

## DETECTING CORPORATE ENVIRONMENTAL CHEATING

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*As evidenced by the Volkswagen diesel emissions scandal, corporations cheat on environmental regulations. Such scandals have created a surge in the academic literature in a wide range of areas, including corporate law, administrative law, and deterrence theory. This article furthers that literature by focusing on one particular area of corporate cheating—the ability to learn of the cheating in the first place. Detecting corporate cheating requires significant information about corporate behavior, activity, and output. Indeed, most agencies have broad statutory authority to collect such information from corporations, through targeted records requests, and inspection. However, authority is different from ability. The corporate world moves quickly, the number of regulated entities are many, and agencies often face legal and resource challenges to information collection processes that can impede detection of cheating. As a result, this article advocates for a shift in focus to mandatory self-monitoring and reporting mechanisms that place the initial burden of detection on the regulated corporate entity instead of the agency. It uses, as a case study, sulfur dioxide air pollution standards in the shipping industry to demonstrate that such a shift can improve the likelihood of detecting cheating. International standards for the harmful pollutant sulfur dioxide became more stringent in January 2020, and the price difference between compliance and non-compliance is high. Therefore, there is a significant incentive for shipping companies to cheat. Failure of agencies to catch the cheaters not only undermines the anticipated public benefits of the regulations, but it also creates an uneven playing field for those regulated entities that spend the money to comply. However, agencies alone simply cannot be responsible for all detection of corporate cheating. They need help from those that have the requisite information, specifically the regulated entities themselves.*

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**INTRODUCTION**

Corporate compliance scandals are pervasive, especially lately. Indeed, *Fortune Magazine* published articles reporting on the “biggest business scandals” of the year in 2015, 2016, and 2017.<sup>1</sup> The *Volkswagen* diesel emission crisis made the top of the list in 2015, but others dominated as well, including the well-known scandals involving Bank of America as part of the housing crisis, and Wells Fargo’s credit fraud. Such scandals beg the question of how agencies, that are supposed to stay on top of corporate activity, were unable to see the scandals coming. Ideally, when agencies write regulations, regulated corporate entity will comply. After all, such regulations are vitally important to society, impacting everything from the price of goods and services to public health and natural resource protection. It is of little use to have such regulations if the regulated entities flout them. Not only does

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<sup>1</sup> Chris Matthews & Stephen Gandel, *The Five Biggest Corporate Scandals of 2015*, FORTUNE (Dec. 27, 2015, 10:47 AM), <https://fortune.com/2015/12/27/biggest-corporate-scandals-2015/>; Chris Matthews & Matthew Heimer, *The Five Biggest Corporate Scandals of 2016*, FORTUNE (Dec. 28, 2016, 10:00 AM), <https://fortune.com/2016/12/28/biggest-corporate-scandals-2016/>; Lucinda Shen, *The 10 Biggest Business Scandals of 2017*, FORTUNE (Dec. 31, 2017, 12:16 PM), <https://fortune.com/2017/12/31/biggest-corporate-scandals-misconduct-2017-pr/>.

corporate noncompliance undermine the public benefits that the regulation is trying to achieve, but it also offends fundamental notions of fairness in the marketplace for those regulated entities that work hard to comply.

This article is focused on deliberate noncompliance, or cheating. To be sure, understanding what compliance means in the first place can be difficult. Regulations are complex. They often include exceptions to compliance, alternative forms of compliance, and subjective standards for compliance. Many regulated entities have elaborate internal compliance departments that work hard to understand regulations and detect potential non-compliance on their own. Such an investment in internal corporate compliance comes at the same time that corporate entities are experiencing pressures from shareholders, consumers, and suppliers, to not only comply, but to weave sound socially and environmentally responsible decisions into every aspect of the entity's functioning. Nevertheless, it is clear that such internal corporate compliance and accountability mechanisms are deficient.<sup>2</sup> Pressure on middle management to perform, tight profit margins, and competition make cheating an attractive option for corporations. In addition, in some areas, where the cost differential between noncompliance and compliance is large, the economic incentive to cheat is great. As such, while some non-compliance may be inadvertent or honest mistakes, there is undoubtedly some level of noncompliance that is simply cheating.

The question becomes, then, what should the role be of agency enforcement in the detection of corporate cheating. Information is an essential first step in detection. Federal statutes attempt to make it easy for agencies to collect information from regulated entities through a variety of means. Several statutes provide agencies with administrative subpoena and search authority, which courts have interpreted broadly. Agencies use such authority to request confidential business information from regulated entities, gain access to private areas, and collect evidence through inspections. Several statutes also provide whistleblower protections for individuals with inside access to help agencies detect potential cheating. Indeed, in the shipping industry, whistleblowers have been the primary notification to the United States Coast Guard (USCG) when crewmembers have illegally attached pipes to ships in order to discharge oil-contaminated ballast water.<sup>3</sup>

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<sup>2</sup> Veronica Root, *The Compliance Process*, 94 IND. L.J. 203, 205 (2019) (“Compliance refers to a firm’s effort to ensure that it and its agents adhere to legal and regulatory requirements, industry practice, and the firm’s own internal policies and norms. Organizations from all over the world, out of fear of sanction, harm, retribution, or ridicule, initiate programs aimed at making certain that their employees and members maintain compliance with external and internal norms and requirements. Yet every year seems to bring another set of significant scandals within organizations.”).

<sup>3</sup> *Princess Cruise Lines to Pay Largest-Ever Criminal Penalty for Deliberate Vessel Pollution*, U.S. DEP’T OF JUSTICE (Dec. 1, 2016), <https://www.justice.gov/opa/pr/princess->

However, agencies still face numerous challenges in information collection. There is only so much agencies can do, given the large number of regulated entities that need careful watching. Budgets are tight. Agencies also face legal challenges from regulated entities, including pushback on the burden and scope of agency information collection authority, which makes agencies risk averse about collecting information in the first place. Further, not only are some regulated areas highly technical, they are also increasingly international in scope, making information collection even more difficult. As a result, the seemingly expansive ability for agencies to collect information about potential corporate cheating only goes so far in reality.

This article argues for increased reliance on the regulated entity to provide information to agencies about potential cheating, through self-monitoring and reporting. Indeed, the idea of self-monitoring and reporting is not new. Many agencies, both in the environmental context, and outside the environmental context, have had longstanding programs in place for voluntary self-monitoring and reporting. Such programs incentivize regulated entities to self-monitor and report in exchange for potential enforcement discretion or penalty reductions.<sup>4</sup> However, incentives are not enough, because they leave gaps in information coming to agencies; regulated entities are able to self-select when, how, and which violations to monitor and report to agencies. It also leaves regulated entities in a quandary; having to decide which violations to monitor and report.<sup>5</sup> Indeed, multiple blog posts by law firms seek to advise regulated entities on when and when not to monitor and report violations that are detected by internal corporate compliance departments.<sup>6</sup> Instead, self-monitoring and reporting should be mandatory.

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cruise-lines-pay-largest-ever-criminal-penalty-deliberate-ship-pollution.

<sup>4</sup> Amanda Raad et al., *Self-Reporting to the Authorities and Other Disclosure Obligations: The US Perspective*, GLOB. INVESTIGATIONS REV. (Jan. 3, 2017).

<sup>5</sup> Todd Ehret, *Self-Reporting Is a Difficult Decision for Some Firms*, REUTERS (Mar. 24, 2019), <https://www.reuters.com/article/bc-finreg-self-reporting-idUSKCN1QL1X0>; Richard Reichman, *Self-Reporting of Corporate Wrongdoing Should Be Further Encouraged*, EURONEWS (July 29, 2019), <https://www.euronews.com/2019/07/26/self-reporting-of-corporate-wrongdoing-should-be-encouraged-view>.

<sup>6</sup> Shoshana Thoma-Isgur, *When and What to Self-Report — And How to Benefit from It*, LAW360 (Jan. 6, 2016), <https://www.law360.com/articles/742885/when-and-what-to-self-report-and-how-to-benefit-from-it>; *To Tell or Not to Tell: Best Practices for Managers Considering Whether to Self-Report Legal or Regulatory Violations*, HEDGE FUND LEGAL & COMPLIANCE DIGEST (Nov. 18, 2016), <http://www.bakerbotts.com/~media/images/news/2016/to-tell-or-not-to-tell-best-practices-fo.pdf>; Junaid A. Zubairi & Brooke E. Conner, *Is SEC Cooperation Credit Worthwhile?*, LAW360 (Aug. 30, 2016), <https://www.law360.com/articles/833392/is-sec-cooperation-credit-worthwhile->; Deborah Carpentier, *Self-Reporting Routine Compliance Violations*, CROWELL & MORING LLP, [www.crowell.com/files/NERC-Enforcement-Issues-Self](http://www.crowell.com/files/NERC-Enforcement-Issues-Self)

This article presents an important opportunity to detect potential corporate cheating on new sulfur dioxide (SO<sub>2</sub>) air pollution standards through enhanced use of mandatory monitoring and reporting mechanisms in the shipping industry. SO<sub>2</sub> air pollution from the combustion of fuel on ships causes significant health and natural resource impacts worldwide. Indeed, some of the largest cargo ships are so huge, and combust so much fuel, that they produce as much air pollution as fifty million cars.<sup>7</sup> Thus, cheating on SO<sub>2</sub> fuel standards for even one ship matters. Further, the economic incentive to cheat is enormous, with one shipping company representative commenting that full compliance with the new standards will cost his company \$300 million.<sup>8</sup> A new alliance of responsible shipping companies is demanding increased agency attention to detect potential corporate cheating, in particular advocating for increased agency inspection and fuel sampling. Further, the alliance advocates for increased use by agencies of remote sensing technologies on drones and satellites that fly over ships and estimate the amount of sulfur dioxide in the exhaust. However, such agency tools are hugely expensive, time consuming, and raise legal questions as to when agencies are authorized to conduct advanced inspections.

Thus, it behooves the responsible companies in the shipping industry to also consider their own role in helping to detect cheating. If all ships were required to directly measure their own sulfur dioxide emissions and report the emissions electronically to relevant port agencies, detection of cheating would undoubtedly increase. However, even such responsible companies are not yet embracing this approach. After all, why would regulated entities agree to such direct monitoring and reporting requirements? From reviewing documents the authors have obtained during interviews with individuals closely connected to the shipping industry, it is clear that there are now direct monitoring capabilities that are technically feasible in the marine environment and that are cost effective. Further, direct monitoring and reporting allows shipping companies to be able to conclusively state that they are “compliant” which should help them meet vendor contracts and other similar private agreements that often require the company to be “compliant” with all relevant laws. On a broader level, however, direct monitoring and reporting, ensures that if companies are going to spend the money to comply,

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Reporting-Routine-Compliance-Violations.pdf (last visited Feb. 18, 2020); Olga Greenberg et al., *Considerations Before Self-Reporting Under New FCPA Policy*, LAW360 (Dec. 8, 2017), [us.eversheds-sutherland.com/portalresource/Considerations-Before-Self-Reporting-Under-New-FCPA-Policy.pdf](https://us.eversheds-sutherland.com/portalresource/Considerations-Before-Self-Reporting-Under-New-FCPA-Policy.pdf); Ruth Cowley et al., *Self-Reporting Bribery: The Ongoing Dilemma*, PLC MAG., July 26, 2018.

<sup>7</sup> Paul Evans, *Big Polluters: One Massive Container Ship Equals 50 Million Cars*, NEW ATLAS (Apr. 23, 2009), <https://newatlas.com/shipping-pollution/11526/>.

<sup>8</sup> Telephone interview with shipping company (notes on file with author).

they won't be undercut by those companies that gain a competitive advantage by engaging in undetected cheating.

This article proceeds in five parts. Part I frames the issues surrounding corporate cheating, focusing on why corporate environmental cheating remains a problem despite the trend towards greater corporate social and environmental responsibility. Part II describes the legal, policy, and resource difficulties associated with agency information collection and detection of corporate cheating. While it focuses on information collection by environmental agencies, it draws upon the experiences of enforcement agencies that work to detect corporate cheating in other areas as well, such as financial fraud, energy market manipulation, and food inspection. Part III argues that regulated entities should step in to help agencies collect information needed to increase detection of cheaters, because, while increased detection benefits the public, it also benefits regulated entities in unexpected and underappreciated ways. In particular, it focuses on self-monitoring and reporting. Part IV provides a detailed case study of the shipping industry, pushing the industry to advocate for mandatory self-monitoring and reporting with the use of direct emissions monitoring and reporting. The article ends with concluding thoughts about other areas of detection of corporate cheating that can potentially benefit from self-monitoring and reporting by regulated entities.

## **I. FRAMING THE ISSUE**

There is an interesting dichotomy at play in recent years in enforcement of the nation's federal environmental laws. Corporate cheating on those laws is occurring at the same time that corporations are investing heavily in internal corporate compliance and social/environmental responsibility programs. This section lays the background for understanding these two worlds and the role that enforcement agencies play in both.

### *A. Corporate Cheating*

The government regulates corporate behavior and activity with the goal of public protection. Environmental regulations alone bring benefits to the public in a wide range of areas, including, natural resource quality, visibility, ecosystem health, safety, and human health benefits such as avoidance of premature mortality. For example, the regulatory impact assessment for the EPA's mercury air toxics rule, applicable to the utility industry, anticipated hundreds of thousands of dollars in anticipated benefits

from reduced hospital visits.<sup>9</sup> However, such regulations rarely take into account any anticipated noncompliance or cheating by regulated entities. As the former head of EPA’s Office of Enforcement and Compliance Assurance under the Obama Administration, has recently written, “most environmental policy practitioners, including government regulators, regulated companies, legislators, academics, and advocates – *assume[]* compliance.”<sup>10</sup>

When there is noncompliance or cheating, we know that it impacts the underlying benefits of the regulation. The *Volkswagen* diesel emission scandal case is a good example of the kind of harm to the public that can come from failure to detect corporate cheating. In the case of *Volkswagen*, actual emissions of harmful nitrogen oxides from violating cars were ten to forty times higher than the standards.<sup>11</sup> Thus, every day the violating cars stayed on the road, they created significantly higher levels of pollution in the air than what the standards had already established as necessary to protect public health.

However, in general, there is very little information about how often, how much, and in what context, regulated entities violate regulations. To be sure, there are different kinds of violations. Some are simply mistakes; corporate entities may be unaware of what it takes to comply with the regulations. Some are inadvertent; corporate entities tried to comply, but something went wrong in the process. Some are debatable; it is likely that an action by a corporate entity constitutes a violation but it may also fall within an exception. Some, however, are clear; the corporate entity deliberately cheated because there was a benefit to do so. Indeed, the lack of information about violations, including how much is inadvertent, debatable, or outright cheating, is part of the problem that this article seeks, in part, to address.

Moreover, measuring corporate cheating is difficult when compliance itself is unclear. Not all regulations set clear standards. To be sure, sometimes regulations do set specific thresholds that are easy to follow, such as a maximum and minimum speed limit on a highway. Other standards are qualitative, measured by whether a corporate regulated entity engaged in a particular behavior, or with a specific intent. Still other standards are administrative, such as requirements to send reports or keep records for a

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<sup>9</sup> U.S. EPA, Regulatory Impact Analysis for the Final Mercury and Air Toxics Standards ES-3 (2011).

<sup>10</sup> Cynthia Giles, *Next Generation Compliance: Environmental Regulation for the Modern Era*, HARV. L. SCH. ENVTL. AND ENERGY L. PROGRAM 3 (2020), <http://eelp.law.harvard.edu/wp-content/uploads/Cynthia-Giles-Intro-FINAL.pdf> (emphasis added).

<sup>11</sup> Noelle Eckley Selin, *The Not-So-Invisible Damage from VW Diesel Cheat: \$100 Million in Health Costs*, THE CONVERSATION BLOG (Sept. 29, 2015, 4:44 PM), <https://theconversation.com/the-not-so-invisible-damage-from-vw-diesel-cheat-100-million-in-health-costs-48296>.

certain period. Therefore, understanding whether a corporate regulated entity is compliant or not is not always as straightforward as might be expected.

Large corporate scandals in the last several years demonstrates that corporate cheating is occurring, and by sophisticated companies.<sup>12</sup> In the environmental context in particular, the Volkswagen diesel emission scandal of 2015, shocked the environmental and legal community.<sup>13</sup> While this article is focused on corporate cheating on environmental laws, corporate cheating on other major public protection oriented laws have certainly been at the forefront of scandal as well. Multiple large companies, such as Valeant, Equifax, and Wells Fargo, committed legal violations in a variety of market abuse areas including racketeering, fraud, consumer protection, and price gouging.<sup>14</sup> These large corporate scandals dominated the news, shocking academic scholars, practitioners, and the public generally.

Further, news-worthy violations are only representative of the companies that get caught, or outright admit to cheating. Everyday corporate cheating is more difficult to estimate.<sup>15</sup> Several environmental enforcement offices report significant levels of noncompliance by regulated entities. For example, the EPA's water enforcement office reports that, in 2018, over twenty-nine percent of facilities that have water permits under the non-point source programs are currently in significant noncompliance with their permits.<sup>16</sup> The violations range from failure to submit reports to significant exceedances of effluent limits. The permittees that had high effluent violations discharged almost four billion pounds of pollutants above their permitted limits.<sup>17</sup> While, in some cases, cheating may not be deliberate, it is hard to imagine that all such instances are merely inadvertent mistakes. The

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<sup>12</sup> Matthews & Gandel, *supra* note 1; Matthews & Heimer, *supra* note 1; Shen, *supra* note 1.

<sup>13</sup> J.S. Nelson, *Disclosure-Driven Crime*, 52 U.C. DAVIS L. REV. 1487, 1496 (2019) (noting that the Volkswagen scandal, involving emissions cheating, is representative of "modern large-scale corporate wrongdoing"); Kelly Kollman & Alvise Favotto, *How VW Took the Corporate Ethics Industry to the Brink*, THE CONVERSATION BLOG (Nov. 2, 2015, 4:54 AM) <http://theconversation.com/how-vw-took-the-corporate-ethics-industry-to-the-brink-49351>.

<sup>14</sup> Matthews & Gandel, *supra* note 1.

<sup>15</sup> Robert L. Glicksman & Dietrich H. Earnhart, *The Comparative Effectiveness of Government Interventions on Environmental Performance in the Chemical Industry*, 26 STAN. ENVTL. L.J. 317, 320 (2007) ("[R]elatively little is known about why regulated entities either do or do not comply with their regulatory obligations.").

<sup>16</sup> Memorandum from Susan Parker Bodine, Ass't Administrator, Office of Enforcement and Compliance Assurance, U.S. Environmental Protection Agency, to Regional Administrators (June 7, 2019), <https://www.epa.gov/sites/production/files/2019-06/documents/2020-2023ncimemo.pdf>.

<sup>17</sup> *Id.*



reason for such everyday noncompliance may simply be failure to pay attention because nobody is watching.

