

**Richard J. Walsh** Senior Vice President and Deputy General Counsel Litigation and Regulatory Law

March 22, 2018

The Honorable Scott Pruitt U.S. Environmental Protection Agency 1200 Pennsylvania Ave., N.W. Washington, D.C. 20160

RE: Petition to Reconsider Denial of Petitions Regarding RFS Point of Obligation

Dear Administrator Pruitt:

The Valero Energy Corporation and its subsidiaries ("Valero") respectfully petition the U.S. Environmental Protection Agency ("EPA") to reconsider its final action entitled Denial of Petitions for Rulemaking to Change the RFS Point of Obligation, EPA-HQ-OAR-2016-0544-0525 (Nov. 2018) (the "Denial"). Since EPA issued the Denial, concrete evidence of serious economic harm and energy insecurity has materialized and obligates EPA to fully consider the real-world impacts of its course of action with the benefit of up-to-date information and analysis.

Valero is uniquely situated to raise issues associated with the RFS program because of its diverse interactions with the program. As a refiner, Valero is an obligated party under the RFS rules and must comply with the RFS volume mandates. Valero owns and operates 13 petroleum refineries located in the United States. With a combined throughput capacity of approximately 2.9 million barrels per day, Valero is the world's largest independent refiner. Valerio is a fuel importer with refineries in Canada and the United Kingdom. Valero also is a major fuel wholesaler: approximately one-third of its fuel goes into the Valero-branded, rack contract, or wholesale markets. Valero was the first traditional petroleum refiner to enter large-scale ethanol production and now has 11 state-of-the-art plants located throughout the Midwest. This makes Valero the third largest ethanol producer in the United States. Finally, Valero, through its Diamond Green venture, is one of the largest advanced biodiesel producers in the United States.

Valero submits this petition for reconsideration based on events that occurred after the period for public comment on the Denial that are of central relevance to the outcome of that action,<sup>1</sup> particularly RFS compliance costs driving the largest refiner on the East Coast into bankruptcy. This and other recent developments cut to the heart of the Denial: EPA's conclusion that the current

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<sup>&</sup>lt;sup>1</sup> 42 U.S.C. § 7607(d)(7)(B) ("If the person raising an objection can demonstrate to the Administrator that . . . the grounds for such objection arose after the period for public comment (but within the time specified for judicial review) and if such objection is of central relevance to the outcome of the rule, the Administrator shall convene a proceeding for reconsideration of the rule and provide the same procedural rights as would have been afforded had the information been available at the time the rule was proposed."); *see also, Sanders v. U.S.*, 373 U.S. 1, 16 (1963) (defining in another regulatory context " 'ground'" as "simply a sufficient legal basis for granting the relief sought by the applicant.").

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point of obligation does not threaten the viability of independent refiners and thus our nation's energy independence and security.<sup>2</sup> In these circumstances, EPA *must* reconsider its decision not to initiate a rulemaking to fully evaluate the severe economic harm created by RFS program activity that is at cross purposes with program goals and potential options for limiting that harm.<sup>3</sup>

Valero is committed to working with EPA to further the environmental and energy security goals of the RFS program. Please do not hesitate to contact me to discuss this request for reconsideration. We look forward to your response.

Sincerely,

Richard J. Walsh Senior Vice President and Deputy General Counsel Valero Energy Corporation

<sup>&</sup>lt;sup>2</sup> Denial at 63-64.

<sup>&</sup>lt;sup>3</sup> See Clean Air Council v. Pruitt, 862 F.3d 1, 4–5 (2017) ("That provision [42 U.S.C. § 7607(d)(7)(B)] sets forth the circumstances under which EPA *must* reconsider a rule") (emphasis in original).

# Valero Petition for Reconsideration of Denial of Petitions to Reconsider or Initiate Rulemaking Regarding RFS Point of Obligation EPA-HQ-OAR-2016-0544

Pursuant to Section 307(d)(7)(B) of the Clean Air Act, 5 U.S.C. § 553(e), and *Oljato Chapter of the Navajo Tribe v. Train*, 515 F.2d 654, 666 (D.C. Cir. 1975), the Valero Energy Corporation and its subsidiaries ("Valero") respectfully petition the U.S. Environmental Protection Agency ("EPA") to reconsider its final action entitled Denial of Petitions for Rulemaking to Change the RFS Point of Obligation, EPA-HQ-OAR-2016-0544-0525 (Nov. 2018) (the "Denial"). Specifically, Valero requests that EPA reconsider its decision not to initiate a rulemaking to fully evaluate and consider options to address the economic harms and energy security risks created by the RFS program.

# I. Background and Summary of Denial

On February 12, 2016, Valero submitted a petition requesting that EPA "reconsider and revise" the point of obligation in the RFS program ("Petition").<sup>4</sup> EPA subsequently collected extensive and detailed comments from obligated parties and stakeholders 1) explaining that the ballooning cost of RFS program compliance likely would force refinery closures<sup>5</sup> and 2) urging EPA, at a minimum, to exercise its general waiver authority to alleviate the severe economic harm imposed by the program.<sup>6</sup> Despite these comments, EPA denied the Petition on November 22, 2017<sup>7</sup> based on its supposition that the "US refining industry is growing and healthy."<sup>8</sup>

Importantly, EPA's "disagree[ment] that the current point of obligation is likely to cause refinery closures, for merchant refiners or any other refiners" was fundamental to EPA's decision to deny Petition.<sup>9</sup> Absent a real-world example of such harm, EPA concluded:

The EPA is also not persuaded, based on the record before us, by arguments that, under the current regulatory structure, merchant refiners are disadvantaged compared to integrated refiners in terms of their costs of compliance, nor that other stakeholders are receiving windfall profits. The costs of the RFS program are apportioned to all refiners and importers as a function of their production volume and generally are passed on to consumers.<sup>10</sup>

<sup>&</sup>lt;sup>4</sup> Valero Petition to Reconsider and Revise The Point of Obligation in the RFS Program; See also 40 C.F.R § 80.1406, EPA-HQ-OAR-2016-0544; *see also* 40 C.F.R. § 80.1406 (identifying refiners and importers of gasoline and diesel fuel as the entities responsible for the annual percentage standards adopted under the RFS program).

 <sup>&</sup>lt;sup>5</sup> Comments submitted by Richard J. Walsh, Valero Energy Corporation, EPA-HQ-OAR-2016-0544-0274, at 18 (Feb. 22, 2017) (Comments on EPA's Proposed Denial of Petitions for Rulemaking to Change the RFS Point of Obligation).
 <sup>6</sup> Comments submitted by John B. McShane, Philadelphia Energy Solutions Refining and Marketing, LLC, EPA-

HQ-OAR-2016-0544-0571, at 3 (Aug. 31, 2017) (Comments on Renewable Fuel Standard Program: Standards for 2018 and Biomass-Based Diesel Volume for 2019).

<sup>&</sup>lt;sup>7</sup> Letter from EPA Administrator Pruitt to Valero (Nov. 22, 2017) (denying petitions to reconsider or initiate a rulemaking).

<sup>&</sup>lt;sup>8</sup> Denial at 67--68.

<sup>&</sup>lt;sup>9</sup> Denial at 64.

<sup>&</sup>lt;sup>10</sup> Denial at 9.

RIN prices themselves have not resulted in appreciably higher transportation fuel prices for consumers or disproportionate harm for merchant refiners. Finally, the record does not support claims that merchant refiners have resorted to the extreme measures suggested by the petitioners, such as decreasing fuel production or exporting the fuel they produce, in an effort to minimize their RFS obligations. RINs are currently available to meet compliance needs, and we see no reason to indicate that this dynamic will change in the future.<sup>11</sup>

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EPA similarly dismissed, based on out-of-date information, the connection between the economic hardship created by PES and others and the high and volatile cost of RINs: "[a]s discussed in a memorandum prepared in support of the proposed RFS annual standards for 2014-2016, the EPA does not believe that D6 RIN prices observed in recent years are indicative of a dysfunctional RIN market."<sup>12</sup> EPA acknowledged that "several commenters submitted assessments of the fuels market" disputing EPA's claim that merchant refiners were generally able to recover the cost of RINs through the higher prices of the products they sell. EPA deemed these assessments unconvincing because EPA "do[es] not *believe* the challenges faced by some refiners in the current market are the result of their designation as obligated parties in the RFS program."<sup>13</sup>

# II. Centrally Relevant Grounds Arising After the Denial

The largest refiner on the East Coast, Philadelphia Energy Solutions ("PES"), declared bankruptcy on January 21, 2018, just months after EPA denied Valero's Petition.<sup>14</sup> The disclosure statement for PES, which is responsible for 28% of the east coast refining capacity, identified the "primary driver" of its decision to seek bankruptcy protection as the effect of the RFS Program, in particular the "unpredictable, escalating, and unintended compliance burden" of renewable identification number ("RIN") costs that "penalize merchant refiners" lacking blending capacity.<sup>15</sup>

PES's bankruptcy is incontrovertible evidence of the precarious position in which the RFS program has placed our nation's energy industry. Compliance with the RFS program has cost PES \$832 million since 2012. On an annual basis, this is twice PES's annual payroll, nearly one and one-half times its average capital expenditures, four times its interest expense, and now represents its "single largest expense after crude oil."<sup>16</sup> The relative magnitude of these costs is staggering.

<sup>&</sup>lt;sup>11</sup> Denial at 15–16 (internal footnotes omitted).

<sup>&</sup>lt;sup>12</sup> Denial at 17-18 (internal footnotes omitted).

<sup>&</sup>lt;sup>13</sup> Denial at 27 (emphasis added).

<sup>&</sup>lt;sup>14</sup> In re: PES Holdings. LLC, et al., No. 18-10122, Doc 1 (Jan. 21, 2018) (Voluntary Petition for Non-Individuals Filing for Bankruptcy) (attached); Letter from EPA Administrator Pruitt to Valero (Nov. 22, 2017) (denying petition for rulemaking).

<sup>&</sup>lt;sup>15</sup> In re: PES Holdings, LLC, et al., No. 18-20122, Doc 10, at 1 (Jan. 22, 2018) (Disclosure Statement for the Joint Prepackaged Chapter 11 Plan of Reorganization of PES Holdings, LLC and its Debtor Affiliates).

<sup>&</sup>lt;sup>16</sup> In re: PES Holdings, LLC, et al., No. 18-10122, Doc. 16, at ¶ 7 (Declaration of Gregory Gatta, Chief Executive Officer of PES Holdings, LLC).

This precariousness also is reflected in recently submitted requests from various state governors that EPA exercise its waiver authority under Clean Air Act Section 211(0)(7)(A)(i) and reduce the nationwide renewable fuel volume mandates:<sup>17</sup>

- **Pennsylvania Governor Tom Wolf (Nov. 2, 2017).** "By any reasonable measure, the current economic conditions caused by the rapidly escalating costs of RINs to the refining industry in the Northeast are severe and harmful—and without administrative action, we are at risk of these crucial refiners."
- New Mexico Governor Susana Martinez (Nov. 22, 2017). "Each of the petroleum refiners in New Mexico are independent refineries, or not integrated into crude oil production and downstream retailing. Compliance with the RFS program . . . syphons off funds via steep compliance costs that would otherwise be spent on . . . the safety and infrastructure needs of New Mexico."
- Texas Governor Greg Abbott (Dec. 1, 2017). "As a result of the increasingly unpredictable cost of RINs, refiners are exploring all options to reduce these escalating costs, including exporting product, which reduces fuel inventories in the United States ... decreasing the U.S.'s energy independence and self-reliance strategy ....."
- Delaware Governor John Carney (Jan. 30, 18). "The sharp and significant increases in [RIN] costs to the refinery industry will directly lead to devastating job losses in Delaware and throughout the region. A waiver is necessary to . . . maintain affordable, reliable fuel supplies for consumers and preserve refining capacity in the U.S."

A recently authored and widely reported on economic study by Charles River Associates (the "Study") confirms the evidence provided by the PES bankruptcy and the Governors' letters that the RFS program is *not* achieving its environmental and energy security goals.<sup>18</sup> The Study explains that the combination of lower than expected U.S. motor gasoline consumption and lack of penetration of higher ethanol blend fuels caused 1) significant increases in the cost of RINs and 2) flipped the United States from a net exporter of biodiesel to a net importer.<sup>19</sup> The Study further explains that "higher prices themselves are an issue," because they "increase the potential financial incentives for blenders to retain portions of the RIN value, rather than passing it all through to refiners as the policy intended.<sup>20</sup> These up-to-date findings should cause EPA to reconsider its

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<sup>&</sup>lt;sup>17</sup> Petitions for a Partial Waiver of the 2017 and 2018 RFS Standards, *available at* https://www.epa.gov/renewable-fuel-standard-program/learn-more-about-letters-seeking-additional-information-related (Mar. 21, 2018).

<sup>&</sup>lt;sup>18</sup> Charles River Associates, "Ethanol RIN Waiver Credits: Improving Outcomes of the Renewable Fuels Standard through a Price Containment Mechanism" (Mar. 2018) (attached).

<sup>&</sup>lt;sup>19</sup> Id. at 8-9.

<sup>&</sup>lt;sup>20</sup> Study at 8, Section 3.2.-3.3 (Further explaining that the program "led to increased demand for biodiesel from foreign sources with potentially negative environmental impacts." and "[g]iven the environmental driver behind the RFS, this is not necessarily in line with policy goals.")

unfounded *beliefs* regarding the relationship between high and volatile RIN prices and burdens shouldered by independent refiners.<sup>21</sup>

The Study also observes that the RFS policy goals could be met at a more reasonable RIN cost if EPA institutes proven market management tools. Valero has consistently advanced options such as broadening the point of obligation to address the severe economic harm imposed by the program, and the Study offers others, such as a price containment mechanism.<sup>22</sup> This mechanism could take the form of a waiver credits offered for sale by the EPA as an alternative compliance mechanism for obligated parties. While it is true that EPA cannot "tweak[]" the Clean Air Act to "work better,"<sup>23</sup> it can revise its implementing regulations consistent with the statute and provide safeguards for obligated parties currently saddled with unpredictable and unmanageable compliance costs.<sup>24</sup> The Study offers options for EPA to do just that.

Further this petition is supported by what we understand to be an increasing number of recent requests by small refiners for waivers of RFS requirements based on disproportionate economic hardship. The nature and magnitude of these requests, on the heels of *Sinclair Wyoming Refining Co. et al v. EPA*, 874 F.3d 1159 (10th Cir. 2017), which found that EPA had exceeded its statutory authority in denying prior requests, significantly undermines the Denial and EPA's conclusions therein that the RFS Program "appears to be working," that there is no dysfunction in the RINs market, and that merchant refiners are not disproportionately impacted by the current Program structure.<sup>25</sup> Now is the time to reconsider these issues informed by more fulsome information and judicial guidance.

The PES bankruptcy, petitions from four state governors asserting severe economic harm to their states' economies resulting from RIN market dysfunction, and a wave of small refiner exemption requests based on disproportionate economic impact demonstrate real-world harm of a sort that EPA prematurely concluded did not exist. Initiating a rulemaking rather than denying one would allow the agency to consider the real-world impacts of its decisions with the benefit of full and up-to-date information and analysis.

# III. Conclusion

Valero strongly urges EPA to grapple with the severe harm imposed by the current program structure and explore all available alternatives to alleviate it while furthering program goals. Valero is committed to working with EPA to get the RFS program back on track. EPA's consideration of this petition for reconsideration is an important step in that direction. Accordingly, Valero requests that EPA grant this petition for reconsideration and initiate a

<sup>&</sup>lt;sup>21</sup> See e.g., Letter from EPA Administrator Pruitt to the Honorable John C. Carney, Governor of Delaware (Feb. 21, 2018) (declining to grant the requested waiver and stating that EPA cannot "fully and fairly" evaluate the request without additional information, including information on "the relation between RIN costs and economic hardship"). <sup>22</sup> Study at 1, Section 1.

<sup>&</sup>lt;sup>23</sup> Americans for Clean Energy v. Environmental Protection Agency, 864 F.3d 691, 712 (2017).

<sup>&</sup>lt;sup>24</sup> See e.g., Utility Air Regulatory Group v. E.P.A., 134 S.Ct. 2427 (2014) (instructing EPA to address "absurd results" from a "legal administrative, and functional perspective – that is, from a perspective that assumes that Congress was not merely trying to arrange words on paper but was seeking to achieve a real-world *purpose*") (emphasis in original). <sup>25</sup> Denial at 15, 18, 21.

rulemaking to fully evaluate and consider options to address the economic harms and energy security risks created by the RFS program.

