

IN THE UNITED STATES DISTRICT COURT  
 FOR THE DISTRICT OF DELAWARE

UNITED STATES OF AMERICA,	)	
	)	
Plaintiff,	)	
	)	[SEALED]
v.	)	Civ. No. 16-1056-SLR
	)	
ENERGY SOLUTIONS, INC.,	)	
ROCKWELL HOLDCO, INC.,	)	
ANDREWS COUNTY HOLDINGS, INC.,	)	
and WASTE CONTROL SPECIALISTS	)	
LLC,	)	
	)	
Defendants.	)	

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**OPINION**

Dated: June 21, 2017  
 Wilmington, Delaware

  
**ROBINSON, Senior District Judge**

## **I. INTRODUCTION**

The Department of Justice, Antitrust Division (the “government”), seeks to enjoin Rockwell Holdco, Inc. and its wholly owned subsidiary Energy Solutions, Inc. (“Energy Solutions”) from acquiring Andrews County Holding, Inc. and its wholly owned subsidiary Waste Control Specialists LLC (“WCS,” and collectively with the other defendants, the “defendants”). The government alleges that the acquisition would substantially lessen competition for disposal of low-level radioactive waste in violation of Section 7 of the Clayton Act, 15 U.S.C. § 18.

There is no dispute that the court has personal jurisdiction over all of the defendants. The court has subject matter jurisdiction pursuant to 15 U.S.C. § 25 and 28 U.S.C. §§ 1331, 1337(a), and 1345. The court held a bench trial from April 24 to April 28 and May 1 to May 5, 2017. Having considered the documentary evidence and testimony, the court makes the following findings of fact and conclusions of law pursuant to Fed. R. Civ. P. 52(a).

## **II. FINDINGS OF FACT**

As an initial matter, this case is limited to radioactive waste generated by commercial entities, not the federal government. The commercial generators of radioactive waste include nuclear power plants, hospitals, and research facilities. (D.I. 203-1 ¶ 17; <https://www.nrc.gov/reading-rm/doc-collections/fact-sheets/radwaste.html> (last visited May 19, 2017)) Because nuclear power plants generate over 90% of commercial radioactive waste, the bulk of the evidence presented focused on those

customers. (PTX 185 at -102; DTX 323 at -235). This case is further limited to low-level radioactive waste (“LLRW”) which will be described in more detail below.

The facts are organized in the following manner: (1) a brief description of the defendants; (2) a description of the external factors that shape the disposal options available to commercial generators, which include the waste classification criteria, compact state agreements, and processing; (3) an explanation of the decommissioning process, which is not necessarily an external factor but does raise certain issues about radioactive waste disposal not present during normal operations; (4) findings regarding the customer self-help measures defendants argue should be considered an alternative to disposal, including storage, on-site burial, and waste minimization; and (5) a description of the various disposal options available to commercial generators. Finally, WCS has asserted a failing firm defense, so the court must make findings of fact regarding WCS’s financial situation and efforts to find a buyer.

#### **A. The Defendants**

Energy Solutions is a Delaware corporation headquartered in Salt Lake City, Utah and wholly owned by Energy Capital Partners II, LP through its subsidiary Rockwell Holdco, Inc. (D.I. 203-1 ¶ 1; D.I. 212 at 345:6-12; D.I. 215 at 940:17-941:2) It offers generators of nuclear waste a wide range of services, including the decommissioning and remediation of nuclear sites and facilities, management of spent nuclear fuel, transportation of nuclear material, and processing and disposal of radioactive waste. (D.I. 203-1 ¶ 2) Energy Solutions’ disposal facility is in Clive, Utah (the “Clive facility” or “Clive”). (D.I. 203-1 ¶¶ 39-44)

WCS is a Delaware limited liability company headquartered in Dallas, Texas that owns and operates radioactive waste disposal facilities in Andrews County, Texas. (*Id.* at ¶¶ 7 & 48) WCS is wholly owned by Valhi Inc. (“Valhi”) through its subsidiary Andrews County Holding, Inc. (“ACH”) (*Id.* at; PTX 608 at -468) Valhi owns a number of other companies in unrelated industries including NL Industries, Inc., Kronos Worldwide, Inc., CompX International, Inc., Tremont LLC, Basic Management Inc., and The LandWell Company. (*Id.*) Valhi, in turn, is an indirect subsidiary of Contran Corporation (“Contran”). (*Id.*) All of Contran’s outstanding voting stock is held by a family trust established for the benefit of Lisa K. Simmons and Serena Simmons Connelly and their children. (*Id.*) WCS owns and operates: (1) a commercial radioactive waste disposal cell (the “compact waste facility”); (2) a federal radioactive waste disposal cell; (3) a byproduct waste cell; and (4) a Resource Conservation and Recovery Act Subtitle C hazardous waste facility (the “exempt cell”). (D.I. 203-1 ¶ 48) Only the compact waste facility and exempt cell are relevant to this case.

## **B. External Factors**

Certain external factors shape a generator’s disposal options. Waste classification and compact state agreements create the outer-limits of where a commercial generator can dispose of radioactive waste. In contrast, processing expands a commercial generator’s options by transforming waste in ways that allow it to go to a different disposal facility. Finally, decommissioning presents unique logistical challenges that eliminate certain disposal options not out of preference but economic feasibility. Each of these factors are discussed in turn.