Moreover, statistics that do cite to violation rates can sometimes use faulty assumptions or misinformation. For example, most research or statistics on environmental violation rates, use the EPA's Enforcement Compliance History Online (ECHO) database. Yet, even though ECHO is useful for gaining general knowledge about violations, it has problems. ECHO pulls information from other lesser known databases, and sometimes information is lost in translation. ECHO also only lists noncompliance for facilities every quarter, and even with that, often has incomplete information.<sup>18</sup> Similar data gaps have been found in analysis of violation rates with the Safe Drinking Water Act.<sup>19</sup>

Corporate cheating becomes an even bigger problem to estimate when looking at companies with an international presence. We live in a global marketplace with goods and services routinely moving across borders. Thus, corporate cheating in one location can affect consumers, public health, and natural resources in another location. In addition, many countries have similar laws designed to protect the public. Corporate cheating in one country might mean that similar corporate cheating is happening elsewhere as well.<sup>20</sup> As one scholar notes, "It should command our attention that these scandals are enormous in size, occur within diverse industries, and increasingly pull across companies and borders."<sup>21</sup>

### *B. Corporate Accountability*

At the same time as large-scale corporate cheating is happening, corporate entities are also spending significant resources developing and implementing internal corporate accountability strategies. This dichotomy has generated a significant amount of legal scholarship.<sup>22</sup> As a general matter, there has been a shift in corporate law practice and attitude towards the

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<sup>18</sup> Carole Gibbs & Sally S. Simpson, *Measuring Corporate Environmental Crime Rates: Progress and Problems*, 51 CRIME, LAW & SOC. CHANGE 87 (2009).

<sup>19</sup> NRDC ET AL., WATERED DOWN JUSTICE 11 (2019), <https://www.nrdc.org/sites/default/files/watered-down-justice-report.pdf>.

<sup>20</sup> Camilla Hodgson, 'A History of Human Greed': The 26 Different Ways People Have Cheated Markets over 200 Years, BUS. INSIDER (Sept. 22, 2017, 2:00 AM), <https://www.businessinsider.com/market-misconduct-report-the-26-ways-people-have-cheated-markets-over-200-years-2017-9> (showing world map of where illegal market conduct has been detected).

<sup>21</sup> Nelson, *supra* note 13, at 1499.

<sup>22</sup> See Root, *supra* note 2, at 205; Miriam H. Baer, *Linkage and the Deterrence of Corporate Fraud*, 94 VA. L. REV. 1295 (2008); Michael P. Vandenberg, *Private Environmental Governance*, 99 CORNELL L. REV. 129 (2013).

environment in recent years. Forces of corporate social and environmental responsibility that are separate from regulation, are motivating corporate entities to develop an ethos.<sup>23</sup> Some of the pressure to go “green” comes from corporate stakeholders, who are demanding that corporate boards demonstrate social and environmental values in corporate decision making.<sup>24</sup> Further, the pressure comes from employees, customers, and suppliers that are demanding that companies recognize a broader scope of responsibility in addressing political, environmental, and social issues.<sup>25</sup>

Pressure to address corporate social and environmental responsibility is also reinforced through private-private contracts.<sup>26</sup> Corporations increasingly have vendor codes of conduct which specify certain expectations that the corporation has of its partners, suppliers, or other groups that the corporation conducts business with.<sup>27</sup> Vendor codes of conduct set expectations that vendors will minimize impact to the environment, and also “comply” with all environmental regulations.<sup>28</sup> A search of the word “comply” in the Volkswagen code of conduct shows that the word comes up sixteen times, setting an expectation that vendors will comply in multiple

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<sup>23</sup> To that end, some scholars have advocated for agencies themselves to publicize violations, through press releases or other agency documents. See Sharon Yadin, *Regulatory Shaming*, 49 ENVTL. L. 407 (2019).

<sup>24</sup> Bill Libit, *The Corporate Social Responsibility Report and Effective Stakeholder Engagement*, HARV. L. SCHOOL F. ON CORP. GOVERNANCE (Dec. 28, 2013), <https://corpgov.law.harvard.edu/2013/12/28/the-corporate-social-responsibility-report-and-effective-stakeholder-engagement/>; R. Edward Freeman & Heather Elms, *The Social Responsibility of Business Is to Create Value for Stakeholders*, MIT SLOAN MGMT. REV. (Jan. 4, 2018), <https://sloanreview.mit.edu/article/the-social-responsibility-of-business-is-to-create-value-for-stakeholders/>.

<sup>25</sup> Bill Libit, *The Corporate Social Responsibility Report and Effective Stakeholder Engagement*, HARV. L. SCH. F. ON CORP. GOVERNANCE (Dec. 28, 2013), <https://corpgov.law.harvard.edu/2013/12/28/the-corporate-social-responsibility-report-and-effective-stakeholder-engagement/>; See Daniel C. Esty & Quentin Karpilow, *Harnessing Investor Interest in Sustainability: The Next Frontier in Environmental Information Regulation*, 36 YALE J. ON REG. 625, 631-32 (2019)

<sup>26</sup> Vandenbergh, *supra* note 22, at 129; David E. Adelman & Graeme W. Austin, *Trademarks and Private Environmental Governance*, 93 NOTRE DAME L. REV. 709, 709 (2017) (“Private environmental governance is premised on consumers ‘voting with their wallets’ by selecting products that reflect not just their instrumental preferences, but also their values.”); Stephen Kim Park, *Investors as Regulators: Green Bonds and the Governance Challenges of the Sustainable Finance Revolution*, 54 STAN. J. INT’L L. 1, 6 (2018); Amanda Leiter, *Fracking, Federalism, and Private Governance*, 39 HARV. ENVTL. L. REV. 107, 126 (2015).

<sup>27</sup> Veronica Root, *Coordinating Compliance Incentives*, 102 CORNELL L. REV. 1003, 1006 (2017).

<sup>28</sup> See, e.g., S&P GLOBAL, VENDOR CODE OF CONDUCT 6 (2016), <https://www.spglobal.com/en/who-we-are/corporate-responsibility/spglobalvendordcodeofconduct.pdf>.

areas including human rights, taxes and customs, free and fair competition, worker safety, and environment.<sup>29</sup> Corporate codes of conduct also are meant to send signals to employees.<sup>30</sup> Indeed, internal corporate compliance programs run on systems of checks and balances to deter violations within the corporation before they happen, and employees play a big part in that.<sup>31</sup>

However, corporate accountability and compliance may not deserve the accolades that they sometimes get in the literature. While a corporation could, in theory, end a contract with a vendor if there was evidence of noncompliance, it is unclear if this has happened in practice. In addition, there is no actual requirement that corporate entities engage in comprehensive internal compliance programs or strict vendor relationships, and so while there may be a trend towards such corporate activities, they are not everywhere.<sup>32</sup> Moreover, internal corporate compliance structures are not enough to ensure corporate compliance.<sup>33</sup> Corporate leaders themselves point to the lack of oversight within corporate compliance departments.<sup>34</sup> For example, former Deutsche Bank employees have said that the bank has a lax approach to money laundering laws and a pattern of protecting relationships with lucrative clients, even if the actions by the clients are reportable to the government as potential violations.<sup>35</sup> In a securities case involving KPMG, the SEC found that auditors, including some senior partners, cheated on internal tests related to compliance training, sharing answers with other

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<sup>29</sup> VOLKSWAGEN GROUP, CODE OF CONDUCT (2017), [https://www.volkswagenag.com/presence/konzern/documents/Code\\_of\\_Conduct\\_2017\\_VW\\_Group\\_english.pdf](https://www.volkswagenag.com/presence/konzern/documents/Code_of_Conduct_2017_VW_Group_english.pdf)

<sup>30</sup> Todd Haugh, *The Power Few of Corporate Compliance*, 53 GA. L. REV. 128, 139 (2018).

<sup>31</sup> Susan Diehl & Monica Batsford, *Auto Industry Compliance: Will the Tone at the Top Go Tone Deaf in the Wake of Deregulation?*, 2 WAYNE ST. U. J. BUS. L. 1, 6–7 (2019) (“[A] survey of over 800 compliance professionals found that a majority of those professionals expect that their compliance budgets will increase over the coming year.”).

<sup>32</sup> Root, *supra* note 27, at 1010.

<sup>33</sup> *White Collar Crime*, HARV. BUS. REV., July/Aug. 2019, <https://hbr.org/2019/07/white-collar-crime>.

<sup>34</sup> See, e.g., Todd Haugh, *The Trouble with Corporate Compliance Programs*, MIT SLOAN MGMT. REV. (Sept. 6, 2017), <https://sloanreview.mit.edu/article/the-trouble-with-corporate-compliance-programs/>. See also Jesse W. Markham, Jr., *The Failure of Corporate Governance Standards and Antitrust Compliance*, 58 S.D. L. REV. 499 (2013) (describing lack of ability to deter antitrust law violations, in part because shareholders have no control over the conduct of personnel large antitrust fines barely affect the individual shareholders of public companies. As a result, antitrust violations continue to occur with disappointing frequency).

<sup>35</sup> David Enrich, *Deutsche Bank Staff Saw Suspicious Activity in Trump and Kushner Accounts*, N.Y. TIMES (May 19, 2019), <https://www.nytimes.com/2019/05/19/business/deutsche-bank-trump-kushner.html>.

partners and staff to help them attain passing scores.<sup>36</sup> In addition, legal counsel for corporations have discovered environmental violations, only to find out that the internal corporate “plan” to fix the problem would never come to fruition.<sup>37</sup>

A huge problem within corporate structure is simply that employees feel pressure to cheat. Top management can place significant pressure on middle management to deliver results, regardless of potential violations along the way.<sup>38</sup> As described by one journalist reporting on the Volkswagen scandal, “poor, unaccountable corporate governance — and short-termist incentives for executives — are sadly pervasive.”<sup>39</sup> In addition, a Harvard study on Wells Fargo found that the bank’s practice of setting daily sales targets put excessive pressure on employees.<sup>40</sup> The company assigned branch managers’ quotas for the number and types of products sold, and if the branch did not hit its targets, the shortfall was added to the next day’s goals. Studies on internal corporate culture point to pervasive problems that lead to large-scale violations, such as failure to set a positive example, or promote an environment where it is safe to speak up about unethical or illegal behavior.<sup>41</sup>

In many industries too, it does not make financial sense for corporations to invest in compliance. Several environmental consulting companies report on the inquiries they get from compliance officers as to whether compliance is worth it.<sup>42</sup> Environmental regulations, for example, often require corporations to purchase costly pollution control equipment.

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<sup>36</sup> Francine McKenna, *The KPMG Cheating Scandal Was Much More Widespread than Originally Thought*, MARKETWATCH (June 18, 2019, 5:03 PM), <https://www.marketwatch.com/story/the-kpmg-cheating-scandal-was-much-more-widespread-than-originally-thought-2019-06-18>.

<sup>37</sup> Jim Nortz, *Some Reflections on Cheating in Business*, CORPORATE COMPLIANCE INSIGHTS (June 11, 2015), <https://www.corporatecomplianceinsights.com/reflections-cheating-business/>.

<sup>38</sup> Nelson, *supra* note 13, at 1492–93.

<sup>39</sup> Robert Armstrong, *The Volkswagen Scandal Shows that Corporate Culture Matters*, FIN. TIMES (Jan. 13, 2017), <https://www.ft.com/content/263c811c-d8e4-11e6-944b-e7eb37a6aa8e>.

<sup>40</sup> Brian Tayan, *The Wells Fargo Cross-Selling Scandal*, HARV. L. SCHOOL F. ON CORP. GOVERNANCE (Feb. 6, 2019), <https://corpgov.law.harvard.edu/2019/02/06/the-wells-fargo-cross-selling-scandal-2/>; Elizabeth C. Tippet, *How Wells Fargo Encouraged Employees to Commit Fraud*, THE CONVERSATION BLOG (Oct. 6, 2019, 9:13 PM), <https://theconversation.com/how-wells-fargo-encouraged-employees-to-commit-fraud-66615>.

<sup>41</sup> Ron Carucci, *Why Ethical People Make Unethical Choices*, HARV. BUS. REV. (Dec. 16, 2016), <https://hbr.org/2016/12/why-ethical-people-make-unethical-choices>; Armstrong, *supra* note 39.

<sup>42</sup> Timothy Cory & Michael R. Green, *The Cost of Environmental Non-Compliance*, ENVTL. STANDARDS, <https://www.envstd.com/the-cost-of-environmental-non-compliance/> (last visited Feb. 13, 2020).

Such equipment can cost corporations millions of dollars to install and operate.<sup>43</sup> Corporations perform cost-benefit analyses, and they know that government pursuit of enforcement cases can take a long time to come to fruition, if ever.<sup>44</sup> Thus, if a corporate entity is able to fly under the regulatory radar, it is hard to justify the need to spend money on compliance. There is simply no return on investment.<sup>45</sup>

### C. Role of Agencies

The question becomes, then, how do agencies navigate a world in which there is undoubtedly significant interest by corporations to be “compliant” while there are also financial reasons to be “non-compliant.” Corporations are inherently profit-maximizing and, as such, will comply with regulations when it makes financial sense to do so.<sup>46</sup> Thus the cost of non-compliance or cheating matters. As the late Gary Becker and several scholars since have described, the cost of noncompliance is typically a function of both the likelihood of apprehension and the sanction imposed. However, most of the literature on corporate compliance and cheating has focused on sanctions, or penalties.<sup>47</sup> Scholars often lament that if penalties were just higher, there would be less corporate non-compliance and cheating. This article, however, suggest that such a focus on penalties alone misses focus on an equally important factor in the cost of compliance: the likelihood of apprehension.

The key word is “likelihood” rather than “apprehension”. A particular corporate entity may never actually get caught for its cheating, but the threat of getting caught impacts decisions about whether to cheat or not, because it increases the risk of apprehension and resulting penalties. To be sure, if in every case where corporate entities are actually caught, the penalty imposed by an agency is so low as to not make any financial difference, over time, corporate entities are likely to stop caring about the likelihood of

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<sup>43</sup> Nortz, *supra* note 37 (“For the following 10 years, until the plant was closed, no money was ever allocated for this project. As a consequence, the corporation had cheated and won. It enjoyed the time value of \$5 million for the decades the plant was in operation and paid no penalty. In so doing, they enjoyed an advantage over those competitors who chose to make expenditures necessary to comply with the law.”).

<sup>44</sup> Nelson, *supra* note 13, at 1520–21.

<sup>45</sup> *Average Cost of Environmental Fines, Violations, and Settlements at Industrial Facilities*, RESOURCE MGMT. ASSOCIATES, <https://www.rmagreen.com/rma-blog/average-cost-of-environmental-fines-violations-and-settlements> (last visited Feb. 13, 2020).

<sup>46</sup> See Gary Becker deterrence model.

<sup>47</sup> Sally S. Simpson et al., *An Empirical Assessment of Corporate Environmental Crime-Control Strategies*, 103 J. CRIM. L. & CRIMINOLOGY 231, 233 (2013) (“If the benefits of crime are high and the risk of discovery and punishment is low, then criminal opportunities increase as actors perceive less risk associated with illegal activities.”).

apprehension. The risk will simply no longer matter, because the consequence of taking the risk has little value. However, in many areas of enforcement, actual penalties for risky behavior are unknown to the regulated corporate entity. This uncertainty alone creates incentives to comply. Penalties are not published by agencies, or are difficult to find. In addition, some enforcement cases never get to the penalty stage at all; therefore, corporate entities have to assume that an agency may impose the statutory maximum penalty for a violation.<sup>48</sup> For some statutes, for example, environmental statutes, penalties can be up to \$37,500 per day, per violation, adjusted for inflation. Further, sometimes the process the agency uses to investigate violations necessarily imposes costs on an investigated entity, regardless of whether a penalty is ultimately imposed.<sup>49</sup>

This article proposes that a key factor, if not the most important factor, in increasing the likelihood of apprehension, is the timely availability of information. The literature on compliance and cheating, especially in the environmental context, has focused on information to non-agency players, such as the public and corporate shareholders. However, this literature tends to focus not on the goal of increasing the likelihood of apprehension, but instead, on achieving the ultimate result of the underlying regulation, namely environmental protection, fairness in the marketplace, or worker safety.<sup>50</sup> The danger of focusing only on the role of information to compel corporations to be more environmentally or socially responsible, is that it misses the important role of information to compel compliance. These are not the same thing. Cheating impacts more than the ability of society to achieve the anticipated public benefit of the regulation. If that were the only impact, then there may be other ways for such benefits to come to fruition, including corporate environmental and social responsibility efforts or public shaming.<sup>51</sup> However, cheating also impacts another core value of society, that is, fairness in the marketplace. It simply offends fundamental notions of the rule of law to let cheaters gain a competitive advantage by avoiding the cost of

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<sup>48</sup> Several law firm blogs and third party auditors focus on statutory maximum penalties in attempts to convince regulated corporate entities of the “potential” penalty.

<sup>49</sup> Rory Van Loo, *Regulatory Monitors: Policing Firms in the Compliance Era*, 119 COLUM. L. REV. 369, 416 (2019) (describing the “process as punishment” whereby regulated entities avoid information collection processes by regulators).

<sup>50</sup> Sarah E. Light, *The Law of the Corporation as Environmental Law*, 71 STAN. L. REV. 137, 166 (2019) (Professor Sarah Light provides an excellent example of how ExxonMobil’s 10-K filing prompted the SEC to investigate a potential violation of the self-disclosure requirements. ExxonMobil had failed to adequately inform the SEC of information about its oil reserves. The investigation deterred ExxonMobil from failing to disclose next time. The investigation also prompted ExxonMobil to make different choices about its oil reserves, one of the underlying purposes of disclosure requirements about climate risks to begin with.).

<sup>51</sup> Cary Coglianese & David Lazer, *Management Based Regulation: Prescribing Private Management to Achieve Public Goals*, 37 L. & SOC’Y REV. 691, 696 (2003).

compliance. Cheating undermines not only the regulation, but the ability of corporate entities to operate on a level playing field.

Thus, this article focuses on getting information to enforcement agencies, for the specific purpose of increasing the likelihood of apprehension. Environmental scholars seem to have given up on agency enforcement, turning instead to recommendations that agency officials coax corporations into compliance, or to citizen suit enforcement where allowed by statute.<sup>52</sup> Further, political Administrations also wax and wane over the appropriate role of agency enforcement. Indeed, we have seen the pendulum swing between federal Administrations as they variously focus on strong enforcement efforts versus approaches that attempt to coax corporations into compliance.<sup>53</sup> As described by Professor Bill Andreen, in general, Democratic administrations have generally pushed for strong deterrence models of environmental enforcement and Republican administrations have generally advocated for cooperative models of environmental enforcement.<sup>54</sup> For example, one of the first changes that the Trump Administration made to EPA's enforcement program was to change the national "enforcement" initiatives to national "compliance" initiatives.<sup>55</sup> Such a language change may seem benign, but it signals a different approach. This change may include expectations of regulated entities, how willing agencies are to push on information collection and inspection requests that may be viewed as burdensome, and enforcement budgets. Thus, perhaps the call to citizen enforcers instead of agencies makes sense. Indeed, citizen enforcement has been a powerful tool in the arsenal to detect corporate environmental cheating.