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| Fill in this information to identify the case |            |
|---|------------|
| United States Bankruptcy Court for the:       |            |
| District of Delaware                          |            |
| (State)                                       |            |
| Case number (if known):                       | Chapter 11 |

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Check if this is an amended filing

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# Official Form 201 Voluntary Petition for Non-Individuals Filing for Bankruptcy

If more space is needed, attach a separate sheet to this form. On the top of any additional pages, write the debtor's name and the case number (if known). For more information, a separate document, *Instructions for Bankruptcy Forms for Non-Individuals*, is available.

| 1. | Debtor's Name   | PES Holdings, LLC                                  |   |
|----|---|--|---|
| 2. | All other names debtor used<br>in the last 8 years                                      | PES Holding LLC                                    |   |
|    | Include any assumed names,<br>trade names, and <i>doing</i><br><i>business as</i> names |  |   |
| 3. | Debtor's federal Employer<br>Identification Number (EIN)                                | <u>37-1698157</u>                                  |   |
| 4. | Debtor's address  | Principal place of business                        | Mailing address, if different from principal place of business              |
|    |   | 1735 Market Street, 11th Floor                     |   |
|    |   | Number Street                                      | Number Street   |
|    |   |  | P.O. Box  |
|    |   | Philadelphia, Pennsylvania 19103                   |   |
|    |   | City State Zip Code                                | City State Zip Code   |
|    |   |  | Location of principal assets, if different from principal place of business |
|    |   | Philadelphia                                       |   |
|    |   | County   | Number Street   |
|    |   |  |   |
|    |   |  |   |
|    |   |  | City State Zip Code   |
|    |   |  |   |
| э. |   | mp.//pes-companies.com/                            |   |
| 6. | Type of debtor  | Corporation (including Limited Liability Compared) | ny (LLC) and Limited Liability Partnership (LLP))                           |
|    |   | Partnership (excluding LLP)                        |   |
|    |   | Other. Specify:                                    |   |
|    |   |  |   |

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|---------------|-------|----------------|--------------|
|---------------|-------|----------------|--------------|

| Debtor PES Holdings, LLC<br>Name   |                          | -  | Case number (if known)  |  |  |  |  |  |
|--|--------------------------|--|---|--|--|--|--|--|
|  | A. C                     | heck One:  |   |  |  |  |  |  |
| 7. Describe debtor's business  | Пн                       | ealth Care   | Business (as defined in 11 U.S.C. § 101(27A))   |  |  |  |  |  |
|  | □ s                      | ingle Asse   | et Real Estate (as defined in 11 U.S.C. § 101(51B))   |  |  |  |  |  |
|  |                          | ailroad (as  | s defined in 11 U.S.C. § 101(44))   |  |  |  |  |  |
|  |                          | $\Box$ Stockbroker (as defined in 11 U S C § 101(53A)) |   |  |  |  |  |  |
|  |                          | Commodity Broker (as defined in 11 U.S.C. § 101(6))    |   |  |  |  |  |  |
|  | □с                       | learing Ba   | nk (as defined in 11 U.S.C. § 781(3))   |  |  |  |  |  |
|  | × N                      | one of the   | above   |  |  |  |  |  |
|  | В. С                     | heck all th  | at apply  |  |  |  |  |  |
|  |                          | ax-exempt  | t entity (as described in 26 U.S.C. § 501)  |  |  |  |  |  |
|  | □ In<br>§                | vestment<br>80a-3)                                     | company, including hedge fund or pooled investment vehicle (as defined in 15 U.S.C.   |  |  |  |  |  |
|  | 🗆 In                     | vestment   | advisor (as defined in 15 U.S.C. § 80b-2(a)(11))  |  |  |  |  |  |
|  | C. N<br><u>1</u><br>3241 | IAICS (No<br>http://www.<br><b>(Petroleu</b>           | rth American Industry Classification System) 4-digit code that best describes debtor. See<br>uscourts.gov/four-digit-national-association-naics-codes.<br>m and Coal Products Manufacturing)  |  |  |  |  |  |
| 8. Under which chapter of the  | Chec                     | k One:   |   |  |  |  |  |  |
| Bankruptcy Code is the   |                          | hapter 7   |   |  |  |  |  |  |
| debtor ming?   | Chapter 9                |  |   |  |  |  |  |  |
|  | X C                      | hapter 11  | Check all that apply  |  |  |  |  |  |
|  |                          |  | Debtor's aggregate noncontingent liquidated debts (excluding debts owed to<br>Insiders or affiliates) are less than \$2,566,050 (amount subject to adjustment on<br>4/01/19 and every 3 years after that).  |  |  |  |  |  |
|  |                          |  | □ The debtor is a small business debtor as defined in 11 U.S.C. § 101(51D). If the debtor is a small business debtor, attach the most recent balance sheet, statement of operations, cash-flow statement, and federal income tax return, or if all of these documents do not exist, follow the procedure in 11 U.S.C. § 1116(1)(B). |  |  |  |  |  |
|  |                          |  | A plan is being filed with this petition.   |  |  |  |  |  |
|  |                          |  | Acceptances of the plan were solicited prepetition from one or more classes of creditors, in accordance with 11 U.S.C. § 1126(b).   |  |  |  |  |  |
|  |                          |  | The debtor is required to file periodic reports (for example, 10K and 10Q) with the Securities and Exchange Commission according to § 13 or 15(d) of the Securities Exchange Act of 1934. File the Attachment to Voluntary Petition for Non-Individuals Filing for Bankruptcy under Chapter 11 (Official Form 201A) with this form. |  |  |  |  |  |
|  |                          |  | □ The debtor is a shell company as defined in the Securities Exchange Act of 1934 Rule 12b-2.   |  |  |  |  |  |
|  |                          | hapter 12  |   |  |  |  |  |  |
| 9. Were prior bankruptcy cases<br>filed by or against the debtor<br>within the last 8 years? | No No Yes.               | District   | When Case number  |  |  |  |  |  |
| If more than 2 cases, attach a separate list.  |                          | District   | When Case number  |  |  |  |  |  |
| 10. Are any bankruptcy cases pending or being filed by a                                     | □ No<br>⊠ Yes.           | Debtor   | See Rider 1 Relationship Affiliate  |  |  |  |  |  |
| business partner or an affiliate of the debtor?  |                          | District   | District of Delaware  |  |  |  |  |  |
| List all cases. If more than 1,  |                          | 0  |   |  |  |  |  |  |

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| Debtor       PES Holdings, LLC       Case number (#known)         11. Why is the case filed in this district?       Check all that apply:         2       Debtor has had its domicile, principal place of business, or principal assets in this district immediately preceding the date of this petition or for a longer part of such 180 days that district.         12. Does the debtor own or have prospersion of any real property are property or personal property that needs immediate attention. Attach additional immediate attention?         12. Does the debtor own or have prosperty or personal property that needs immediate attention. Attach additional immediate attention?         28 No         29 Yes. Answer below for each property that needs immediate attention. Attach additional immediate attention?         20 It poses or is alleged to pose a threat of imminent and identifiable hazard to p safety.         What is the hazard?         11 It needs to be physically secured or protected from the weather.         20 Other         21 Where is the property?         22 No         33ety.         23 What is the property?         24 It includes pershable goods or assets that could quickly deteriorate or lose ve assets or other options).         25 Other         26 Where is the property?         27 Number         28 It property insured?         29 No         29 Yes. Insurance agency         20 Other  | t for 180 days<br>n in any other<br>ng in this district.<br>sheets if needed.<br>ublic health or  |
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| 11. Why is the case filed in this district?       Check all that apply:         Image: Debtor has had its domicile, principal place of business, or principal assets in this district.         Image: Debtor has had its domicile, principal place of business, or principal assets in this district.         Image: Debtor has had its domicile, principal place of business, or principal assets in this district.         Image: Debtor has had its domicile, principal place of business, or principal assets in this district.         Image: Debtor has had its domicile, principal place of business, or principal assets in this district.         Image: Debtor has had its domicile, principal place of business, or principal assets in this district.         Image: Debtor has had its domicile, principal place of business, or principal assets in this district.         Image: Debtor has had its domicile, principal place of business, or principal assets in this district.         Image: Debtor has had its domicile, principal place of business, or principal assets in this district.         Image: Debtor has had its domicile, principal place of business, or principal assets in this district.         Image: Debtor has had its domicile, principal place of business, or principal place of business, or principal place of business, and place has had its domicile, principal place of business.         Image: Debtor has had its domicile, principal place of business, and place of business, or principal place of business.         Image: Debtor has had its domicile, principal place of protected from the weather.         It is the property?  | t for 180 days<br>n in any other<br>ng in this district.<br>sheets if needed.<br>Jublic health or |
| Debtor has had its domicile, principal place of business, or principal assets in this distric immediately preceding the date of this petition or for a longer part of such 180 days that district. A bankruptcy case concerning debtor's affiliate, general partner, or partnership is pendidistrict. No Yes. Answer below for each property that needs immediate attention. Attach additional : Why does the property need immediate attention? ( <i>Check all that apply</i> .) It poses or is alleged to pose a threat of imminent and identifiable hazard to p safety. What is the hazard? It includes perishable goods or assets that could quickly deteriorate or lose va attention (for example, livestock, seasonal goods, meat, dairy, produce, or se assets or other options). Other Where is the property insured? Is the property insured? No Street City State   | t for 180 days<br>n in any other<br>ng in this district.<br>sheets if needed.<br>ublic health or  |
| □       A bankruptcy case concerning debtor's affiliate, general partner, or partnership is pendii         12. Does the debtor own or have prosenty or personal property or personal property or personal property insured interaction and identifiable hazard additional in that needs immediate attention?         □       Yes. Answer below for each property that needs immediate attention. Attach additional is why does the property need immediate attention? (Check all that apply.)         □       It poses or is alleged to pose a threat of imminent and identifiable hazard to p safety.         What is the hazard?       □         □       It includes perishable goods or assets that could quickly deteriorate or lose va attention (for example, livestock, seasonal goods, meat, dairy, produce, or se assets or other options).         □       Other         Where is the property insured?       Number         Is the property insured?       Number         Q       No         □       Yes. Insurance agency   | ng in this district.<br>sheets if needed.<br>ublic health or                                      |
| 12. Does the debtor own or have possession of any real property or personal property that needs immediate attention?       No         □ Yes. Answer below for each property need immediate attention? ( <i>Check all that apply.</i> ) attention?       It poses or is alleged to pose a threat of imminent and identifiable hazard to p safety. What is the hazard?         □ It needs to be physically secured or protected from the weather.       It includes perishable goods or assets that could quickly deteriorate or lose va attention (for example, livestock, seasonal goods, meat, dairy, produce, or se assets or other options).         □ Other       Where is the property insured?         Is the property insured?       Number         State       Is the property insured?         □ Yes.       Insurance agency   | sheets if needed.<br>ublic health or  |
| property or personal property<br>that needs immediate<br>attention?       Yes. Answer below for each property that needs immediate attention. Attach additional is<br>Why does the property need immediate attention? (Check all that apply.)         It poses or is alleged to pose a threat of imminent and identifiable hazard to p<br>safety.<br>What is the hazard?         It needs to be physically secured or protected from the weather.         It includes perishable goods or assets that could quickly deteriorate or lose va<br>attention (for example, livestock, seasonal goods, meat, dairy, produce, or se<br>assets or other options).         Other         Where is the property insured?         Is the property insured?         Other         Ves.       Insurance agency<br>Contact name   | sheets if needed.   |
| that needs immediate attention?       Why does the property need immediate attention? (Check all that apply.)         It poses or is alleged to pose a threat of imminent and identifiable hazard to p safety.         What is the hazard?         It needs to be physically secured or protected from the weather.         It includes perishable goods or assets that could quickly deteriorate or lose we attention (for example, livestock, seasonal goods, meat, dairy, produce, or se assets or other options).         Other         Where is the property?         Number       Street         City       State         Is the property insured?         Yes.       Insurance agency         Contact name   | ublic health or   |
| attention?       It poses or is alleged to pose a threat of imminent and identifiable hazard to p safety.         What is the hazard?       It needs to be physically secured or protected from the weather.         It includes perishable goods or assets that could quickly deteriorate or lose va attention (for example, livestock, seasonal goods, meat, dairy, produce, or se assets or other options).         Other         Where is the property?         Number       Street         City       State         Is the property insured?         No         Yes.       Insurance agency         Contact name   | ublic health or   |
| What is the hazard?         It needs to be physically secured or protected from the weather.         It includes perishable goods or assets that could quickly deteriorate or lose viattention (for example, livestock, seasonal goods, meat, dairy, produce, or seasets or other options).         Other         Where is the property?         Number       Street         City       State         Is the property insured?         No         Yes.       Insurance agency         Contact name         Phone  |   |
| <ul> <li>It needs to be physically secured or protected from the weather.</li> <li>It includes perishable goods or assets that could quickly deteriorate or lose va attention (for example, livestock, seasonal goods, meat, dairy, produce, or se assets or other options).</li> <li>Other</li> <li>Where is the property?</li> <li>Number Street</li> <li>City State</li> <li>Is the property insured?</li> <li>No</li> <li>Yes. Insurance agency</li> <li>Contact name</li> </ul>  | 1   |
| <ul> <li>It includes perishable goods or assets that could quickly deteriorate or lose va attention (for example, livestock, seasonal goods, meat, dairy, produce, or se assets or other options).</li> <li>Other</li> <li>Where is the property?</li> <li>Number Street</li> <li>City State</li> <li>Is the property insured?</li> <li>No</li> <li>Yes. Insurance agency</li> <li>Contact name</li> </ul>  | 1   |
| assets or other options).  Other  Where is the property?  Number Street  City State  Is the property insured?  No  Yes. Insurance agency Contact name Phone   | uue without<br>curities-related   |
| □ Other Where is the property? Number Street City State Is the property insured? No Ves. Insurance agency Contact name Phone  |   |
| Where is the property?       Number       Street         City       State         Is the property insured?  | 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1  |
| Number     Street       Number     Street       City     State       Is the property insured?   |   |
| City State          Is the property insured?         No         Yes.       Insurance agency         Contact name         Phone  |   |
| City State  Is the property insured?  No  Yes. Insurance agency Contact name Phone  |   |
| Is the property insured?  No Yes. Insurance agency Contact name Phone   | Zip Code  |
| No     Yes. Insurance agency     Contact name     Phone   |   |
| Yes. Insurance agency     Contact name     Phone  |   |
| Contact name  |   |
| Contact name  |   |
| Phone   |   |
|   |   |
|   |   |
| Statistical and administrative information  |   |
| 13 Debtor's estimation of Check one   |   |
| available funds   |   |
| <ul> <li>After any administrative expenses are paid, no funds will be available for distribution to unservice of the second second</li></ul> | secured creditors.  |
| 14. Estimated number of         □         1-49         ⊠         1,000-5,000         □         25,001-50,000  | All   |
| creditors (on a         50-99         5,001-10,000         50,001-100,000           consolidated basis)         100,100         100,000         100,000         100,000   |   |
| 200-999     10,001-25,000     10,001-25,000     10,001-25,000     10,001-25,000   |   |
|   | JU  |
| <b>15. Estimated assets (on a</b> □ \$0-\$50,000 □ \$1,000,001-\$10 million □ \$500,000,001-\$1<br><b>consolidated basis)</b> □ \$50,001-\$10,000 □ \$10,000,001-\$50 million ⊠ \$10,000,001.\$   | JU  |
|   | billion   |
| □ \$500,001-\$1 million □ \$100,000,001-\$500 million □ More than \$50 bi   | billion<br>\$10 billion<br>\$50 billion   |
|   | billion<br>510 billion<br>-\$50 billion<br>lion   |

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|   | Case 18-10122 Doc 1   | Filed 01/21/18 Pag   | e 4 of 30  |
|---|---|--|--|
| 16. Estimated liabilities (on<br>a consolidated basis)  | □       \$0-\$50,000         □       \$50,001-\$100,000         □       \$100,001-\$500,000         □       \$500,001-\$1 million | <ul> <li>\$1,000,001-\$10 million</li> <li>\$10,000,001-\$50 million</li> <li>\$50,000,001-\$100 million</li> <li>\$100,000,001-\$500 million</li> </ul> | <ul> <li>\$500,000,001-\$1 billion</li> <li>\$1,000,000,001-\$10 billion</li> <li>\$10,000,000,001-\$50 billion</li> <li>More than \$50 billion</li> </ul> |
| Request fo  | r Relief, Declaration, and Signature  | 8  |  |
| VARNING – Bankruptcy fra<br>\$500,000 or irr            | ud is a serious crime. Making a false s<br>prisonment for up to 20 years, or both   | tatement in connection with a bankru<br>18 U.S.C. §§ 152, 1341, 1519, and  | uptcy case can result in fines up to 3571.   |
| 7. Declaration and signatur<br>authorized representativ | e of The debtor requests relief in<br>of petition.  | accordance with the chapter of title   | 11, United States Code, specified in this  |
| debtor  | I have been authorized to file  | e this petition on behalf of the debtor  |  |
|   | I have examined the information correct.  | tion in this petition and have a reaso   | phable belief that the information is true and   |
|   | I declare under penalty of perjury the  | nat the foregoing is true and correct.   |  |
|   | Executed onMM/ DE<br>MM/ DE<br>Signature of authorized<br>TitleAuthorized Sig   | representative of debtor   | Gregory G. Gatta<br>Printed name   |
| 8. Signature of attorney                                | X<br>Signature of attorney for  | Dating Me-   | Date 01/21/2018<br>MM/ DD/YYYY   |
|   | Printed name  |  |  |
|   | Pachulski Stang Ziehl   | & Jones LLP  |  |
|   | Firm name   |  |  |
|   | 919 North Market Stree  | et, 17th Floor   |  |
|   | Number  | Street   | 19899-8705   |
|   | <u>Wilmington</u>   |  | Delaware (Courier 19801)<br>State 7IP Code   |
|   | (202) (50 1100  |  |  |
|   |   |  | ljones@pszjlaw.com   |
|   |   | - ·  | Email audress  |
|   | 2436  | Delaw  | are  |

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| Fill in this information to identify the case |         |  |
|---|---------|--|
| United States Bankruptcy Court for the:       |         |  |
| District of Delaware                          |         |  |
| (State)                                       |         |  |
| Case number (if known):                       | Chapter |  |

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□ Check if this is an amended filing

## <u>Rider 1</u> <u>Pending Bankruptcy Cases Filed by the Debtor and Affiliates of the Debtor</u>

On the date hereof, each of the entities listed below (collectively, the <u>"Debtors"</u>) filed a petition in the United States Bankruptcy Court for the District of Delaware for relief under chapter 11 of title 11 of the United States Code. The Debtors have moved for joint administration of these cases under the case number assigned to the chapter 11 case of PES Holdings, LLC.

PES Holdings, LLC North Yard Financing, LLC North Yard GP, LLC North Yard Logistics, L.P. PES Administrative Services, LLC PES Logistics GP, LLC PES Logistics Partners, L.P. PESRM Holdings, LLC Philadelphia Energy Solutions Refining and Marketing LLC \*

# PES HOLDINGS, LLC SECRETARY'S CERTIFICATE

# January 21, 2018

The undersigned, John B. McShane, as Secretary of, respectively, PES Holdings, LLC, Philadelphia Energy Solutions Refining and Marketing LLC, and North Yard GP, LLC (collectively, the <u>"Companies"</u>), hereby certifies as follows:

- 1. I am the duly qualified and elected Secretary of the Companies and, as such, I am familiar with the facts herein certified and I am duly authorized to certify the same on behalf of the Companies.
- 2. Attached hereto is a true, complete, and correct copy of the resolutions of the boards of managers of the Companies (collectively, the <u>"Boards of Managers"</u>), duly adopted at a properly convened and joint meeting of the Boards of Managers of January 21, 2018, in accordance with the applicable limited liability company agreements of the Companies.
- 3. Since their adoption and execution, the Resolutions have not been modified, rescinded, or amended and are in full force and effect as of the date hereof, and the Resolutions are the only resolutions adopted by the Boards of Managers relating to the authorization and ratification of all corporate actions taken in connection with the matters referred to therein.