## 1. Waste classification

The Nuclear Regulatory Commission (“NRC”) regulates the disposal of radioactive waste. (D.I. 203-1 ¶ 22) The NRC may also delegate responsibility to regulate the radioactive waste within its borders to individual states with which it has entered into agreements (“agreement states”). (*Id.* at ¶ 35) There are currently 37 agreement states, including Texas, where WCS is located. (*Id.* at ¶¶ 35-36)

NRC regulations divide radioactive waste into two broad categories: high level radioactive waste (“HLRW”) and low level radioactive waste (“LLRW”). (*Id.* at ¶ 10) HLRW consists of spent uranium fuel or waste materials remaining after spent fuel is reprocessed. (*Id.* at ¶ 11) LLRW is any waste that is not HLRW, and can take a variety of forms. (*Id.* at ¶¶ 12 & 13) During normal operations, LLRW generated by nuclear power plants primarily consists of resins, filters, and dry active waste (such as personal protective clothing). (D.I. 211 at 144:24-145:10; D.I. 216 at 1281:24-1283:4) During decommissioning, LLRW primarily consists of construction debris, soil, and large metal components like steam generators. (D.I. 211 at 145:3-10)

NRC regulations further divide LLRW into four classes: Class A; Class B; Class C; and Greater Than Class C. (*Id.* at ¶ 32) The boundaries of these classes are determined by the level of radionuclide concentration per cubic meter expressed as a sum of fractions (“SOF”). (10 C.F.R. § 61.55; D.I. 211 at 140:8-15) Class A has the lowest activity level and Greater Than Class C has the highest activity level. 10 C.F.R. § 61.55. Although the NRC sets different boundaries for different radionuclides, Class A

usually has an SOF of less than one (“SOF<1”) and Class B/C usually has an SOF greater than one (“SOF>1”).<sup>1</sup> (*Id.*; D.I. 211 at 140:8-15)

For each class of waste, NRC regulations impose different requirements governing the construction, operation, and closure of a disposal facility and the manner and method of disposal. 10 C.F.R § 61.55. The higher the class of waste, the more rigorous (and expensive) the requirements. *Id.* For example, waste disposed of at a Class A facility can be dumped directly on the ground and driven over by a bulldozer, whereas waste disposed of at a Class B/C facility must be sealed in steel-reinforced high-density concrete containers and buried at greater depths. (D.I. 215 at 1113:15-1114:21)

## **2. Compact state agreements**

Pursuant to the Low-Level Radioactive Waste Policy Act enacted by Congress in 1980, each state is responsible for the disposal of LLRW generated within its borders. (D.I. 203-1 ¶ 23) A state can meet this obligation by establishing a licensed LLRW disposal facility in-state, or by entering into a compact agreement with another state that has a licensed LLRW disposal facility. 42 U.S.C. §§ 2021a-2021j. In addition, compact states are allowed to exclude LLRW from non-compact states. *Id.* Therefore, under the compact system, a commercial generator’s disposal options depend on its location.

Today, there are four active licensed LLRW disposal sites in the United States: (1) a Barnwell, South Carolina facility that belongs to the Atlantic Compact; (2) a Richland, Washington facility that belongs to the Northwest and Rocky Mountain

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<sup>1</sup> Because Class B and Class C waste are subject to largely identical disposal requirements, the term “Class B/C” is used herein to refer collectively to Class B and Class C waste.

Compacts; (3) Energy Solutions' Clive facility; and (4) WCS's compact waste facility. (D.I. 203-1 ¶¶ 39-44) Both Barnwell (as of 2008) and Richland exclude out-of-compact waste. (*Id.* at ¶¶ 39-40) This means that Energy Solutions' Clive facility and WCS's compact waste facility are the only licensed LLRW disposal sites that accept waste from the thirty-six states that do not belong to the Atlantic, Northwest, or Rocky Mountain Compacts (the "relevant states").<sup>2</sup> Although both Clive and the compact waste facility accept Class A waste, only the compact waste facility accepts Class B/C waste. (*Id.* at ¶¶ 41-42) As a result, when Barnwell closed to out-of-compact waste in 2008, commercial generators had nowhere to dispose of Class B/C waste until the compact waste facility opened in 2012. (D.I. 211 at 57:9-15; D.I. 213 at 525:11-18) In the interim, the industry developed several responses to the lack of disposal options, including concentration averaging, volume reduction, waste minimization, and storage. (See, e.g., D.I. 211 at 57:9-15; D.I. 212 at 372:8-21)

### **3. Processing**

Not every disposal facility is licensed to accept every class of waste, and some facilities that accept Class A waste cannot accept the full range of Class A waste.<sup>3</sup> In addition, disposal is priced by a combination of weight or volume and class. (D.I. 212 at 450:8-18; D.I. 215 at 1014:18-20) As a result, third-party vendors, called "processors,"

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<sup>2</sup> The relevant states are the following 36 states plus the District of Columbia and Puerto Rico: Alabama; Arizona; Arkansas; California; Delaware; Florida; Georgia; Illinois; Indiana; Iowa; Kansas; Kentucky; Louisiana; Maine; Maryland; Massachusetts; Michigan; Minnesota; Mississippi; Missouri; Nebraska; New Hampshire; New York; North Carolina; North Dakota; Ohio; Oklahoma; Pennsylvania; Rhode Island; South Dakota; Tennessee; Texas; Vermont; Virginia; West Virginia; and Wisconsin.

<sup>3</sup> The radioactive concentration of the waste that can be accepted at each facility is reported in its waste acceptance criteria. (D.I. 211 at 75:3-15; D.I. 212 at 469:1-7; D.I. 214 at 797:21-798:9)

offer services to change the waste in ways that allows it to be reclassified, volume reduced, and redirected to a different disposal facility. (D.I. 212 at 400:8-10) Even after processing, however, the waste still has to be sent to a disposal facility.<sup>4</sup> (*Id.* at 308:25-309:5) Except for Energy Solutions, no processors own a disposal facility.

Waste can be reclassified through concentration averaging, whereby higher-activity LLRW that normally must go to a Class B/C facility is mixed with other material to create overall lower-activity waste that can instead go to a Class A facility. (D.I. 211 at 138:11-142:2; D.I. 212 at 361:24-362:3) Energy Solutions admits that concentration averaging can “change the classification of some or all of the waste prior to shipping it to the disposal site.” (D.I. 215 at 1016:15-17; *see also* D.I. 211 at 141:25-142:2 (agreeing that “concentration averaging is an NRC method of moving higher class waste to lower class waste”)) A combination of factors makes concentration averaging economically feasible. First, waste is not assigned a class until it is ready for disposal. (D.I. 203-1 ¶ 33) Second, NRC regulations permit the concentration of a radionuclide to be determined indirectly, or averaged over the volume or weight of the material. 10 C.F.R. § 61.55(a)(8).

