



DowDuPont, Inc.

Vote Yes: Item #6 - Petrochemical Resiliency Risk Proposal

Annual Meeting: June 25, 2019

CONTACT: Lila Holzman | lholzman@asyousow.org

SUMMARY

Physical risks associated with climate change are increasing faster than previously predicted, as demonstrated by heightened storm intensity and frequency, as well as rising sea levels in regions like the Gulf Coast. DowDuPont has announced plans to significantly expand new petrochemical infrastructure in Gulf Coast areas that are already being affected by climate impacts. Given the highly toxic chemicals involved in petrochemical operations (including benzene, volatile organic compounds, and sulfur dioxide), the location of these investments in the Gulf Coast poses significant risks to the company, local communities, and the environment.

Disruptions in plant operations, such as those experienced during Hurricane Harvey, frequently result in upsets and equipment malfunctions that release toxic chemicals above permitted levels. Shareholders require specific information to assess whether DowDuPont is sufficiently prepared for the increased likelihood of such events and how the company plans to mitigate public health and environmental impacts as it continues to develop infrastructure in areas at risk of experiencing climate-induced extreme weather and sea level rise.

THE PROPOSAL

Shareholders request that DowDuPont with board oversight publish a report on climate change induced flooding and public health omitting proprietary information and prepared at reasonable cost. The report should assess the public health risks of petrochemical operations and investments in areas increasingly prone to climate change induced storms flooding and sea level rise and the adequacy of measures the company is employing to prevent public health impacts from resultant chemical releases.

RATIONALE FOR A YES VOTE

- 1) DowDuPont's planned investments in petrochemical infrastructure projects expose the company to growing climate risk.** DowDuPont's plans to substantially expand petrochemical investments in regions that are acutely exposed to climate change risks make the Company vulnerable to experiencing hazardous leaks and causing harms to human health and the environment. These risks could lead to litigation, financial penalties, regulatory action, reputational damage, loss of social license to operate, and significant repair and clean-up costs that adversely impact shareholder value.
- 2) DowDuPont does not provide shareholders with sufficient analysis and disclosure on managing its growing risk.** The Company states it is aware of climate change and that it "warrants clear and pragmatic action . . . with comprehensive, far-reaching solutions."¹ Yet, Dow has not adequately

¹ <https://corporate.dow.com/en-us/about/public-policy/global/climate-change>



described plans to address the increasing climate risk to its operations in sensitive areas. DowDuPont was the source of some of the largest pollution leaks during Hurricane Harvey *indicating that the Company may be ill-prepared to manage the risks posed by climate change*. The Company refers to its generalized risk management protocols as an indication of appropriate action on climate change, but these protocols are insufficient for shareholders to assess if DowDuPont is preparing to adequately mitigate and prevent the growing climate-related risk to its current and planned petrochemical investments.

- 3) Risks from the impacts of climate change are increasingly recognized by financial & regulatory institutions.** The business community, investment analysts, the accounting community, and others have acknowledged the need for companies to address physical risks posed by climate change. DowDuPont has not yet done so or has failed to report its plans.

DISCUSSION

- 1) DowDuPont's planned investments in petrochemical infrastructure projects expose the company to growing climate risks.** Climate change presents increasing risk in the magnitude and variety of harms to which companies are exposed including the disruption of operations, damage to infrastructure, and related pollution releases that cause harm to communities and the environment. A study published by Nature projects \$30 trillion in avoided damages globally by keeping global warming under a 1.5-degree target;² the recent National Climate Assessment projects damages of hundreds of billions of dollars to just the U.S. economy by the end of the century.³ Hurricane Harvey, which resulted in major petrochemical infrastructure damage and significant hazardous chemical releases, is calculated to have caused \$125 billion worth of damage.⁴ DowDuPont reported that hurricane-related costs from its Gulf Coast operations is one of the major reasons that its pro-forma operating EBITDA in 2017 shrank to \$4,698 million from \$5,129 million in 2016.⁵ DowDuPont further acknowledges that Hurricanes Gustav and Ike in 2008 caused \$181 million in expenses⁶ and that Hurricane Harvey impacted earnings by \$250 million.⁷

Despite these growing concerns and impacts, DowDuPont has announced major investments of more than \$12 billion for U.S. based projects over a 10-year period and has already invested more than \$6 billion in the last several years in the Gulf Coast area.⁸ Announced investments will massively build out petrochemical infrastructure along the Gulf Coast, including the re-start of an ethylene production facility, a new propylene production facility, expansion of an ethylene production facility in Louisiana, and a new ethylene production facility and capacity expansion project in Texas.⁹ The proposed petrochemical projects amount to a massive new investment in

² <https://www.theguardian.com/environment/2018/may/23/hitting-toughest-climate-target-will-save-world-30tn-in-damages-analysis-shows>