[Signature page follows]

IN WITNESS WHEREOF, I have hereunto set my hand on behalf of the Company as of the date hereof.

PES Holdings, LLC Share By:

Name: John B. McShane Title: General Counsel and Secretary

[Signature Page to Certification of Secretary]

# **PES HOLDINGS, LLC**

## **RESOLUTIONS OF THE BOARD OF MANAGERS**

# **CHAPTER 11 FILING AND RETENTION OF PROFESSIONALS**

January 21, 2018

## **Managers Present:**

Gregory Gatta Rodney Cohen David Stonehill David Marchick David Albert Robert W. Owens Joseph Colella

## Managers Absent:

None

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A meeting (the <u>"Meeting"</u>) of the Board of Managers of PES Holdings, LLC (together with its member-controlled subsidiaries and on behalf of any subsidiaries for which it or a member-controlled subsidiary acts as a general partner, the <u>"Company"</u>) was held beginning at 3:00 p.m., Eastern Time, on January 21, 2018.

As set forth above, a requisite number of the members of the Company's Board of Managers (the <u>"Board"</u>), constituting a quorum, participated throughout the Meeting. After it was confirmed that the Meeting was duly convened (and each member of the Board waived any notice requirements in connection therewith), those participating could hear each other and a quorum of the Board was in attendance, the Meeting was called to order. John B. McShane, Executive Vice President, General Counsel and Secretary of the Company, acted as secretary for the Meeting.

Following discussion, upon a motion duly made and seconded, the members of the Board at the Meeting (acting on behalf of the Company, in its own capacity) unanimously adopted and approved the following recitals and/or resolutions pursuant to the organizational documents of the Company and the laws of the state of Delaware:

WHEREAS, the Board has considered presentations by the management and the financial and legal advisors of the Company regarding the liabilities and liquidity situation of the Company, the strategic alternatives available to it and the effect of the foregoing on the Company' business; and WHEREAS, the Board have had the opportunity to consult with the management and the financial and legal advisors of the Company and fully consider each of the strategic alternatives available to the Company.

# CHAPTER 11 FILING

**NOW THEREFORE, BE IT RESOLVED**, that in the judgment of the Board, it is desirable and in the best interests of the Company (including a consideration of their creditors and other parties in interest) that the Company shall be, and hereby is, authorized to file or cause to be filed, a voluntary petition for relief (the <u>"Chapter 11 Case"</u>) under the provisions of chapter 11 of title 11 of the United States Code (the <u>"Bankruptcy Code"</u>) in a court of proper jurisdiction (the <u>"Bankruptcy Court"</u>) and any other petition for relief or recognition or other order that may be desirable under applicable law in the United States; and

**RESOLVED**, that the Chief Executive Officer, the President, the General Counsel, the Chief Operating Officer, the Chief Financial Officer, any Senior Vice President, any Vice President, any Assistant Vice President, or any other duly appointed officer of the Company (collectively, the <u>"Authorized Signatories"</u>), acting alone or with one or more other Authorized Signatories be, and they hereby are, authorized, empowered and directed to execute and file on behalf of the Company all petitions, schedules, lists and other motions, papers, or documents, and to take any and all action that they deem necessary or proper to obtain such relief including without limitation, any action necessary to maintain the ordinary course operation of the Company's business.

## **RETENTION OF PROFESSIONALS**

**RESOLVED**, that each of the Authorized Signatories be, and they hereby are, authorized and directed to employ the law firm of Kirkland & Ellis LLP and Kirkland & Ellis International LLP (together, <u>"Kirkland"</u>) as general bankruptcy counsel to represent and assist the Company in carrying out their duties under the Bankruptcy Code, and to take any and all actions to advance the Company's rights and obligations, including filing any motions, objections, replies, applications, or pleadings; and in connection therewith, each of the Authorized Signatories, with power of delegation, is hereby authorized and directed to execute appropriate retention agreements, pay appropriate retainers, and to cause to be filed an appropriate application for authority to retain the services of Kirkland.

**RESOLVED**, that each of the Authorized Signatories be, and they hereby are, authorized and directed to employ the law firm of Pachulski, Stang, Ziehl & Jones LLP ("PSZJ") as local bankruptcy counsel to represent and assist the Company in carrying out their duties under the Bankruptcy Code, and to take any and all actions to advance the Company's rights and obligations, including filing any motions, objections, replies, applications, or pleadings; and in connection therewith, each of the Authorized Signatories, with power of delegation, is hereby authorized and directed to execute appropriate retention agreements, pay appropriate retainers, and to cause to be filed an appropriate application for authority to retain the services of PSZJ. **RESOLVED**, that each of the Authorized Signatories be, and they hereby are, authorized and directed to employ the firm of PJT Partners LP (<u>"PJT"</u>) as financial advisor to, among other things, assist the Company in evaluating their business and prospects, developing long-term business plans, developing financial data for evaluation by the Board, creditors, or other third parties, as requested by the Company, evaluating the Company's capital structure, responding to issues related to the Company's financial liquidity, and in any sale, reorganization, business combination, or similar disposition of the Company's assets; and in connection therewith, each of the Authorized Signatories, with power of delegation, is hereby authorized and directed to execute appropriate retention agreements, pay appropriate retainers, and to cause to be filed an appropriate application for authority to retain the services of PJT.

**RESOLVED**, that each of the Authorized Signatories be, and they hereby are, authorized and directed to employ the firm of Alvarez & Marsal North America, LLC, together with employees of its affiliates (all of which are wholly owned by its parent company and employees), its wholly owned subsidiaries, and independent contractors (collectively, <u>"A&M"</u>), as restructuring advisor to the Company to represent and assist the Company in carrying out their duties under the Bankruptcy Code, and to take any and all actions to advance the Company's rights and obligations; and in connection therewith, each of the Authorized Signatories, with power of delegation, is hereby authorized and directed to execute appropriate retention agreements, pay appropriate retainers, and to cause to be filed an appropriate application for authority to employ or retain the services of A&M.

**RESOLVED**, that each of the Authorized Signatories be, and they hereby are, authorized and directed to employ the firm of Rust Consulting/Omni Bankruptcy ("Omni") as notice and claims agent to represent and assist the Company in carrying out their duties under the Bankruptcy Code, and to take any and all actions to advance the Company's rights and obligations; and in connection therewith, each of the Authorized Signatories, with power of delegation, is hereby authorized and directed to execute appropriate retention agreements, pay appropriate retainers, and to cause to be filed appropriate applications for authority to retain the services of Omni.

**RESOLVED**, that each of the Authorized Signatories be, and they hereby are, authorized and directed to employ any other professionals to assist the Company in carrying out their duties under the Bankruptcy Code; and in connection therewith, each of the Authorized Signatories, with power of delegation, is hereby authorized and directed to execute appropriate retention agreements, pay appropriate retainers and fees, and to cause to be filed an appropriate application for authority to retain the services of any other professionals as necessary.

**RESOLVED**, that each of the Authorized Signatories be, and they hereby are, with power of delegation, authorized, empowered and directed to execute and file all petitions, schedules, motions, lists, applications, pleadings, and other papers and, in connection therewith, to employ and retain all assistance by legal counsel, accountants, financial advisors, and other professionals and to take and perform any and all further acts and deeds that each of the Authorized Signatories deem necessary, proper, or desirable in connection with the Company's Chapter 11 Case, with a view to the successful prosecution of such case.

#### <u>GENERAL</u>

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**RESOLVED**, that in addition to the specific authorizations heretofore conferred upon the Authorized Signatories, each of the Authorized Signatories (and their designees and delegates) be, and they hereby are, authorized and empowered, in the name of and on behalf of the Company to take or cause to be taken any and all such other and further action, and to execute, acknowledge, deliver and file any and all such agreements. certificates, instruments and other documents and to pay all expenses, including but not limited to filing fees, in each case as in such Authorized Signatory's judgment, shall be necessary, advisable or desirable in order to fully carry out the intent and accomplish the purposes of the resolutions adopted herein.

**RESOLVED**, that the Board has received sufficient notice of the actions and transactions relating to the matters contemplated by the foregoing resolutions, as may be required by the organizational documents of the Company, or hereby waive any right to have received such notice.

**RESOLVED**, that all acts, actions and transactions relating to the matters contemplated by the foregoing resolutions done in the name of and on behalf of the Company, which acts would have been approved by the foregoing resolutions except that such acts were taken before the adoption of these resolutions, are hereby in all respects approved and ratified as the true acts and deeds of the Company with the same force and effect as if each such act, transaction, agreement or certificate has been specifically authorized in advance by resolution of the Board.

**RESOLVED**, that each of the Authorized Signatories (and their designees and delegates) be, and hereby is, authorized and empowered to take all actions or to not take any action in the name of the Company with respect to the transactions contemplated by these resolutions hereunder, as such Authorized Signatory shall deem necessary or desirable in such Authorized Signatory's reasonable business judgment to effectuate the purposes of the transactions contemplated herein.

\* \* \* \*

The foregoing recitals and resolutions were duly adopted by the Board on January 21, 2018.

# UNITED STATES BANKRUPTCY COURT DISTRICT OF DELAWARE

Case No. (If known)

# Official Form 204

# Chapter 11 or Chapter 9 Cases: List of Creditors Who Have the 50 Largest Unsecured Claims and Are Not Insiders

12/15

A list of creditors holding the 50 largest unsecured claims must be filed in a Chapter 11 or Chapter 9 case. Include claims which the debtor disputes. Do not include claims by any person who is an *insider*, as defined in 11 U.S.C. § 101(31). Also, do not include claims by secured creditors, unless the unsecured claim resulting from inadequate collateral value places the creditor among the holders of the 50 largest unsecured claims.

| Name of creditor and complete<br>mailing address, including zip<br>code.   | Name, telephone number, and email address of creditor contact  | Nature of the Indic<br>Claim cont<br>(for example, unitic<br>trade debts, bank or di<br>loans,<br>professional<br>services, and<br>government<br>contracts) | Indicate if<br>Qaim is<br>contingent,<br>unliquidated,<br>or disputed | Amount of unsecured claim<br>If the claim is fully unsecured, fill in only<br>unsecured claim amount. If claim is partially<br>secured, fill in total claim amount and<br>deduction for value of collateral or setoff to<br>calculate unsecured claim. |  |                 |
|--|--|---|---|--|--|-----------------|
|  |  |   |   | Total Claim, if<br>partially<br>secured  | Deduction<br>for value of<br>collateral or<br>setoff | Unsecured claim |
| 1 Anderson Construction Services<br>Attn: Ricke C. Foster, VP<br>6958 Torresdale Avenue Ste 300<br>Philadelphia, PA 19135                          | Anderson Construction Services<br>Tel: 215-331-7150<br>Fax: 215-332-8350<br>Email:<br>rickf@andersonconstructionserv.com | Trade Payable   |   |  |  | \$1,790,416.72  |
| 2 J J White Inc<br>Attn: Ed Purdy, Executive VP, CFO<br>5500 Bingham Street<br>Philadelphia, PA 19120  | J J White Inc<br>Tel: 215-722-1000<br>Fax: 215-745-6229<br>Email: admin@jjwhiteinc.com                                   | Trade Payable   |   |  |  | \$1,505,889.00  |
| 3 CSX Transportation<br>Attn: Nathan D. Goldman, Executive<br>VP and Chief Legal Officer<br>500 Water Street, 15th Floor<br>Jacksonville, FL 32202 | CSX Transpontation<br>Tel: 904-359-3200<br>Fax: 904-359-2459   | Trade Payable   |   |  |  | \$1,344,207.00  |

# Debtor name PES Holdings, LLC, et al.

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Case No. (If known)

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|   | (Continuation Sheet)   |   |  |  |   |  |                 |  |
|---|--|---|--|--|---|--|-----------------|--|
| Name of creditor and complete<br>mailing address, including zip<br>code.  | Name, telephone number, and email address of creditor contact  | Nature of the<br>claim<br>(for example,<br>trade debts, bank<br>loans,<br>professional<br>services, and<br>government<br>contracts) | ture of the Indicate if<br>daim is<br>example, unliquidated,<br>le debts, bank or disputed<br>is,<br>ressional | Amount of unsecured claim<br>If the claim is fully unsecured, fill in only<br>unsecured claim amount. If claim is partially<br>secured, fill in total claim amount and<br>deduction for value of collateral or setoff to<br>calculate unsecured claim. |   |  |                 |  |
|   |  |   | government<br>contracts)   |  | Total Claim, if<br>partially<br>secured | Deduction<br>for value of<br>collateral or<br>setoff | Unsecured claim |  |
| 4 Sunoco Partners Marketing & Terr<br>LP<br>Attn: Joseph Colella, Senior VP<br>3801 West Chester Pike<br>Newton Square, PA 19073      | inal Sunoco Partners Marketing & Terminal LP<br>Tel: 866-248-4344  | Trade Payable   |  |  |   | \$1.283,619.00                                       |                 |  |
| 5 Matrix Service Industrial Contractor<br>Inc.<br>Attn: Kevin S. Cavanah, CFO<br>5100 E. Skelly Dr., Ste. 100<br>Tulsa, OK 74135-6577 | s, Matrix Service Industrial Contractors, Inc.<br>Tel: 918-838-8822<br>Email: legal@matrixservicecompany.com | Trade Payable   |  |  |   | \$1.266,406.00                                       |                 |  |
| 6 Trinity Industries Leasing Company<br>Attn: Tom Jardine<br>2525 Stemmons Freeway<br>Dallas, TX 75207                                | Trinity Industries Leasing Company<br>Tel: 214-631-4420  | Trade Payable   |  |  |   | \$1 215.666 00                                       |                 |  |

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# Case No. (If known)

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|  |  | (Continuati   | ion Sheet)   |  |  |   |  |                 |
|--|--|---|--|--|--|---|--|-----------------|
| Name of creditor and complete<br>mailing address, including zip<br>code. | Name, telephone number, and email address of creditor contact  | Nature of the<br>claim<br>(for example,<br>trade debts, bank<br>loans,<br>professional<br>services, and | Indicate if<br>claim is<br>contingent,<br>unliquidated,<br>or disputed | Amount of unsecured claim<br>If the claim is fully unsecured, fill in only<br>unsecured claim amount. If claim is partially<br>secured, fill in total claim amount and<br>deduction for value of collateral or setoff to<br>calculate unsecured claim. |  |   |  |                 |
|  |  |   | government<br>contracts)   | government<br>contracts)   |  | Total Claim, if<br>partially<br>secured | Deduction<br>for value of<br>collateral or<br>setoff | Unsecured claim |
| 7  | Thyssenkrupp Safway Inc<br>Attn: General Manager<br>10 Industrialhighway Ms #24 Suite 2<br>Lester, PA 19113                          | Thyssenkrupp Safway Inc<br>Tel: 913-281-7927; 610-362-0302<br>Fax: 610-586-5896                         | Trade Payable  |  |  |   | \$1,201,524.00                                       |                 |
| 8  | Nooter Construction Co<br>Attn: Bernie Wicklein, President<br>6 Neshaminy Interplex Suite 300<br>Trevose, PA 19053                   | Nooter Construction Co<br>Tel: 215-638-7474<br>Fax: 215-638-8080<br>Email: sales@nooter.com             | Trade Payable  |  |  |   | \$1,154,154.00                                       |                 |
| 9  | BNSF Railway Company<br>Attn: Ms. Julie A. Piggott, CFO,<br>Executive VP and Director<br>2650 Lou Menk Drive<br>Fort Worth, TX 76131 | BNSF Railway Company<br>Tel: 800-795-2673<br>Fax: 817-352-2399  | Trade Payable  |  |  |   | \$1.080.216.00                                       |                 |

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#### Case No. (If known)

|  | (Continuation Sheet)  |   |  |  |   |  |                 |
|--|---|---|--|--|---|--|-----------------|
| Name of creditor and complete<br>mailing address, including zip<br>code.   | Name, telephone number, and email address of creditor contact   | Nature of the<br>claim<br>(for example,<br>trade debts, bank<br>loans,<br>professional<br>services, and<br>government<br>contracts) | Indicate if<br>claim is<br>contingent,<br>unliquidated,<br>or disputed | Amount of unsecured claim<br>If the claim is fully unsecured, fill in only<br>unsecured claim amount. If claim is partially<br>secured, fill in total claim amount and<br>deduction for value of collateral or setoff to<br>calculate unsecured claim. |   |  |                 |
|  |   |   | government<br>contracts)   |  | Total Claim, if<br>partially<br>secured | Deduction<br>for value of<br>collateral or<br>setoff | Unsecured claim |
| 10 Jacobs Engineering<br>Attn: Steve Demetriou, CEO<br>1880 Waycross Road<br>Cincinnati, OH 45240  | Jacobs Engineering<br>Tel: 513-595-7500<br>Fax: 513-595-7860<br>Email: contactus@jacobs.com             | Trade Payable   |  |  |   | \$995,524 00   |                 |
| <ul> <li>Mechanical Dynamics &amp; Analysis<br/>Attn: John Vanderhoef, President and<br/>CEO</li> <li>19 British American Blvd<br/>Latham, NY 12110</li> </ul> | Mechanical Dynamics & Analysis<br>Tel: 518-399-3616<br>Fax: 518-399-3929<br>Email: Info@MDAturbines.com | Trade Payable   |  |  |   | <b>\$994</b> .257.00                                 |                 |
| 12 Simpson & Brown, Inc<br>Attn: Thatcher Simpson, President<br>119 North Ave West<br>Cranford, NJ 07016   | Simpson & Brown, Inc<br>Tel: 908-276-2776<br>Fax: 908-272-2627<br>Email: info@simpsonandbrown.com       | Trade Payable   |  |  |   | \$830,862.00   |                 |

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Case No. (If known)