Concentration averaging requires materials that can be easily mixed together such as filters and resins. (PTX 10 at -132) It is not feasible to apply concentration

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<sup>4</sup> Because processing is not a functional substitute for disposal, the court need not determine if the ability of nuclear power plants to set up in-house down-blending is more than theoretical, as it appears to be. (D.I. 215 at 1027:3-1028:14; *Id.* at 1051:16-1052:1; D.I. 220 at 2141:2-10; *see also* D.I. 215 at 1052:2-5 (admitting that even if a nuclear power plant could set up an internal operation for down-blending resins, “they would still have to send the down-blended material for disposal at a disposal facility”))



averaging to materials like irradiated hardware and sealed sources.<sup>5</sup> (D.I. 212 at 366:6-16; D.I. 215 at 1044:6-7; *Id.* at 1069:1-1070:5) Notably, however, more than 90% of the LLRW generated during the operations of a typical nuclear power plant is filters and resins. (D.I. 211 at 129:21-130:14) The concentration averaging process for filters is called “filter shredding” and for resins is called “down-blending.”<sup>6</sup> (*Id.* at 138:19-25; D.I. 212 at 363:24-364:11; D.I. 213 at 528:24-529:9) For now, processors have found that it is not economically feasible to apply concentration averaging to materials above a certain sum of fractions. (D.I. 211 at 140:21-141:4) These are not fixed limits, however. When Energy Solutions first offered down-blending in 2010, it was not economically feasible to down-blend resins above a sum of fractions less than three (SOF <3). (D.I. 218 at 1731:1-16) Now, Energy Solutions offers down-blending up to a sum of fractions less than six (SOF <6). (*Id.*) Indeed, Energy Solutions admits that it can technically process resins with a sum of fractions greater than or equal to six (SOF≥6), but has found it “not economically prudent” at this time. (PTX 185 at -080) Accordingly, the industry is not done pushing the limits of what can be transformed into Class A waste through concentration averaging.

Finally, higher-activity LLRW that appears bound for a Class B/C disposal facility can also be redirected to a Class A disposal facility with the use of “segmentation” and “sorting and segregation.” Segmentation takes irradiated metal that would be Class B/C

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<sup>5</sup> Sealed sources, which are most often employed in hospitals and universities, are small amounts of highly concentrated radioactive material sealed in a capsule, and down-blending risks rupturing the capsule. (D.I. 215 at 1069:1-1070:5)

<sup>6</sup> Energy Solutions has described down-blending as a “process by which high activity waste that would otherwise be classified as Class B and C waste can be blended with lower-activity waste resulting in a homogenous Class A waste package, which is less expensive to dispose of.” (PTX 344 at -122)

if left intact and cuts it into smaller pieces so some of it can be disposed of as Class A. (D.I. 212 at 368:12-25) In sorting and segregation, processors sort through containers of radioactive waste and segregate higher and lower class material, so the material can be disposed of in the least restrictive facility available. (D.I. 211 at 141:21-24; D.I. 212 at 302:4-303:1; D.I. 213 at 531:18-532:5; D.I. 214 at 801:4-16; D.I. 215 at 1015:20-24)

#### **4. Decommissioning**

Decommissioning is the “process of safely closing a nuclear power plant ... to retire it from service after its useful life has ended.” (PTX 92 at -325) It is an expensive process that can cost between \$500 million and \$1 billion. (PTX 55 at -882; D.I. 215 at 1003:7-12) To pay for the decommissioning, regulations require each nuclear power plant to establish a decommissioning trust fund before starting operations. 10 C.F.R. § 50.75. Once a nuclear power plant ceases operations, it has sixty years to complete decommissioning. 10 C.F.R. § 50.82 (a)(3).

After ceasing operations, nuclear power plants may choose between three decommissioning strategies: DECON, SAFSTOR, and ENTOMB. (U.S. NRC Backgrounder on Decommissioning Nuclear Power Plants, <https://www.nrc.gov/reading-rm/doc-collections/fact-sheets/decommissioning.html>, last visited May 30, 2017 (hereinafter, “US NRC Backgrounder”)) In DECON, or “active decommissioning,” equipment, structures, and portions of the facility containing radioactive contaminants are removed from the site and disposed of at a commercially operated low-level waste disposal facility. (*Id.*; PTX 92 at -325) In SAFSTOR, the nuclear power plant is maintained and monitored in a safe condition and later actively decommissioned. (PTX 92 at -325; D.I. 214 at 836:11-23) Most utilities will initially enter into SAFSTOR to allow

their decommissioning trust fund to grow to a level sufficient to cover the costs of active decommissioning. (D.I. 212 at 423:20-424:4; D.I. 214 at 911:5-19; D.I. 215 at 976:18-977:8) ENTOMB involves permanently encasing the site in concrete until radioactivity levels decay to a level permitting release of the property. (U.S. NRC Backgrounder) To date, no NRC-licensed facilities have requested the ENTOMB option. (*Id.*)

For active decommissioning, a nuclear power plant normally hires a prime contractor to manage the entire process. (DTX 138) Prime contractors bid for the project by submitting proposals that, among other things, identify the various subcontractors fulfilling each role, including LLRW disposal. (*Id.*; D.I. 212 at 401:4-7) Energy Solutions has the capabilities to offer both disposal services and bid on decommissioning projects as a prime contractor. (See, e.g., PTX 574) WCS has not bid on decommissioning projects as a prime contractor, but it has entered into several teaming agreements with North Star Group Services, Inc. ("North Star"), a prime contractor, to bid as part of team. (PTX 111; PTX 119) Even after a nuclear power plant accepts a bid, it can always contract directly for disposal with someone other than the subcontractor identified in the bid. (D.I. 212 at 400:20-401:18; *Id.* at 410:8-23)