However, information flowing to agency enforcement offices remains vitally important for detection of cheating. Not all federal statutes even contain citizen enforcement provisions. Without information, agency enforcers have little way to know where to target inspection resources, or otherwise begin to develop elements of proof for an enforcement case.

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<sup>52</sup> Adam Babich, *Legal Impacts of Increased Public Availability of Air Quality Data*, NO. 1 RMMLF-INST 2, ROCKY MT. MIN. L. INST. 2-1 (2018); Randy Dann et al., *Contemporary Issues in Citizen Enforcement of Environmental Laws*, NO. 6 RMMLF-INST 12 ROCKY MT. MIN. L. INST. 12-1 (2018).

<sup>53</sup> See Adam Babich, *Back to the Basics of Antipollution Law*, 32 TUL. ENVTL. L.J. 1 (2018); Clifford Rechtschaffen, *Deterrence vs. Cooperation and the Evolving Theory of Environmental Enforcement*, 71 S. CAL. L. REV. 1181, 1205–12 (1998).

<sup>54</sup> See William Andreen, *Motivating Enforcement: Institutional Culture and the Clean Water Act*, 24 PACE ENVTL. L. REV. 67, Marshall J. Breger, *Regulatory Flexibility and the Administrative State*, 32 TULSA L.J. 325, 325–26 (1996) (explaining that the Republican-controlled Congress sought to shift from an enforcement paradigm for regulation to a cooperative partnership with the regulated community in the mid-1990s).

<sup>55</sup> Mike Soraghan, *Trump's EPA Turns to Less Punitive Responses to Pollution*, E&E NEWS (June 11, 2018), <https://www.eenews.net/stories/1060084031>.

Without information, agency enforcers do not know whether a particular violation is an indication that the violator is outright cheating or is a repeat offender. Without information, agency enforcers do not know the extent of the harm to the public from a violation, whether it is large or small, or located in a particularly sensitive area. In short, an increase in quality information to agencies is necessary for the agencies to be able to effectively do their jobs.

Any proposal that gets at increasing quality information to enforcement agencies for detection of cheating must consider the very real challenges that enforcement agencies face. Agency enforcement cases often face uphill battles on key elements of proof such as causation or intent.<sup>56</sup> Sometimes agency enforcement officials must demonstrate that a regulatory exception does not apply. Before even getting to proof elements, agency enforcement cases also deal with shifting political goals. Indeed, the Office of Management and Budget (OMB) request for comment in January 2020, suggests that the Administration may choose to require agencies to “show cause” to investigate, or manage an initial presumption of “innocence” by corporate entities in proceedings.<sup>57</sup> While it remains unclear as to how the OMB request for comment will turn out, it exemplifies the kind of legal challenges imposed on agency enforcement offices.

## II. AGENCY INFORMATION COLLECTION

This section lays a foundation for understanding the key role that information plays in detecting corporate cheating, and the challenges that agencies face in getting such information. Its purpose is to demonstrate that much of the information that enforcement agencies get about potential corporate cheating is ad hoc in nature, coming from multiple and varied sources. The ad hoc nature puts enforcement agencies behind the curve at the outset.

### A. Information Sources

Because corporate compliance is really about corporate behavior, information about what is happening *inside* a corporation is essential to detecting potential cheating.<sup>58</sup> Congress, in recognizing the need for

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<sup>56</sup> Robert Glicksman et al., *Technological Innovation, Data Analytics, and Environmental Enforcement*, 44 *ECOLOGICAL L.Q.* 41, 61 (2017) (recognizing difficulties in making causal connections).

<sup>57</sup> Improving and Reforming Regulatory Enforcement and Adjudication, 85 *Fed. Reg.* 5483 (Jan. 30, 2020).

<sup>58</sup> This article focuses on agency information collection of business records that do not contain personal or individual information. Indeed, some information collection from agencies, such as in the financial sector, includes both information about the business and



regulatory agencies to have access to information about what happens inside a corporation, has provided agencies with statutory authority to collect such information.<sup>59</sup> Agency information collection comes in multiple forms, including the ability to request information data requests from specific regulated entities, or agency conducted audits and physical inspections. As described by Professor Rory Van Loo, “[o]verall, among the nineteen large federal regulators . . . [s]ixteen of the nineteen largest agencies have both strong visual monitoring and record-collection authority.”<sup>60</sup> The Clean Air Act, for example, authorizes the EPA to ask for any information as it “may reasonably require.”<sup>61</sup> Such information may include requiring a corporate entity to submit records, install and use monitoring equipment, and sample emissions.<sup>62</sup> The Clean Air Act also allows the EPA “the right of entry to, upon or through any premises” where records are required to be maintained, and “may at reasonable times have access to and copy any records, inspect any monitoring equipment . . . and sample any emissions.”<sup>63</sup> Most other federal environmental statues contain similar records collection and inspection authority.<sup>64</sup>

Agencies not only collect information from regulated entities for the purpose of detection, but for other purposes as well. In particular, agencies collect information from regulated entities in order to help support decisions about new programs or rulemakings.<sup>65</sup> For example, the EPA regularly collects information about air emissions from regulated entities with the specific goal of updating regional emissions inventory for specific pollutants. Such information is then used to inform decisions about which sources contribute to unhealthy air and should be considered for further emissions reductions in permitting. In addition, agencies might collect information from regulated entities simply to understand a complex technical issue. For example, in December 2019, the Federal Motor Carrier Safety Administration issued an information collection request to motor carriers with the stated purpose of allowing the agency to study and assess the

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necessarily information about personal finance records.

<sup>59</sup> Van Loo, *supra* note 49, at 395.

<sup>60</sup> *Id.* at 395–96.

<sup>61</sup> 42 U.S.C. § 7414(a) (2019).

<sup>62</sup> 42 U.S.C. § 7414(a) (2019).

<sup>63</sup> 42 U.S.C. § 7414(a)(2) (2019).

<sup>64</sup> 33 U.S.C. § 1318 (B) (2019); 7 U.S.C. § 136g(a) (2019); 15 U.S.C. § 2610(a) (2019); 42 U.S.C. § 9604(e)(3) (2019); 42 U.S.C. § 6927(a) (2019); Robert M. Andersen, *Authority for Governmental Entry and Access to Private Property*, 2 ENVTL. L. PRAC. GUIDE § 11.02 (2020).

<sup>65</sup> Clean Air Act Sections 114 and 208, Clean Water Act Section 308, and CERCLA Section 104 all allow the EPA to collect information to determine compliance, but also for the development or modification of regulations.

effectiveness of various technologies, programs, and policies on motor safety performance.<sup>66</sup>

Agency information collection for detection is designed to target a specific potential defendant suspected of potential noncompliance or cheating. Agencies seek a wide range of information in order to be able to detect potential noncompliance or cheating. Information sought may be quantitative or narrative, such as prices, formulas, names, dates, or phrases. To determine whether markets are being manipulated, agencies may need information concerning market transactions, including the profitability of, and reasons for specific transactions.<sup>67</sup> The FERC, in its data requests for detection of corporate cheating, asks for financial and operational information, procedures manuals, organization charts, reports, and email and voice mail records.<sup>68</sup> Agencies may also seek information regarding corporate status, with the goal of finding the proper regulated entity responsible for potential corporate noncompliance or cheating. The EPA often requests information about parent corporations, successor liability, and asset purchase agreements to determine the regulated entity liable for clean-up of a hazardous waste site.<sup>69</sup> While agencies are not always explicit as to the exact purpose of a specific information collection effort, corporate legal counsel, who keep tabs on what kinds of enforcement matters particular agencies are pursuing, often inform regulated entities that a particular information request has likely been issued to detect noncompliance or cheating.<sup>70</sup> Thus, while regulated entities are likely to respond without challenge to information requests issued for a non-enforcement purpose, they are more likely to mount a challenge when the purpose is enforcement related.<sup>71</sup>

Targeting a specific potential defendant may also result from agency efforts that survey multiple regulated entities at one time. Remote sensing technologies have been particularly useful in detection of corporate cheating

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<sup>66</sup> Agency Information Collection Activities; New Information Collection: Beyond Compliance, 84 Fed. Reg. 69451 (Dec. 18, 2019).

<sup>67</sup> Mark J. Neifer, *Information and Competition in Electric Power Markets*, 35 ENERGY L.J. 375, 394 (2014).

<sup>68</sup> FERC, OFFICE OF ENFORCEMENT AUDIT PROCESS 2 (2014), <https://www.ferc.gov/enforcement/audits/audit-process.pdf>.

<sup>69</sup> *Superfund Information Request Letters*, U.S. EPA, <https://www.ferc.gov/enforcement/audits/audit-process.pdf> (last visited Feb. 18, 2020).

<sup>70</sup> Julie A. Cress & Todd S. Mikolop, *An RFI? Surely You Can't Be Serious*, THE NICKEL REPORT (Feb. 15, 2018), <https://www.huntonnickelreportblog.com/2018/02/an-rfi-surely-you-cant-be-serious/>.

<sup>71</sup> Van Loo, *supra* note 49, at 398 (“Legal investigations cause information exchange to become “bogged down as target firms resist[] compliance and pursue[] blocking actions in the courts.””).

at natural gas fracking sites.<sup>72</sup> For example, in fall of 2019, the EPA enforcement office, along with state enforcement offices, conducted helicopter flyovers over the Permian gas shale in the western part of the United States. Enforcement officials used infrared cameras to identify leaks from flares, tanks and other types of equipment.<sup>73</sup> Of the 530 flares observed, 13 were unlit and emitting methane and other pollutants.<sup>74</sup> In response, the enforcement agencies sent written notices to seven oil and gas operators seeking further information regarding the leaks.<sup>75</sup> As described later in this article, maritime agencies in the EU have also been using remote sensing technologies to detect corporate cheating on SO<sub>2</sub> air pollution standards in the shipping industry. Remote sensors sit on top of bridges or aircraft such as light planes or drones and read various parameters, such as SO<sub>2</sub> concentration, from the exhaust of the ships passing underneath, to detect potential cheaters. Some types of remote sensors rely on the ability to physically pull a sample of the exhaust stream through analyzers.<sup>76</sup> Other remote sensing relies on optical analyzers, which do not need to be directly inside the exhaust stream but can instead be as much as ten to thirty meters away from the exhaust stream.<sup>77</sup>

Further, agencies also collect relevant information for the detection of potential noncompliance and cheating by receiving information from individuals with unique access to corporations and corporate facilities. That is, third parties *near* the corporate entity are able to obtain helpful information about the corporate entity and pass it to agency officials, often through tip lines.<sup>78</sup> Indeed, the same kinds of remote sensing technologies used by agencies at natural gas fracking sites are used by citizens and citizen oriented groups, to detect corporate cheating.<sup>79</sup> The *Volkswagen* scandal, in particular,

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<sup>72</sup> See *Clean Air Act Violations at Six Oil & Gas Companies: EPA's Enforcement Benefits Oklahoma-based Corporations*, ENVTL. INTEGRITY PROJECT (July 23, 2018) <http://www.environmentalintegrity.org/wp-content/uploads/2017/02/Report-to-EPA-on-oil-and-gas-enforcement.pdf>.

<sup>73</sup> *New Mexico Puts Oil and Gas Firms on Notice Due to Methane*, U.S. NEWS & WORLD REPORT (Jan 14, 2020, 12:28 AM), <https://www.usnews.com/news/best-states/new-mexico/articles/2020-01-15/new-mexico-puts-oil-and-gas-firms-on-notice-due-to-methane>.

<sup>74</sup> *Id.*

<sup>75</sup> *Id.*

<sup>76</sup> Steve Roman, *Pollution Police: How Are Ship Emissions Monitored?*, WÄRTSILÄ (July 25, 2019), <https://www.wartsila.com/twentyfour7/environment/pollution-police-how-are-ship-emissions-monitored>.

<sup>77</sup> *Id.*

<sup>78</sup> See, e.g., *Report Suspected Securities Fraud or Wrongdoing*, U.S. SEC, <https://www.sec.gov/tcr> (last visited Feb. 13, 2020); *Contact Hotline Staff Anonymously*, FERC, <https://ferc.gov/enforcement/staff-guid/enforce-hot/hotline-form.asp> (last visited Feb. 13, 2020).

<sup>79</sup> Jonah M. Kessel & Hiroko Tabuchi, *It's a Vast, Invisible Climate Menace. We Made*

came to the attention of the EPA through scientists from a University lab.<sup>80</sup> In addition, local citizen activist groups have sent photos taken with personal drones to agency officials, prompting the agencies to send inspectors to the facility.<sup>81</sup> Private research companies are also developing new technologies that have the potential to provide information to agency enforcement officials. Some of these technologies are already coming to fruition. Researches with SkyTruth collected multiple satellite images of an oil spill, eventually prompting a USCG clean up order to Taylor Energy oil.<sup>82</sup>

Third party information also comes from investigative journalists, local government agencies, and whistleblowers. For example, investigative journalists, with their training in cultivating information sources, have been catalysts in uncovering deep fraud in insider trading.<sup>83</sup> Local government authorities often work in close proximity to regulated entity facilities. A case involving an Idaho resident who kept hazardous materials at his home without a permit came to the attention of the local fire department, which was

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*It Visible.*, N.Y. TIMES (Dec. 12, 2019), <https://www.nytimes.com/interactive/2019/12/12/climate/texas-methane-super-emitters.html?smid=nytcore-ios-share>; *Using FLIR Cameras to Show Oil & Gas Air Pollution: Seeing Is Believing!*, HALT THE HARM NETWORK (Apr. 17, 2018), <https://halttheharm.net/event/using-flir-cameras-to-show-oil-gas-air-pollution-seeing-is-believing/>.

<sup>80</sup> Jason Bisnoff, *Volkswagen Scandal Findings Can Be Traced Back to Last Year in West Virginia*, N.Y. DAILY NEWS (Sept. 23, 2015), <https://www.nydailynews.com/autos/news/volkswagen-scandal-discovered-west-virginia-year-article-1.2371162>.

<sup>81</sup> See *Investigation Reveals Illegal Activity at Morgantown Coal Plant on the Potomac River*, POTOMAC RIVERKEEPER NETWORK (Sept. 26, 2019), <https://www.potomacriverkeepernetwork.org/morgantown/>. Professors Lee Paddock and Robert Glicksman have also written about such tips, citing, for example, to a drone hobbyist who documented massive unfiltered discharges of animal blood from a Dallas, Texas, meat packing plant into a nearby river, and reported the images to agency officials.

<sup>82</sup> John Amos, *Taylor Energy Oil Spill: This Is How Change Happens*, SKYTRUTH (Dec. 11, 2018), <https://skytruth.org/2018/12/taylor-energy-oil-spill-this-is-how-change-happens/>; Lorraine Chow, *Clean Up 14-Year Oil Spill or Face \$40K Daily Fine, Feds Tell Taylor Energy*, ECOWATCH (Nov. 21, 2018), <https://www.ecowatch.com/taylor-oil-spill-cleanup-gulf-2621075177.html>. Oily water discharge rules have been hard to prosecute because the crime often happens far from shore. With no one present to sight an oily sheen, and no monetary incentive for the crew to report wrongdoing, it has historically been easy to hide. SkyTruth has pioneered the use of radar satellite data to spot the distinctive slicks of bilge discharge on the water, with a tiny dot of a ship clearly visible at the head of the line. By time-matching the imagery with AIS data, the group's researchers can make a good estimate to identify the specific responsible ship. See *"Magic Pipe" MARPOL Violations Can Be Spotted from Space*, MARITIME EXECUTIVE (Feb. 13, 2020), <https://www.maritime-executive.com/article/magic-pipe-marpol-violations-can-be-spotted-from-space>.

<sup>83</sup> See Michael J. Borden, *The Role of Financial Journalists in Corporate Governance*, 12 FORDHAM J. CORP. & FIN. L. 311, 331 (2007).

initially called to respond to nuisance complaints about the condition of the property.<sup>84</sup> Whistleblowers, however, have dominated as third party tip providers in multiple areas of corporate cheating.<sup>85</sup> Indeed, several federal statutes provide protection for whistleblowers, and also provide the potential for large financial awards.<sup>86</sup> In response to large scale corporate violations, Congress has often responded by increasing whistleblower protection within specific statutes.<sup>87</sup> A simple look at the enforcement websites for the FERC and the SEC alone reveal that many enforcement cases originated with whistleblowers.<sup>88</sup> In addition, some of the most prominent USCG enforcement cases in shipping involving “magic pipes,” or illegal bypass of a ship’s oily water separator, have also originated with whistleblowers.<sup>89</sup>

### B. Agency Challenges

Such broad legal authority and avenues for accessing information, it would seem, means agencies are well equipped to engage in extensive targeted collection and inspection to detect corporate noncompliance and cheating. However, this is not so. The use of targeted records collection and inspection authority depends heavily on resource levels. Many legal scholars have described the significant time it takes for agencies to conduct physical inspections, which may require lengthy travel, sifting through extensive paperwork, and using complex equipment.<sup>90</sup> Low enforcement budgets

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<sup>84</sup> United States v. Spatig, 870 F.3d 1079, 1082 (9th Cir. 2017).

<sup>85</sup> Nancy M. Modesitt, *Causation in Whistleblowing Claims*, 50 U. RICH. L. REV. 1193, 1193; CORPORATE GOVERNANCE: AVOIDING AND RESPONDING TO MISCONDUCT § 10.01 (Law Journal Press 2018).

Compared to other areas of corporate oversight, EPA seems to provide relatively fewer incentives for environmental whistleblowers. Daniel Purtell, *Considering Rewards for Environmental Whistleblowers*, MCELDREW YOUNG PURTELL (Jan. 21, 2015), <https://www.mceldrewwyoung.com/environmental-rewards-bp-fine/>.

<sup>86</sup> Clean Air Act § 322, 42 U.S.C. § 7622 (2019); CERCLA §110, 42 U.S.C. § 9610 (2019); Clean Water Act § 507, 33 U.S.C. § 1367 (2019); Safe Drinking Water Act § 1450, 42 U.S.C. § 300j-9(i) (2019); Toxic Substances Control Act § 23, 15 U.S.C. § 2622 (2019).

<sup>87</sup> See Purtell, *supra* note 85.

<sup>88</sup> Michael Brooks et al., *FERC Proceeds with Enforcement Action Against Total Gas & Power North America*, BRACEWELL (May 3, 2016), <https://www.energylegalblog.com/blog/2016/05/03/ferc-proceeds-enforcement-action-against-total-gas-power-north-america>.

<sup>89</sup> In the United States, it is one of the most frequently prosecuted maritime crimes, thanks to generous whistleblower awards, the ease of finding physical evidence, and an enthusiasm for MARPOL (Annex XXX) enforcement. See “*Magic Pipe*” MARPOL Violations Can Be Spotted from Space, THE MARITIME EXECUTIVE (Feb. 13, 2020), <https://www.maritime-executive.com/article/magic-pipe-marpol-violations-can-be-spotted-from-space>.