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| (Continuation Sheet)   |   |   |   |  |   |  |                 |
|--|---|---|---|--|---|--|-----------------|
| Name of creditor and complete<br>mailing address, including zip<br>code.   | Name, telephone number, and email address of creditor contact                                 | Nature of the<br>claim<br>(for example,<br>trade debts, bank<br>loans,<br>professional<br>services, and<br>government<br>contracts) | Indicate if<br>daim is<br>contingent,<br>unliquidated,<br>or disputed | Amount of unsecured claim<br>If the claim is fully unsecured, fill in only<br>unsecured claim amount. If claim is partially<br>secured, fill in total claim amount and<br>deduction for value of collateral or setoff to<br>calculate unsecured claim. |   |  |                 |
|  |   |   | government<br>contracts)  |  | Total Claim, if<br>partially<br>secured | Deduction<br>for value of<br>collateral or<br>setoff | Unsecured claim |
| 13 Brand Insulation Services<br>Attn: General Manager<br>32 Iron Side Court<br>Willingboro, NJ 08046                     | Brand Insulation Services<br>Tel: (856) 467-2850<br>Fax: 770-514-0285<br>Email: info@beis.com | Trade Payable   |   |  |   | \$823,328 00   |                 |
| 14 Diversified Company<br>Attn: General Manager<br>200 Clarendon<br>Boston, MA 02116                                     | Diversified Company   | Trade Payable   |   |  |   | \$740,900 00   |                 |
| 15 CM Towers Inc<br>Attn: Dennis R Moran, President &<br>CEO<br>21 Commerce Drive<br>Cranford, NJ 07016-3507             | CM Towers Inc<br>Tel: 973-257-1446  | Trade Payable   |   |  |   | \$700,026,00   |                 |
| 16 WR Grace & Co-Conn<br>Attn: Thomas Blaser, Senior Vice<br>President and CFO<br>7500 Grace Drive<br>Columbia, MD 21044 | WR Grace & Co-Conn<br>Tel: 410-531-4000<br>Fax: 410-531-4367                                  | Trade Payable   |   |  |   | \$627,038.00   |                 |

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Case No. (If known)

|   | (Continuat   | ion Sheet)   |  |  |                 |              |
|---|--|--|--|--|-----------------|--------------|
| Name of creditor and complete<br>mailing address, including zip<br>code. Name, telephone number, and<br>email address of creditor contact | Nature of the<br>claim<br>(for example,<br>trade debts, bank<br>loans.<br>professional                       | Indicate if<br>claim is<br>contingent,<br>unliquidated,<br>or disputed | Amount of unsecured claim<br>If the claim is fully unsecured, fill in only<br>unsecured claim amount. If claim is partially<br>secured, fill in total claim amount and<br>deduction for value of collateral or setoff to<br>calculate unsecured claim. |  |                 |              |
|   | government<br>contracts)   |  | Total Claim, if<br>partially<br>secured  | Deduction<br>for value of<br>collateral or<br>setoff | Unsecured claim |              |
| 17 Sumter Transport Company<br>Attn: Bill Clarke, CFO<br>170 S. Lafayette Blvd<br>Sumter, SC 29150  | Sumter Transport Company<br>Tel: 803-775-1002<br>Fax: 803-778-0118<br>Email: bill.clarke@sumtertransport.com | Trade Payable  |  |  |                 | \$576.530 00 |
| 18 Kirk Erectors, Inc.<br>Attn: Charles K. Ellison, President<br>150 Capital Drive Suite 260<br>Golden, CO 80401                          | Kirk Erectors, Inc.<br>Tel: 303-376-6208<br>Fax: 303-376-6209<br>Email: info@kirkerectors.com                | Trade Payable  |  |  |                 | \$528.224.00 |
| 19 W & K Welding & Tank Erectors<br>Attn: Wilbum Williams, President<br>P.O. Box 13<br>1000 Union Landing Rd<br>Riverton, NJ 08077        | W & K Welding & Tank Erectors<br>Tel: 856-764-1210<br>Fax: 856-786-1993<br>Email: information@wktank.com     | Trade Payable  |  |  |                 | \$499,473,00 |

Case No. (If known)

|   | (Continuati  | ion Sheet)   |  |  |                 |              |
|---|--|--|--|--|-----------------|--------------|
| Name of creditor and complete<br>mailing address, including zip<br>code. Name, telephone number, and<br>email address of creditor contact | Name, telephone number, and email address of creditor contact  | Nature of the<br>claim<br>(for example,<br>trade debts, bank<br>loans,<br>professional<br>services and | Indicate if<br>claim is<br>contingent,<br>unliquidated,<br>ank or disputed | Amount of unsecured claim<br>If the claim is fully unsecured, fill in only<br>unsecured claim amount. If claim is partially<br>secured, fill in total claim amount and<br>deduction for value of collateral or setoff to<br>calculate unsecured claim. |                 |              |
|   | government<br>contracts)   |  | Total Claim, if<br>partially<br>secured                                    | Deduction<br>for value of<br>collateral or<br>setoff   | Unsecured claim |              |
| 20 General & Mechanical Contractors<br>Attn: John Grasso, Owner<br>408 Southgate Court<br>Mickleton, NJ 08056                             | General & Mechanical Contractors<br>Tel: 856-423-5859<br>Fax: 856-423-8771<br>Email: jgrasso@genmech.net | Trade Payable  |  |  |                 | \$483,906 00 |
| 21 Trico Lift A Division Of Blue Line<br>Attn: Chris Carmolingo<br>1101 Wheaton Ave<br>Millville, NJ 08332                                | Trico Lift A Division Of Blue Line<br>Tel: 856-776-2350<br>Fax: 856-776-2365                             | Trade Payable  |  |  |                 | \$459.687.00 |
| 22 H T Sweeney & Son Inc<br>Attn: Terry Sweeney<br>308 Dutton Mill Road<br>Brookhaven, PA 19015-1197                                      | H T Sweeney & Son Inc<br>Tel: 610-872-8896<br>Fax: 610-874-6730<br>Email: tsweeney@htsweeney.com         | Trade Payable  |  |  |                 | \$455,106.00 |

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Case No. (If known)

|  | (Continuati  | ion Sheet)   |  |   |  |                 |
|--|--|--|--|---|--|-----------------|
| Name of creditor and complete<br>mailing address, including zip<br>code.         Name, telephone number, and<br>email address of creditor contact         Nature<br>claim<br>(for exativated<br>loans,<br>profess<br>service | Nature of the<br>Claim<br>(for example,<br>trade debts, bank<br>loans,<br>professional<br>sequices and | Nature of the<br>claim<br>(for example,<br>trade debts, bank<br>loans,<br>professional | Amount of unsecured claim<br>If the claim is fully unsecured, fill in only<br>unsecured claim amount. If claim is partially<br>secured, fill in total claim amount and<br>deduction for value of collateral or setoff to<br>calculate unsecured claim. |   |  |                 |
|  |  | government<br>contracts)   |  | Total Claim, if<br>partially<br>secured | Deduction<br>for value of<br>collateral or<br>setoff | Unsecured claim |
| <ul> <li>23 Allstate Power Vac Inc</li> <li>Attn: Daniel Coon, Vice President and<br/>CFO</li> <li>928 East Hazelwood Avenue</li> <li>Rahway, NJ 07065</li> </ul>  | Allstate Power Vac Inc<br>Tel: 732-815-0220<br>Fax: 732-815-9892<br>Email: MARKETING@ACVENVIRO.COM     | Trade Payable  |  |   |  | \$441.497.00    |
| 24 Handex Consulting & Remediation,<br>LLC<br>Attn: Andy Shoulders, President and<br>COO<br>at 1350 Orange Ave. Suite 101<br>Winter Park FL 32789  | Handex Consulting & Remediation, LLC<br>Tel: 609-336-2590<br>Fax: 609-336-2589                         | Trade Payable  |  |   |  | \$355,330,00    |
| 25 Belco Technologies Corp<br>Attn: General Manager<br>9 Entin Road<br>Parsippany, NJ 07054  | Belco Technologies Corp<br>Tel: 973-884-4700<br>Fax: 973-884-4775                                      | Trade Payable  |  |   |  | \$352.732.00    |

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Debtor name PES Holdings, LLC, et al.

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Case No. (If known)

|  | (Continuat  | ion Sheet)  |  |   |   |                 |
|--|---|---|--|---|---|-----------------|
| Name of creditor and complete<br>mailing address, including zip<br>code. Name, telephone number, and<br>email address of creditor contact (for example,<br>trade debts, banil<br>loans,<br>professional<br>services, and | Nature of the<br>claim<br>(for example,<br>trade debts, bank<br>professional<br>services, and | the Indicate if Claim is contingent, unliquidated, or disputed or disputed of calculate unsecured, fill in only unsecured, fill in total claim amount and deduction for value of collateral or setoff to calculate unsecured claim. |  |   | im<br>I in only<br>m is partially<br>it and<br>or setoff to |                 |
|  |   | contracts)  |  | Total Claim, if<br>partially<br>secured | Deduction<br>for value of<br>collateral or<br>setoff        | Unsecured claim |
| 26 Archer Daniels Midland Company<br>Attn: General Manager<br>4666 Faries Parkway<br>Decatur, IL 62526   | Archer Daniels Midland Company<br>Tel: 217-424-5200<br>Fax: 217-424-5200                      | Trade Payable   |  |   |   | \$342,046 00    |
| 27 Elliott Company<br>Attn: General Manager<br>P.O. Box 951519<br>Cleveland, OH 44193  | Elliott Company<br>Tel: 330-656-3930<br>Fax: 330-653-8505                                     | Trade Payable   |  |   |   | \$300,100,00    |
| 28 Veolia North America Regeneration<br>Attn: Steve Hopper, President North<br>America Regeneration Services<br>4760 World Houston Pkwy Ste 100<br>Houston, TX 77032   | Veolia North America Regeneration<br>Tel: 888-983-6542  | Trade Payable   |  |   |   | \$297,712 00    |
| 29 Teco Westinghouse Motor Company<br>Attn: Vincent Tang, President<br>5100 North IH-35<br>Round Rock, TX 78681  | Teco Westinghouse Motor Company<br>Tel: 800-451-8798<br>Fax: 512-255-4141                     | Trade Payable   |  |   |   | \$285,067 00    |

Official Form 204

Chapter 11 or Chapter 9 Cases: List of Creditors Who Have the 20 Largest Unsecured Claims

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Case No. (If known)

|  | (Continuat  | ion Sheet)   |  |   |  |                 |
|--|---|--|--|---|--|-----------------|
| Name of creditor and complete<br>mailing address, including zip<br>code.<br>Name, telephone number, and<br>email address of creditor contact | Nature of the<br>claim<br>(for example,<br>trade debts, bank<br>loans,<br>professional<br>services, and | Indicate if<br>claim is<br>contingent,<br>unliquidated,<br>or disputed | Amount of unsecured claim<br>If the claim is fully unsecured, fill in only<br>unsecured claim amount. If claim is partially<br>secured, fill in total claim amount and<br>deduction for value of collateral or setoff to<br>calculate unsecured claim. |   |  |                 |
|  | government<br>contracts)  | government<br>contracts)   |  | Total Claim, if<br>partially<br>secured | Deduction<br>for value of<br>collateral or<br>setoff | Unsecured claim |
| 30 Infineum USA LP<br>Attn: General Manager<br>1900 E. Linden Avenue<br>PO Box 735<br>Linden, NJ 07036                                       | Infineum USA LP<br>Tel: 800-654-1233<br>Fax: 908-474-6117   | Trade Payable  |  |   |  | \$278.294.00    |
| 31 Brenntag Northeast Inc<br>Attn: General Manager<br>81 W. Huller Lane<br>Reading PA, 19605   | Brenntag Northeast Inc<br>Tel: 610-926-6100<br>Fax: 610-916-3782<br>Email: BNEReadingCS@brenntag.com    | Trade Payable  |  |   |  | \$272.526.00    |
| 32 Fleetwood Industrial Products<br>Attn: General Manager<br>11 Creek Parkway<br>Boothwyn, PA 19061  | Fleetwood Industrial Products<br>Tel: 610-859-8951<br>Fax: 610-859-8957                                 | Trade Payable  |  |   |  | \$266.741 00    |
| 33 Haldor Topsoe Inc<br>Attn: General Manager<br>17629 Elcamino Real<br>Houston, TX 77058  | Haldor Topsoe Inc<br>Tel: 281-228-5000<br>Fax: 281-228-5019<br>Email: postmaster@topsoe.com             | Trade Payable  |  |   |  | \$265,263.00    |

Official Form 204

Chapter 11 or Chapter 9 Cases: List of Creditors Who Have the 20 Largest Unsecured Claims

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Case No. (If known)

|   | (Continuati   | on Sheet)  |  |  |                 |                       |
|---|---|--|--|--|-----------------|-----------------------|
| Name of creditor and complete<br>mailing address, including zip<br>code. Name, telephone number, and<br>email address of creditor contact | Nature of the<br>claim<br>(for example,<br>trade debts, bank<br>loans,<br>professional<br>services, and | Indicate if<br>claim is<br>contingent,<br>unliquidated,<br>or disputed | Amount of unsecured claim<br>If the claim is fully unsecured, fill in only<br>unsecured claim amount. If claim is partially<br>secured, fill in total claim amount and<br>deduction for value of collateral or setoff to<br>calculate unsecured claim. |  |                 |                       |
|   | government<br>contracts)  |  | Total Claim, if<br>partially<br>secured  | Deduction<br>for value of<br>collateral or<br>setoff | Unsecured claim |                       |
| 34 Chalmers & Kubeck Inc<br>Attn: Dennis Kubeck, President<br>150 Commerce Drive<br>Aston, PA 19014                                       | Chalmers & Kubeck Inc<br>Tel: 610-494-4300<br>Fax: 610-485-1484<br>Email: info@candk.com                | Trade Payable  |  |  |                 | \$238,245 00          |
| 35 Team Industrial Services Inc<br>Attn: General Manager<br>8115 Red Bluff<br>Pasadena, TX 77507  | Team Industrial Services Inc<br>Tel: 713-378-8600<br>Fax: 713-378-8660                                  | Trade Payable  |  |  |                 | \$218,013.00          |
| 36 Service Painting Inc<br>Attn: General Manager<br>200 Price Street<br>Marcus Hook, PA 19061   | Service Painting Inc<br>Tel: 610-497-4069   | Trade Payable  |  |  |                 | \$212.310 <u>.</u> 00 |
| 37 Johnson Matthey Process<br>Attn: General Manager<br>115 Eli Whitney Blvd<br>Savannah GA 31408  | Johnson Matthey Process<br>Tel: 912-748-0630  | Trade Payable  |  |  |                 | \$211,038,00          |

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Case No. (If known)

|   | (Continuat  | ion Sheet)  |  |  |                 |              |
|---|---|---|--|--|-----------------|--------------|
| Name of creditor and complete<br>mailing address, including zip<br>code. Name, telephone number, and<br>email address of creditor contact | Nature of the<br>claim<br>(for example,<br>trade debts, bank<br>loans,<br>professional<br>services and  | Indicate if<br>claim is<br>contingent,<br>uniquidated,<br>or disputed | Amount of unsecured claim<br>If the claim is fully unsecured, fill in only<br>unsecured claim amount. If claim is partially<br>secured, fill in total claim amount and<br>deduction for value of collateral or setoff to<br>calculate unsecured claim. |  |                 |              |
|   | government<br>contracts)  |   | Total Claim, if<br>partially<br>secured  | Deduction<br>for value of<br>collateral or<br>setoff | Unsecured claim |              |
| 38 Amquip Crane Rental, LLC<br>Attn: Robert Schiller, CFO<br>1150 Northbrook Drive Suite 100<br>Trevose, PA 19053                         | Amquip Crane Rental, LLC<br>Tel: 215-639-9200<br>Fax: 215-359-2767<br>Email: robert.schiller@amquip.com | Trade Payable   |  |  |                 | \$194,679.00 |
| 39 Honeywell<br>Attn: Anne T. Madden, SVP and<br>General Counsel<br>101 Columbia Rd<br>Morristown, NJ 07962                               | Honeyweli<br>Tel: 877-841-2840<br>Fax: 973-455-4807   | Trade Payable   |  |  |                 | \$189,102 00 |
| 40 Sulzer Pump Services (US) Inc<br>Attn: General Manager<br>P.O. Box 743013<br>Atlanta, GA 30374   | Sulzer Pump Services (US) Inc<br>Tel: 423-296-1919  | Trade Payable   |  |  |                 | \$188,852.00 |
| 41 Exxonmobil Catalyst Technologies LLC<br>Attn: General Manager<br>4500 Bayway Drive<br>Baytown, TX 77520-9728                           | Exxonmobil Catalyst Technologies LLC<br>Tel: 281-834-5629   | Trade Payable   |  |  |                 | \$185.134.00 |

Official Form 204

Chapter 11 or Chapter 9 Cases: List of Creditors Who Have the 20 Largest Unsecured Claims

#### Debtor name PES Holdings, LLC, et al.

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Case No. (If known)

|   | (Continuati   | ion Sheet)   |  |   |  |                 |
|---|---|--|--|---|--|-----------------|
| Name of creditor and complete<br>mailing address, including zip<br>code. Name, telephone number, and<br>email address of creditor contact | Nature of the<br>claim<br>(for example,<br>trade debts, bank<br>loans,<br>professional<br>services, and | Indicate if<br>claim is<br>contingent,<br>unliquidated,<br>or disputed | Amount of unsecured claim<br>If the claim is fully unsecured, fill in only<br>unsecured claim amount. If claim is partially<br>secured, fill in total claim amount and<br>deduction for value of collateral or setoff to<br>calculate unsecured claim. |   |  |                 |
|   |   | government<br>contracts)   |  | Total Claim, if<br>partially<br>secured | Deduction<br>for value of<br>collateral or<br>setoff | Unsecured claim |
| 42 ZeroChaos<br>Attn: Ted Blankenship, CFO<br>420 South Orange Avenue Suite 600<br>Orlando, FL 32801                                      | ZeroChaos<br>Tel: 407-770-6161<br>Fax: 877-888-9376<br>Email: service@zerochaos.com                     | Trade Payable  |  |   |  | \$171.266 00    |
| 43 Univar USA Inc<br>Attn: David Jukes, President<br>3075 Highland Parkway Suite 200<br>Downers Grove, IL 60515                           | Univar USA Inc<br>Tel: 331-777-6000   | Trade Payable  |  |   |  | \$170.746.00    |
| 44 Kellogg Brown & Root Inc<br>Attn: Mark Sopp, Executive Vice<br>President and CFO<br>601 Jefferson Street<br>Houston, TX 77002          | Kellogg Brown & Root Inc<br>Tel: 713-753-2985<br>Fax: 713-753-2985                                      | Trade Payable  |  |   |  | \$169,984,00    |

