-pellets-wash-up-along-mississippi-river-and-flow/article_b4fba760-e18d-11ea-9b0b-b3a2123cf48b.html

CONCLUSION

As discussed above, in detail, the Company is exposed to economic and reputational risk as governments and consumer brands transition away from single-use plastic. Dow must recognize that improvements to recycling are not adequate to reduce the scope of global plastic pollution and that reduction in demand and production will be necessary to secure meaningful cuts in plastic waste. The proposal asks the Company to prepare for a likely reduction in demand for its products that end up as single-use plastics through a scenario analysis process. The Company's attempts to argue that it has already analyzed the situation and that ban of single-use plastic will not materially affect the Company are off base. They look only at present or likely bans related to 2022 revenue, whereas the requested analysis reaches to 2040.

We appreciate that the Company has moved to commit to use post-consumer plastic as future raw material inputs instead of fossil fuels. However, the specific amount it intends to generate by 2030 is unclear because it is contained in a blended goal, mixed with a commitment to renewable inputs. The Company intends to rely on the use of pyrolysis, a form of chemical recycling with numerous concerns, including low yield, high energy use, toxic byproducts, and siting in disadvantaged communities. The Company needs to disclose these risks and how it is managing them.

We recommend a "Yes" vote on this Shareholder Proposal asking the Company to assess economic risks to its plastic production business under a scenario where demand for virgin plastics is disrupted by efforts to combat ocean plastic pollution. As the world's third largest producer of single-use plastic resins, Dow fails to provide shareholders with sufficient analysis and disclosure on managing growing risks to its production of single-use plastics or on the safety and efficacy of its commitment to use recycled post-consumer plastic as feedstock for new products.

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