<sup>90</sup> Van Loo, *supra* note 49, at 406; See, e.g., Light, *supra* note 50, at 146–49;

undoubtedly also have significant impact. Many environmental agencies have seen significant declines in resources devoted to basic inspection.<sup>91</sup> For example, in its 2014-2018 Strategic Plan, EPA predicted that it would be forced to make twenty-five percent fewer compliance inspections and bring one-third fewer enforcement actions than it had in the years 2005-2009 because of declining budgets.<sup>92</sup> Periodic federal government shutdowns, too, mean the fewer and fewer agency inspectors are out detecting violations.<sup>93</sup> While political administration changes may impact enforcement budgets in a positive direction at various points in time, there is generally pressure to do more with less within enforcement agency offices.

Targeted records collections are also prone to legal challenge, and delays or limitations in receipt of needed information. Regulated entities often argue that administrative records requests are too burdensome.<sup>94</sup> Regulated entities also argue that administrative records requests are outside the scope of agency authority. While agencies have often ultimately won such legal challenges, judges may limit the scope of the request, thereby impacting the agency's access to information that might help in detection of potential corporate cheating. For example, in a case involving a Clean Air Act information request to a coal-fired power plant, the district court of Minnesota held that the EPA could only seek information about a corporate entity's planned construction activities for a two-year period, instead of the requested five-year period.<sup>95</sup> Further, a legal challenge itself, even if the agency might ultimately win, can be risky for agencies.<sup>96</sup> It only takes one

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Rechtschaffen, *supra* note 53, at 1215.

<sup>91</sup> Madison Condon, *Citizen Scientists, Data Transparency, and the Mining Industry*, 32 NAT. RESOURCES & ENV'T 24 (2017); Rechtschaffen, *supra* note 53, at 1214.

<sup>92</sup> Coral Davenport, *Shutdown Means E.P.A. Pollution Inspectors Aren't on the Job*, N.Y. TIMES (Jan. 9, 2019), <https://www.nytimes.com/2019/01/09/climate/epa-pollution-inspection-shutdown.html>.

<sup>93</sup> *See id.* Also, non environmental agencies too. *See* Alex Leary, *Trump Administration Pushes to Deregulate with Less Enforcement*, WALL ST. J. (June 23, 2019, 7:12 PM), <https://www.wsj.com/articles/trump-administration-pushes-to-deregulate-with-less-enforcement-11561291201> (The *Wall Street Journal* reported in the summer of 2019 that the Occupational Safety and Health Administration, which investigates and regulates workplaces for health and safety issues, had the fewest inspectors in decades).

<sup>94</sup> *See* Motion to Quash and/or Limit Subpoena Duces Tecum, *In re Graco*, No. 9350 (F.T.C. 2012), <https://www.ftc.gov/sites/default/files/documents/cases/2012/01/120118moquashlimitsubpudetc.pdf>; *EEOC v. Royal Caribbean Cruises, Ltd.*, 771 F.3d 757 (11th Cir. 2014) (finding that information requested by the Equal Employment Opportunity Commission (EEOC) on employees discharged by Royal Caribbean Cruises in response to a disability discrimination suit district court was unduly burdensome).

<sup>95</sup> *United States vs. Xcel Energy, Inc.*, 759 F. Supp. 2d 1106 (D. Minn. 2010).

<sup>96</sup> Andrew Park, *The Endless Cycle of Corporate Crime and Why It's So Hard to Stop*, DUKE LAW (Jan. 13, 2017), <https://law.duke.edu/news/endless-cycle-corporate-crime-and->

judge limiting the scope of information gathering authority to set a new precedent.

Inspections are also prone to legal challenges. To be sure, courts have interpreted agency inspection authority broadly, particularly in relationship to challenges over privacy concerns. While the Fourth Amendment of the U.S. Constitution prohibits unreasonable searches and seizures without a warrant, the U.S. Supreme Court has held that numerous exceptions apply to its applicability in a corporate context.<sup>97</sup> The court recognized the strong deference afforded to the magistrate judge’s determination of probable cause, and also reinforced the well-settled proposition that “probable cause” in the criminal law sense is not required for an administrative warrant. Even when a warrant is required, courts have found that agencies need only obtain an administrative search warrant, which requires a lower probable cause standard, than in the kind of warrant involved with searches associated with private individuals or in criminal matters.<sup>98</sup> Nonetheless, agencies still must demonstrate that there are reasonable neutral standards imposed on the inspection, or that there is evidence of a violation.<sup>99</sup>

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why-its-so-hard-stop/ (“Prosecutors have limited resources and generally only bring cases they believe they can win.”).

<sup>97</sup> While the Fourth Amendment’s prohibition against unreasonable searches and seizure most commonly arises in the context of private individuals, it also applies to corporate entities. *See* *See v. Seattle*, 387 U.S. 541, 543 (1967); David James, *The Fourth Amendment, Future Methods of Environmental Enforcement, and Warrantless Inspections*, 33 REV. LITIG. 183 (2014). However, numerous exceptions apply to this general rule, including of particular relevance to agencies, the “open fields,” “pervasively regulated,” and “special needs” doctrines. *See* Steven A.G. Davison, *Fourth Amendment and Statutory Limitations on Entry and Inspection of Commercial Property in Environmental Enforcement*, 3 UCLA J. ENVTL. L. & POL’Y 75 (1982).

<sup>98</sup> *Camara v. Mun. Court of San Francisco*, 387 U.S. 523, 538 (1967) (explaining that probable cause for an administrative warrant exists if reasonable legislative or administrative standards are satisfied). Some statutes provide explicit language authorizing agencies to obtain warrants to obtain entry and access if a violation is suspected. *See, e.g.*, FIFRA, 7 U.S.C. § 136g(b) (2019) (authorizing officers or employees duly designated by the EPA to obtain and execute warrants for the purposes of entry, inspection, and copying of records). Other statutes do not provide such clear language, though courts have largely held that agencies may seek administrative warrants anyways. *See, e.g.*, *Bunker Hill Co. Lead & Zinc Smelter v. EPA*, 658 F.2d 1280, 1285 (9th Cir. 1981) (noting EPA was not claiming a right to conduct a warrantless inspection as applied to “pervasively regulated” industries, but instead justifiably relied on the Clean Air Act-specific provision allowing the agency to conduct inspections); *In re Alameda County Assessor’s Parcel Nos. 537-801-2-4 & 537-850-9*, 672 F. Supp. 1278, 1287 (N. D. Cal. 1987) (finding EPA has authority to seek an *ex parte* administrative warrant under Section 308 of the Clean Water Act); *In re Order Pursuant to § 3013(d) RCRA*, 550 F. Supp. 1361, 1364 (W.D. Wash. 1982) (determining Section 3013 of the Resource Conservation and Recovery Act allowed for entry, albeit at reasonable times, and created a system of ensuring reasonable advance notice to the regulated facility).

<sup>99</sup> *Marshall v. Barlow’s, Inc.*, 436 U.S. 307, 320 (1978).

Conducting random inspections at facilities usually requires a demonstration that the targeting is part of a general plan to pursue and eliminate suspected industry-wide violations. Many agencies for example, announce “enforcement initiatives” that target particular kinds of violations or industries.<sup>100</sup> For example, in 1999, the EPA began its national enforcement initiative aimed at uncovering potential violations of the Clean Air Act within the coal-fired power plant sector. Over the next fifteen-plus years, the EPA proceeded to send records collection requests to virtually all coal-plants, requesting that the entities send information that included data about emission levels for various pollutants, anticipated upgrades to the plants, and expected demand for power.<sup>101</sup> After the Volkswagen scandal, the EPA made “defeat device” cases one of the new national enforcement initiatives.<sup>102</sup> However, designating national enforcement initiatives can be a lengthy process and depends largely on whatever priority a particular Administration wants to pursue.

Further, a demonstration that the target of the inspection is suspected of violations can be challenging. Such demonstration itself requires facts explaining the reason for the warrant request, the scope of the proposed inspection, and affidavits describing how the agency selected the particular facility for inspection.<sup>103</sup> Thus, seeking an administrative warrant can be information and resource intensive.<sup>104</sup> FDA tried five times to inspect a regulated food and drug entity after a nationwide outbreak of salmonella was linked to a plant based food product distributed by the company.<sup>105</sup> Despite

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<sup>100</sup> *National Compliance Initiatives*, U.S. EPA, <https://www.epa.gov/enforcement/national-compliance-initiatives> (last visited Feb. 13, 2020).

<sup>101</sup> *Coal-Fired Power Plant Enforcement*, U.S. EPA, <https://www.epa.gov/enforcement/coal-fired-power-plant-enforcement> (last visited Feb. 13, 2020).

<sup>102</sup> *National Compliance Initiative: Stopping Aftermarket Defeat Devices for Vehicles and Engines*, U.S. EPA, <https://www.epa.gov/enforcement/national-compliance-initiative-stopping-aftermarket-defeat-devices-vehicles-and-engines> (last visited Feb. 13, 2020).

<sup>103</sup> U.S. EPA, PRACTICE HANDBOOK: ADMINISTRATIVE ENFORCEMENT 5 (2000).

<sup>104</sup> In one case, it took just under one month from the time the EPA applied for an administrative warrant under CERCLA and the district court’s denial of the application. *In re Yoder’s Slaughterhouse Site*, 519 F. Supp. 2d 574, 576 (D. Md. 2007). In another case involving suspected violations of the Clean Water Act, an initial inspection of public areas took place on March 9, and the ex parte warrant was not issued until April 28. *See In re Search Warrant*, No. 04-00079-MPT, 2004 U.S. Dist. LEXIS 10902, at \*4 (D. Del. Jun. 9, 2004).

<sup>105</sup> *In re Administrative Establishment Inspection*, No. 1:18-MC-546, 2019 U.S. Dist. LEXIS 65476 (M.D. Pa. Apr. 17, 2019). *See also* Anne K. Walsh, *Court Blesses FDA’s Rarely Used Administrative Search Warrant Authority*, FDA BLOG (May 3, 2019), <http://www.fdalawblog.net/2019/05/court-blesses-fdas-rarely-used-administrative-search-warrant-authority/>.



evidence linking the company to the contaminated plant based food product, the regulated entity refused to cooperate with FDA inspectors. The FDA sought to require the regulated entity to make statements and provide passwords for computers seized by FDA. The regulated entity sought to quash the warrant. The court denied the FDA's request to compel the regulated entity to speak with investigators on the grounds that the administrative warrant did not affirmatively require the regulated entity to engage in interviews; instead only authorizing the seizure of records. However, as commentators on the decision noted, it is unclear whether the administrative warrant could have included such a requirement since the relevant statute authorizing inspections does not include anything about interviews.<sup>106</sup> Indeed, outside counsel have advised regulated entities to be prepared to immediately file a motion to quash the warrant or seek an injunction challenging its scope if an FDA warrant includes things that are arguably out of scope, like taking photographs.<sup>107</sup>

Moreover, third party tips from citizens, journalists, and whistleblowers also present challenges for agencies. In the environmental context, citizen monitoring can only go so far. For example, there are legal limitations to the use of drone technology, since the collection of photos or other information through the use of such technology may constitute a trespass.<sup>108</sup> Reliance on whistleblowers, too, have proven untimely, because often, the whistleblower reports untimely, only after there is some dissatisfaction with the employer.<sup>109</sup> Whistleblowers can also be discredited if the informant is disgruntled, or biased, since they often require protection from the government, either in promises to defer or forgo action against them, or in the form of financial compensation.<sup>110</sup> In addition, agency enforcement

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<sup>106</sup> Walsh, *supra* note 105.

<sup>107</sup> Kathy Hardee, *FDA's Right to Take Photographs in Your Facility: Or Not*, FOOD SAFETY MAG. (Sept. 16, 2014), <https://www.foodsafetymagazine.com/enewsletter/fdae28099s-right-to-take-photographs-in-your-facility-or-not/>.

<sup>108</sup> See Adam Babich, *The Unfulfilled Promise of Effective Air Quality and Emissions Monitoring*, 30 GEO. ENVTL. L. REV. 569, 601 (2018) (describing practicalities of data collection and lack of access to private facilities as problematic); George Wyeth et al., *The Impact of Citizen Environmental Science in the United States*, 49 ENVTL. L. REP. NEWS & ANALYSIS 10,237, 10,246 (2019) (“The most prominent example of limitations on citizen data gathering is a law adopted in 2015 by the Wyoming Legislature in response to water sampling by the Western Watersheds Project (WWP), which studied the water quality impact of grazing on public lands.”).

<sup>109</sup> Kim G. Bruno, *Should Affiliated Marketers Be Treated as Insiders?*, 21 ENERGY L.J. 465, 468–69 (2000).

<sup>110</sup> The Dodd-Frank Act, which amended the Securities Exchange Act of 1934, seeks to incentivize employees to “blow the whistle” on potential securities law violations. Dodd-Frank established a reward program to provide financial compensation for any original

staff have to dedicate time and energy to regularly checking public tip lines and databases for whistleblower complaint, to determine which complaints are serious or substantial.<sup>111</sup> Such checks are important, because complaints sometimes over report small violations or miss more significant violations.<sup>112</sup>

### III. MOVING TO SELF-MONITOR/REPORT

This section argues for a change in the detection of corporate cheating, from one that is solely focused on agencies, to increased responsibility of regulated entities themselves. In particular, it advocates for increased mandatory self-monitoring and reporting obligations for regulated entities, so that agencies are able to receive continuous information about corporate behavior and activity. Such mandatory self-monitoring and reporting puts the onus on the owners of the requisite information for the detection of cheating: that is, the regulated entities themselves.

#### A. *Increasing Detection*

If agencies had more continuous information through corporate self-monitoring and reporting, there is good reason to believe they would be more likely to detect noncompliance and cheating. The idea of shifting to a world where regulated entities self-monitor and report violations is not new. Indeed, there are two good existing self-monitoring and reporting models that have existed for a long time in both the Clean Water Act and the Clean Air Act. First, is the EPA regulatory program under the Clean Water Act's national pollutant discharge elimination system, which requires regulated entities to self-monitor and send the results to the EPA electronically in a "discharge monitoring report" (DMR).<sup>113</sup> Second is EPA's regulatory program under the Clean Air Act's acid rain program, which requires regulated entities to install continuous emission monitoring systems (CEMS) and send the results to the EPA.<sup>114</sup> While both the DMR and acid rain database programs are not perfect, they provide a sound foundation for agencies to receive ongoing information

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information voluntarily provided to the SEC that results in monetary sanctions of more than \$1 million. See 15 U.S.C. § 78u-6 (2019).

<sup>111</sup> U.S. SEC, DIV. OF ENF'T, ENFORCEMENT MANUAL 7 (2017).

<sup>112</sup> Bruno, *supra* note 109, at 468–69.

<sup>113</sup> *NPDES eReporting*, U.S. EPA, <https://www.epa.gov/compliance/npdes-ereporting> (last visited Feb. 13, 2020).

<sup>114</sup> 42 U.S.C. § 7651k(a) (2019). A CEMS is a monitor installed on-site at or near the point of air pollution discharge. CEMS are the best method for measuring compliance, because they are certified to high standards, and contain continuous, real-time data of actual emissions. See Jim Hecker, *The Difficulty of Citizen Enforcement of the Clean Air Act*, 10 WIDENER L. REV. 303, 306 (2004).

about corporate behavior and activity, in the form of self-admissions of liability.<sup>115</sup>

Mandatory self-monitoring and reporting is different than mere self-disclosures. While the terminology is often used interchangeably by agencies and in the literature, the idea that this article advocates is that all regulated entities be required to monitor for actual cheating and report any discovered cheating. Self-monitoring and reporting allows agencies to see, from a computer screen, admissions of liability from regulated entities, and know whether those admissions represent a significant deviation from what the regulations require. The key benefit of self-monitoring and reporting is that it moves agencies away from the reactive, ad hoc approach to information collection. It is of little use to place enforcement agencies in a position of waiting to see if budgets will allow inspections, or if a third party tip coming through an agency hotline will prove credible. Agencies have been able to gain similar benefits from mandatory self-disclosures such as 10-K reports.<sup>116</sup> However, such mandatory disclosures are not authorized by all federal statutes, and also only provide cursory information about regulated entities, instead of detailed information that may be required to detect noncompliance or cheating.<sup>117</sup> Thus, mandating general disclosures about corporate relationships and structure, like as required by the SEC's 10-K's are not enough. Mandating specific disclosures about actual violations, referred to here as self-monitoring and reporting, is where the shift needs to happen.

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<sup>115</sup> Frank M. Thomas Jr., *Citizen Suits and the NPDES Program: A Review of Clean Water Act Decisions*, 17 ENVTL. L. REP. 10050, 10051 (1987) (explaining that in enforcement cases, district courts have simply compared terms of the discharging party's NPDES permit and corresponding data pulled from the DMR); *Sierra Club v. Public Service Co. of Colorado, Inc.*, 894 F. Supp. 1455, 1461 (D. Colo. 1995) ("I hold that in this citizen action under the Clean Air Act violations of the 20% opacity standard may be established by CEM records and reports as that data carries with it high indicia of reliability and probative value.").

<sup>116</sup> See Robert H. Feller, *Environmental Disclosure and the Securities Laws*, 22 B.C. ENVTL. AFF. L. REV. 225 (1995); Christopher J. Barry & Charles R. Blumenthal, *Practical and Ethical Considerations in Counselling Clients Concerning Environmental Reporting and Disclosure*, 38 ROCKY MT. MIN. L. INST. 4-1 (1992).

<sup>117</sup> The Securities and Exchange Act of 1934 which requires that every issuer of a registered security, or financial instrument, report certain information to the SEC and the corporation's stockholders through electronic, web-based, forms, such as the annual 10-K form. See Securities and Exchange Act of 1934, § 13; see also *Form 10-K: Annual Report Pursuant to Section 13 OR 15(d) of the Securities Exchange Act of 1934*, U.S. SEC, <https://www.sec.gov/about/forms/form10-k.pdf> (last visited Feb. 13, 2020). The Federal Power Act too requires public utilities to have their rates and charges on file in a convenient form and place, and FERC requires by regulation, that such public utilities fulfill the requirement by submitting electronic, web-based, quarterly reports. *Electric Quarterly Report Filing Requirements Guide*, FERC (Nov. 15, 2017), <https://ferc.gov/docs-filing/eqr/eqr-requirements-guide.pdf>.