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\_\_\_\_\_ Case No. (If known)

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|   | (Continuat   | ion Sheet)  |   |  |                 |              |
|---|--|---|---|--|-----------------|--------------|
| Name of creditor and complete<br>mailing address, including zip<br>code. Name, telephone number, and<br>email address of creditor contact | Name, telephone number, and email address of creditor contact  | Nature of the<br>claim<br>(for example,<br>trade debts, bank<br>loans,<br>professional<br>septices, and | e of the Indicate if<br>daim is<br>contingent,<br>unliquidated,<br>bbts, bank or disputed<br>onal | Amount of unsecured claim<br>If the claim is fully unsecured, fill in only<br>unsecured claim amount. If claim is partially<br>secured, fill in total claim amount and<br>deduction for value of collateral or setoff to<br>calculate unsecured claim. |                 |              |
|   | government<br>contracts)   |   | Total Claim, if<br>partially<br>secured   | Deduction<br>for value of<br>collateral or<br>setoff   | Unsecured claim |              |
| 45 Piping Technology & Products, Inc.<br>Attn: General Manager<br>P.O. Box 34506<br>Houston, TX 77234-4506                                | Piping Technology & Products, Inc.<br>Tel: 713-731-0030<br>Fax: 713-731-8640<br>Email: info@pipingtech.com | Trade Payable   |   |  |                 | \$167,961.00 |
| 46 Lucknow Highspire Terminals Inc<br>Attn: General Manager<br>900 S. Eisenhower Blvd<br>P.O. Box 2621<br>Middletown, PA 17057            | Lucknow Highspire Terminals Inc<br>Tel: 717-939-0466   | Trade Payable   |   |  |                 | \$163,956 00 |
| 47 GE International Inc<br>Attn: General Manager<br>4200 Wildwood Pkwy<br>Atlante, GA 30339   | GE International Inc<br>Tel: 678-844-6000  | Trade Payable   |   |  |                 | \$160,979,00 |

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\_\_\_\_\_ Case No. (If known)

|  | (Continuati  | ion Sheet)  |  |   |  |                 |
|--|--|---|--|---|--|-----------------|
| Name of creditor and complete<br>mailing address, including zip<br>code. Name, telephone number, and<br>email address of creditor contact                                      | Nature of the<br>Claim<br>(for example,<br>trade debts, bank<br>loans,<br>professional                     | of the Indicate if<br>claim is<br>contingent,<br>unliquidated,<br>bts, bank or disputed<br>onal | Amount of unsecured claim<br>If the claim is fully unsecured, fill in only<br>unsecured claim amount. If claim is partially<br>secured, fill in total claim amount and<br>deduction for value of collateral or setoff to<br>calculate unsecured claim. |   |  |                 |
|  |  | government<br>contracts)  |  | Total Claim, if<br>partially<br>secured | Deduction<br>for value of<br>collateral or<br>setoff | Unsecured claim |
| 48 US Environmental Inc<br>Attn: General Manager<br>409 Boot Road<br>Downingtown, PA 19335   | US Environmental Inc<br>Tel: 610-518-5800<br>Fax: 610-518-0500<br>Email: info@usenv.com                    | Trade Payable   |  |   |  | \$156.425.00    |
| <ul> <li>49 American Railcar Leasing, LLC<br/>Attn: Tim Jonhson, SVP<br/>c/o SMBC Rail Services LLC<br/>300 South Riverside Plaza, Suite 1925<br/>Chicago, IL 60606</li> </ul> | American Railcar Leasing, LLC<br>Tel: 312-559-4805<br>Fax: 312-559-4829<br>Email: Tim.Johnson@SMBCRail.com | Trade Payable   |  |   |  | \$147.510.00    |
| 50 Ferguson Enterprises #1300<br>Attn: General Manager<br>P.O. Box 417592<br>Boston, MA 02241-7592   | Ferguson Enterprises #1300<br>Tel: 617-562-5146<br>Fax: 617-562-5191                                       | Trade Payable   |  |   |  | \$145,619.00    |

#### IN THE UNITED STATES BANKRUPTCY COURT FOR THE DISTRICT OF DELAWARE

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In re:

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PES HOLDINGS, LLC,

Debtor.

Chapter 11

Case No. 18-[\_\_\_] (\_\_\_)

## LIST OF EQUITY SECURITY HOLDERS<sup>1</sup>

| Debter            | Equity Holders                       | Address of Equity Holder                     | Percentage of<br>Equity Held |
|-------------------|--------------------------------------|--|------------------------------|
| PES Holdings, LLC | Philadelphia Energy<br>Solutions LLC | 1735 Market Street<br>Philadelphia, PA 19103 | 100%                         |

<sup>&</sup>lt;sup>1</sup> This list serves as the disclosure required to be made by the debtor pursuant to rule 1007 of the Federal Rules of Bankruptcy Procedure. All equity positions listed are as of the date of commencement of the chapter 11 case.

#### IN THE UNITED STATES BANKRUPTCY COURT FOR THE DISTRICT OF DELAWARE

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| In | re: |
|----|-----|
|    |     |

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PES HOLDINGS, LLC,

Debtor.

Chapter 11

Case No. 18-[\_\_\_\_] (\_\_\_)

## **CORPORATE OWNERSHIP STATEMENT**

Pursuant to rules 1007(a)(1) and 7007.1 of the Federal Rules of Bankruptcy Procedure, the following are corporations, other than a government unit, that directly or indirectly own 10% or more of any class of the debtor's equity interest:

| Skarcholder                       | Approximate Percentage of Shares Heid |
|-----------------------------------|---------------------------------------|
| Philadelphia Energy Solutions LLC | 100%                                  |

#### IN THE UNITED STATES BANKRUPTCY COURT FOR THE DISTRICT OF DELAWARE

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In re:

PES HOLDINGS, LLC,

Debtor.

Chapter 11

Case No. 18-\_\_\_\_(\_\_)

#### **CERTIFICATION OF CREDITOR MATRIX**

Pursuant to Rule 1007-2 of the Local Rules of Bankruptcy Practice and Procedure for the United States Bankruptcy Court for the District of Delaware, the above-captioned debtor and its affiliated debtors in possession (collectively, the <u>"Debtors")</u><sup>1</sup> hereby certify that the *Creditor Matrix* submitted herewith contains the names and addresses of the Debtors' creditors. To the best of the Debtors' knowledge, the *Creditor Matrix* is complete, correct, and consistent with Debtors' books and records.

The information contained herein is based upon a review of the Debtors' books and records as of the petition date. However, no comprehensive legal and/or factual investigations with regard to possible defenses to any claims set forth in the *Creditor Matrix* have been completed. Therefore, the listing does not, and should not, be deemed to constitute: (1) a waiver of any defense to any listed claims; (2) an acknowledgement of the allowability of any listed claims; and/or (3) a waiver of any other right or legal position of the Debtors.

<sup>&</sup>lt;sup>1</sup> The Debtors in these chapter 11 cases, along with the last four digits of each Debtor's federal tax identification number, are: PES Holdings, LLC (8157); North Yard Financing, LLC (6284); North Yard GP, LLC (5458); North Yard Logistics, L.P. (5952); PES Administrative Services, LLC (3022); PES Logistics GP, LLC (9202); PES Logistics Partners, L.P. (1288); PESRM Holdings, LLC (2107); and Philadelphia Energy Solutions Refining and Marketing LLC (9574). The Debtors' service address is: 1735 Market Street, Philadelphia, Pennsylvania 19103.

| Fill in this information to identify the case and this film |                      |  |
|---|----------------------|--|
| Debtor Name PES Holdings, LLC                               |                      |  |
| United States Bankruptcy Court for the:                     | District of Delaware |  |
| Case number (If known):                                     | (State)              |  |

# Official Form 202 Declaration Under Penalty of Perjury for Non-Individual Debtors 12/15

An individual who is authorized to act on behalf of a non-individual debtor, such as a corporation or partnership, must sign and submit this form for the schedules of assets and liabilities, any other document that requires a declaration that is not included in the document, and any amendments of those documents. This form must state the individual's position or relationship to the debtor, the identity of the document, and the date. Bankruptcy Rules 1008 and 9011.

WARNING – Bankruptcy fraud is a serious crime. Making a false statement, concealing property, or obtaining money or property by fraud in connection with a bankruptcy case can result in fines up to \$500,000 or imprisonment for up to 20 years, or both. 18 U.S.C. §§ 152, 1341, 1519, and 3571.

#### Declaration and signature

I am the president, another officer, or an authorized agent of the corporation; a member or an authorized agent of the partnership; or another individual serving as a representative of the debtor in this case.

I have examined the information in the documents checked below and I have a reasonable belief that the information is true and correct:

- □ Schedule A/B: Assets-Real and Personal Property (Official Form 206A/B)
- Schedule D. Creditors Who Have Claims Secured by Property (Official Form 206D)
- □ Schedule E/F: Creditors Who Have Unsecured Claims (Official Form 206E/F)
- □ Schedule G. Executory Contracts and Unexpired Leases (Official Form 206G)
- □ Schedule H. Codebtors (Official Form 206H)
- Summary of Assets and Liabilities for Non-Individuals (Official Form 206Sum)
- □ Amended Schedule
- Chapter 11 or Chapter 9 Cases: Consolidated List of Creditors Who Have the 50 Largest Unsecured Claims and Are Not Insiders (Official Form 204)
- Other document that requires a declaration List of Equity Security Holders, Corporate Ownership Statement, and Creditor Matrix

I declare under penalty of perjury that the foregoing is true and correct.

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Signature of individual signing on behalf of debtor

Gregory G. Gatta

Printed name

Authorized Signatory

Position or relationship to debtor

Official Form 202

Declaration Under Penalty of Perjury for Non-Individual Debtors



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# Ethanol RIN Waiver Credits:

Improving Outcomes of the Renewable Fuels Standard through a Price Containment Mechanism

Prepared by:

Charles River Associates

Date March 2018

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March 2018

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# 1. Executive Summary

Market-based policies that aim to increase a societal good, such as renewable energy, often employ quantity targets with associated credit markets that allow policy goals to be met at least cost. These credit markets, such as the RIN market under the Renewable Fuels Standard (RFS), can be subject to uncertain and volatile prices when the real world turns out different than policymakers expected. Unexpectedly high prices can lead to significant societal costs and ultimately a failure to meet policy goals.

Since 2013, the ethanol RIN market has experienced high and volatile prices, even though the average ethanol content of motor gasoline in the US has been higher than policymakers thought was necessary to meet their ethanol volume goals when the policy was devised. Actual US transportation fuel consumption has been substantially lower than forecasted when the RFS was written in 2007. This meant that even with the entire country consuming gasoline with approximately 10 percent ethanol, the RFS ethanol volume standards have not been met. Higher ethanol content fuels, such as E15 and E85, could help meet the target, but increasing use of these higher ethanol blends has been held back by infrastructure constraints.

Instead, the RIN deficiency has been met by expanding biodiesel consumption, based on an unintended result of the fuel-type nesting structure of the RFS. Ethanol (D6) RINs have therefore priced off the higher cost biodiesel (D4) RINs. Meanwhile, the US has increased its imports of biodiesel, often from sources with potentially negative environmental impacts. There has also been minimal appreciable increase in ethanol use past the "blend wall," despite RIN prices being many times greater than their levels prior to 2013.

The RFS policy goals could be met at a more reasonable RIN cost with the implementation of a well-designed price containment mechanism. National biofuel policy discussions have recently turned to such mechanisms. These concepts have proven effective in a variety of other compliance credit markets, such as the Renewable Portfolio Standards and carbon emissions policies in many states and regions. While they may have different names, such as price caps, alternative compliance payments (ACP), or safety valves, they have proven effective policy tools. Their application to the RFS is further supported in academic literature.

Many applications of price containment mechanisms include significant government revenue streams, which in many cases have been effectively targeted at breaking through policy and infrastructure constraints. A price containment mechanism in the RFS could lead to greater ethanol consumption in the long term if it includes redirecting the new government revenue stream to expanding higher ethanol blend fuel consumption.

An ideal mechanism for the RFS will minimize consumer costs while achieving long-term policy goals, such as the use of renewable fuels. Waiver credits could be offered for sale by the EPA as an alternative compliance mechanism for obligated parties. A waiver credit program could consider the following components:

A price that reflects ethanol RIN costs – To minimize compliance costs, the waiver credit price should be as low as possible, without causing displacement of ethanol volumes in normal compliance years. Historical ethanol RIN prices prior to the blend wall, in market conditions similar to current conditions, averaged only a few cents. This was due to oxygenate and octane demand for ethanol driving blending. These other demand drivers still exist, and therefore a waiver credit price of about \$0.10 per RIN should effectively relieve the blend wall without displacing ethanol volumes.

A quantity that ensures blend wall relief – If there are not enough waiver credits to clear the blend wall, the program will not provide much value. Given the uncertainty

around the volume of credits needed, the program should provide a substantial numbers of credits. If priced above the natural ethanol RIN price, then there would only be demand for waiver credits to displace RIN volumes above the blend wall.

A revenue recycling program aimed at lowering long-term compliance costs – The EPA can expect tens of millions of dollars per year in waiver credit revenues. These could be re-invested in the renewable fuels industry, with the aim of reducing long term compliance costs. A strong candidate for investment is infrastructure for E15 and E85 fuels, which have faced constraints in availability to consumers. With adequate investment in E15 and E85 infrastructure, long term waiver credit demand could decrease, effectively sunsetting the program naturally.

A price containment mechanism for the RFS can benefit from lessons learned from other policies and markets. There are currently a variety of price containment mechanisms within markets that were formed by environmental and energy policies. While a revisiting of the fundamental RFS policy drivers is a reasonable long-term idea, adding a well-designed ethanol waiver credit program could alleviate several of the most pressing issues with the RFS.

# 2. Introduction

This paper considers the application of a price containment mechanism in the RFS. It covers the following topics, each addressed in separate sections:

 Issues with the Current RFS Policy Design – The RFS was designed with ethanol volume goals based on an expectation of ever-increasing motor gasoline consumption. That has not occurred. As a result, the ethanol blend wall has been dictating RIN economics.

Ethanol RIN prices have been set by the cost to expand biodiesel consumption beyond its RFS-mandated levels. These higher costs have done little to expand ethanol consumption. Nearly the same ethanol volume outcome could have been achieved for a much lower RIN cost. The widespread sale of higher blend ethanol fuels has not increased fast enough despite the high RIN prices.

- Using a Price Containment Mechanism in the RFS The concept of price controls or "safety valves" have existed for as long as there have been compliance markets. They first gained favor in environmental policy-derived markets in the 1980s. The main reasons cited for applying price containment include responding to uncertainty, reducing regulatory burden, decreasing price volatility, and creating a source of revenue that can be used to address policy constraints, thereby improving long-term cost and policy outcomes. All of these are reasons present in the RIN market. We provide an illustration and description of how a price control mechanism would alleviate several RFS issues.
- A Waiver Credit Solution for the RFS An ideal mechanism for the RFS will minimize consumer costs while achieving long-term policy goals, such as the use of renewable fuels. Waiver credits could be offered for sale by the EPA as an alternative compliance mechanism for obligated parties. The waiver credit price should be kept low to minimize compliance costs, but should not lead to significant displacement of ethanol blending. Historical RIN prices suggest that such a price could be as low as a few cents. There should be substantial waiver credits available to ensure that the blend wall is not breached. To improve long-term outcomes, revenues from waiver credits can be invested in relieving infrastructure constraints to higher ethanol blend fuels.
- Appendices: Case Studies A price containment mechanism for the RFS can benefit from lessons learned from other policies and markets. There are currently a variety of price containment mechanisms within markets that were formed by environmental and energy policies. Examples include: many state-level renewable energy programs, the California Low Carbon Fuel Standard, and multiple regional carbon markets, such as that in the Northeast U.S. We examine a few in detail.

While some may point to EPA's waiver authority as an indirect price containment mechanism, it is not used as such and it is limited in its effectiveness. It has not prevented the market distortion caused by ethanol RIN pricing being stuck at biodiesel RIN levels for multiple years. Nor has it created any investment revenues that could be used for improving long-term policy outcomes and blending substantially more ethanol. While it is possible that the waiver authority could be tied to a price containment mechanism, in its current form it does not contain RIN prices.

A well-designed price containment mechanism in the RFS can improve the RIN market. It can deter unnecessary policy costs and can improve long-term outcomes, particularly if waiver credit revenues are used to break through constraints. Ethanol producers can benefit from long-term volume expansion as infrastructure constraints on higher blend fuels are reduced. Obligated parties can benefit from lower compliance costs in years where the price cap is binding. They would also experience reduced price volatility and a reduced risk of losing RIN

value to blenders. Finally, and most importantly, consumer costs would decrease as the long-term policy costs decrease.

# 3. Issues with the Current RFS Design

The RIN mechanism is a quantity-based compliance program, which uses a market mechanism (the RIN market mechanism) to require a certain quantity of ethanol to be used in each period. In simplified terms, the EPA sets the quantity of ethanol to be blended and the tradable RIN mechanism is designed to allow this to happen at least cost.

In the absence of perfect information in setting quantities in advance in such mechanisms, there is a substantial economic literature on the use of quantity versus price-based regulatory mechanisms.<sup>1</sup> If the marginal benefits of compliance greatly exceed the marginal costs, a quantity-based mechanism may be preferable.<sup>2</sup> Nevertheless, the RFS as implemented is a purely quantity-based system with a fixed target, with the inherent scope for unexpected price and policy outcomes if the future turns out differently than expected when the quantities were set.

As we show later in this paper, this is what has happened in the context of the RFS. Originally it was widely thought that, with ever increasing gasoline consumption, it would be relatively easy (and hence require a minimal subsidy, and thus reflecting a low RIN price) to meet the ethanol mandates. However, gasoline consumption has not grown as forecast (a good thing, from an environmental perspective), and infrastructure and other constraints have made it quite difficult to blend higher levels of ethanol to meet RFS requirements. In short, the current RIN market is the result of unintended consequences that a pure quantity-based mechanism lacks the flexibility to address.