Finally, the parties agree that there are some differences in LLRW disposal for decommissioning compared to normal operations. Decommissioning projects generate different streams of waste and larger volumes. (D.I. 211 at 144:24-145:10; D.I. 214 at 794:17-795:7) For example, decommissioning generates more irradiated metals and large components. (D.I. 211 at 144:24-145:10; D.I. 215 at 1042:21-1042:20) It also generates a large volume of construction debris and soil that tends to have lower

radioactivity compared to resins, filters, and other types of operational waste. (D.I. 211 at 144:24-145:10)

### **C. Self-Help**

Defendants assert that customers can rely on a variety of self-help measures as alternatives to disposal. Those purported self-help measures are storage, on-site burial, and waste minimization.

#### **1. Storage**

Nuclear power plants have the option of storing LLRW in regulation-compliant storage facilities located within their plant sites. To store the waste, nuclear power plants must incur the costs of building, maintaining, and operating the storage facility. These costs include security and administrative oversight, lighting, air, and fire-protection systems, rental of specialized equipment to move the waste into and out of storage, and insurance. (D.I. 211 at 57:1-8; *Id.* at 64:6-10; *Id.* at 66:9-69:3; D.I. 213 at 545:5-14; *Id.* at 546:21-547:25; *Id.* at 549:21-550:8) All of these costs go up as more waste is stored. (D.I. 211 at 67:1-4; *Id.* at 69:1-70:5) Storage also invites risks not attendant to disposal including radiation exposure to employees and the public, changes to regulations that render the storage non-compliant, and increases to future disposal prices (as has been the trend). (D.I. 211 at 65:2-66:4; *Id.* at 69:5-15; *Id.* at 146:2-20; D.I. 213 at 545:5-550:15) Storage is, as one nuclear power plant representative testified, “very expensive.” (D.I. 216 at 1426:2)

Defendants argue that storage is a market alternative to disposal, but admit that “waste storage and waste disposal are two different things.” (D.I. 211 at 145:15-19) Nuclear power plants are responsible for the LLRW that they generate and that

responsibility (or potential liability) ends only with disposal. (*Id.* at 56:22-57:1; *Id.* at 145:20-23) As a result, storage is, as one nuclear power plant representative testified, simply “an interim function” for waste on its way to a “final [and] permanent resting point.” (D.I. 211 at 49:23-25; *Id.* at 56:19-57:8) Considering the foregoing, it is unsurprising that the NRC and generators of nuclear waste prefer disposal over storage when that option is available. (See U.S. NRC Regulatory Issue Summary 2011-09 Available Resources Associated with Extended Storage of Low-Level Radioactive Waste (stating that “the Commission and staff have consistently recognized permanent disposal of LLRW as the preferred management strategy over extended storage”); D.I. 211 at 63:19-64:19 (nuclear power plant preferring disposal over storage because “[t]he NRC’s position is if you have the ability to dispose of waste, you should dispose [of] it if it’s economically feasible”)) Ultimately, because storage does not fulfil the same function as permanent disposal, it is not an alternative to disposal.<sup>7</sup>

Finally, defendants assert that NRC regulations recognize decay in storage as an acceptable method of disposal. (D.I. 220 at 2162:1-7; 10 C.F.R. § 20.2001(a)(2)) Decay in storage as a disposal method, however, is limited to “some very specific isotopes” typically found in the medical field. (D.I. 212 at 305:13-16; 10 C.F.R. § 35.92 (allowing decay in storage for medical waste that has a half-life of 120 days)) Nuclear power plants use radionuclides that have half-lives of 100 to 5,000 years. (D.I. 211 at 71:15-72:10) At most, nuclear power plants can use decay in storage to transform

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<sup>7</sup> For the same reasons, the court finds that SAFSTOR is not an alternative to disposal, because SAFSTOR, like storage, is simply an interim function before active decommissioning which, in the end, terminates the nuclear power plant’s operating license, thereby ending its responsibility for the LLRW.

higher-activity LLRW into lower-activity LLRW that can be disposed of in a Class A facility. (D.I. 215 at 1110:11-20) But even then, the evidence suggests that this transformation rarely happens. (See *Id.* at 1057:22-1058:19 (nuclear power plant waiting for ten years and counting for higher-activity resins in storage to decay to a level where it can be disposed of as Class A); D.I. 211 at 71:15-72:10 (another nuclear power plant representative testifying that in 31 years, only one container, out of hundreds, transitioned from Class B to Class A “and the only reason it did was because it was right at that threshold”)) Ultimately, defendants presented no evidence showing what percentage of the market, if any, uses decay in storage as a direct disposal method. Instead, defendants assert this alternative theoretically. Considering that nuclear power plants generate over 90% of LLRW, defendants have not shown that decay in storage, as a commercial reality, is a market alternative to disposal.

## **2. On-site burial**

Defendants suggest that, during decommissioning, nuclear power plants can use the NRC's 10 C.F.R. § 20.2002 exemption to bury radioactive materials that would be classified as VLLW on-site, and some utilities have done so in the past to reduce costs. But the only evidence the court could find on this issue in the record is to the contrary. A nuclear power plant representative testified that it is not possible in a decommissioning project to store the resulting low level radioactive waste on-site because: (1) “you could never terminate the license if you stored the nuclear waste on the site;” and (2) states “would go crazy if you tried to just create a nuclear waste facility in their state ... when all of the states ... want the material gone.” (D.I. 215 at 988:3-16)

Accordingly, defendants have not credibly established on-site burial as a market alternative to disposal of LLRW.