Ongoing access to information about corporate behavior and activity is so important to enforcement agencies that they actively seek out opportunities to get it.<sup>118</sup> For example, enforcement agencies have, in agreements settling cases involving significant corporate cheating, required that the regulated entity agree to a mandatory internal corporate compliance program that includes regular self-monitoring reporting to the agency. The Volkswagen diesel emission scandal resulted in a settlement agreement that required the company in part to establish an internal testing program of future vehicles, and report the results of such tests to the EPA and state environmental agencies on a periodic basis.<sup>119</sup> In addition, CAA settlements with glass companies included new requirements for the companies to install and operate CEMS and report the data to the EPA.<sup>120</sup> Clearly, enforcement offices see value in receiving ongoing information about corporate behavior and activity even after detecting violations. The hope is that mandating such self-monitoring and reporting will help prevent the violations from recurring.<sup>121</sup>

Enforcement agencies also try to create incentives for regulated entities to voluntarily self-monitor and report violations. The EPA has an audit policy that allows corporate entities to self-report violations discovered by an internal audit, in exchange for enforcement discretion or reduced penalties.<sup>122</sup> State environmental agencies also encourage voluntary self-reporting of violations, sometimes promising specific penalty reduction credit.<sup>123</sup> Multiple non-environmental agencies too, have similar enforcement discretion or penalty reduction programs, such as FERC's enforcement of energy market regulations and the FAA's enforcement of hazardous material regulations.<sup>124</sup>

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<sup>118</sup> Root, *supra* note 2, at 213 (“The mandate to adopt certain compliance programs can come, as it did in the case of Hobby Lobby, through a settlement agreement, but mandates are also sometimes found directly within statutory or regulatory requirements.”).

<sup>119</sup> *In re Volkswagen “Clean Diesel” Marketing, Sales Practices, and Products Liability Litigation*, Third Partial Consent Decree, ¶ 15(e) (N.D. Cal. Jan. 11, 2017), <https://www.epa.gov/sites/production/files/2017-01/documents/vwthirdpartial-cd.pdf>.

<sup>120</sup> *See, e.g.*, Consent Decree, ¶¶ 74–113, *United States et al. v. Anchor Glass Container Corp.* (M.D. Fla. Aug. 3, 2018), <https://www.epa.gov/sites/production/files/2018-08/documents/anchorglasscontainercorp-cd.pdf>.

<sup>121</sup> Rechtschaffen, *supra* note 53, at 1186. *See also* Darlene R. Wong, *Stigma: A More Efficient Alternative to Fines in Deterring Corporate Misconduct*, 3 CAL. CRIM. L. REV. 3, ¶ 1 (2000).

<sup>122</sup> Incentives for Self-Policing: Discovery, Disclosure, Correction and Prevention of Violations, 65 Fed. Reg. 19,618, 19,619 (Apr. 11, 2000).

<sup>123</sup> *See, e.g.*, N.J. Dep’t of Environmental Protection, Compliance and Enforcement Self-Disclosure Report (rev. 2014), <https://nj.gov/dep/enforcement/docs/sdreport-rev5-12-14.pdf>.

<sup>124</sup> *Self-Reports*, FEDERAL ENERGY REGULATORY COMMISSION,

Indeed, self-monitoring and reporting is not perfect. There is always a concern that regulated entities will not be able to exercise independent judgment in self-reporting violations, resulting in under-reporting, or outright lying. As a result, some practitioners advocate for third party or neutral human monitors to conduct the monitoring.<sup>125</sup> In environmental matters, neutral testing, sampling, or measurement devices provide such independence. Regulated entities required to send DMR's to environmental agencies, must physically sample waters where facilities are discharging, at specific parameters and locations. Regulated entities required to report CEMS data as part of the acid rain program, must install the CEMS in such a way as to ensure proper measurement of emissions. Thus, there are ways, especially in environmental matters, to ensure that self-monitoring is objective and neutral.

Ultimately, mandatory self-monitoring and reporting saves agency resources by allowing enforcement offices to better target key violators and key violations. Indeed, some of the academic literature has suggested that self-monitoring and reporting, when they do occur, leads to less of a need for agencies to double-check a particular regulated entity. Some empirical research suggests that agencies will assume that regulated entities that do self-monitor and report are policing themselves adequately, and will therefore simply leave them alone.<sup>126</sup>

### *B. A Shift for Regulated Entities*

If self-monitoring and reporting is not new, and has significant advantages for agency detection of cheating, why is such monitoring and reporting is not mandated upfront in the regulations themselves? A major part of the answer is likely that regulated entities fight against any mandatory requirements for self-monitoring and reporting. Indeed, it might seem surprising for regulated entities to start supporting increased monitoring and reporting requirements in regulations. After all, such requirements are likely to result in increased detection of all kinds of violations. Not only are agencies likely to find substantive violations, but will also find violations

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<https://ferc.gov/enforcement/self-reports.asp>; *Voluntary Disclosure Reporting Program*, FEDERAL AVIATION ADMINISTRATION, [https://www.faa.gov/hazmat/air\\_carriers/report\\_incident/voluntary\\_disclosure/](https://www.faa.gov/hazmat/air_carriers/report_incident/voluntary_disclosure/).

<sup>125</sup> See, e.g., John Hanson, *FCPA Settlement Agreements, Monitors, and Self-Monitoring*, THE FRAUD GUY (Aug. 1, 2011) <https://thefraudguy.wordpress.com/2011/08/01/fcpa-settlement-agreements-monitors-and-self-monitoring/> (“there is no “independent” in self-reporting”).

<sup>126</sup> Michael W. Toffel & Jodi L. Short, *Coming Clean and Cleaning Up: Does Voluntary Self-Reporting Indicate Effective Self-Policing?* (Harv. Bus. Sch. Working Paper No. 08-098, Oct. 2010), <https://www.hbs.edu/faculty/Publication%20Files/08-098.pdf>.

associated with the monitoring and reporting requirement themselves. In addition, more monitoring and reporting requirements likely mean more short-term compliance costs as dealing with potential technical problems of monitoring equipment.<sup>127</sup> However, this article suggests that such thinking is short sighted. Self-monitoring and reporting can benefit regulated entities in underappreciated ways, particularly in industries where a significant number of regulated entities publish environmental and social responsibility codes of conduct.

Detection of corporate cheating promotes a level playing field in the long run for those regulated entities that do comply. Because compliance can be costly, corporate players gain a significant competitive advantage in a given marketplace quite simply because they can avoid the costs involved with complying.<sup>128</sup> It undermines fundamental notions of fairness in the marketplace to let corporate cheaters avoid the costs of compliance. As a result, the creation of a level playing field informs enforcement decisions on multiple levels, including at the beginning, when decisions are made, as to where and how to begin targeting for records collection or inspection.<sup>129</sup>

Indeed, the cost of compliance is real, and as a result there remains an incentive to avoid that cost in order to get ahead. Volkswagen, for example, saw that compliance with new EPA NOx standards was not going to allow them to sell diesel cars in the United States<sup>130</sup> Since the mid-1970s, the EPA

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<sup>127</sup> Noting that environmental audits can cost very small, simple facilities about \$2,500 and very large, complicated facilities can be at about \$40,000. *The True Cost of an Environmental Audit*, RESOURCE MGMT. ASSOCIATES, <https://www.rmagree.com/rma-blog/price-cost-of-an-environmental-audit> (last visited Feb. 13, 2020).

<sup>128</sup> See, e.g., Jeff Sessions, U.S. Attorney General, Remarks at the Ethics and Compliance Initiative Annual Conference (Apr. 24, 2017), <https://www.justice.gov/opa/speech/attorney-general-jeff-sessions-delivers-remarks-ethics-and-compliance-initiative-annual> (pledging to enforce the Foreign Corrupt Practices Act (FCPA) to ensure an “even playing field for law-abiding companies”). See also Rechtschaffen, *supra* note 53, at 1223–24 (“If, however, only some companies within an industry are permitted to evade such control requirements, . . . the evaders can unfairly obtain an advantage over their competitors, who will in response quickly resist making continued or additional pollution control investments themselves.”) (quoting George Van Cleve & Keith W. Holman, Promise and Reality in the Enforcement of the Amended Clean Air Act Part II: Federal Enforceability and Environmental Auditing, 27 *Envtl. L. Rep. (Envtl. L. Inst.)*, 10,151, 10,157 (Apr. 1997) (alteration in original)).

<sup>129</sup> For example, the EPA’s national enforcement initiatives have often targeted a particular industrial sector for investigations, in part so that all similarly situated competitors are treated equally in enforcement. See, e.g., *EPA Enforcement: National Petroleum Refinery Initiative*, U.S. EPA (Feb. 11, 2011), <https://www.epa.gov/sites/production/files/documents/refineryinitiative-powerpoint021111.pdf> (commenting on the “level playing field” in describing the national enforcement initiative for the refining sector).

<sup>130</sup> Leah McGrath Goodman, *Why Volkswagen Cheated*, NEWSWEEK (Dec. 14, 2015,

has introduced progressively more stringent emissions standards for cars. The requirements for model year 2004 were among the toughest ever, requiring car companies to slash the amount of NOx from tailpipe emissions by more than ninety-four percent. The new standards posed an enormous challenge to automakers looking to offer diesel cars to the U.S. market, when in Europe, where emissions standards are not as strict as in the U.S., more than fifty percent of vehicles sold were diesels. Volkswagen’s rivals, including Mazda, Honda, Nissan and Hyundai, also had their eye on the U.S. diesel market—but they took one look at the new EPA standards and decided to scrap their plans. The main challenge, several of the companies said, was that it was too difficult to meet the new standards while maintaining engine performance and staying on budget. Volkswagen, on the other hand, decided to flout the new NOx standards and thus became the top seller of diesel cars in the U.S.

The creation of a level playing field is an important goal that enforcement agencies and regulated entities tie to detection of corporate cheating. While the scholarship in enforcement has emphasized the laudable public goals of enforcement to achieve environmental protection, it has largely missed discussion about the completely separate goal of fairness. The creation of a level playing field, however, is front and center with government officials. Enforcement agencies in both Democratic and Republican administrations emphasize the need for a level playing field in enforcement so cheaters do not gain an advantage. During the Obama administration, lead enforcement officials described the importance of a level playing field.<sup>131</sup> Even the Trump administration, not otherwise known for promoting the environmental benefit of enforcement, promotes the level playing field benefit of enforcement.<sup>132</sup> Industry associations also promote the idea that there should be a level playing field in enforcement.<sup>133</sup> Thus, if nothing else,

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1:01 AM) <https://www.newsweek.com/2015/12/25/why-volkswagen-cheated-404891.html>.

<sup>131</sup> *Oversight of U.S. Environmental Protection Agency Enforcement and Compliance Programs: Hearing Before the S. Comm. on Environment and Public Works*, 114th Cong. 11 (2016) (Testimony of Cynthia Giles, Ass’t Administrator, Ofc. of Enforcement and Compliance Assurance, U.S. E.P.A.) (“And we also all know that a strong compliance and enforcement program is necessary both to achieve those health protections and to ensure that the companies that play by the rules are not put at an unfair competitive disadvantage.”).

<sup>132</sup> Mark Bocchetti, *Sessions Pledges to Level Playing Field as DOJ Enforces FCPA*, MLEX (Apr. 24, 2017), <https://mlexmarketinsight.com/insights-center/editors-picks/anti-bribery-and-corruption/north-america/sessions-pledges-to-level-playing-field-as-doj-enforces-fcpa> (“Our department wants to create an even playing field for law-abiding companies”).

<sup>133</sup> U.S. CHAMBER OF COMMERCE, EXAMINING U.S. SECURITIES AND EXCHANGE COMMISSION ENFORCEMENT: RECOMMENDATIONS ON CURRENT PROCESSES AND PRACTICES 2 (2015), [https://www.centerforcapitalmarkets.com/wp-content/uploads/2015/07/021882\\_SEC\\_Reform\\_FIN1.pdf](https://www.centerforcapitalmarkets.com/wp-content/uploads/2015/07/021882_SEC_Reform_FIN1.pdf) (“The mission of the SEC is to promote investor protection, competition, and capital formation. Capital markets that are

fairness and a level playing field should be part of the enforcement scholarship conversation as well.

Like concepts of ensuring a level playing field, regulated entities continue to stress the importance of “regulatory certainty” in interactions with agencies. Regulated entities have made “regulatory certainty” arguments to agency officials for one key reason: planning. Regulated entities that own facilities subject to environmental regulation cite to needs to plan for facility upgrades and debt repayment schedules.<sup>134</sup> Regulated entities that own coal plants cite needs to plan investment and research and development choices, whether to upgrade plants to keep them running, switch to other fuel sources, or evaluate carbon capture technologies.<sup>135</sup> Arguably, enforcement certainty is part and parcel of regulatory certainty. Indeed, in one of former Administrator Scott Pruitt’s first speeches to EPA staff, he stressed the importance of regulatory certainty, stating, “Regulators exist to give certainty to those that they regulate. Those that we regulate ought to know what we expect of them, so that they can plan and allocate resources to comply.”<sup>136</sup>

Increased monitoring and reporting may help provide regulated entities clarity in private-private contracts that currently only make vague reference to “compliance.” As scholars have described, regulated entities with a corporate social responsibility focus are increasingly including compliance as a factor in deciding which suppliers to purchase goods from or work with. Regulated entities might include in a “vendor code of conduct,” a provision that requires vendors to comply with all relevant laws.<sup>137</sup>

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efficient for both investors and businesses must be a level playing field with the certainty that clear rules provide. This level playing field can occur only if there is a strong Enforcement Program that helps to keep bad actors out of the marketplace.”)

<sup>134</sup> See, e.g., *What is “Regulatory Certainty,” and How Is it Implemented?*, MINN. POLLUTION CONTROL AGENCY 4 (June 30, 2016), <https://www.pca.state.mn.us/sites/default/files/wq-wwprm1-27.pdf>.

<sup>135</sup> Gail Reitenbach, *Power Industry Wish Granted: Greater Regulatory Certainty*, POWER MAG. (July 29, 2013), <https://www.powermag.com/power-industry-wish-granted-greater-regulatory-certainty/>.

<sup>136</sup> Nathan Rott, *Nothing Certain in Search for ‘Regulatory Certainty’ at EPA*, NPR (May 22, 2018, 5:00 AM), <https://www.npr.org/2018/05/22/611819300/nothing-certain-in-search-for-regulatory-certainty-at-epa>. See also Michael Piwowar, Acting Chairman, Remarks Before the 27<sup>th</sup> International Institute for Securities Market Growth and Development (Mar. 27, 2017), <https://www.sec.gov/news/speech/remarks-27th-international-institute-securities-market-growth-and-development> (commenting on the need for regulatory certainty in the context of securities markets).

<sup>137</sup> Michael P. Vandenbergh, *The New Wal-Mart Effect: The Role of Private Contracting in Global Governance*, 54 UCLA L. REV. 913, 932-33; Aaron Einhorn, *The Evolution and Endpoint of Responsibility: The FCPA, SOX, Socialist-Oriented Governments, Gratuitous Promises, and a Novel CSR Code*, 35 DENV. J. INT’L L. & POL’Y 509, 537-38 (2007). Industry groups such as the Exhaust Gas Cleaning Systems Association also require that individual members do not violate codes of conduct and ethical standards. *Code of Conduct*,



Regulated entities might also obtain credit agreements that include provisions that require borrowers to be compliant.<sup>138</sup> However, it is entirely unclear how the term “compliance” is defined in such codes of conduct and credit agreements. The suggestion here is that regulated entities, if they were to self-disclose more, could rely on such self-disclosure as a basis for determining whether the relevant party in a private-private agreement was indeed meeting requirements to comply. Understanding the meaning of the term comply is instrumental to providing teeth to such private-private contracts and would form the basis on a claim that a contract is voidable.

In general, more information in the hands of agencies simply allows agencies do their jobs more effectively, enhancing performance and confidence in the market.<sup>139</sup> Thus, trade associations for regulated entities should work with their members to develop agreement to advocate for increased monitoring and reporting. Industry trade associations have a significant impact on agency regulations. Agencies are often in regular contact with regulated entities through trade associations to discuss a wide range of concerns, including compliance, cheating, disclosure, and new technologies.<sup>140</sup> It should not be that investors alone clamor for increased self-disclosure requirements by the SEC about matters that impact the environment. It also should not be that public interest groups and pro-environmental legal scholars alone push for more requirements that regulated entities sample water discharges or measure air emissions, and report the results. Because the regulated entities themselves can also benefit from such reporting and verification, it behooves the regulated entities to also sound the bell for increased monitoring and reporting requirements.

### C. Anticipated Problems

Mandatory self-monitoring and reporting is not the perfect solution to detecting corporate cheating. Simply managing large amounts of information coming to agencies in multiple forms is overwhelming. More information does not ensure that agencies can always process and analyze the incoming information.<sup>141</sup> Indeed, a significant criticism of existing mandatory self-monitoring and reporting tools is that violations are often staring agencies in

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EGCSA, <https://www.egcsa.com/membership/code-of-conduct/> (last visited Feb. 19, 2020).

<sup>138</sup> Michael Vandenberg, *The Private Life of Public Law*, 105 COLUM. L. REV. 2029, 2052–53 (2005).

<sup>139</sup> Neifer, *supra* note 67, at 394.

<sup>140</sup> Geoffrey T. Chalmers, *The SEC: Dealing (or Not Dealing) with Trends in the Regulatory Climate*, 2009 WL 1008507 (Aspatore 2009).

<sup>141</sup> Glicksman et al., *supra* note 56, at 82 (“If agencies are to take advantage of these new streams of data, they will need to develop protocols for collecting, storing, processing, and using the information.”).

the face, while the agencies still have inadequate resources to follow-up and issue fines, or file cases for actual enforcement. For example, a report on the Safe Drinking Water Act criticizes agencies for failure to do anything about violations that are blatantly obvious as a result of a self-monitoring and reporting system.<sup>142</sup> Thus, complicated issues still arise with access to ongoing information about corporate noncompliance and cheating, involving how to prioritize enforcement cases. While such prioritization is not the subject of this particular article, it is an anticipated area of concern with any proposal to mandate self-monitoring and reporting to agencies.

At a more basic level, many government agencies may simply not have the ability to receive self-monitoring data and reports. Many agencies are behind the curve when it comes to computing power. As Professor Gary Coglianese, for example, reports, “according to an analysis by the U.S. Government Accountability Office, three-quarters of current spending by the federal government on information technology goes to supporting “legacy systems”—that is, to “increasingly obsolete” systems that are dependent on “outdated software languages and hardware.”<sup>143</sup> Without upgraded electronic platforms to receive information, simply increasing requirements for monitoring and reporting will be for naught.

Several agencies have made large advances in their ability to receive information electronically. FERC’s annual reports in 2017 note a significant increase in referrals for formal enforcement because of data analytics that rely on advanced electronic reporting systems.<sup>144</sup> Such electronic reporting allows FERC to use surveillance-like computer programs that pull out of periodic corporate disclosures specific information that might help the agency detect corporate cheating.<sup>145</sup> Similarly, other agencies involved in detecting corporate cheating on market oriented regulations have also had success with

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<sup>142</sup> NRDC ET AL., *supra* note 19, at 11.

<sup>143</sup> Cary Coglianese, *Deploying Machine Learning for a Sustainable Future*, in A BETTER PLANET: FORTY BIG IDEAS FOR A SUSTAINABLE FUTURE 200–08 (David Esty ed., 2019).