This too is a known problem in the economic literature, and various changes to pure quantitybased mechanisms have been proposed in the economic literature (and often implemented in practice) to address the fundamental inflexibility of a pure quantity compliance target.<sup>3</sup> Later in this paper we discuss several case studies of price containment features which have been incorporated into other quantity-based compliance mechanisms to illustrate some practical implementations of these fundamental economic ideas.

We begin with an illustration of current ethanol RIN economics, showing how ethanol (D6) RIN prices have been pricing off of biodiesel (BBD, or D4) RINs. This unexpected outcome was created by the breaching of the ethanol blend wall, which we discuss after the RIN economics illustration. We then show how, despite high RIN prices, higher ethanol blend fuels have not entered the market to relieve the blend wall constraint.

<sup>1</sup> Weitzman (1974). Prices versus Quantities. Review of Economic Studies, 41(4).

<sup>2</sup> Newell, R., W. Pizer and J. Zhang (2003). Managing Permit Prices to Stabilize Prices. RFF Discussion Paper RFF DP-0-34

<sup>&</sup>lt;sup>3</sup> See for example, Jacoby, H. and D. Ellerman (2004). The Safety Valve and Climate Policy. *Energy Policy*, 32(4) and Kollenberg, S. and L. Taschimi (2016). Emissions Trading Systems with Cap Adjustments. *Journal of Environmental Economics and Management*, 80.

# 3.1. Illustration of current RIN economics

The main driver of RIN prices – at least in theory- is the price spread between the conventional fuel and the renewable fuel, adjusted for the lower energy content of the renewable fuel. While there are several constraints on this pricing dynamic being fully realized, historical movements in the conventional-to-renewable fuel spreads have been roughly correlated with RIN price changes.

The following chart is an illustration of the supply and demand curves in the RIN market as it is currently constructed. The prices and quantities roughly match actual outcomes in the past few years, including a RIN price set by BBD RINs. The chart is only meant to illustrate the market, not precisely replicate it.



Figure 1: D6 RIN market illustration, without price containment mechanism

The following describes each of the main elements of the above chart:

Supply curve – While the illustrative supply curve in a generic market is often represented by a sloping line, the ethanol RINs supply curve is better characterized by a tiered set of steps. These represent the increasing compliance costs of supplying additional RINs, which see the greatest jumps in cost when moving to different fuels for compliance. For example, a significant amount of ethanol would be blended for its oxygenate and octane enhancement characteristics, regardless of the RFS. The associated RINS could be produced even at a zero RIN price, as there is another (non-RFS related) value to using ethanol. These low-cost or no-cost RINs represent the first tier in the supply curve.

The next tier is the ethanol that requires a RIN price to be blended, which we assume is upward sloping due to different blending economics in different regions of the country and different costs for different producers. Both of the ethanol tiers are primarily driven by the price spread between petroleum feedstock and ethanol and the relative price of ethanol versus other octane enhancement options. In this example, all E10 ethanol RINs are available at under \$0.05 per RIN, informed by

actual RIN market outcomes when ethanol blending set the RIN price prior to 2013. The ethanol tier ends at the "blend wall," which is the number of RINs that can be achieved by maximizing the amount of ethanol in motor fuels across the country, up to the E10 recommended standard.

RIN market outcomes have demonstrated that the next tier comes from biodieselbased RINs, which are RINs generated by biodiesel use beyond the D4 volume standard set by the EPA.<sup>4</sup> The nested fuel structure of the RFS allows D4 RINs to count toward fulfilling D6 obligations. The price of these RINs is determined by comparative economics for biodiesel and diesel, with the RIN price theoretically covering the spread adjusted for energy content.

The last two tiers illustrated are for expanding higher ethanol blend fuels. These RIN prices represent the price needed to incentivize the infrastructure investments to expand distribution of the higher blend fuels. The price has not been realized by the market due to the BBD RINs setting a temporary ceiling on D6 RIN prices, so they remain unknown. It is possible that the price level required to incentivize infrastructure investment is extremely high, and therefore could bring high consumer costs if it were ever realized in the RIN market.

- Demand curve The demand curve is illustrated as a vertical line at the mandated D6 RIN volume. This is a volume that must be met, nearly regardless of RIN price.<sup>5</sup>
- RIN price The RIN price will be set at the intersection of the supply and demand curves. In the chart, the intersection is on the BBD RIN portion of the supply curve, making the BBD RINs the "marginal RINs" that set the price for all D6 RINs transacted.<sup>6</sup>
- Total market RIN value In this illustration, the total value of all RINs is \$15 billion. This is represented by the areas A, B, and C combined. Had the price been \$0.05 per RIN and the quantity remained the same, the total value of all RINs would be \$750 million, a difference of \$14.25 billion.
- Producer surplus Producer surplus is the amount that producers of RINs are paid over the amounts for which they would be willing to sell them. In the short term, they would be willing to sell RINs at their cost of producing them. In the long term, they would also include a rate of return. This surplus is achieved due to the concept of a marginal producer setting a single price in a market. In the illustration, it is represented by the area A.<sup>7</sup>

<sup>&</sup>lt;sup>4</sup> Other small tiers exist, such as a tier for banked RINs and tiers for E15 and E85 sold via the existing infrastructure. The banked RIN tier is only an annual phenomenon, and thus they have been excluded in this example. The existing E15 and E85 tiers are assumed to be in the sloping portion of the ethanol RIN tier.

<sup>&</sup>lt;sup>5</sup> At extremely high RIN prices there would be a decrease in demand for motor gasoline and therefore a lower RIN demand, but that extreme effect is not necessary to include in this illustrative example.

<sup>&</sup>lt;sup>6</sup> RINs transacted over a year will change in price based on expectations about the marginal RIN cost (either in the current year, or the next year due to banking). Prices may also vary for participants due to contracts and level of vertical integration. However, in the long term, the marginal supply tier sets the price for all RIN transactions.

<sup>7</sup> These surpluses are not entirely held by the producers of RINs (the blenders that separate them). A significant portion is returned through the concept of pass-through in petroleum feedstock prices. Our previous research has shown this pass-through is incomplete, suggesting that some surplus remains with the blenders.

#### 3.2. Issues with breaching the blend wall

The blend wall is breached when the RFS ethanol volume standard is higher than the quantity of ethanol that can be blended as E10, adjusted for higher and lower blend volumes. When the blend wall is exceeded, there is a deficiency of RINs for compliance. There are two main reasons that the blend wall was more easily reached than expected.

 Lower U.S. motor gasoline consumption than expected – This led to a lower amount of ethanol consumed in E10 than expected. The following chart illustrates the discrepancy in forecasted vs. actual E10 ethanol volumes. The light blue line shows the amount of ethanol that would have been blended in E10 if gasoline consumption grew as expected as of 2007. This is well above the green bars, which represent the ethanol quantity mandates from the 2007 RFS2 regulations.

The dark blue line represents actual ethanol volumes in E10, based on lower motor gasoline consumption. The orange line shows the amount of ethanol in E10 based on recent forecasts of gasoline consumption. Both of these lines are well below the mandated ethanol volumes, thus leaving a gap that must be filled by higher blend fuels or D4 RINs.



Figure 2: Ethanol potential of E10, forecasted vs. actual vs. mandate (billion gallons)

Sources: EIA AEO 2006, EIA AEO 2018, EPA RFS overview

2. Lower penetration of higher ethanol blend fuels than expected - This effectively capped ethanol volumes near 10% of motor gasoline consumption. This is discussed in detail in the next section (Section 3.3).

In the RIN market economics illustration in the previous section, the volume standard of 15 billion ethanol RINs caused a breach of the blend wall. This caused the RIN price to jump from about \$0.05 to \$1.00 per RIN. While these are illustrative prices, they reflect recent RIN price history. Before the blend wall was breached, RIN prices were far below current levels. In 2012, they averaged under \$0.03 per RIN. After the breach in 2013, they priced off of D4 prices, reaching as high as \$1.45 per RIN. While there was some price separation in early

2017, D4 and D6 RIN prices have since converged again. This is shown in the following chart.



Figure 3: Historical RIN prices (\$)

Source: RIN data from Oil Price Information Service (OPIS)

The D6 price jump occurred in the same year that the blend wall was breached for the first time. The following chart estimates the quantity, in millions of gallons, by which the blend wall was breached in each year from 2010 to 2016. The amount and timing of the breach is dependent on assumptions about volumes of E0, E15 and E85 consumed. The three bars for each year represent the blend wall breach calculated by various assumptions of higher blend volumes. The green bars represent the breach that would have occurred if the original RFS2 ethanol volume goals were not adjusted. The gray and yellow bars represent breach amounts with high or low assumptions, respectively, about E15 and E85 volumes. Regardless of which is most accurate, it is generally accepted that the blend wall was breached around 2013.



Figure 4: Blend wall "breach" by year

Sources: EPA data, CRA analysis

The blend wall breach occurred without a direct policy response to mitigate its impacts. As a result, there were several issues that arose that threatened the efficient achievement of RFS policy goals. The first set of issues centered on the unintended spike in biodiesel consumption. Because of the ethanol RIN demand for BBD RINs, volumes of biodiesel have significantly exceeded the RFS biodiesel volume standard. In the first year of blend wall

breaching, U.S. biodiesel consumption jumped from 21 million barrels (2012) to 34 million barrels (2013).<sup>8</sup>

This had two main consequences. First, D4 prices, which had been on a significant downward trend, jumped nearly 300% in one year. This had impacts on policy costs. Second, there was a significant increase in imported biodiesel and decrease in exports. In the year before the blend wall, the U.S. was a net exporter of biodiesel (2.2 million barrels in 2012). In the first year of the blend wall breach, the U.S. became a net importer (3.5 million barrels in 2013) <sup>9</sup> It also led to increased demand for biodiesel from foreign sources with potentially negative environmental impacts.<sup>10</sup> Given the environmental driver behind the RFS, this was not necessarily in line with policy goals.

The higher prices themselves are an issue. They add uncertainty and volatility as small changes in fuel market factors can have a large impact on RIN prices. The fact that prices can jump between biodiesel and ethanol pricing also impacts uncertainty. This was seen in the past 1.5 years as market participants tried to gauge whether the EPA would maintain volumes that breached the blend wall. The higher prices also increase the potential financial incentives for blenders to retain portions of the RIN value, rather than passing it all through to refiners as the policy intended.

# 3.3. Failure of high RIN prices to expand higher blend fuels

The blend wall has not been relieved by an expansion of higher blend fuels. There is market evidence that the main cause of the failure to expand E15 and E85 has been insufficient infrastructure investment. If infrastructure were expanded, it is likely that there would be significantly more ethanol blended in transportation fuels at a RIN price well below the RIN prices seen since 2013. These concepts are further explained in this section.

#### 3.3.1. Insufficient penetration of high blend fuels

To drive an increase in higher blend fuels, the fuels must be cost competitive with E10 on an energy content basis,<sup>11</sup> readily available for purchase by final consumers, and have a market of vehicles that can use higher blend fuels. While the pricing issue has seen several challenges with the efficient pass-through of RIN value, the main constraint to all of the above conditions is the lack of adequate infrastructure, and in particular fueling stations that offer E15 and E85. As such, if a primary policy goal is to expand ethanol consumption in transportation fuels beyond the E10 blend wall, any policy options can be substantially judged by whether they effectively confront the E15 and E85 infrastructure challenges.

<sup>&</sup>lt;sup>8</sup> U.S. Energy Information Administration. (2018). *Monthly Energy Review February 2018: Biodiesel and Other Renewable Fuels Overview*. Retrieved from https://www.eia.gov/totalenergy/data/monthly/pdf/sec10\_8.pdf

<sup>9</sup> Idem

AETS. (2013, February). Assessing the impact of biofuels production on developing countries from the point of view of Policy Coherence for Development. *The European Union's Framework Contract Commission 2011*. European Union. Retrieved from: https://ec.europa.eu/europeaid/sites/devco/files/study-impact-assesment-biofuels-production-ondevelopment-pcd-201302\_en\_2.pdf

<sup>11</sup> E15 has roughly 98% of the energy content of E10, while E85 has roughly 77% of the energy content of E10.

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To date, the RFS has not met the challenge of expanding higher blend fuels. There are currently about 1,000 stations selling E15 and about 3,160 stations offering E85.<sup>12</sup> These stations represent 0.8% and 2.6%, respectively, of all public gas stations in the U.S.<sup>13</sup> While E15 and E85 sales volumes are not explicitly tracked, the EPA provided estimates of their volumes in their analysis supporting the 2017 RFS volume standards. They estimated annual sales of 728 million gallons of E15 and 275 million gallons of E85, which represent only 0.5% and 0.2% of all U.S. motor gasoline demand. In order to cover the deficiency of ethanol below the 15 billion gallon RFS goal, there would need to be tens of thousands more stations with either E15, E85 or both.<sup>14</sup>

#### 3.3.2. Lack of infrastructure expansion

Higher RIN prices have clearly not been enough incentive for the significant infrastructure needed to manage the blend wall. As shown in the figure below, E85 stations were added at a much greater rate prior to the 2013 spike in RIN prices (in blue) versus after the spike (in green). The annual growth rate from 2005 through 2013 was over 22%, while the rate for 2013 through 2016 was only 4%. This plateau occurred despite much higher RIN prices.

<sup>12</sup> E15 estimate from Growth Energy's website, as of October 2017. E85 estimate from U.S. DOE's Alternative Fuels Data Center, accessed 2/23/2018. Note that these are not necessarily unique stations, as many E85 stations offer E15 through blending at the station.

<sup>13</sup> Total fueling stations from NACS Fuels Report 2016

<sup>14</sup> The number of stations could be reduced if each station sold a higher amount of higher blend fuels than the current average.



#### Figure 5: E85 filling stations, 2005 - 2016

Source: U.S. DOE Alternative Fuels Data Center

#### 3.3.3. The RIN price has been sufficient to blend ethanol

This stall out in infrastructure expansion occurred during a period in which RIN prices were significantly higher than what would theoretically be needed to incentivize the use of higher blend fuels. The needed RIN price is based on ethanol and petroleum feedstock pricing spreads, with adjustments for the energy content penalty for blending ethanol and the blending benefits of oxygenate and octane enhancement.

To understand the RIN price needed to blend ethanol, consider a simple example based on approximate versions of 2013 feedstock prices (\$2.50 per gallon RBOB and \$2.00 per gallon ethanol) and an assumption of perfectly rational and informed gasoline consumers. Without considering the oxygenate and octane benefits, the maximum RIN price needed for blending ethanol would be about \$0.30 per RIN to make up for the energy content difference.<sup>15</sup> However, that is much higher than the needed RIN price since ethanol blending has oxygenate and octane benefits. As seen in 2012, those additional benefits can drive the RIN price near \$0 during a period with similar feedstock price spreads.

<sup>15</sup> 

This hypothetical RIN value was calculated based on reaching energy content price parity at the wholesale level. It does not account for the added costs associated with the higher blend fuel supply chains and distortions in retail pricing.

## 3.3.4. Relief of the infrastructure constraint would drive more ethanol use

The fact that in 2013 prices jumped to well over \$1.00 per RIN for a substantial period is a clear indicator that there were infrastructure constraints to expanded ethanol blending. In fact, since the blend wall was breached, RIN prices have remained well over the theoretical amounts needed to incentivize blending E15 and E85 (up to any infrastructure constraints). Relieving these constraints could moderate RIN prices.

This is the conclusion reached in 2014 by Babcock and Pouliot.<sup>16</sup> They performed quantitative analysis to estimate how the consumption of E85 can be increased through the construction of new fueling stations and by changing retail and RIN prices, while maintaining the number of flex-fuel vehicles constant at 2013 levels. In their study, E85 volumes could be expanded to produce 800 million additional ethanol gallons at a price of \$0.18/RIN, under the assumption that hundreds of additional fueling stations were added.

A 2015 study by Christensen and Siddiqui has also shown that there is a strong correlation between E85 consumption targets and cost of compliance. They demonstrated that if new initiatives were undertaken to install blender pumps and help deploy an additional 600 million gallons of E85 in 2017, the cost of compliance could be reduced by approximately 50%.<sup>17</sup> According to this study, this would take the form of dampened D5 and D6 RIN prices; D4 RIN prices would largely be unaffected.

It is clear from simple calculations and the academic literature that relieving the infrastructure constraint would lead to a commensurate volume of higher blend fuels added to the market, even at RIN prices less than half their recent levels.

# 4. Using a Price Containment Mechanism to Address RFS Issues

There are several regulatory options for addressing the issues discussed in the previous section. One option would be to dynamically link the volume standards to market conditions, such as the actual amount of motor gasoline consumed and higher blend fuels in the market. This would only be effective if it kept mandates below the blend wall. Another option would be an expansion of qualifying ethanol RINs, such as allowing unobligated RINs for exports. This white paper focuses on a price containment mechanism.

## 4.1. How price containment mechanisms work

Well-designed price containment mechanisms can effectively limit the societal costs of environmental and energy policies, while also supporting the attainment of policy goals. The mechanisms are most beneficial in policies based on quantity goals, which have uncertain cost outcomes that need moderation. The mechanisms are also most beneficial in markets where high prices lead to negative impacts on most stakeholders and the prices do not efficiently drive desired policy outcomes. In these markets, higher prices may simply provide surplus income to producers and costs to consumers, while doing nothing for long-term policy

Babcock, B., & Pouliot, S. (2014). Feasibility and Cost of Increasing US Ethanol Consumption Beyond E10. Arres: Center for Agricultural and Rural Development, Iowa State University.

<sup>17</sup> Christensen, A., & Siddiqui, S. (2015). Fuel Price Impacts and Compliance Costs Associated With The Renewable Fuel Standard (RFS). *Energy Policy*, 614-624.

goals. Price containment mechanisms can prevent such unnecessary transfers, while lowering long-term policy costs.

The basic theory of price containment mechanisms is quite simple. An administrative mechanism is put in place that prevents the price of a compliance credit from exceeding a set level. The mechanism usually involves the administrator, often a government entity, selling compliance credits at a specified price to prevent prices from going higher in the market. This price cap can help contain the overall cost of compliance with a mandate.