### **3. Waste minimization**

Defendants find it significant that generators rely on waste minimization programs, which reduce the amount of LLRW generated in the first place. (D.I. 211 at 48:6-16; *Id.* at 202:20-21; D.I. 212 at 303:18-24) For example, nuclear power plants can remove filters and resins from service before contamination reaches Class B/C levels. (PTX 185 at -107; D.I. 213 at 530:12-15; D.I. 215 at 1025:10-18) Waste minimization became particularly important after Barnwell closed and generators had nowhere to dispose of Class B/C waste. Consequently, several nuclear power plants have relied on waste minimization programs for years. (D.I. 211 at 48:6-25; D.I. 213 at 517:20-518:5) Indeed, one nuclear power plant representative testified that it has “pretty much exhausted” all the possibilities, meaning it is now left with an irreducible amount of LLRW that must be sent for disposal. It is this irreducible minimum that forms the relevant product market. Defendants have not shown that legally or economically a relevant market includes customers that have never entered the market and do not need to enter the market. Accordingly, defendants have not shown that waste minimization programs are relevant to the antitrust analysis.

#### **D. Disposal Options**

The class-based regulations governing disposal of LLRW have created a clear divide between higher-activity and lower-activity LLRW, although processing has expanded the disposal options for higher-activity LLRW. The disposal options for each category of waste are described in turn.

## 1. Disposal of higher-activity LLRW

WCS's compact waste facility is licensed to accept Class A, B, and C waste. (D.I. 215 at 1084:1-13) Energy Solutions' Clive facility is licensed to accept only Class A waste. (D.I. 203-1 at ¶ 42) Energy Solutions also owns and operates two LLRW processing facilities: Erwin ResinSolutions, in Erwin, Tennessee ("Erwin"), and Bear Creek in Oak Ridge, Tennessee ("Bear Creek"). At Erwin, Energy Solutions primarily performs thermal reduction and down-blending. (D.I. 215 at 1018:24-1019:5) At Bear Creek, Energy Solutions performs a variety of concentration averaging and volume reduction processes, including filter shredding, sorting and segregation, compaction, and incineration. (D.I. 211 at 228:7-10, D.I. 215 at 1015:18-21; *Id.* at 1019:6-12) Because Erwin and Bear Creek are only processing facilities, waste processed there must ultimately be sent to Clive for disposal.<sup>8</sup> (PTX 185 at -087) There are other processors besides Energy Solutions, but only Energy Solutions owns a disposal site.<sup>9</sup> (D.I. 211 at 110:7-22; D.I. 212 at 272:3-5)

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<sup>8</sup> Apparently, some de minimis amount of residue remains after down-blending that must be disposed of in a Class B/C facility. Energy Solutions does not market this fact to customers or potential customers, instead claiming that all LLRW from Erwin is disposed at Clive. (See D.I. 211 at 139:6-15; PTX 180 (claiming ability to dispose of Class A, B, and C due to down-blending capabilities); PTX 185 at -087 (stating that all resins from Erwin goes to Clive)) Because Energy Solutions has raised this technicality now as a litigation tactic, the court finds that it does not reflect the commercial realities of what customers understand to be their disposal options.

<sup>9</sup> Energy Solutions is clearly in a different position than other processors. It has executed exclusivity agreements with those processors requiring all of the LLRW they handle to be sent to Clive, instead of WCS, for disposal. (PTX 55 (discussing the "last processor we have to tie-up to ensure all processed [low-level waste] comes to Clive"); PTX 441 at -142 (reporting that Energy Solutions "has negotiated exclusive contracts with two other processors ... in an effort to keep WCS from promoting the 'exempt' waste process through their facilities"))



Given the above facts, a commercial generator wishing to dispose of higher-activity LLRW has the following realistic options: send the waste to Energy Solutions for concentration, averaging and disposal at Clive; or send the waste to WCS for direct disposal in the compact waste facility. Energy Solutions admissions admits these are the market options. (See Dkt. 203-3 at ¶ 34; Dkt. 215 at ¶ 26; 1-24 (Energy); 6-24 (Energy Solutions division president testifying that customers with higher-activity resins can send the resins to WCS for direct disposal or to Energy Solutions for down-blend/down-blending at Clive and disposal

[Redacted]

[Redacted]

[Redacted]

██████████ "to compete with ES and with ES and Sempra Safe"))<sup>16</sup> Energy

Solutions has changed its prices to win higher-activity disposal business from WCS.

(See PTX 16 (Energy) Solutions sales department seeking approval to not impose the

annual increase to ██████████ increase rate for down-blending higher-activity resins (because "WCS

is hunting them hard"); PTX 18 (Energy) Solutions management noting that ██████████ and

██████████ were "getting a hell of a deal" but it was a "no-brainer" because the company

had to meet WCS rates "to be competitive"); PTX 184 (Energy) 184 (Energy) Solutions senior vice

2130:17-18) But Dr. Mayo's testimony was non-committal. (D.I. 214 at 720:19-721:24 (responding that he did not know if down-blending or filter-shredding occurred during decommissioning and that he did not look at that issue)) More important, Energy Solutions itself sent a decommissioning proposal to a customer which states "our approach minimizes Class B/C and GTCC waste by using ... concentration average transition areas of B/C to A into overall Class A waste." (PTX 574 at -2016-02; *see also* PTX 180 (email conveying to a potential customer with a decommissioning project that Energy Solutions has "disposal facilities" for Class B/C waste because of its "ability to down blend B & C through analysis and processing")) Accordingly, defendants have not shown that the disposal options for higher-activity LLRW are different when the waste is generated during a decommissioning project as opposed to routine operations.