<sup>144</sup> The Report states that Enforcement’s Division of Investigations (DOI) opened 27 new investigations in FY2017, up from 17 investigations opened in FY2016. Nevertheless, 27 is a large number of investigations to be opened in a single year. FERC, 2017 REPORT ON ENFORCEMENT 5 (2017). The Report also states that the “vast majority” of these new investigations arose from referrals from Enforcement’s Division of Analytics and electronic reporting (DAS), which surveils electricity and natural gas trading markets, and Independent System Operator (ISO) and Regional Transmission Organization (RTO) market monitors. FERC, 2017 REPORT ON ENFORCEMENT 23 (2017); U.S. SEC. DIV. OF ENF’T, ANNUAL REPORT: A LOOK BACK AT FISCAL YEAR 2017 (2017).

<sup>145</sup> AKIN GUMP STRAUSS HAUER & FELD LLP, ENERGY REGULATION, MARKETS AND ENFORCEMENT ALERT 4 (2017), <https://www.akingump.com/images/content/6/2/v2/62448/Energy-Regulation-Markets-and-Enforcement-Alert-FERC-Enforcem.pdf>.

data analytics when information is transmitted to the agency in an electronic and usable format.

However, what may seem like a simple transition to electronic reporting is not always straightforward. The requirement to move self-disclosures or self-reporting from paper to electronic forms, itself requires a rulemaking effort that takes a long time and can raise opposition that can be difficult to manage. For example, only in 2015 did the EPA begin to require that all DMRs come to the agency via a web-based electronic system.<sup>146</sup> The rulemaking effort took almost two years.<sup>147</sup> In addition, sometimes transition to electronic reporting is met with resistance. For example, the FERC in 2016 issued a proposed rule to streamline the collection the data needed to regulate market-based rates.<sup>148</sup> The rule, among other things, would have required corporate entities that trade virtual products to report information regarding their legal and financial connections. The agency had discovered that information regarding the legal and contractual relationships among market participants was essential for watching wholesale market trading activity and potentially manipulative acts.<sup>149</sup> After industry complained about difficulties and burdens associated with the increased reporting, the FERC did not adopt that portion in the final rule.<sup>150</sup>

In addition, some self-monitoring, like CEMS, have struggled with technical concerns. For example, CEMS are subject to tampering by individual employees. In one criminal case involving a CEMS on a natural gas power plant, the general manager directed its employees, over a period of years, to tamper with the CEMS to save money, delay repairs, and avoid reporting to federal and state regulators that the Plant, at times, was releasing certain pollutants in excess of its legal limits.<sup>151</sup> However, arguments against CEMS have also been psychological. That is, regulated entities simply don't want to be watched at all times.

Another key issue of concern for regulated entities on monitoring and reporting is whether such information will be publicly available. This article

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<sup>146</sup> National Pollutant Discharge Elimination System (NPDES) Electronic Reporting Rule, 80 Fed. Reg. 64,063 (Sept. 24, 2015).

<sup>147</sup> *National Pollutant Discharge Elimination System (NPDES) Electronic Reporting Rule*, REGULATIONS.GOV, <https://www.regulations.gov/docket?D=EPA-HQ-OECA-2009-0274> (last visited Feb. 16, 2020) (showing that from the first comment period in 2013 to signing, the rule took approximately two years to finalize).

<sup>148</sup> *Data Collection for Analytics and Electronic Reporting and Market-Based Rate Purposes*, 156 FERC ¶ 61,045 (2016) (NOPR).

<sup>149</sup> Richard Glick, Commissioner, FERC, Dissent in Part Regarding Data Collection for Analytics and Surveillance and Market-Based Rate Purposes (July 18, 2019), <https://www.ferc.gov/media/statements-speeches/glick/2019/07-18-19-glick-E-1.asp#1>.

<sup>150</sup> *Id.*

<sup>151</sup> *United States v. Baker*, No. 3:15-cr-30002-MGM, 2015 WL 8216041 (D. Mass. 2015).

in, Section I, began with the premise that the information needed for detection is inside information about what happens inside a regulated entity or facility owned/operated by a regulated entity. However, as soon as such information reaches agencies, public transparency laws may dictate release of the information to the public either upon specific request, or as a matter of routine. The public accessibility of otherwise private information raises multiple issues that cannot be ignored.

At the same time, public release of monitoring and other reporting information can have a positive impact on detection (and deterrence) of corporate cheating. Monitoring and reporting data under both the DMR and CAA acid rain programs is publicly available through open web sites. The public accessibility of the data has allowed citizen groups to bring their own enforcement cases under the CWA and CAA citizen suit provisions.<sup>152</sup> Even in regulatory areas where the relevant federal statute does not have citizen suit provisions, such as the Act to Prevent Pollution from Ships (APPS), discussed below, public accessibility to monitoring and reporting data has the potential to change behavior of the regulated entity.<sup>153</sup>

#### IV. SHIPPING CASE STUDY

This section provides a detailed case study on a particular area that is ripe for mandatory self-monitoring and reporting to increase the likelihood of detection of corporate violations: the shipping industry, and the related SO<sub>2</sub> emission standards. It advocates for all relevant players within industry, government, and the public, to advance proposals to the International Maritime Organization (IMO) for requirements that all ships self-monitor using CEMS and report the data through the existing automated information system (AIS). It focuses on why regulated shipping entities in particular

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<sup>152</sup> See, e.g., *Sierra Club v. Public Service Co. of Colorado, Inc.*, 894 F. Supp. 1455, 1458 (D. Colo. 1995) (“The issue, then, is whether in this citizen’s enforcement action the CEM data and reports constitute evidence of emissions violations. If they do then no reasonable trier of fact could fail to conclude that Sierra Club has provide claims one and two of it's complaint. I conclude in light of the applicable statutory and regulatory scheme viewed in common sense fashion that the CEM data and reports constitute competent evidence of ongoing emissions violations.”).

<sup>153</sup> Neifer, *supra* note 67, at 394 (“Another benefit of publishing market information is that if market participants know that information concerning their behavior will be public, they may be less inclined to manipulate markets or exercise undue market power. For example, if information about an individual generators’ offers into an ISO-run auction market will be made public, the generator may be reluctant to submit offers for a generating unit that substantially exceed the units’ costs for fear of drawing the attention of regulators, buyers, or the public.”).

should want to advance such a proposal, despite the fact that at first glance, it may not appear to be beneficial to their financial bottom line.<sup>154</sup>

### A. Framing the Case Study

Air pollution regulations applicable to ships begins with the International Convention for the Prevention of Pollution from Ships (MARPOL).<sup>155</sup> MARPOL Annex VI handles SO<sub>2</sub> air pollution by regulating the kind of fuel that a ship can burn.<sup>156</sup> Pursuant to MARPOL Annex VI, when a ship operates in a designated “emission control area (ECA),” it cannot burn fuel with a sulfur content of greater than 0.10% (ECA standard).<sup>157</sup> Until January 1, 2020, however, when the same ship moved to operate in the high seas, outside of an ECA, it could burn a much dirtier fuel, at up to 3.5% sulfur fuel content. As of January 1, 2020, the maximum sulfur content of fuel on the open seas dropped to 0.50% (2020 global standard).<sup>158</sup>

While the basic SO<sub>2</sub> requirements seem clear, MARPOL contains many complicating factors for determining potential non-compliance. First, a ship does not need to comply directly with the ECA standard or the 2020 global standard if it is equipped with an approved onboard stack gas “scrubber” system.<sup>159</sup> Second, operators can use an acceptable alternative

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<sup>154</sup> This article uses the term “regulated shipping entities” generally to denote the particular shipping company or companies that are responsible for compliance with SO<sub>2</sub> standards. The authors acknowledge that there might be multiple kinds of shipping companies ultimately responsible for compliance, including owners, operators, charters, etc. but uses the more general term “regulated shipping entities” for ease and to in order to make the broader points in this article.

<sup>155</sup> All ships that are registered or flagged in a country that is party to MARPOL, must abide by MARPOL requirements. Over 170 countries are party to MARPOL, including the United States. IMO, STATUS OF IMO TREATIES 111–15 (2020), <http://www.imo.org/en/About/Conventions/StatusOfConventions/Documents/Status%20-%202020.pdf>.

<sup>156</sup> Bunker fuel—the fuel typically used in large ocean-going ships—is a mixture of petroleum-based fuel oils. Heavy fuel oil typically has higher sulfur content than distillate fuels, such as marine gas oil, which is similar in sulfur content to diesel.

<sup>157</sup> An ECA is defined as a boundary at a distance from a country’s shoreline, within which additional air pollution requirements apply. MARPOL includes 4 ECA’s: the North American ECA, the North Sea ECA, the Baltic Sea ECA, and the Caribbean ECA. Other countries may opt to create or join an ECA. For example, China has formed an domestic ECA for the South China Sea, and may seek IMO approval to create an ECA under MARPOL.

<sup>158</sup> This article does not delve into the merits of the fuel-based standards. One could argue, for example, that movement to an emissions-based standard would be better, so that ships have to meet a certain level of SO<sub>2</sub> pollution on average over a specified time period, and the compliance mechanism does not matter. However, that is not the issue addressed by this article.

<sup>159</sup> A scrubber is a piece of equipment that sprays alkaline water into a ship’s exhaust to

marine fuel such as liquefied natural gas (LNG) or methanol, instead of meeting the ECA standard or the 2020 global fuel standard.<sup>160</sup> In addition, operators may receive special enforcement considerations if they can demonstrate that fuel that is compliant with the ECA standard or the 2020 global standard was not available and if the operator submits a fuel oil non-availability report to the incoming port of call.<sup>161</sup> Thus, determining compliance with MARPOL SO<sub>2</sub> requirements is not always clear.

The incentive for regulated shipping entities to cheat on SO<sub>2</sub> standards is high, because of the extreme price differentials between compliant and noncompliant fuels. For example, in early September 2019, ECA compliant fuel was almost twice as expensive as world-wide fuel for a ship fueling in Rotterdam, a major fueling port.<sup>162</sup> As stated by one researcher, “non-compliance may be the No. 1 response to the new standards. . . . You make money by being non-compliant . . . .”<sup>163</sup> An official from one major shipping company stated in an anonymous telephone interview that it will cost the company \$300 million per year to comply. The economic incentives to cheat here cannot be underestimated.

At a December 2019 public hearing held by USCG, the Vice President of Environmental Policy at the World Shipping Council, a trade industry association, warned that minimal enforcement of new SO<sub>2</sub> air pollution standards coming into effect in 2020, would likely result in corporate cheating.<sup>164</sup> The industry needs a reason to comply, he said.<sup>165</sup> Further, as one practitioner writes, the 2020 global standard will displace more than two million barrels per day of high sulfur fuel from the global marine fuel pool in the first year of the rule’s implementation, assuming effective enforcement measures that will minimize cheating.<sup>166</sup> As one analysis shows, “despite the

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remove sulfur and other unwanted chemicals.

<sup>160</sup> *Broadly Applicable Approved Alternative Test Methods*, U.S. EPA, <https://www.epa.gov/emc/broadly-applicable-approved-alternative-test-methods> (last visited Feb. 16, 2020).

<sup>161</sup> *Sulphur 2020 Implementation – IMO Issues Additional Guidance*, IMO (May 20, 2019), <http://www.imo.org/en/MediaCentre/PressBriefings/Pages/10-MEPC-74-sulphur-2020.aspx>.

<sup>162</sup> *Rotterdam Bunker Prices, SHIP & BUNKER*, <https://shipandbunker.com/prices/emea/nwe/nl-rtm-rotterdam#VLSFO> (last visited Feb. 28, 2020). For example, IFO 380, was reported to cost \$280/MT, while VLSFO was reported to cost \$500/MT.

<sup>163</sup> Laura Blewitt, *World’s Dirtiest Fuel Seen Holding Out Even as Ships Clean Up*, BLOOMBERG (May 11, 2017, 5:46 PM), <https://www.bloomberg.com/news/articles/2017-05-09/world-s-dirtiest-fuel-seen-holding-out-even-as-ships-clean-up>.

<sup>164</sup> Notice of Public Meeting on Consistent Implementation of Regulation 14.1.3 of MARPOL Annex VI (Global 0.50% Sulfur Limit), 84 Fed. Reg. 64094 (Nov. 20, 2019).

<sup>165</sup> *Id.*

<sup>166</sup> Ralph Grimmer, *Expected Pricing and Economic Impacts of the IMO 2020 Rule*,

widespread knowledge of the new global sulfur mandate, many analysts are predicting between 10%–20% non-compliance in the first year of implementation. This is a staggeringly high percentage given that environmental regulatory agencies in the developed world pride themselves on upwards of 99% compliance with environmental laws in their respective countries.”<sup>167</sup>

Indeed, while the EU has reported a less than 5% noncompliance rate, it is unclear as to whether the low percentage truly illustrates low corporate cheating, or instead the difficulty in detecting non-compliance.<sup>168</sup> For example, the USCG has assumed low violation rates in analyzing the shipping industry’s compliance with SO<sub>2</sub> air pollution regulations.<sup>169</sup> However, the USCG conducts very little actual testing.<sup>170</sup> As a result, the real rate may be quite a bit higher. In contrast, The Netherlands, in its 2017 report on SO<sub>2</sub> compliance, shows a violation rate of 21% for ships where samples were taken and analyzed.<sup>171</sup> These ships in violation represented about 5% of all ships where the Netherlands authorities conducted on-board inspections. Additionally, Denmark reports a total violation rate of about 5%, and as high as 8%.<sup>172</sup> This is not a trivial violation rate.

Cheating on the SO<sub>2</sub> standards in shipping has significant implications for public health and natural resources. Scientists have long

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STILLWATER ASSOCIATES (July 11, 2018), <https://stillwaterassociates.com/expected-pricing-and-economic-impacts-of-the-imo-2020-rule/>.

<sup>167</sup> *IMO 2020 Enforcement: Magic Pipe Cases All-Over Again?*, HELLENIC SHIPPING NEWS (Nov. 28, 2019), <https://www.hellenicshippingnews.com/imo-2020-enforcement-magic-pipe-cases-all-over-again/>.

<sup>168</sup> INT’L TRANSPORT FORUM, REDUCING SULPUR EMISSIONS FROM SHIPS: THE IMPACT OF INTERNATIONAL REGULATION 41 (2016), <https://www.itf-oecd.org/sites/default/files/docs/sulphur-emissions-shipping.pdf>.

<sup>169</sup> Gary Wollenhaupt, *IMO: Ships Violating New Sulfur Cap Could Be Labeled ‘Unseaworthy,’* PROF. MARINER (Feb. 28, 2018, 3:19 PM), <http://www.professionalmariner.com/March-2018/IMO-Ships-violating-new-sulfur-cap-could-be-labeled-unseaworthy/> (“The USCG has seen good compliance with the 2015 0.1 percent sulfur cap and we intend to continue using the same process (for enforcement),” Rand said).

<sup>170</sup> *U.S. Pilot Suggests Good Supplier Compliance with ECA Sulphur Limit*, INT’L BUNKER INDUSTRY ASS’N (July 29, 2016), <https://ibia.net/us-pilot-suggests-good-supplier-compliance-with-eca-sulphur-limit/> (noting the Coast Guard’s reluctance to collect and test fuel samples).

<sup>171</sup> The Netherlands report shows this rate as 6.7%, because they exclude results between .10% and 0.13%. Inspectie Leefomgeving en Transport, Ministerie van Infrastructuur en Milieu, Netherlands Yearly Report on Sulphur Inspections, Report on Sulphur Compliance Data of the Netherlands – 2017 (2017).

<sup>172</sup> *See Enforcement 2020 – Regional and Global Perspectives* (Oct. 17-18, 2019), <http://www.imo.org/en/About/Events/Documents/sulphur%202020%20and%20alternative%20fuels/1-3%20-%20DK%20IMO%202020%20symposium-final.pdf>.

documented the huge deleterious human health impacts from SO<sub>2</sub>.<sup>173</sup> SO<sub>2</sub> is also a precursor for particulate matter pollution, and several densely populated urban areas of the United States and worldwide already have unhealthy levels of particle pollution.<sup>174</sup> Ships are a large contributor to SO<sub>2</sub> pollution overall, and emissions from ocean going ships affect large areas. Indeed, during the formation of the North American ECA, the EPA estimated that annual benefits in 2020 would include preventing between 5,500 and 14,000 premature deaths, 3,800 emergency room visits, and 4,900,000 cases of acute respiratory symptoms in 2020.<sup>175</sup> The agency expected that coastal areas would experience the largest improvements, but that significant improvements would extend hundreds of miles inland to reach nonattainment areas in states such as Nevada, Tennessee and Pennsylvania.<sup>176</sup> CARB has reported that air quality data indicate that ship emissions find their way onshore up to 102 miles from California's coast.<sup>177</sup> Multiplying the pollution level of one ship times the number of ships worldwide, gives an indication of the enormity of the impact of SO<sub>2</sub> pollution from the industry as a whole—the fifteen largest ships in the world, when operated with high sulfur fuel, emitted more SO<sub>2</sub> than all cars on the planet, combined.<sup>178</sup>

Cheating in shipping also has significant implications for the creation of a level playing field in the industry. Several large shipping companies are so worried that without a robust check of ships, they will be at a competitive disadvantage, that they have formed an alliance whose mission it is to push government agencies for increased enforcement. The stated mission of the Trident Alliance is to promote the common interest of environmental and human health protection, as well as “maintain fair competition” and creating

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<sup>173</sup> SO<sub>2</sub> is a lung irritant that can harm the human respiratory system and make breathing difficult. Perhaps more importantly, SO<sub>2</sub> reacts in the atmosphere to form fine particles. *Sulfur Dioxide Basics*, U.S. EPA, <https://www.epa.gov/so2-pollution/sulfur-dioxide-basics#effects> (last visited Feb. 13, 2020). Fine particle pollution can cause a host of health problems, including cardiac and lung problems, and is a particular problem for asthmatics. *Health and Environmental Effects of Particulate Matter (PM)*, U.S. EPA, <https://www.epa.gov/pm-pollution/health-and-environmental-effects-particulate-matter-pm> (last visited Feb. 13, 2020).

<sup>174</sup> *Green Book PM-2.5 (2012) Area Information*, U.S. EPA, <https://www.epa.gov/green-book/green-book-pm-25-2012-area-information> (last visited Feb. 13, 2020).

<sup>175</sup> U.S. EPA, Office of Transp. and Air Quality, *Designation of North American Emission Control Area to Reduce Emissions from Ships 5* (2010), <https://nepis.epa.gov/Exec/zyPDF.cgi/P100AU0I.PDF?Dockey=P100AU0I.PDF>.

<sup>176</sup> *Id.*

<sup>177</sup> CAL. AIR RES. BD., APPENDIX B: ARB'S LEGAL AUTHORITY B-3, <https://ww3.arb.ca.gov/regact/2008/fuelogv08/appbfuel.pdf>.