Price caps are popular among policymakers for many reasons. They can make new regulations more palatable for many stakeholders by reducing the risk of high costs of compliance, which can both impact obligated parties as well as consumers downstream from the compliance market. In the long-term, this benefit can allow the policymakers to be more ambitious with targets. Philibert argues that a safety valve (another term for a price cap) allows for a more ambitious target in the face of uncertainty about costs because it prevents costs in excess of acceptable levels.<sup>18</sup> This can also extend the life of a policy, since a clear threat to policy longevity would be stakeholder backlash from extreme compliance costs.

Figure 6 shows how a simple price containment mechanism would work in the RFS. It begins with the same RIN supply curve and quantity mandate as in Figure 1, with a price cap added at \$0.10 per compliance credit.



Figure 6: D6 RIN market illustration, including price containment <sup>19</sup>

The following describes each of the main elements of the above chart:

Supply curve – The supply curve is the same as the example without a price cap.

18 Philibert, C. (2006). Certainty versus Ambition. Economic Efficiency in Mitigating Climate Change. Paris: International Energy Agency Working Paper Series. Report Number LTO/2006/03.

<sup>19</sup> As mentioned in the text, this chart is illustrative and not a policy recommendation for a particular price cap level.

- Demand curve The demand curve is the same as the example without a price cap, a vertical line at 15 billion RINs.
- Price cap This purely illustrative example includes a price cap of \$0.10 per compliance credit.
- RIN price In this example, the price cap is reached before the volume standard is reached, and therefore the RIN price is set by the cap at \$0.10 per RIN. If the volume standard were less than 14.5 billion gallons, the RIN price would have been set off the ethanol RIN supply curve and the price cap would not be used.
- Total market RIN value The price of RINs fell from \$1.00 per RIN to \$0.10 per RIN. This \$0.90 per RIN reduction results in a \$13.5 billion reduction in the total value of all D6 RINs, including those purchased at the cap. In a market where most RINs are transacted, this is a major reduction in the total value of market transactions.
- Government revenue Assuming the price cap is administered by the sale of compliance credits, the chart shows 500 million credits sold at the price cap level of \$0.10 per credit. This results in \$50 million of proceeds from the sale, represented by area C2 in the chart. If the volume standard was set below 14.5 billion RINs, there would be no proceeds from the sale of additional credits.
- BBD RINs There are no BBD RINs used for compliance with the D6 mandate. This
  is a reduction of about 330 million gallons of biodiesel (since they receive 1.5 RINs
  per gallon blended). In addition, the D4 RIN market could see lower RIN prices, since
  they were previously being set by the marginal BBD RINs used for D6 compliance.

## 4.2. Infrastructure investment benefit

The chart in the previous section illustrated a RIN market outcome for a hypothetical year. Over time, dedicated policies can change the RIN supply curve significantly. An example from the biodiesel market is the blender tax credit, which causes a downward shift in the supply curve and therefore lower RIN prices when in effect. A price containment mechanism can have the same directional shift in the supply curve over time if it is designed to address RIN supply constraints. One possible way to do so is through strategic investment of the proceeds from the additional RIN sales associated with the price cap.

There are precedents for such "revenue recycling" programs in other markets. In Section 5.3.2, we discuss the program associated with the Northeast's Regional Greenhouse Gas Initiative (RGGI). Such programs are commonly proposed for national carbon policies, with support such as the following from Resources for the Future, "Scholarly research suggests that an alternative payment mechanism linked to investment can be designed to meet and exceed environmental goals and produce more rapid investment in innovative technologies, and improve environmental outcomes at a lower cost..."<sup>20</sup>

There can be significant sums of money brought in through a price containment mechanism in the RFS. In the example in the previous section, a mechanism that simply covered the hypothetical number of RINs beyond the blend wall led to \$50 million in annual revenue. That

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Burtraw, D., & Palmer, K. (2014, November 12). Resources for the Future: Alternative Compliance Payments under the Clean Power Plan. Retrieved 2 22, 2018. (See Patino, Echeverri et al. 2012, Journal of Regulatory Economics)

number could be much higher if the price cap was set at a level below a portion of the ethanol RIN step of the supply curve, thus leading to a greater number of RINs sold.

If a large share of that revenue was directed to relieving constraints to higher blend fuels, the policy could lead to lower priced RINs associated with more E15 and E85 consumption. In the long term, RIN prices could fall below the price cap, as shown in Figure 7 below. In this example, there are additional low cost RINs added to the supply curve, thus shifting the BBD RINs step out to the right. The new E15 and E85 RINs are plentiful enough to keep the RIN price below the price cap.





There are many positive outcomes in the above example. First, the price cap is no longer needed unless there are significant commodity price shifts that disadvantage ethanol against petroleum feedstocks. Second, the RFS volume standards are entirely met with ethanol, versus relying on biodiesel volumes indefinitely, as seems to be the current situation. Finally, note that the entire RIN value (\$750 million) is far lower than in the first example with no price cap (\$15 billion).

# 5. Designing a Mechanism for the RFS

As illustrated throughout this paper, the RFS could greatly benefit from a well-designed price containment mechanism. To be well-designed, the mechanism should adhere to a set of economic principles that support overall policy goals. It should also integrate the price containment experiences in other similar markets. Given these requirements, an ethanol RIN waiver credit program with certain design features could meet the goals of the RFS more effectively than the current RFS without a price containment mechanism.

# 5.1. Economic considerations

The following are some of the key economic considerations for policymakers when evaluating a price containment mechanism for the RFS. The list is not comprehensive, but rather highlights considerations based on the RFS issues and goals discussed in previous sections.

- Minimize overall compliance costs
- Avoid the unintended use of nested fuel tiers as long-term backstops for parent tiers
- Incentivize investment to relieve constraints, such as infrastructure expansion or new technology development
- Reduce volatility and RIN cost uncertainty

## 5.2. Lessons from price containment in other markets

When considering a price containment mechanism for the RFS, policymakers can benefit from the experiences in other similar markets. Price containment mechanisms have proven effective in a variety of markets, such as the Renewable Portfolio Standards and carbon emissions policies in many states and regions (such as the Regional Greenhouse Gas Initiative and California's Low Carbon Fuel Standard). There is even a price containment mechanism within the RFS already, in the form of the cellulosic (D3) waiver credit program.

All of the existing mechanisms were put in place to avoid potential issues in their respective policies, and those issues are in many cases the ones highlighted in this paper as currently plaguing the RFS. The issues most mentioned by policymakers include minimizing consumer costs, ensuring longevity of the policies by avoiding overly-burdensome outcomes, and reducing uncertainties of costs to comply with quantity-based policies.

We describe the mechanisms for several policies in Appendices A-C. We highlight key features of three different policies and the RFS' D3 waiver credits in the table below:

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|                                      | Panawahla  | Pagional   | Low Carbon   | Collulosio   |
|--------------------------------------|--|--|--|--|
|                                      | Portfolio<br>Standards<br>(RPS)  | Greenhouse<br>Gas Initiative<br>(RGGI)                                     | Fuel Standard<br>(LCFS)  | Waiver Credits<br>(CWC)  |
| R <b>egio</b> n                      | USA (29 states)  | Northeast, Mid-<br>Atlantic USA  | California   | USA  |
| Policy<br>Mandate                    | Percentage or<br>amount of<br>utilities'<br>electricity sales<br>that must come<br>from renewables             | Carbon<br>emissions caps<br>for electric<br>sector                         | Carbon<br>emissions caps<br>for<br>transportation<br>sector                            | Sale of waiver<br>credits for<br>compliance with<br>RFS cellulosic<br>mandates |
| <u>Obligated</u><br>Parties          | Load serving<br>entities (utilities)   | Fossil-fuel-<br>based electric<br>power<br>generators                      | Producers of<br>petroleum-Desed<br>fuels   | Refiners and<br>importers of<br>conventional<br>fuels                          |
| Compliance<br>Options                | Alternative<br>compliance<br>payments,<br>financial<br>penalties   | Acquiring<br>allowances<br>issued by RGGI,<br>traded among<br>participants | Acquiring credits<br>to offset carbon<br>deficits from<br>other<br>participants        | Purchasing<br>waiver credits<br>from the EPA at<br>pre-set prices              |
| Credits                              | Renewable<br>Energy<br>Certificates<br>(REC)   | RGGI<br>Allowances   | LCFS Credits   | Cellulosic<br>Waiver Credits   |
| Price<br>Control<br>Mechanism        | Alternative<br>Compliance<br>Payments<br>(ACP), caps on<br>rate impact,<br>caps on contract<br>prices or funds | Cost<br>Containment<br>Reserve (CCR)                                       | Credit Clearance<br>Market (CCM)   | Price floor and<br>price ceiling   |
| Government<br>Revenues<br>Generated? | Yes  | Yes  | No, credits sold<br>by other parties   | Yes  |
| Revenue<br>Recycling<br>Methods      | Funding Public<br>Benefit Funds<br>(PBF)   | Funding<br>emissions<br>reduction<br>programs,<br>assisting<br>ratepayers  | Kept within the<br>clean-fuel<br>market place,<br>reallocated<br>among<br>participants | N/A  |

# Table 1: Comparing Price Control Mechanisms in Similar Markets

# 5.3. Waiver credit program design features

Based on the proposed set of principles and goals, and considering experiences with price containment mechanisms in other markets, we provide a set of design recommendations. We focus on the design aspects of an ethanol RIN waiver credit program for the RFS. While this paper does not advocate a particular price containment mechanism, there are clear strengths to the waiver credit approach compared to other options. It is a natural fit for the RFS.

The basic form of an ethanol RIN waiver credit program is straight-forward. The US government, through the EPA, offers waiver credits for sale at a set price to obligated parties. Obligated parties can comply with the RFS by: 1) submitting/retiring RINs that were separated during ethanol blending, similar to the current approach, 2) submitting waiver credits, or 3) submitting/retiring a combination of RINs and waiver credits.

Beyond the basic form, there are several design components critical to the mechanism:

 Setting the initial waiver credit price – Setting a price too high will lead to underutilization of the waiver credits and likely a continued breaching of the blend wall. This would defeat the cost minimization goal of the mechanism. The price should be set as low as possible without driving out significant ethanol volumes.

In many markets there is also concern over setting the price too low, which could defeat environmental or other policy goals. For example, in the Renewable Portfolio Standards, an ACP that is too low could result in no construction of solar power facilities. Fortunately, this is not a significant concern in the RFS. There is recent history to demonstrate that the cost of ethanol RINs for volumes below the blend wall is extremely low under market conditions similar to the current conditions. It is possibly as low as \$0 per RIN.

In 2012, the average RIN price was \$0.029 cents per RIN with an ethanol RIN quantity mandate just below the blend wall. Importantly, these prices were seen while the fundamental drivers of RIN costs were similar to their current levels. For example, in the last six months before the blend wall was breached, the average national feedstock spread (ethanol vs. RBOB), adjusted for energy content, was \$0.55 per gallon. Over the first six months of 2017, the same spread averaged \$0.53 per gallon. This would suggest very similar economics, and therefore similar ethanol RIN costs.

This would suggest a recent proposal of a \$0.10 per RIN waiver credit price would only be used for replacing RINs required beyond the blend wall, since obligated parties would find lower cost compliance from purchasing RINs from blenders (or blending the ethanol themselves if vertically integrated).

- Predictable long-term price path with infrequent adjustments There must be a balance between setting a clear long-term waiver credit price path and having the mechanism adjust to significant changes in the market. The mechanism is most valuable if it removes long-term uncertainty. If the mechanism expires after a short period of time, the program will jump right back into a period of speculation and volatile RIN prices. That speculation would actually arrive in RIN prices before the mechanism expires due to RIN banking.
- Ample waiver credits available to ensure the blend wall is not breached The
  precise volume of credits needed to prevent reliance on BBD RINs is not known in
  advance of a compliance year. While we can view historical biodiesel volumes to see
  how far they exceeded their D4 mandate, the presence of banking clouds that picture
  and the story can change year to year.

In addition, the blend wall level can move significantly year-to-year, particularly during large economic downturns in the economy. For example, from both 2007-to-2008 and

2010-to-2011, there were drops in motor gasoline demand of about 3% in individual years. Applied to a blend wall of about 14 billion gallons, such a drop would remove about 450 million ethanol RINs. It is precisely during these times that the waiver credits could prove most valuable, and therefore they need to be available in sufficient quantities.

Given that this outcome is critical to the benefits of a price containment mechanism, the volume of waiver credits should substantially exceed the quantity estimated as necessary to avoid the blend wall. This is particularly true if there is a set volume of credits that is not responsive to economic shifts year-to-year.

Some stakeholders may have concern that a large volume of waiver credits would displace ethanol blending. However, given that ethanol RIN costs below the blend wall constraint are assumed to be extremely low, there is little risk of obligated parties overly relying on waiver credits regardless of the quantity available.

Recycling revenues into constraint-relieving investments – The selling of waiver credits could lead to tens of millions of dollars in revenues per year. These revenues can be used to reduce long-term compliance costs by supporting initiatives to break through constraints. The most clear constraint deserving attention is the infrastructure constraint to higher ethanol blend fuel expansion. There are multiple examples of government programs that have expanded the number of fueling stations selling E85, but the funding for those programs has been insufficient without dedicated revenue streams like those available through a waiver credit program.<sup>21</sup>

<sup>21</sup> USDA announces grants to expand E15, E85 infrastructure (2015, September 10). Retrieved from Ethanol Producer Magazine: http://ethanolproducer.com/articles/12612/usda-announces-grants-to-expand-e15-e85-infrastructure

# Appendix A: Case Study: Renewable Portfolio Standards

A Renewable Portfolio Standard (RPS) is a regulation set by a state, region or nation that requires increasing percentages or amounts of electricity provided to retail customers be generated by eligible renewable sources. As of 2018, twenty-nine states have implemented an RPS, while eight others have adopted Renewable Energy Goals. The existing RPS programs vary in their design, targets, reporting and compliance enforcement methods.

The RPS-eligible sources vary by program, but generally include wind, solar, biomass and other generating technologies. In many cases, there are separate tiers for different sources, such as a solar "carve out," with specific targets nested within the overall target. This is similar to the biofuel tiers in the Renewable Fuels Standard (RFS). The obligated parties are Load Serving Entities (LSEs), commonly thought of as the utilities that provide electricity to end-use consumers. This is dissimilar to the RFS, since the RFS places the obligation on refiners, not the entities that directly serve end consumers of fuels.

In most RPS programs, the obligated parties can either directly procure or produce renewable electricity, or they can purchase compliance credits, known as Renewable Energy Certificates (REC), from the generators of renewable electricity. The RECs in RPS programs are similar to the RINs used in the RFS. A key difference, however, is that most RPS programs recognize the significant uncertainty in renewable energy technology development and cost competitiveness, and therefore many programs explicitly include price containment mechanisms. As of 2014, at least 24 of 30 states with renewable energy programs included a cost containment mechanism in their regulations.<sup>22</sup>

The price containment mechanisms found in RPS programs include, but are not restricted to the following:<sup>23</sup>

- Alternative Compliance Payment (ACP) An RPS regulation may allow LSEs to pay an ACP for each megawatt-hour (MWh) of renewable electricity that the LSE is short of its compliance obligation, by failing to obtain sufficient RECs. The ACP rates are generally set administratively based on economic principles and expected technology costs over time. ACPs are discussed in more detail below.
- Caps on rate impacts or revenue requirements Some states have created ceilings that limit how much a renewable energy policy can increase electricity rates for customers. They are often implemented in the form of set percentages of the utilities' annual retail revenue requirement to be spent on compliance with RPS. Thus, utilities that have spent the specified percentage on renewables may be considered compliant even if they have not met the annual RPS targets.<sup>24</sup>
- Renewable energy contract price caps These caps limit the amount that a renewable energy generator can charge a utility for a renewable energy or REC purchase, which indirectly caps prices.

<sup>22</sup> Heeter, J., Barbose, G., Bird, L., Weaver, S., Flores-Espino, F., Kuskova-Burns, K., & Wise, R. (2014). A Survey of State-Level Cost and Benefit Estimates of Renewable Portfolio Standards. National Renewable Energy Laboratory.

<sup>23</sup> Barbose, G. (2017). U.S. Renewables Portfolio Standards 2017 Annual Status Report. Lawrence Berkeley National Laboratory.

<sup>24</sup> Stockmayer, G., Finch, V., Komor, P, & Mignogna, R. (2012). Limiting the costs of renewable portfolio standards A review and critique of current methods. *Energy Policy*, 155-163

- Renewable energy fund caps Some states, such as New York, have established specific programs for the purpose of a central RPS procurement. These caps limit the amount of funding that can be made available to cover the program's budget.
- Financial penalties Similarly to ACPs, penalties can be imposed on LSEs who are not able to meet their RPS requirements for the year. They differ from ACPs insofar as they cannot be passed through to ratepayers and/or the penalty rate is not prespecified.<sup>25</sup>

Among these mechanisms, ACPs and caps on rate impacts are the most common.<sup>26</sup> The latter are less relevant to the Renewable Fuels Standard since gasoline prices are not regulated to the same extent as electricity prices and the RFS obligated parties, as currently designated, would have no way to administer such caps. It is therefore more applicable to the RFS to consider the design and implementation of ACPs.

The design and price of ACPs vary by state. The total ACP cost is calculated as the statedetermined ACP rate multiplied by the LSE's deficient kilowatt-hours. In some states, ACPs are required and thus they constitute the cost of RPS compliance. In Illinois, for example, alternative electricity suppliers must fulfill half of their RPS requirement by purchasing ACPs. In most other states, however, ACPs are optional. LSEs therefore pick the option that allows them to fulfill their RPS requirement at the least cost: if the ACP rate is higher than purchasing RECs or renewable energy, they will opt for this method of compliance. In this way the ACP effectively sets a ceiling on the REC and renewable procurement costs.

Typically, ACP costs have proven higher than the cost of meeting the requirement by generating renewable energy or purchasing RECs, but they have been critical in salvaging several RPS programs when costs may have otherwise have risen unsustainably. A 2014 study has shown that in almost all states the historical cost of complying with RPS has been lower than the effective cost cap (Figure 8). This means that the ACP has not been binding.