³ <https://nca2018.globalchange.gov/>

⁴ <https://www.environmentalintegrity.org/wp-content/uploads/2018/08/Hurricane-Harvey-Report-Final.pdf>, p. 29

⁵ http://s21.q4cdn.com/813101928/files/doc_downloads/DowDuPont-2017-Annual-Report.PDF, p. 52

⁶ Dow 2017 Sustainability Report: <https://corporate.dow.com/en-us/science-and-sustainability/reporting>, p. 47

⁷ <https://www.reuters.com/article/us-dowdupont-results/dowdupont-set-to-beat-quarterly-estimates-as-new-company-idUSKBN1CV1GZ>

⁸ <https://www.nasdaq.com/article/dow-chemical-outlines-investment-plans-gives-merger-update-cm788377>

⁹ http://s21.q4cdn.com/813101928/files/doc_downloads/DowDuPont-2017-Annual-Report.PDF, p. 13



infrastructure that is prone to creating health hazards during increasingly likely extreme weather events, exposing the company and its shareholders to considerable risk.

In addition to risks from storms, many of DowDuPont's petrochemical facilities are built in areas that could be at risk of sea level rise. In Louisiana, state government research in the 2017 Coastal Master Plan shows that rising sea levels could lead to potential coastline loss of between 1,207 and 4,123 square miles in the coming 50 years¹⁰ -- an estimate that has undergone significant revision as new research continues to show that previous projections were under-estimated.¹¹ Already Louisiana has lost more than 300 square miles between 2004 and 2008 and approximately one football field of land is lost every hour.¹² The 2017 Coastal Master Plan details how certain vulnerable areas in Louisiana could experience 15 feet of flooding in 50 years and that annual damage from storm surge flooding events could be over seven times greater than present if no action is taken to mitigate the risk.¹³ One report noted that land loss combined with storm damage threatens infrastructure worth \$136 billion, which includes chemical infrastructure.¹⁴ This presents an alarming risk to DowDuPont's current activities in Louisiana as well as any proposed expansion in the state.

Physical damage that occurs from flooding can result in major hazardous leaks that harm local communities. The Center for International Environmental Law (CIEL) recently published a report noting the extent to which petrochemical refining operations use and produce hazardous pollutants that cause health impacts, including cancer, reproductive and birth defects, etc. The report emphasizes that fenceline communities are especially at risk, and that the risk is exacerbated by extreme weather events. During Hurricane Harvey roughly one million pounds of dangerous air pollutants like benzene, 1,3-butadiene, sulfur dioxide, and toluene were released by local refineries and plants.¹⁵ DowDuPont was noted as being the source of some of the largest pollution leaks during Hurricane Harvey *indicating that the Company may be ill-prepared to manage the risks posed by climate change*. DowDuPont's facility called the 'Dow Texas Operations Freeport' had the eighth largest reported storm-related pollution in the Houston area during Hurricane Harvey: releasing 133,141 pounds of chemicals.¹⁶ Volatile organic compounds (VOCs) released totaled 65,567 pounds - the eighth largest release of any company in the area;¹⁷ benzene releases totaled 7,835 pounds - the third largest,¹⁸ and municipal sewage overflow totaled 887,900 gallons -- also the third largest of all companies.¹⁹ Alarmingly, there is evidence that other leaks went unreported. For example, at DowDuPont's Deer Park chemical plant, a qualitative incident description does not match the "0 gallon" discharge reported.²⁰ Following Harvey, community members reported health impacts such

¹⁰ http://coastal.la.gov/wp-content/uploads/2017/04/2017-Coastal-Master-Plan_Web-Single-Page_CFinal-with-Effective-Date-06092017.pdf, p.74

¹¹ https://www.theadvocate.com/new_orleans/news/education/article_c916b602-250c-11e9-afee-f71b467af47c.html

¹² <https://www.economist.com/united-states/2017/08/26/louisiana-fights-the-sea-and-loses>

¹³ http://coastal.la.gov/wp-content/uploads/2017/04/2017-Coastal-Master-Plan_Web-Single-Page_CFinal-with-Effective-Date-06092017.pdf, p.76

¹⁴ <https://www.economist.com/united-states/2017/08/26/louisiana-fights-the-sea-and-loses>

¹⁵ <https://www.ciel.org/wp-content/uploads/2019/02/Plastic-and-Health-The-Hidden-Costs-of-a-Plastic-Planet-February-2019.pdf>, p. 17-22

¹⁶ <https://www.environmentalintegrity.org/wp-content/uploads/2018/08/Hurricane-Harvey-Report-Final.pdf>, p.12