<sup>178</sup> The largest fifteen ships on the planet running on high-sulfur fuel emit more sulfur oxides than all cars on the planet combined. *Shipping Facts*, INT'L CHAMBER OF SHIPPING, <https://www.ics-shipping.org/shipping-facts/shipping-facts> (last visited Feb. 13, 2020).



a “level playing field for business.”<sup>179</sup> Maersk, a Trident Alliance member, in particular has stated, “an unclear legal framework, no dissuasive sanctions, inadequate detection methods and limited resources have created a window for risk-free noncompliance with the upcoming global cap. In the 2015 ECA zone . . . Only 30% of violations were sanctioned, which is just silly.”<sup>180</sup>

### B. USCG/EPA Detection

Implementation of MARPOL Annex VI is entirely through the domestic agencies of member countries. In the United States, the key implementing statute is the Act to Prevent Pollution from Ships (APPS), which provides primary regulatory authority to the USCG and secondary authority to the EPA.<sup>181</sup> In particular, EPA has served a cooperative role with the USCG on enforcement, and provided input on applications coming from regulated shipping entities requesting alternative compliance mechanisms.<sup>182</sup> Furthermore, some states, like California, have further restrictions on air pollution from ships.<sup>183</sup>

Detection of SO<sub>2</sub> violations occurs at the port of call for ships entering into a specific country. Inspections of foreign-registered ships are referred to as port state control, and are usually conducted by the country’s maritime

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<sup>179</sup> *Who We Are*, TRIDENT ALLIANCE, <http://www.tridentalliance.org/who-we-are> (last visited Feb. 13, 2020).

<sup>180</sup> NED MOLLOY, THE IMO’S 2020 GLOBAL SULFUR CAP: WHAT A 2020 SULFUR-CONSTRAINED WORLD MEANS FOR SHIPPING LINES, REFINERIES AND BUNKER SUPPLIERS 9 (2016), <https://www.isemar.fr/wp-content/uploads/2017/01/SR-IMO-2020-Global-sulfur-cap-102016.pdf>.

<sup>181</sup> Act to Prevent Pollution from Ships, 33 U.S.C. §§ 1905-1915 (2019).

<sup>182</sup> EPA and the USCG have established an MOU governing their enforcement relationship. The latest iteration of that MOU can be found at *Revised Protocol on Referrals under MARPOL Annex VI, as Implemented by APPS*, U.S. EPA & U.S. COAST GUARD (June 20, 2019), <https://www.epa.gov/sites/production/files/2019-07/documents/annexvifonarrevreferralprotocolfinaljointexecuted.pdf>. In addition, to see an example of the kind of “alternative compliance method” granted to one regulated shipping company, see *TOTE Granted ECA Exemption During LNG Conversion*, SHIP & BUNKER (Aug. 8, 2012), <https://shipandbunker.com/news/am/385950-tote-granted-eca-exemption-during-lng-conversion>.

<sup>183</sup> Federal authorization under the Clean Air Act (CAA) is required for regulating new marine engines and for requiring retrofits on existing engines. However, no CAA authorization is required for implementing in-use operational requirements on existing marine ship engines. Further, federal cases have supported a state’s authority to protect the state’s air quality by imposing operational requirements on ship operators carrying out activities in the state and U.S. territorial waters, as well as on the high seas, in certain circumstances. See *Chevron USA, Inc. v. Hammond*, 726 F.2d. 483 (9th Cir. 1984) (upholding Alaska’s regulatory scheme, which imposed requirements on ships for the purpose of water pollution control).

agency, such as the USCG.<sup>184</sup> The overall goal of port state control is to verify that the condition of the ship and its equipment complies with the requirements of international conventions, like MARPOL.<sup>185</sup> Thus, port state control conducts checks for compliance with multiple environmental laws and regulations at the same time, involving air pollution, water pollution, and oily discharge. Further, port state control is in charge of checking for compliance with numerous safety-oriented regulations.

Port state control inspections for SO<sub>2</sub> standards in the United States are largely a paper check. That is, the USCG job aid protocol for inspectors only requires that port state control inspectors check to see if fuel purchase documents reflect that the ship purchased compliant fuel.<sup>186</sup> Inspectors do not verify that the ship actually burned such fuel. Nor do inspectors verify when the ship began burning such fuel. Thus, in theory, the ship could have purchased compliant fuel, but also purchased non-compliant fuel and burned that instead. Or, the ship could have purchased compliant fuel, but only burned it a few miles away from coming into port, in case it was at risk of inspection, but not at the 200 NM entry point to the North American ECA, for example. Only with some kind of verification, like actually sampling and testing the fuel during an inspection, would inspectors be able to truly assess whether the ship burned compliant fuel, as opposed to simply purchasing it. Indeed, the USCG 2017 and 2018 port state control inspection reports do not list any detected violations of SO<sub>2</sub> fuel standards.<sup>187</sup> It is unclear as to whether this is because all regulated ships were compliant in these years, or whether the inspection protocol is simply too weak to detect cheating.

International law does impose restrictions on port state control's ability to conduct any more extensive inspections of ships, including anything involving testing of fuel. The Law of the Sea Convention (UNCLOS), widely recognized as the general legal framework within which all activities in the oceans and seas must be carried out, provides that any physical inspection of

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<sup>184</sup> PSC is an inspection system for countries to inspect foreign ships in ports other than those of the flag state, where the ship is registered. IMO originally intended PSC inspections to be a back up to inspections that were supposed to happen by the country where a ship is registered or licensed, the flag state. However, PSC inspection has become the primary means for implementation because flag state inspection has been woefully inadequate. *Port State Control*, IMO, <http://www.imo.org/en/OurWork/MSAS/Pages/PortStateControl.aspx> (last visited Feb. 13, 2020); ANTOINE HALFF, COLUM. SIPA, SLOW STEAMING TO 2020: INNOVATION AND INERTIA IN MARINE TRANSPORT AND FUELS 22 (2017).

<sup>185</sup> *Port State Control*, LLOYD'S REG., [www.lr.org/en/port-state-control](http://www.lr.org/en/port-state-control) (last visited Feb. 13, 2020).

<sup>186</sup> U.S. Coast Guard, Office of Commercial Vessel Compliance, ECA Job Aid 1 (2012), [https://homeport.uscg.mil/Lists/Content/Attachments/891/ECA\\_Job\\_Aid\\_3.pdf](https://homeport.uscg.mil/Lists/Content/Attachments/891/ECA_Job_Aid_3.pdf).

<sup>187</sup> U.S. COAST GUARD, PORT STATE CONTROL IN THE UNITED STATES (2018), <https://www.dco.uscg.mil/Portals/9/DCO%20Documents/5p/CG-5PC/CG-CVC/CVC2/psc/AnnualReports/annualrpt18.pdf>.

a foreign ship shall be limited to an examination of certificates, records, and documents.<sup>188</sup> However, and most importantly, UNCLOS instructs that physical inspection of the ship may be undertaken when there are *clear grounds* to do so.<sup>189</sup> Guidance documents provide that clear grounds exist when a port state control inspector finds evidence warranting such an inspection.<sup>190</sup> Such evidence could include missing or invalid documentation, evidence that the master or crew are not familiar with shipboard operations, or that the quality of fuel oil, delivered to and used on board the ship appears to be substandard.<sup>191</sup> USCG relies on such case-by case information, including informant tips, to establish clear grounds for physical inspection.<sup>192</sup> Several of the USCG’s most well-known cases, including violations of oil-discharge regulations from “magic-pipes,” began with tips from whistleblowers.

In practice, port authorities around the world, interpret clear grounds differently. Interestingly, the EU member countries, Canada, and Hong Kong routinely inspect and sample fuel for verification, even when there is no obvious clear grounds indication of a violation at a particular ship. The European Union, in particular, requires member states to test the sulfur content of fuel for a specified percentage of inspected ships, depending on whether or not the member state borders a sulfur emission control area.<sup>193</sup> Similarly, Transport Canada, the enforcement agency for Canada’s ECA, routinely obtains and tests fuel during its port state exams.<sup>194</sup>

On occasion, the USCG port state control has conducted *voluntary* sampling programs. In 2016, for example, the USCG conducted a two-week

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<sup>188</sup> U.N. Convention on the Law of the Sea, art. 226, Dec. 10, 1982, 1833 U.N.T.S. 397.

<sup>189</sup> Similarly, MARPOL states that any inspection shall be limited to verifying that there is on board a valid certificate, unless there are clear grounds for believing that the condition of the ship or its equipment does not correspond substantially with the particulars of that certificate, see International Convention for the Prevention of Pollution from Ships, art. 5, Feb. 17, 1973, 1340 U.N.T.S. 61. SOLAS also states that certificates, if valid, shall be accepted unless there are clear grounds for believing that the condition of the ship or of its equipment does not correspond substantially with the particulars of any of the certificates or that the ship, see International Convention for the Safety of Life at Sea, ch. V, Reg. 19, 1184 U.N.T.S. 3, *entered into force* May 25, 1980.

<sup>190</sup> U.N. Convention on the Law of the Sea, art. 220, Dec. 10, 1982, 1833 U.N.T.S. 397; IMO, 30th Sess., Res. 1119, at 10 (Dec. 6, 2017).

<sup>191</sup> *Mission Management System Work Instruction*, U.S. COAST GUARD OFFICE OF COM. VESSEL COMPLIANCE (Jan. 13, 2020), [https://www.dco.uscg.mil/Portals/9/DCO%20Documents/5p/CG-5PC/CG-CVC/CVC\\_MMS/CVC-WI-022\\_signed.pdf](https://www.dco.uscg.mil/Portals/9/DCO%20Documents/5p/CG-5PC/CG-CVC/CVC_MMS/CVC-WI-022_signed.pdf).

<sup>192</sup> *Enforcing Maritime Laws: Roles of Private Citizens*, ENVTL. L. INST. (Apr. 16, 2019), <https://www.eli.org/events/enforcing-maritime-laws-role-private-citizens>.

<sup>193</sup> 2015 O.J. (L 41) 253, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32015D0253>.

<sup>194</sup> U.N. Convention on the Law of the Sea, art. 226, Dec. 10, 1982, 1833 U.N.T.S. 397.

sampling program at the Port of Baltimore and the Port of Los Angeles/Long Beach as a pilot test. A public blog post by Rear Admiral Paul F. Thomas of the USCG, after the sampling, said that the voluntary fuel sampling and testing pilot was “initiated in response to industry concern.”<sup>195</sup> The inspectors asked ship masters for permission to sample, and informed ships that they would not receive sanctions if the voluntary samples were non-compliant.<sup>196</sup> Inspectors in the program asked forty-seven ships to participate. Ten of the forty-seven ships declined. The USCG took two samples each from thirty-seven ships, for seventy-four samples. EPA inspectors joined the CG inspectors in the sampling program and used portable fuel samplers to test fuel on site. The results of the USCG port state control voluntary sampling demonstrate the existence of cheating, and the need for involuntary sampling. Six of the thirty-seven ships had non-compliant fuel. Also telling is that all the bunker delivery notes, including the six non-compliant ships, stated that the fuel was compliant, at 0.10% sulfur or less.<sup>197</sup> Further, ten of forty-seven, or over 20% of the ships, did not provide consent for the USCG to sample at all. The USCG has not conducted another pilot since 2016.

Without inspection and sampling of fuel, detection and deterrence of SO<sub>2</sub> violations remains severely limited. Ship operators are unlikely to have record books or bunker delivery notes documenting that fuel used on board is non-compliant.<sup>198</sup> Bunker delivery notes are known to contain irregularities and fraud.<sup>199</sup> Individual ship operators may have also falsified other on board records, such as the fuel change over logs, in order to attempt to conceal cheating.<sup>200</sup> Without a specific tip, however, the USCG port state control process is simply to board a ship, on occasion, and, check the bunker delivery note to see if it appears the ship received compliant fuel, and to review

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<sup>195</sup> *U.S. Pilot Suggests Good Supplier Compliance with ECA Sulphur Limit*, INT’L BUNKER INDUSTRY ASS’N (July 29, 2016), <https://ibia.net/us-pilot-suggests-good-supplier-compliance-with-eca-sulphur-limit/>.

<sup>196</sup> *Voluntary Vessel Fuel Oil Sampling Program*, U.S. COAST GUARD (Feb. 1, 2016), [https://www.dco.uscg.mil/Portals/9/DCO%20Documents/5p/MSIB/2016/003\\_16\\_2-17-2016.pdf](https://www.dco.uscg.mil/Portals/9/DCO%20Documents/5p/MSIB/2016/003_16_2-17-2016.pdf).

<sup>197</sup> *Id.*

<sup>198</sup> See HALFF, *supra* note 184, at 22.

<sup>199</sup> INT’L TRANSPORT FORUM, REDUCING SULPHUR EMISSIONS FROM SHIPS: THE IMPACT OF INTERNATIONAL REGULATION 41 (2016), <https://www.itf-oecd.org/sites/default/files/docs/sulphur-emissions-shipping.pdf>. See HALFF, *supra* note 184, at 22; FRED A FUNG, NRDC, ENFORCEMENT OF FUEL SWITCHING REGULATIONS PRACTICES ADOPTED IN THE US, EU AND OTHER REGIONS, AND LESSONS LEARNED FOR CHINA 4 (2016), [https://www.nrdc.org/sites/default/files/enforcement-of-fuel-switching-regulations-practices-adopted-in-the-us-eu-and-other-regions-and-lessons-learned-for-china\\_2017-12-18.pdf](https://www.nrdc.org/sites/default/files/enforcement-of-fuel-switching-regulations-practices-adopted-in-the-us-eu-and-other-regions-and-lessons-learned-for-china_2017-12-18.pdf).

<sup>200</sup> FUNG, *supra* note 199, at 1.

documents to determine if the records show the ship changed fuel at the appropriate location.<sup>201</sup>

### C. Self-Monitor and Report

Regulated shipping entities, particularly through the Trident Alliance, have already been able to advocate for regulatory changes to help agencies increase detection of corporate cheating with SO<sub>2</sub> standards. In particular, the IMO passed a fuel carriage ban, which became effective on March 1, 2020. Under the ban, ships are no longer allowed to carry non-compliant fuel on board for use in operating the ship.<sup>202</sup> Thus, the theory is, if a ship is subject to USCG inspection at port, the inspector can simply look to see if non-compliant fuel is on board, then sampling is not required. The carriage ban has been lauded as a success story in helping make agency detection of cheating much easier. Indeed, that is true, and demonstrates how effective the voices of regulated shipping entities can be.

However, the carriage ban is not enough to support detection of corporate cheating. Regulated entities and corresponding trade associations continue to push for increased agency involvement. In part, the carriage ban does not apply to ships with scrubbers, and as a result, some argue that a ship could invest in a scrubber to avoid paying the high costs of compliant fuel, but not actually operate the scrubber, causing significant emissions in excess of the SO<sub>2</sub> standards. Moreover, because port state control inspectors cannot check every ship that comes into port, regulated shipping entities may decide to take the risk and carry and burn noncompliant fuel. The high economic incentive is tempting, particularly given that regulated shipping entities may be able to guess when they will be subject to inspections, which typically occur on a relatively scheduled basis.<sup>203</sup>

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<sup>201</sup> See HALFF, *supra* note 184, at 5; Letter from Capt. E.P. Christensen, U.S. Coast Guard, on Guidelines for Ensuring Compliance with Annex VI to MARPOL 73/78 (Feb. 4, 2009), [https://www.dco.uscg.mil/Portals/9/DCO%20Documents/5p/CG-5PC/CG-CVC/Policy%20Letters/2009/CG-543\\_pol09-01.pdf](https://www.dco.uscg.mil/Portals/9/DCO%20Documents/5p/CG-5PC/CG-CVC/Policy%20Letters/2009/CG-543_pol09-01.pdf).

<sup>202</sup> Press Release, Int'l Maritime Org., Implementation of Sulphur 2020 Limit – Carriage Ban Adopted (Oct. 26, 2018), <http://www.imo.org/en/MediaCentre/PressBriefings/Pages/19-Implementation-of-sulphur-2020-limit-.aspx>. Note, exception remains that ship may carry and use non-compliant fuel if it falls within an approved exception as discussed in Section IV.A of this article, for example if the ship has a scrubber.

<sup>203</sup> See Malcolm Latarche, *Policing IMO Regulations — the Role of Port State Control*, SHIPINSIGHT (Apr. 27, 2018), <https://shipsinsight.com/articles/policing-imo-regulations> (describing historically lax enforcement of IMO rules); LT Amy Midgett, *6/18/2018: Posidonia 2018 – Coast Guard perspective on IMO 2020 Sulphur Cap*, COAST GUARD MARITIME COMMONS (June 18, 2018), <https://mariners.coastguard.dodlive.mil/2018/06/18/6-18-2018-posidonia-2018-coast->

This article therefore recommends that regulated shipping entities, perhaps again through the Trident Alliance, advocate for more. Regulated shipping entities should specifically advocate for requirements that *all* ships monitor SO<sub>2</sub> using CEMS report those data via AIS. CEMS requirements for all ships would likely require new IMO guidance, and perhaps changes to MARPOL itself.<sup>204</sup> While many regulated shipping companies and trade associations are resistant to the idea of required CEMS,<sup>205</sup> there is no question that use of CEMS would make a dramatic difference in agency ability to detect cheating.<sup>206</sup>

CEMS provide needed ongoing information to agencies to detect not just cheating, but minor, or inadvertent violations as well. The same fear existed amongst regulated entities during EPA's 1997 proposal of the compliance assurance monitoring rule.<sup>207</sup> During development of the rule, industry groups commented "because increased data is supplied to the government under . . . CEMS requirements, industry believes that the EPA, states, and citizen groups will bring enforcement actions for minor violations."<sup>208</sup> Industry also commented that monitoring that might reflect slight deviations from emissions standards due to operational variations or other unavoidable causes will be used against the source to prove minor short-term CAA violations.<sup>209</sup> Indeed, pervasive use of CEMS will surface deviations and violations that could not be detected with cruder methods. Most enforcement authorities give considerable latitude to industrial sources that discover and rapidly correct such deviations and violations, as long as they disclose them, and put in place procedures to prevent recurrence.<sup>210</sup>

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guard-perspective-on-imo-2020-sulphur-cap/ (explaining the Coast Guard conducts regularly scheduled Port State Control exams, which includes Annex VI compliance checks)

<sup>204</sup> The ability for nations on their own to require CEMS on all vessels is not the subject of this article, though it is a question worth pursuing. Similarly, it remains to be seen whether state governments in the United States could require CEMS on all vessels coming into specific ports.

<sup>205</sup> Opinion, *Emissions Monitoring: Ensuring a Level Playing Field Post-2020*, RIVIERA MAR., (Sept. 17, 2018), <https://www.rivieramm.com/opinion/emissions-monitoring-maintaining-a-level-playing-field-post-2020-23341> (There remains some considerable resistance among many flag states and shipowner associations to the mandatory use of CEMS).

<sup>206</sup> *Id.* ("There is no doubt that emissions monitoring can be an important tool in the enforcement of the sulphur rules.")

<sup>207</sup> COMPLIANCE ASSURANCE MONITORING RULEMAKING (40 CFR PARTS 64, 70 AND 71); RESPONSES TO PUBLIC COMMENTS (PART I) 401 (1997). The rule was finalized in October 1997. Compliance Assurance Monitoring, 62 Fed. Reg. 54,900 (Oct. 22, 1997).