## **2. Disposal of lower-activity LLRW**

Like higher-activity LLRW, lower-activity LLRW can be disposed of at Energy Solutions' Clive facility or WCS's compact waste facility. These are the only two facilities within the relevant states licensed for disposal of Class A waste. However, all waste sent to the compact waste facility, regardless of class, must be buried in the same manner, meaning Class A waste is buried pursuant to the requirements for Class B/C waste. (D.I. 215 at 1084:1-8) This makes disposal of Class A waste at the compact waste facility possible but generally cost prohibitive. (D.I. 213 at 526:8-14; D.I. 215 at 1114:22-25)

Although NRC regulations require all LLRW to be disposed of in a licensed radioactive waste disposal facility, an exemption is available. *See, e.g.*, 10 C.F.R. § 20.2002. NRC and agreement state regulations allow certain lower-activity LLRW to be

disposed of in RCRA facilities authorized by the Resources Conservation and Recovery Act of 1976, Subtitle C (hazardous waste) and Subtitle D (non-hazardous waste). 42 U.S.C. § 6901. Each RCRA facility may not accept waste above certain radioactive concentrations as set forth in that facility's waste acceptance criteria. (D.I. 211 at 167.1-4; D.I. 212 at 458.6-212; D.I. 213 at 621.15-23; H.A. 10 at 15-21). Although the limits vary by facility, they are generally for general level Class A waste (D.I. 212 at 144.18-20; D.I. 212 at 436.17-25 (USEI); D.152 U.S. at 624.9-173 (BSFR); PTX (BSFR); PTX (1592); -536 (WCS)). The

492:16-493:4) (b) (5) - [REDACTED]

[REDACTED]

(*Id.* at 440:10-442:15) US Ecology's current performance

assessment is an off-the-shelf generic model which sets conservative limits. (*Id.* at

441:4-442:5) (b) (5) - [REDACTED]

[REDACTED]

(b) (5) - [REDACTED]

concentration limits as “significantly higher” than US Ecology’s limits); *Id.* at 280:24-281:11 (agreeing that BSFR’s radioactive limitations are “way below” the exempt cell’s)) The exempt cell also has standing authorization to accept lower-activity LLRW, which obviates the need to seek an exemption on a project-by-project basis, as required at US Ecology. (*Id.* at 466:2-13; *Id.* at 482:21-483:8) WCS does have some competitive weaknesses. It does not have in-house processing or transportation, like US Ecology and Energy Solutions. (*Id.* at 362:16-20; *Id.* at 378:7-14) Instead, WCS subcontracts for those services and passes the costs onto customers. (D.I. 214 at 800:21-800:16; D.I. 215 at 1133:4-6) But WCS does have a rail spur that leads all the way up to the disposal site, unlike US Ecology. (D.I. 212 at 393:11-394:18; D.I. 215 at 979:3-9) And one of WCS’s partners has agreed to provide capital funding so WCS can build a rail tipper that will allow it to accept gondola shipments. (D.I. 215 at 979:3-9)

The record shows that all of these facilities—Energy Solutions’ Clive facility, US Ecology, BSFR, and WCS’s exempt cell—compete for disposal of lower-activity LLRW. More important, the record shows that the exempt cell’s higher concentration limits and “extremely low prices” make WCS a competitive threat to Energy Solutions in particular. (PTX 10 at -123) Energy Solutions submitted reports to its board of directors stating that almost all of lower-activity LLRW currently going to Clive could instead go to WCS’s exempt cell. (PTX 91 at -258 (informing the board that the “much higher levels of radioactive wastes” accepted at WCS’s exempt cell “can affect [approximately] 90% by volume of Clive bulk waste disposal”); PTX 92 at -284 (informing the board again six months later that WCS’s exempt cell could take 90% of the waste going to Clive); PTX 10 at -123 (noting that a “large portion” of waste under its LOP agreements can be

accepted at WCS's exempt cells when it initiates the LOR and the LOR renewal process.)

Customers have likewise determined that almost all their low- and lower-activity LLRW being

sent to Clive could instead go to WCS's exempt cells. (See D. 1. 211 at 53:8-12

(estimating 80% or more) 10% or more.)

Customers have used the fact that Clive and the exempt cell are reasonable

alternatives for disposal of low-activity LLRW to negotiate better prices. (See D. 1. 213

at 550:17-551:16) Tennessee Valley Authority switching its business for disposal of



internal reports noted that “[C]onventional wisdom relating to rate-of-return with added pricing pressure from WCS and their exempt counterparts (ETX 105 at 618; 105 at 618).

### E. WCS Financial Situation

WCS has asserted a failing firm defense. The record shows that so far, WCS has not been a profitable enterprise. Because of regulatory requirements, WCS operates with high fixed costs (D.I. 216 at 1293, 11-20; Meach 129). Moreover, the volume of LLRW generated over the past decade has declined (D.I. 212 at 299, 14-23; D.I. 213 at

The government further notes that WCS is a relatively new firm (opened in 2012) still trying to win customers who are under long term EOP agreements with Energy Solutions. (D.b.220 at 2116:1-9) WCS has never defaulted on any debt. (D.I. 217 at 1581:7-16) It is still current on its lease payments and trust fee and trust fund payments. (D.I. 216 at 1322:19-1323:21; D.I. 215 at 1354:5-19; D.I. 217 at 1590:1-5) It is meeting payroll and paying bonuses. (D.I. 215 at 1170:2-9; D.I. 216 at 1321:12-1321:32; 1321:12-1322:6) And WCS recently executed several long-term disposal contracts. (PTX 42; PTX 42; PTX 670) It has also invested

from the date of the report. (D. I. Q. at 1336, 22-1338, 24) Finally, WCS has not entered into preliminary discussions with its regulator, the Texas Commission on Environmental Quality ("TCEQ"), about closing the WCS facility, even though it cannot take the first step in that process—developing a contingency plan for closing—until it consults with the TCEQ. (D. I. Q. at 1589, 2-22) pt. 1589, 1-22)