¹⁷ <https://www.environmentalintegrity.org/wp-content/uploads/2018/08/Hurricane-Harvey-Report-Final.pdf>, p.14

¹⁸ <https://www.environmentalintegrity.org/wp-content/uploads/2018/08/Hurricane-Harvey-Report-Final.pdf>, p.15

¹⁹ <https://www.environmentalintegrity.org/wp-content/uploads/2018/08/Hurricane-Harvey-Report-Final.pdf>, p. 26

²⁰ <https://www.environmentalintegrity.org/wp-content/uploads/2018/08/Hurricane-Harvey-Report-Final.pdf>, p. 23



as respiratory illness, nausea, headaches, and skin rashes among others. Some health impacts may be long-term and worse than captured by initial reports.^{21,22}

Legal actions are already occurring against peers in the petrochemical industry. In early 2019, a judge in a Boston federal court allowed a lawsuit to move forward seeking \$110 million for Exxon's failure to fortify an oil storage facility to withstand the physical impacts of climate change. Such events and related lawsuits not only cost shareholders, but create reputational damage and the potential for loss of the company's social license to operate. In recent years, several civil society groups representing local communities have begun to mobilize in opposition to petrochemical projects throughout the Gulf Coast. Local groups are collecting data on violations committed by petrochemical companies, detailing the amounts of pollutants such as benzene that have been leaked as a result of plant malfunctions. Unless DowDuPont is able to address the community impacts of its petrochemical operations, especially during major storms, its risk of regulatory attention, fines, lawsuits, and even loss of social license increases. Investors believe that working to mitigate and avoid such disasters before they occur is critical to obtaining community trust.

- 2) **DowDuPont does not provide shareholders with sufficient analysis and disclosure on managing its growing risk.** Despite clear risks, DowDuPont only dedicated a small section in its 2017 Sustainability Report under the headline '*Physical Climate Parameters*' to inform investors about the risks from climate change to the Company.²³ DowDuPont admits that "in the past, major hurricanes have caused significant disruption to . . . operations on the U.S. Gulf Coast," while claiming that "to mitigate risks associated with severe weather, Dow has engineered the facilities to better withstand climate related events."²⁴ The high-level, non-specific information provided lacks critical information needed by investors in the face of such significant and rapidly-changing risks. The lack of transparency is especially worrisome considering DowDuPont's large pollution leaks and loss of earnings during Hurricane Harvey, which underscore how DowDuPont's current risk management strategy is inadequate.

For instance, the company does not identify which or how many of its current and planned facilities are in areas at high risk of experiencing climate-related severe weather events. Dow does not disclose assumptions made to evaluate how climate change will affect its Gulf Coast facilities – is it using current government flood maps or more realistic assumptions? Has Dow put special measures in place to address likely flooding? If so, do those measures emphasize preventing spills or releases? How does Dow measure the impact of releases? Does Dow take measures beyond regulations to prevent releases and leaks that may harm communities and the environment?

While some information on major spills must be reported to state and federal governments, companies are not currently required to report this information timely to counties, communities, or local officials. Does Dow have a practice of providing such critical communications to local officials and community representatives to minimize exposures to released chemicals? Improved communications can not only minimize harm but improve the goodwill and trust of local communities and governments. Because state governments can suspend environmental protections during extreme weather events such as occurred in Texas during Harvey, communities may become

²¹ <https://www.politico.com/story/2017/08/29/hurricane-harvey-chemical-danger-242142>

²² <https://www.apnews.com/e0ceae76d5894734b0041210a902218d>

²³ Dow 2017 Sustainability Report: <https://corporate.dow.com/en-us/science-and-sustainability/reporting>, p. 47

²⁴ Dow 2017 Sustainability Report: <https://corporate.dow.com/en-us/science-and-sustainability/reporting>, p. 47



increasingly vulnerable.²⁵ How does Dow manage its operations under such circumstances? Does it have plans in place to prioritize human health even where strong regulations are lacking?

As the risks of climate change become more apparent and urgent, shareholders require sufficient information to make informed investment decisions about Companies and their climate vulnerabilities, including robust analysis of and transparent disclosure of growing risks and disclosure of company mitigation strategies to address them. This is especially true where releases during major storm events have become all too commonplace.