<sup>208</sup> Arnold W. Reitze, Jr. & Steven D. Schell, *Self-Monitoring and Self-Reporting of Routine Air Pollution Discharges*, 24 COLUM. J. ENVTL. L. 63, 130 (1999) (citing to 62 Fed. Reg. at 54,902).

<sup>209</sup> *Id.*

<sup>210</sup> Moreover, while not the focus of this article, agencies have significant enforcement

Moreover, CEMS on ships are now technically feasible and inexpensive.<sup>211</sup> For a long time, there have been concerns that because CEMS are placed in or near the exhaust of ships, they are subject to extremes of temperature, acidity, vibration, erosion, and the corrosive effects of salt air.<sup>212</sup> However, ships operating with scrubbers have been using CEMS since approximately 2012, and have been able to accurately analyze exhaust gases from the combustion of fuel in real time, automatically record all information, and display the information on a computer screen in the ship's engine room.<sup>213</sup> The ships with scrubbers and CEMS already have, and continue to, provide feedback to CEMS manufactures, so newer generations of CEMS are increasingly more reliable and durable. Further, regulated shipping entities that have experience with scrubbers and CEMS can and should propose technical guidance on the operation of scrubbers to the IMO. Such technical guidance could be modeled in part on the experience of operationalizing CEMS on ships, but also incorporate lessons learned from the use of CEMS on land based pollution sources. For example, the EPA has long had missing data regulations for land-based sources with CEMS, which provide operators with specific sampling procedures to use that will conservatively estimate emissions data during the time that a CEMS is down.<sup>214</sup> Further, the cost to install and use a CEMS is relatively minor, and not a major argument against

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discretion and penalty discretion after detection of violations. *See, e.g.*, the Clean Water Act, 33 U.S.C. § 1319(d) (2019) and the Clean Air Act, 42 U.S.C. § 7413 (2019).

<sup>211</sup> *Parker Kittiwake – Procal Expands Emissions Monitoring Systems' Global Distribution, Service Capability*, SHIP & BUNKER (Sept. 8, 2015), <https://shipandbunker.com/news/world/543836-parker-kittiwake-procal-expands-emissions-monitoring-systems-global-distribution-service-capability>; *Parker Kittiwake Doubles Production of Emissions Monitoring Systems*, SHIP & BUNKER (Nov. 14, 2014), <https://shipandbunker.com/news/emea/627337-parker-kittiwake-doubles-production-of-emissions-monitoring-systems> (describing a “sizeable increase” in demand for CEMS among the shipping industry); Memorandum from John B. Rasnic, Director, Office of Air Quality Planning and Standards, to Jehuda Menczel, Chief, New Jersey/Caribbean Section (June 8, 1992), <https://archive.epa.gov/airquality/ttnsr01/web/pdf/memo-d-2.pdf>.

<sup>212</sup> Sensor manufacturer SICK's strategic industry manager Hinrich Brumm said: “The CEMS technology came from onshore and was not always suitable in the harsh marine environment. However, as a manufacturer, this led us to develop a new CEMS especially for marine use and for undergoing type approvals.” Opinion, *Emissions Monitoring: Ensuring a Level Playing Field Post-2020*, RIVIERA MARITIME (Sept. 17, 2018), <https://www.rivieramm.com/opinion/emissions-monitoring-maintaining-a-level-playing-field-post-2020-23341>.

<sup>213</sup> *ECA Compliance Through Continuous Emission Monitoring*, GREENPORT (Sept. 23, 2014), <https://www.greenport.com/news101/opinion/eca-compliance-through-continuous-emission-monitoring>.

<sup>214</sup> *See* 40 C.F.R. § 75.33 (2020). Standard missing data procedures for SO<sub>2</sub>, NO<sub>x</sub>, and flow rate.

CEMS requirements.<sup>215</sup> Indeed, one company has quoted the price for a CEMS to be €43,000.<sup>216</sup>

In addition, CEMS can identify mechanical problems for ship operators. Environmental engineers who have experience operating CEMS with land-based sources, have discovered that CEMS are helpful to discover violations and take corrective action. In one case involving a facility, an engineer discovered that a large piece of machinery and its control equipment suddenly stopped functioning properly, causing the facility to fall out of compliance with its permit.<sup>217</sup> The CEMS allowed the manager to proactively move to minimize the impact of the malfunction.<sup>218</sup> In addition, the CEMS provided concrete records of exactly how long the malfunction lasted, allowing the manager to accurately explain the non-compliance to the EPA.<sup>219</sup> Ultimately, the manager would have estimated more than triple the noncompliance period if he didn't have CEMS data to back himself up.<sup>220</sup>

Finally, current agency efforts to monitor ship SO<sub>2</sub> emissions remotely, while useful, are not sustainable. To be sure, several EU countries have had very successful detection results from remote monitors on bridges that ships pass under when coming into specific ports. In one example, the Danish maritime agency was able to discover a potential violation after a remote monitor, located on the Great Belt Bridge, under which pass ships travelling between Norway and Germany, had detected higher than permitted readings.<sup>221</sup> The Danish maritime agency alerted the Norwegian maritime agency, which made a spot check inspection upon the ship's arrival in Oslo.

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<sup>215</sup> The capital cost for an SO<sub>2</sub> CEMS on a small diesel unit for example, is about \$120,000, with an annual operation and maintenance cost of \$30,000. See Memorandum from John B. Rasnic, Director, Office of Air Quality Planning and Standards, to Jehuda Menczel, Chief, New Jersey/Caribbean Section (June 8, 1992), <https://archive.epa.gov/airquality/ttnsr01/web/pdf/memo-d-2.pdf> (estimate from Kilkelley Environmental Associates). In addition, telephone interviews with CEMS manufacturers for vessels in particular have estimated a similar cost for the marine industry.

<sup>216</sup> Ship and Bunker News Team, *2020 Sulfur Cheats: Can Monitoring the Emissions of the Entire Global Fleet Ever Be Possible? This Company Says "Yes,"* SHIP & BUNKER (Sept. 20, 2017), <https://shipandbunker.com/news/features/industry-insight/182646-2020-sulfur-cheats-can-monitoring-the-emissions-of-the-entire-global-fleet-ever-be-possible-this-company-says-yes>

<sup>217</sup> Gary Vegh, *CEMS: Why Every Minute Matters for Environmental Compliance*, EHS TODAY (Aug. 16, 2012), <https://www.ehstoday.com/environment/article/21915590/cems-why-every-minute-matters-for-environmental-compliance>.

<sup>218</sup> *Id.*

<sup>219</sup> *Id.*

<sup>220</sup> The non-compliance period, or length of the violation, is often one of many factors that agencies use in ultimately calculating a penalty. See, e.g., APPS, 33 U.S.C. § 1908(b)(2).

<sup>221</sup> Opinion, *Emissions Monitoring: Ensuring a Level Playing Field Post-2020*, RIVIERA MARITIME (Sept. 17, 2018), <https://www.rivieramm.com/opinion/emissions-monitoring-maintaining-a-level-playing-field-post-2020-23341>.



Ultimately, the Norwegian maritime agency issued the largest SO<sub>2</sub> ECA penalty to date to that ship, which came into the port of Oslo, Norway, from Kiel, Germany.<sup>222</sup> While information from the remote monitor at the Great Belt Bridge has not been used as evidence in a court proceeding, clearly, the information gained from remote monitors supports the targeting of ships that should be slated for port inspection.<sup>223</sup> However, remote monitors on bridges, while useful for detection within emission control areas, will not be useful to detect cheating with IMO 2020 open water standards. There are simply no bridges in the middle of the ocean. Further, results from information gained at the Great Belt Bridge fixed monitor show a generally higher SO<sub>2</sub> content far from shore than right under the monitor, implying that some ships change to compliant fuel just before passing under the bridge rather than at the required 200 nm mark.<sup>224</sup>

Recognizing the limited capabilities of remote monitors on bridges, several EU countries, and Hong Kong, are in the process of experimenting with remote monitors on drones, and satellites. In particular, both the Norway's maritime authority and the Danish environmental agency have started experimental trials with drones.<sup>225</sup> Government agencies in Hong Kong also are conducting trials using drones.<sup>226</sup> The Finnish Meteorological Institute has tried monitoring emissions via satellite, and while it was possible

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<sup>222</sup> The Norwegian newspapers reported the 2018 record-breaking fine for an ECA SO<sub>2</sub> violation at \$77,000 USD. Gary Dixon, *Color Line Contests 'Biggest Ever' Sulphur Fine*, TRADEWINDS (Mar. 14, 2018), <https://www.tradewindsnews.com/legal/color-line-contests-biggest-ever-sulphur-fine/2-1-294808>.

<sup>223</sup> Opinion, *Emissions Monitoring: Ensuring a Level Playing Field Post-2020*, RIVIERA MARITIME (Sept. 17, 2018), <https://www.rivieramm.com/opinion/emissions-monitoring-maintaining-a-level-playing-field-post-2020-23341>; DANISH ENVTL. PROTECTION AGENCY, REMOTE SENSING OF SULPHUR AND PARTICLE POLLUTION FROM SHIPS – FROM A COST-EFFICIENT APPROACH (2018).

<sup>224</sup> Allan Skouboe, *Thoughts on Compliance Reporting*, EGCSA (2017), <https://www.egcsa.com/wp-content/uploads/EGCSA-Compliance-Reporting-Danfoss-IXA.pdf>; Johanna Wilde, *Most Ships Follow the New Sulphur Regulations in Northern Europe*, CHALMERS (Apr. 20, 2018), <https://www.chalmers.se/en/departments/see/news/pages/ships-in-the-english-channel-have-the-highest-rate-of-sulphur-violations-in-northern-europe.aspx>.

<sup>225</sup> Jack Wittels & Ann Koh, *Sniffer Drones Will Start Patrolling the World's Busiest Shipping Ports*, BLOOMBERG (May 20, 2019), <https://www.bloomberg.com/news/articles/2019-05-20/super-sniffer-drones-and-jail-regulators-get-tough-on-shipping>.

<sup>226</sup> *Hong Kong to Trial Drones in Ship Pollution Campaign*, SHIP & BUNKER (Jan. 20, 2019), [https://shipandbunker.com/news/apac/404432-hong-kong-to-trial-drones-in-ship-pollution-campaign?utm\\_source=newsletter&utm\\_medium=email&utm\\_campaign=newsletter-01/31/19](https://shipandbunker.com/news/apac/404432-hong-kong-to-trial-drones-in-ship-pollution-campaign?utm_source=newsletter&utm_medium=email&utm_campaign=newsletter-01/31/19). Results from drone trials have not yet been published and will be updated as the editing process for this article continues.

to measure the average SO<sub>2</sub> content in the air over a large area, the satellites could not readily identify the level of SO<sub>2</sub> emissions from a specific source.<sup>227</sup> It remains to be seen what all the technical factors will be for large drone and satellite projects. The USCG too should consider investing in such pilot projects like the EPA is doing for land-based sources like oil and gas fracking sites.<sup>228</sup> Regardless, however, the cost for agencies to engage in such projects will undoubtedly prevent massive use of remote monitoring as the primary method for detecting cheating.<sup>229</sup> As a result, remote monitoring should serve as a backup check to detect potential tampering or failures associated with mandatory CEMS.<sup>230</sup> In addition, remote monitoring should continue until the more permanent solution of mandatory CEMS comes to being.

The existing Automatic Identification System (AIS) can provide the needed electronic platform to receive CEMS data.<sup>231</sup> The AIS is an automated, autonomous tracking system used for the exchange of navigational information between ships and AIS-receiving stations such as AIS-equipped terminals, including port state controls or environmental agency authorities.<sup>232</sup> In 2004, the IMO began requiring all ships of a certain size that travel internationally to carry an AIS transponder, but as transponders became less expensive other smaller vessels started using them, voluntarily participating in the AIS program. In layman's terms, vessels send out a signal every couple of seconds that includes static elements such as vessel identifiers and dynamic elements such as location (latitude/longitude), vessel speed, and destination that is typically provided by the vessels global positioning systems. These signals are received by other vessels, offshore platforms, terrestrial bases and satellites for operations in international

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<sup>227</sup> Opinion, *Emissions Monitoring: Ensuring a Level Playing Field Post-2020*, RIVIERA MARITIME (Sept. 17, 2018), <https://www.rivieramm.com/opinion/emissions-monitoring-maintaining-a-level-playing-field-post-2020-23341>.

<sup>228</sup> See Section I of this article.

<sup>229</sup> HALFF, *supra* note 184, at 5, 24. In 2018, the Norwegian Maritime Authority purchased drone technology and other specialized equipment for measuring sulfur emissions from ship exhaust for 14 million Norwegian Krone, or approximately \$1.5 million U.S. dollars. *More Sulphur Testing with Drones*, NORWEGIAN MARITIME AUTH. (Oct. 10, 2018), <https://www.sdir.no/en/news/news-from-the-nma/more-sulphur-testing-with-drones/>.

<sup>230</sup> Tampering with CEMS under the CAA for example, is a criminal charge. See Press Release, U.S. Attorney's Office: District of Mass., Former Berkshire Power Technician Sentenced for Conspiring to Tamper with Air Pollution Monitors, (June 9, 2017), <https://www.justice.gov/usao-ma/pr/former-berkshire-power-technician-sentenced-conspiring-tamper-air-pollution-monitors>.

<sup>231</sup> *What Is the Automatic Identification System (AIS)?*, MARINETRAFFIC, <https://help.marinetraffic.com/hc/en-us/articles/204581828-What-is-the-Automatic-Identification-System-AIS-> (last visited Feb. 13, 2020).

<sup>232</sup> *Id.*

waters. There is no reason that there couldn't be a dedicated channel for broadcast of CEMS data through the existing AIS. Interestingly, AIS can also receive information directly from satellites.<sup>233</sup> Such centralized reporting system has the key benefit of allowing multiple agencies to access ongoing information about regulated entity behavior at one time.<sup>234</sup>

Public accessibility of CEMS monitoring and reporting data will undoubtedly be a concern for regulated shipping entities. AIS was originally developed by IMO as a standard which would help ships to avoid collisions and assist port authorities in control marine traffic.<sup>235</sup> However, it became clear that AIS could be used for a variety of business and research related areas as well. Now, AIS is used by a variety of people, industries, and agencies. All that is needed is an AIS access account. An AIS account costs \$75 to over \$9,000 per month, depending on the number of vessels being tracked, whether satellite tracking is needed, and the response rate of the transmissions, inclusion of historical data, and customized data configurations.<sup>236</sup> Thus, if agencies were to publicize CEMS data through AIS, the information would be publicly available. Such transparency may be just what regulated shipping entities need to ensure that any cheating on IMO 2020 standards will not go unnoticed.

Indeed, the concept of continuous monitoring should not be unfamiliar to regulated shipping entities or the IMO. MARPOL Annex I, which controls oil pollution discharges from ships, already includes continuous monitoring requirements.<sup>237</sup> The costs and technical arguments against mandatory CEMS are so minor, that they are outweighed by the relative benefits to industry as a whole from an increase in the likelihood of detecting cheating. We should not risk a high level of global non-compliance before the shipping community at large embraces the merits of mandatory

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<sup>233</sup> *Id.*

<sup>234</sup> See THE BOARD OF THE INT'L ORG. OF SEC. COMM'NS, TECHNOLOGICAL CHALLENGES TO EFFECTIVE MARKET SURVEILLANCE ISSUES AND REGULATORY TOOLS (2013), <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD412.pdf>. Further, data received on such AIS channel could be used in the existing USCG "Marine Information for Safety and Law Enforcement" system which uses historical data on ships, including noncompliance data, to schedule regular port state control physical inspections. The EU countries use a separate but similar database, THETIS, that inputs a matrix of factors to determine which ships to inspect and when.

<sup>235</sup> *What Is the Automatic Identification System (AIS)?*, MARINETRAFFIC, <https://help.marinetraffic.com/hc/en-us/articles/204581828-What-is-the-Automatic-Identification-System-AIS-> (last visited Feb. 13, 2020).

<sup>236</sup> *Pricing Plans*, FLEETMON, <https://www.fleetmon.com/pricing-plans/>; *Pricing*, SPIRE MARITIME, <https://maritime.spire.com/pricing/>.

<sup>237</sup> *Annex I – Regulations for the Prevention of Pollution by Oil*, MARPOL TRAINING, [http://www.marpoltraining.com/MMSKOREAN/MARPOL/Annex\\_I/r31.htm](http://www.marpoltraining.com/MMSKOREAN/MARPOL/Annex_I/r31.htm) (last visited Feb. 13, 2020).

installation of CEMS.<sup>238</sup> As early as 2014, the Clean Shipping Coalition called for the installation of CEMS on all ships and for the use of such CEMS during the entire journey of the ship.<sup>239</sup> Even Maersk has stated, “We need a black box on every ship to measure what it is emitting.”<sup>240</sup> It is time for everyone to get on board.

## CONCLUSION

The goal of this article is to focus on mandated self-monitoring and reporting as a way to help agencies detect corporate noncompliance, and particularly, corporate cheating, with regulations that we all benefit from. While the case study at issue here is on the shipping industry and detection of cheating with new international SO<sub>2</sub> pollution standards, the overall goal has potential in other areas of regulation as well, especially environmental regulation. For example, following the *Volkswagen* diesel emission crisis, the California Air Resources Board (CARB), the agency responsible at the California state level for enforcement of air pollution standards, has been looking at technology like the “REAL” program to detect NO<sub>x</sub> defeat device violations.<sup>241</sup> REAL would require internal car on-board diagnostic systems to collect and store NO<sub>x</sub> emissions data on medium- and heavy-duty diesel vehicles starting in the 2022 model year. The REAL data would be retrieved from the vehicle by plugging a scan tool or data reader into the vehicle. As noted by one CARB official, “REAL will provide the ability to monitor all vehicles for emissions performance, and allow us to spot trouble faster. Had this program been available sooner, we would likely have recognized widespread, serious problems with manufacturers such as *Volkswagen* and *Cummins* much earlier.”<sup>242</sup> Detection is key in multiple areas. There is no need to wait for the next corporate cheating scandal.

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<sup>238</sup> Opinion, *Emissions Monitoring: Ensuring a Level Playing Field Post-2020*, RIVIERA MARITIME (Sept. 17, 2018), <https://www.rivieramm.com/opinion/emissions-monitoring-maintaining-a-level-playing-field-post-2020-23341>.

<sup>239</sup> *Continuous Emissions Monitoring – Why Knowledge is Power for ECA Compliance*, CLEANER SEAS (Sept. 29, 2014), <https://www.cleanerseas.com/continuous-emissions-monitoring-knowledge-power-eca-compliance/>.

<sup>240</sup> MOLLOY, *supra* note 180, at 9.

<sup>241</sup> *CARB Gets “REAL” to Further Cut Pollution from Diesel and Gas Vehicles*, CAL. AIR RES. BD. (Nov. 15, 2018), <https://ww2.arb.ca.gov/news/carb-gets-real-further-cut-pollution-diesel-and-gas-vehicles>.

<sup>242</sup> *Id.*