Figure 8. RPS cost caps compared to estimated recent historical cost 27

Source: Heeter, et al., 2014

<sup>25</sup> Heeter, et al, 2014

<sup>26</sup> Pierpont, B. (2012, December). *Renewable portfolio standards – the high cost of insuring against high costs*. Retrieved February 07, 2018, from Climate Policy Initiative: https://dimmer.policy/initiative.org/001212177.ene.policy/initiative standards-the high cost of insuring against-high costs/

<sup>&</sup>lt;sup>27</sup> Further note on the chart: "For states with multiple cost containment mechanisms, the cap shown here is based on the most-binding mechanism." Heeter, et al., 2014.

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The revenue from ACPs is generally used to fund a public benefits fund that supports renewable development, demand-side energy efficiency programs, low-income assistance and weatherization programs in the state.<sup>28</sup> These funds are often managed by governmental entities and in fewer cases by non-profit organizations or corporations created specifically to manage the fund. In some cases, separate sub-funds are created for specific technologies. For instance Maryland and Massachusetts set aside the revenue from ACPs collected from the solar carve-out obligation to fund more solar deployment. These funds can benefit communities in a wide variety of ways, including environmental health improvements, energy costs reductions achieved through energy efficiency, financial assistance to low-income customers and support to home-owners for home improvement initiatives.

<sup>28</sup> Stockmayer, et al., 2012; U.S. Department of Energy. (2010). *Public Benefit Funds. Increasing Renewable Energy & Industrial Energy Efficiency Opportunities*. U.S. Department of Energy.

# Appendix B: Case Study: Various Carbon Policies

Many countries around the world and states within the United States have set goals on limiting carbon emissions from fossil fuel combustion. To achieve these goals, many governments have formed carbon policies that limit emissions in single or multiple sectors of their economies, either directly through emissions caps or carbon pricing, or indirectly through regulated mandates on technologies or emissions controls. Quantity targets generally involve market mechanisms through cap-and-trade systems, whereby entities can buy and sell emissions permits in order to comply with emission limits. Price targets are often implemented in the form of a carbon tax: parties that emit carbon dioxide (CO<sub>2</sub>) pay the government a set amount per ton of CO<sub>2</sub> emitted. Hybrid systems include imposing upper limits on the price for emissions permits by making additional permits available at a predetermined price. These policies can often be more efficient than pure price or pure quantity-based policies, because they are better equipped to deal with market uncertainty.<sup>29</sup>

A key difference from the RFS is that carbon policies are designed to reduce emissions, not to provide direct incentives for increasing a certain activity (like blending renewable fuels). Therefore, carbon allowances are generally not created by market participants, but rather auctioned by the government or freely allocated. Similar to the RFS, however, these credits are tradable and they are submitted by obligated parties to cover their annual emissions.

Successful carbon cap-and-trade programs have been implemented in Europe, New Zealand, Australia, North America, and recently in China. Several countries across Africa, Asia, Europe, Central and South America currently have a carbon tax in place.<sup>30</sup> There exists an expansive literature on the possible design and implementation of a carbon policy in the United States, although no such policy has been approved at the federal level. Instead, there are regional policies, such as the Regional Greenhouse Gas Initiative (RGGI) in the Northeast U.S. and the AB 32 program in California, which is in the process of expanding.

Price containment mechanisms feature prominently in both the existing carbon policies and the many proposals at the U.S. federal level. They are often referred to as "safety valves" in the carbon policy context. The most common form involves the government releasing additional allowances into the market if a set carbon price is reached. This additional supply of allowances moderates the price. The added allowances are either newly created or borrowed from future years. An example of such a program is the Cost Containment Reserve (CCR) in the RGGI program, described in the next section.

#### 5.3.1. Regional Greenhouse Gas Initiative

The Regional Greenhouse Gas Initiative (RGGI) was the first mandatory cap-and-trade program to limit CO<sub>2</sub> emissions from the power sector in the U.S. The participating states are all located in the Northeast and Mid-Atlantic regions and include Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont.

Aldy, J., Hafstead, M., Metcalf, G., Murray, B., Pizer, W., Reichert, C., & Williams, R. (2017). Resolving the Inherent Uncertainty of Carbon Taxes. Harvard Environmental Law Review.

<sup>30</sup> The World Bank. (2017, December 01). Carbon Pricing Dashboard. Retrieved February 09, 2018, from http://carbonpricine.dashboard.worldbank.org/map.data

 $CO_2$  emissions are regulated through  $CO_2$  Budget Trading Programs that vary by state, but are all aligned with the RGGI Model Rule.<sup>31</sup> The overarching RGGI regulation requires fossilfuel-based electric power generators above a certain size to obtain allowances equal to their  $CO_2$  emissions over a three-year control period. Each allowance corresponds to the permission to emit one short ton of  $CO_2$  and can be traded between different regulated parties. Allowances are issued by the states' Budget Trading Programs, which also establish participation in regional allowance auctions. There is a cap to the maximum amount of allowances that can be issued, which is set yearly by the RGGI and decreases over time.

RGGI includes a Cost Containment Reserve (CCR). The CCR consists of additional allowances on top of the caps, which are made available only when the allowance prices exceed a predefined threshold. The goal is to protect participants from exceedingly high emissions reduction costs. Both the threshold price at which the CCR is triggered and the size of the reserve is set to change every year: the former increases, while the latter decreases over time.

All 15 million CCR allowances were sold in 2014 to 2015, but the reserve was not triggered in 2016. Those 15 million allowances represent 2.5% of all allowances expected in RGGI from 2014 to 2020.<sup>32</sup> The independent market monitor for RGGI, Potomac Economics, emphasizes the value of the CCR, stating that "Since the program changes announced in February 2013, the CCR has been a significant factor in reducing the volatility of allowance prices."<sup>33</sup> Adding that the CCR "...may have helped to limit price volatility: (a) directly by providing for the sale of ten million additional allowances during 2015 and (b) indirectly since the potential for CCR allowances to be sold in future auctions limits upward speculative pressure on prices.<sup>34</sup>

The nine RGGI states receive significant revenues from the initial auctions of allowances and the CCRs. Through 2015, they had generated \$1.7 billion, most of which has been invested in initiatives that further reduce emissions or assist ratepayers with the added cost on their electricity bills. The investment categories are summarized in the table below:<sup>35e</sup>

| Spending Category             | Percentage of 2015<br>RGGI investment | Outcome  |
|-------------------------------|---------------------------------------|--|
| Energy Efficiency             | 64%                                   | \$1.3b lifetime energy bill savings to over<br>141,000 households and 5,700 businesses |
| Clean and<br>Renewable Energy | 16%                                   | \$785.8m lifetime energy bill savings to 19,600 households and 122 businesses          |

31 The Regional Greenhouse Gas Initiative. (2018). *Program Overview and Design: Elements of RGGI*. Retrieved 02 21, 2018, from https://www.rggi.org/program-overview-and-design/elements

33 Idem

<sup>32</sup> Potomac Economics. (2017). Annual Report On The Market For RGGI CO2 Allowances: 2016. Potomac Economics. Retrieved February 22, 2018 from <a href="https://www.rggi.org/sites/default/files/Uploads/Market-Monitor/Annual-Reports/MM">https://www.rggi.org/sites/default/files/Uploads/Market-Monitor/Annual-Reports/MM</a> 2016 Annual Report pdf

<sup>34</sup> Potomac Economics. (2016). Annual Report On The Market For RGGI CO2 Allowances: 2015. Potomac Economics. Retrieved February 22, 2018 from https://www.rggi.org/sites/default/files/Uploads/Market-Monitor:Annual-Reports/MM\_2015\_Annual\_Report.pdf

<sup>&</sup>lt;sup>35</sup> The Regional Greenhouse Gas Initiative. (2017). *The Investment of RGGI Proceeds in 2015*. RGGI, Inc.

| Greenhouse Gas<br>Abatement | 4%  | Avoided release of 636,000 short tons of CO2                 |
|-----------------------------|-----|--|
| Direct Bill<br>Assistance   | 10% | \$40.4m returned in bill credits and assistance to consumers |

## 5.3.2. Revenue Recycling

As just discussed, carbon polices with both initial emissions auctions and allowance-based reserve systems can bring in substantial amounts of money. Therefore, an important aspect of carbon policy design is determining how the revenues collected are to be returned to the economy. This is often referred to as "revenue recycling" and is covered in a large amount of academic literature.

One option is to use some of the revenues to pay for emissions reductions in sectors not covered by the carbon regulation, in the case where emissions targets have not yet been met.<sup>36</sup> Alternatively, the revenues could be used to invest in energy efficiency, renewable and other low-carbon technologies. Another option is to reinvest the revenues in other initiatives that touch the economy at large, such as income tax cuts or infrastructure spending.<sup>37</sup> For example, returning the revenues to individuals and businesses through lump-sum rebates can significantly lower the cost of a carbon tax. This cost offsetting idea has been popular in recent proposals that seek to achieve a carbon policy with minimal regulatory burden.

<sup>36</sup> Murray, B., Pizer, W., & Reichert, C. (2017). *Increasing Emissions Certainty Under a Carbon Tax.* Harvard Environmental Law Review.

<sup>37</sup> Goulder, L., & Hafstead, M. (2013). Tax Reform and Environmental Policy. Washington Resources For the Future; Metcalf, G. (2017). Implementing a Carbon Tax. Washington: Resources For the Future.

# Appendix C: Case Study: California's Low Carbon Fuel Standard

California's Low Carbon Fuel Standard (LCFS) is administered by the California Air Resources Board (ARB). Implemented in 2011, its goal is to reduce the carbon intensity of the transportation fuel consumed in California by at least 10% by 2020.<sup>38</sup> Unlike the RFS, it does not specify which fuels or what volumes of each are necessary to satisfy the requirement, letting the market determine the mix of fuels needed. Instead, it assigns to each fuel type a carbon intensity rating, measured in CO2 equivalent, which can be above or below the standard. LCFS deficits and credits are then defined as the difference between the fuel's rating and the standard (positive for deficits, negative for credits). Obligated parties must maintain compliance by purchasing or generating enough credits to offset the deficits they have produced in a calendar year.

The LCFS includes a price cap in the form of a Credit Clearance Market (CCM). It was developed with the following goals:<sup>39</sup>

- Allow compliance even if a credit shortfall occurs
- Strengthen incentives to invest in low carbon intensity fuels
- Increase certainty regarding the maximum cost of compliance
- Prevent extreme market volatility
- Ensure that willing credit generators can sell available credits

The CCM works as follows: If the obligated parties fail to offset their annual deficit, they must purchase their pro-rata share of credits in the CCM. Other parties that hold available credits for that year offer them for sale in this market at a set price of \$200 per metric ton, adjusted annually for inflation. The LCFS Credit Prices have never come close to this ceiling, having traded at their highest point just above \$120 per metric ton.

Prior to selecting the CCM option, the ARB staff had also considered a credit window option, which was closer in design to the price caps in RGGI and many RPS programs. One of the major differences between these two mechanisms is the way in which the revenues collected are reinvested. In the clearance market process, the proceeds are kept within the clean fuels marketplace: the money flows from parties that have not been able to offset their deficits to those that hold credits. In the credit window process instead, proceeds are distributed to low-carbon intensive fuel producers or used for other greenhouse gas reductions to mitigate the loss in LCFS benefits.<sup>40</sup>

With such cost-containment mechanisms in place, the LCFS achieved 98% compliance in 2015. Given that one party was short after the deadline, a CCM was held in 2016, which enabled them to cover their remaining 2015 obligation.<sup>41</sup> In 2017, the CCM for 2016 did not occur since all obligated parties with deficits were able to meet their compliance obligation.

41 Wade, 2016

<sup>38</sup> California Air Resource Board. (2016, May 10). *LCFS Basics*. Retrieved February 08, 2018, from https://www.arb.ca.gov/fuels/lcfs/background/basics.htm

<sup>39</sup> Idem

<sup>40</sup> Wade, S. (2016). California Low Carbon Fuel Standard Cost Containment Provisions. California Air Resources Board.

#### References

- Aldy, J., Hafstead, M., Metcalf, G., Murray, B., Pizer, W., Reichert, C., & Williams, R. (2017). *Resolving the Inherent Uncertainty of Carbon Taxes.* Harvard Environmental Law Review.
- AETS. (2013, February). Assessing the impact of biofuels production on developing countries from the point of view of Policy Coherence for Development. *The European Union's Framework Contract Commission 2011*. European Union. Retrieved from: https://ec.europa.eu/europeaid/sites/devco/files/study-impact-assesment-biofuelsproduction-on-development-pcd-201302 en 2.pdf

Babcock, B., & Pouliot, S. (2014). Feasibility and Cost of Increasing US Ethanol Consumption Beyond E10. Ames: Center for Agricultural and Rural Development, Iowa State University.

- Barbose, G. (2017). U.S. Renewables Portfolio Standards 2017 Annual Status Report. Lawrence Berkeley National Laboratory.
- Burtraw, D., & Palmer, K. (2014, November 12). *Resources For the Future: Alternative Compliance Payments under the Clean Power Plan.* Retrieved 2 22, 2018, from http://www.rff.org/blog/2014/alternative-compliance-payments-under-clean-power-plan#top
- Burtraw, D., Palmer, K., & Kahn, D. (2009). A Symmetric Safety Valve. Washington: Resources For the Future. Retrieved from http://www.rff.org/files/sharepoint/WorkImages/Download/RFF-DP-09-06.pdf
- California Air Resource Board. (2016, May 10). *LCFS Basics*. Retrieved February 08, 2018, from https://www.arb.ca.gov/fuels/lcfs/background/basics.htm
- Christensen, A., & Siddiqui, S. (2015). Fuel Price Impacts and Compliance Costs Associated With The Renewable Fuel Standard (RFS). *Energy Policy*, 614-624.
- Goulder, L., & Hafstead, M. (2013). *Tax Reform and Environmental Policy*. Washington: Resources For the Future.
- Haitao, Y., & Nicholas, P. (2009). Do state renewable portfolio standards promote in-state renewable. *Energy Policy*, 1140-1149.
- Heeter, J., Barbose, G., Bird, L., Weaver, S., Flores-Espino, F., Kuskova-Burns, K., & Wise, R.
   (2014). A Survey of State-Level Cost and Benefit Estimates of Renewable Portfolio Standards. National Renewable Energy Laboratory.
- Jacoby, H. and D. Ellerman (2004). The Safety Valve and Climate Policy. Energy Policy, 32(4)
- Kollenberg, S. and L. Taschimi (2016). Emissions Trading Systems with Cap Adjustments. Journal of Environmental Economics and Management, 80.

- Liu, C., & Greene, D. (2013). *Modeling the Demand for E85 in the United States*. Oak Ridge National Laboratory.
- Metcalf, G. (2017). Implementing a Carbon Tax. Washington: Resources For the Future.
- Murray, B., Pizer, W., & Reichert, C. (2017). *Increasing Emissions Certainty Under a Carbon Tax.* Harvard Environmental Law Review.
- New Jersey's Clean Energy Program. (n.d.). *SREC Pricing Archive*. Retrieved February 22, 2018, from http://www.njcleanenergy.com/renewable-energy/project-activity-reports/srec-pricing/srec-pricing/archive
- Newell, R., W. Pizer and J. Zhang (2003). *Managing Permit Prices to Stabilize Prices*. RFF Discussion Paper RFF DP-0-34
- Philibert, C. (2006). Certainty versus Ambition: Economic Efficiency in Mitigating Climate Change. Paris: International Energy Agency Working Paper Series. Report Number LTO/2006/03.
- Pierpont, B. (2012). Limiting the Cost of Renewables: Lessons for California. San Francisco: Climate Policy Initiative. Retrieved from https://climatepolicyinitiative.org/wpcontent/uploads/2012/06/Limiting-the-Cost-of-Renewables-Lessons-for-California.pdf
- Pierpont, B. (2012, December). Renewable portfolio standards the high cost of insuring against high costs. Retrieved February 07, 2018, from Climate Policy Initiative: https://climatepolicyinitiative.org/2012/12/17/renewable-portfolio-standards-thehigh-cost-of-insuring-against-high-costs/
- Potomac Economics. (2017). Annual Report On The Market For RGGI CO2 Allowances: 2016. Potomac Economics. Retrieved from https://www.rggi.org/sites/default/files/Uploads/Market-Monitor/Annual-Reports/MM\_2016\_Annual\_Report.pdf
- Shrimali, G., Jenner, S., Groba, F., Chan, G., & Indvik, J. (2012, October 25). Have State Renewable Portfolio Standards Really Worked? Synthesizing past policy assessments to build an integrated econometric analysis of. USAEE Working Paper No. 12-099; DIW Berlin Discussion Paper No. 1258.
- Stockmayer, G., Finch, V., Komor, P., & Mignogna, R. (2012). Limiting the costs of renewable portfolio standards: A review and critique of current methods. *Energy Policy*, 155-163.
- The Regional Greenhouse Gas Initiative. (2017). *The Investment of RGGI Proceeds in 2015*. RGGI, Inc.

- The Regional Greenhouse Gas Initiative. (2018). *Program Overview and Design: Elements of RGGI*. Retrieved 02 21, 2018, from https://www.rggi.org/program-overview-and-design/elements
- The World Bank. (2017, December 01). *Carbon Pricing Dashboard*. Retrieved February 09, 2018, from http://carbonpricingdashboard.worldbank.org/map\_data
- USDA announces grants to expand E15, E85 infrastructure (2015, September 10). Retrieved from Ethanol Producer Magazine: http://ethanolproducer.com/articles/12612/usdaannounces-grants-to-expand-e15-e85-infrastructure
- U.S. Department of Energy. (2010). Public Benefit Funds: Increasing Renewable Energy & Industrial Energy Efficiency Opportunities. U.S. Department of Energy.
- U.S. Energy Information Administration. (2015). *Renewable & Alternative Fuels: Alternative Fuel Vehicle Data*. Retrieved 02 22, 2018, from https://www.eia.gov/renewable/afv/users.php?fs=a&ufueltype=E85
- U.S. Energy Information Administration. (2018). *Monthly Energy Review February 2018: Biodiesel and Other Renewable Fuels Overview*. Retrieved from https://www.eia.gov/totalenergy/data/monthly/pdf/sec10\_8.pdf
- Weitzman (1974). Prices versus Quantities. Review of Economic Studies, 41(4).
- Wade, S. (2016). *California Low Carbon Fuel Standard Cost Containment Provisions*. California Air Resources Board.