- 3) Risks from the impacts of climate change are increasingly recognized by financial & regulatory institutions.** Recently, awareness has grown regarding the financially crippling risks of climate change and how quickly impacts can escalate. The unexpected PG&E bankruptcy due to wildfires underscores this growing risk which the Wall Street Journal labelled “the first climate-change bankruptcy.”²⁶

Insurance companies are also becoming more acutely aware of climate-specific risks related to insuring companies, especially in areas subject to climate impacts such as hurricanes and flooding. Swiss Re has published a report on the rapidly growing costs of natural disasters, which reached \$337 billion in 2017; Lloyd’s of London cited natural disasters for its first loss in six years; and AXA has spoken out saying that major global warming would make the world uninsurable this century.²⁷ Insurance coverage is likely to be a growing problem for companies located in storm and flood-prone areas. BlackRock, the world’s largest asset manager, with \$6 trillion in assets under management, underscored these concerns in a report released in April of 2019. In its discussion of physical climate risks, BlackRock noted: “Our early findings suggest investors must rethink their assessment of vulnerabilities. Weather events such as hurricanes and wildfires are underpriced in financial assets.”²⁸

The National Oceanic and Atmospheric Administration (NOAA) estimated that Hurricane Harvey costs alone totaled \$125 billion; it is therefore unsurprising that major institutions are increasingly acknowledging the vast financial risks posed by climate change.²⁹ The World Economic Forum announced that extreme weather is one of its top economic risks for 2019,³⁰ and the U.S. Fourth National Climate Assessment, published in 2018 in coordination with 13 federal agencies, stated that “without adaptation, climate change will continue to degrade infrastructure performance over the rest of the century, with the potential for cascading impacts that threaten our economy, national security, essential services, health and well-being.”³¹

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

DowDuPont argues that the Company’s existing risk management system is sufficient to ensure resiliency to climate-change induced storms and flooding. It has not, however, reported with any

²⁵ <https://www.apnews.com/e0ceae76d5894734b0041210a902218d>

²⁶ <https://www.wsj.com/articles/pg-e-wildfires-and-the-first-climate-change-bankruptcy-11547820006>

²⁷ <https://www.ft.com/content/0f530242-02c1-11e9-9d01-cd4d49afb3>

²⁸ <https://www.blackrock.com/us/individual/literature/whitepaper/bii-physical-climate-risks-april-2019.pdf>

²⁹ <https://coast.noaa.gov/states/fast-facts/hurricane-costs.html>

³⁰ <https://www.forbes.com/sites/mikescott/2019/02/17/what-do-investors-want-to-know-about-your-sustainability-strategy-now-companies-have-a-guide/#59f4f9d63dfd>

³¹ <https://nca2018.globalchange.gov/>



specificity as to whether and how it is factoring increased climate risk into its operations, especially with regard to investments in areas increasingly prone to climate change induced storms flooding and sea level rise, and the adequacy of measures the company is employing to prevent public health impacts from resultant chemical releases. Not only has the Company experienced spills and releases during storm events in the recent past, as major releases during Harvey exemplify, but climate science makes clear that future weather patterns will be different from the past - moving into a paradigm that is more extreme and destructive, erratic and unpredictable. *New weather paradigms lead to a need for enhanced analysis and new approaches to minimize risks to our Company's assets.*

While the Board's statement claims that DowDuPont's management system has "site-specific response plans" that takes into consideration "hurricane monitoring, preparedness efforts, and site recovery," recent events call the sufficiency of these efforts into question, and there is little to no detail disclosed of how climate change factors into such consideration. The alarming chemical releases that occurred during Hurricane Harvey demonstrate that DowDuPont's current risk management systems are not sufficient to responsibly manage extreme weather events, especially as these intensify in the future. Climate change factors are of significant concern to shareholders and require deeper explanation than what DowDuPont has provided to date in order to more fully inform shareholders about Company preparation and adaptation for these evolving risks.

Through this resolution, shareholders ask that DowDuPont appropriately assess, strategize, and plan for growing climate impacts and how to avoid hazardous spills that could seriously damage the health and well-being of communities where it operates. As such, investors desire a more comprehensive and transparent strategy from DowDuPont to robustly demonstrate the management of new risks that climate change poses including appropriate consideration of local community safety.

While the Board notes that DowDuPont is in the midst of restructuring and the company will retain fewer petrochemical assets than it did at the time this proposal was filed, the proposal remains relevant and important, since the petrochemical assets that DowDuPont will continue to operate are vulnerable to the concerns raised in the proposal. Furthermore, shareholders request that DowDuPont rise to meet the opportunity provided by the proposal's request to call for improved practices and disclosures pertaining to risks to human health from climate-related impacts to its operations across all relevant businesses.

CONCLUSION

Vote "Yes" on this Shareholder Proposal regarding the Company's resiliency efforts to limit public health impacts of building out hazardous petrochemical infrastructure in high-risk climate-affected areas.

DowDuPont is investing billions in the construction and expansion of petrochemical infrastructure projects in regions that are in acute danger of exposure to increasing climate risk such as destructive weather and flooding. Shareholders urge strong support for this proposal, which will bring increased transparency on a significant and emerging business risk facing the company.

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For questions, please contact Lila Holzman, Energy Program Manager, As You Sow, holzman@asyousow.org



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