WCS tries to rebut the government's picture of its financial health by pointing to several investments in growth opportunities that have not yet proved profitable,

companies will start to see revenues from decommissioning projects, because those projects are famous for “sliding right on the schedule.” (D.I. 214 at 837:11-19; *Id.* at 906:11-20; D.I. 215 at 1041:8-11) In addition, WCS has “temporarily suspend[ed]” its CISF application “due to substantially increased” costs to have the application reviewed at a time when it “must focus its limited financial resources on those expenditures necessary to safely run and maintain its current facilities.”<sup>12</sup> (DTX 450 at -636) Valhi has also suspended charges to WCS under their intercorporate services agreement, whereby WCS is supposed to pay for services Valhi employees provide to WCS, including accounting, human resources, legal, tax, risk management, and executive management. (D.I. 216 at 1324:21-1325:3)

#### **F. Merger Discussions**

Energy Solutions approached Valhi regarding a possible acquisition of WCS in May 2013, less than a year after WCS opened. (DTX 124 at -497; D.I. 214 at 852:2-8) In March 2014, Energy Solutions approached Valhi again. (PTX 101) The discussion went so far that the parties negotiated price and the form of consideration (all cash or a mix of cash and stock). (*Id.*; PTX 437) At the time, Energy Solutions discussed an offer between \$230 million and \$240 million. (D.I. 215 at 949:21-23) WCS waived because it “wanted more value.” (*Id.* at 952:8-12; *Id.* at 1175:4-5)

In April 2014, Valhi hired Wunderlich Securities, Inc. (“Wunderlich”), an investment banker, to explore whether “other financial and strategic industry participants would be better suited to enhance future cash flow and maximize WCS’s business

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<sup>12</sup> The NRC estimates that the cost to review the application would be \$7.5 million. (*Id.* at -637)

potential." (DEX-124 at -497; PTX 595 at -700; In other words, other words) In the 2014 Wunderlich process, Valhi was searching for the best financial transaction a transaction it could get. Valhi did not ask Wunderlich to explore WCS's liquidation value, and Valhi, and Valte has not determined WCS's liquidation value. (D. 17-215 at 1209:25-1210:7) 9:25-1210:7)

By mid-August 2014, Wunderlich had contacted 4 firms, 4 firms signed a non-disclosure agreement and 3 submitted an indication of interest (of interest (DEX 124 at -498) Energy Solutions offered to acquire all of WCS for \$50 million for \$50 million 30% cash and 30% of its

(PTX 283 at (PTX) 283-284) [REDACTED] declined to make a firm offer.

(DTX 124 et (DTX) 124-125) [REDACTED] Energy Solutions of January 2015,

Energy Solutions considered negotiations with [REDACTED] to be "officially over." (PTX 434)

In the spring of 2015, the defendants were in litigation, alleging antitrust claims against each other. (PTX 344) [REDACTED] that litigation had interrupted merger negotiations in the summer of 2015. (D. Minn. No. 15-2-1-853, 15-2-2-1-850, 16) [REDACTED] did not retain an investment banker to assist [REDACTED] with this [REDACTED] process. (D. Minn. No. 15-2-1-850 at 174-175) On

being given a "last chance" to show interest. (D. 11/2/12 at 498:1-2; 12/2/12 at 498:1-6; PTX 297; PTX 298)

██████████ was "taken a back" (D. 11/2/12 at 498:7-9) (had never been given a timeline for submitting offers and thought WGS was nowhere near that level in the process." (D. 11/2/12 at 498:7-9)

(D. 11/2/12 at 498:5-10; D. 11/2/12 at 498:7-9) Two days later, on October 2, 2015, ██████████ sent ██████████

Valhi an email setting forth a process that would allow it to prepare an actionable

proposal in four weeks if Valhi could send the information requested. (PTX 263) By

then, Valhi's board had already agreed to exclusivity. (PTX 57) (PTX 57) (at 432) Unaware of

in the ordinary course of business.” (*Id.*) Section 6.05 also contains a “no shop” provision, which states that WCS cannot, directly or indirectly, “solicit or initiate an Alternative Transaction ... or take any action to knowingly facilitate or encourage any inquiries or the making of any proposal from a Person or group of Persons that would constitute, or would reasonably be expected to lead to, an Alternative Transaction.” (*Id.*) Finally, there is no provision in the merger agreement that would allow WCS to communicate with other bidders if the board determined that such discussions are required by its fiduciary duties.<sup>14</sup>

### III. CONCLUSIONS OF LAW

Section 7 of the Clayton Act prohibits a merger “in any line of commerce or in any activity affecting commerce in any section of the country,” where “the effect of such acquisition may be substantially to lessen competition, or to tend to create a monopoly.” 15 U.S.C. § 18. To prevail on a Section 7 claim, the government must show a “reasonable probability” that the merger will result in anticompetitive effects. *Brown Shoe Co. v. United States*, 370 U.S. 294, 325 (1962). The government need not prove anticompetitive effects “with ‘certainty.’” *Fed. Trade Comm’n v. H.J. Heinz Co.*, 246 F.3d 708, 719 (D.C. Cir. 2001); *United States v. El Paso Nat. Gas Co.*, 376 U.S. 651, 658 (1964). But neither will a “mere possibility” suffice. *Fed. Trade Comm’n v. Consol. Foods Corp.*, 380 U.S. 592, 598 (1965).

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<sup>14</sup> Under Delaware law, officers and directors of a wholly-owned subsidiary, so long as it is solvent, owe fiduciary duties to the corporate parent and its ultimate owners, which here would be a family trust established for the benefit of Lisa K. Simmons and Serena Simmons Connelly and their children. *In re Tropicana Entm’t, LLC*, 520 B.R. 455, 471 (Bankr. D. Del. 2014) (*citing Trenwick America Litig. Trust v. Ernst & Young, L.L.P.*, 906 A.2d 168, 200 (Del. Ch. 2006)).



A burden shifting framework is used to determine the merger's effects on competition. Under that framework, the government establishes a prima facie case of illegality by: (1) proposing a "proper relevant market;" and (2) showing that "the effect of the merger in that market is likely to be anticompetitive." *Fed. Trade Comm'n v. Penn State Hershey Med. Ctr.*, 838 F.3d 327, 338 (3d Cir. 2016). Once the government makes a prima facie case, the burden shifts to defendants to rebut the presumption of illegality. *United States v. Marine Bancorporation, Inc.*, 418 U.S. 602, 631 (1974). If the defendants successfully rebut the government's prima facie case, "the burden of production shifts back to the Government and merges with the ultimate burden of persuasion, which is incumbent on the Government at all times." *Penn State*, 838 F.3d at 337 (quoting *St. Alphonsus Med. Ctr. v. St. Luke's Health Sys., Ltd.*, 778 F.3d 775, 783 (9th Cir. 2015)).

#### **A. Relevant Markets**

A relevant market has two components: "a product market (the 'line of commerce') and a geographic market (the 'section of the country')." *Brown Shoe*, 370 U.S. at 324. Here, the parties do not dispute that the geographic market is the previously defined relevant states. (D.I. 203-2 at ¶ 1(d); D.I. 203-3 at ¶ g) Thus, the court need only determine that there is a properly defined product market. A relevant product market is composed of all products that are "functional alternatives for each other based on 'reasonable interchangeability of use.'" *Brown Shoe*, 370 U.S. at 325; *Tunis Bros. Co. v. Ford Motor Co.*, 952 F.2d 715, 722 (3d Cir. 1991). Products in the same market need not be identical, only reasonable substitutes. *United States v. Anthem, Inc.*, 2017 WL 685563, at \*13 (D.D.C. Feb. 21, 2017); *Fed. Trade Comm'n v.*

*Sysco Corp.*, 514 F. (Supp. 3d F. 2840) D.C. 124510 Factors 15; Factors for finding reasonable

interchangeability had been used; use of and qualities in *Queen City Pizza, Inc. v. Domino's*

*Pizza, Inc.*, 124 F.3d 430, 437 (3d Cir. 1997) (3d Cir. 1997).

The government asserts that there are four product market markets: (1) dispositioning of

higher-activity operational LLRW; (2) disposal of lower-activity over-activity operational LLRW; (3)

dispositioning of higher-activity decommissioning LLRW; and (4) disposal of lower-

activity decommissioning LLRW. (D. 217 at 1012-211) Accord 2-211. Accordingly, the government

For higher-activity LLRW, the government has unnecessarily used the word “dispositioning” instead of “disposal” to capture the fact that the methods by which Energy Solutions and WCS dispose of higher-activity LLRW are not identical. Where Energy Solutions must use concentration averaging before it can dispose of higher-activity LLRW at Clive, WCS can dispose of the same waste directly into its compact waste facility. (See, e.g., PTX 180) Ultimately, these differences in disposal method are not meaningful, because products put to the same end use are reasonably interchangeable even though the method by which they are produced or consumed are not identical. *United States v. Cont'l Can Co.*, 378 U.S. 441, 452 (1964) (rejecting argument that metal containers and glass containers do not compete because they are put to the same end use); *Fed. Trade Comm'n v. Swedish Match*, 131 F. Supp. 2d 151, 157-58 (D.D.C. 2000) (finding that loose leaf and moist snuff tobacco “are not identical,” particularly in the method by which they are consumed, but are functionally interchangeable); *United States v. Consol. Foods Corp.*, 455 F. Supp. 108, 125-26 (E.D. Pa. 1978) (concluding that fresh pies compete with frozen pies because “the end uses of both are identical” even though the manufacturing process for “one involves a freezer and the other an oven”); *United States v. Fed. Commc'ns Comm'n*, 652 F.2d 72, 97 (D.C. Cir. 1980) (affirming commission’s finding that satellite and terrestrial communications are reasonably interchangeable even though they involve different bandwidths, noise potential, speed, related equipment, error rate, and most significantly end-to-end time intervals for sending and receiving communications).

The strongest indicator that Energy Solutions and WCS offer reasonably interchangeable products for disposal of higher-activity LLRW is that Energy Solutions

offers one price for receipt processing and disposal and disposal

(PTX 10 at 123) Moreover, customers will switch

back and forth between these products when they are able to negotiate discounts off

that price. (See e.g. PTX 184; PTX 489) Cross-elasticity of elasticity of demand indicates

reasonable interchangeability of products and exists when consumers respond to an

increase in the price of one product by purchasing another product. *Product A & B SA T v. Assoc.*

Class A waste)) How waste qualifies for an exemption and the acceptable levels of radioactive concentration are not identical across RCRA facilities. But the evidence shows that all of the facilities disposing of lower-activity LLRW—which includes all the RCRA facilities and Clive—compete against each other. (See, e.g., 400:17-23 (WCS competing against US Ecology for disposal of LLRW from two decommissioning projects); D.I. 213 at 550:17-551:16 (nuclear power plant repeatedly switching between Energy Solutions’ Clive facility and WCS’s exempt cell for disposal of Class A resins as it receives more favorable pricing)) “[T]he boundaries of the relevant market must be drawn with sufficient breadth to include the competing products of each of the merging companies and to recognize competition where, in fact, competition exists.” *Brown Shoe*, 370 U.S. at 326.

Courts have repeatedly rejected defining a relevant market by relying on such refined distinctions as the type Energy Solutions proposes, i.e., the radioactive concentration limits of each RCRA facility. See *Brown Shoe*, 370 U.S. at 327 (affirming district court’s decision to not further subdivide the shoe market based on the finer distinction of “price/quality” and “age/sex”); *United States v. E. I. du Pont de Nemours & Co.*, 351 U.S. 377, 394–95 (1956) (rejecting argument that market for flexible wrapping materials should be further sub-divided by their unique physical characteristics, such that Pliofilm, foil, glassine, polyethylene, Saran, plain cellophane, and moisture proof cellophane were in separate markets); *ProMedica Health Sys., Inc. v. Fed. Trade Comm’n*, 749 F.3d 559, 565 (6th 2014) (recognizing that the court cannot create a separate market for each individual medical procedure even though a hip replacement and chemotherapy are not reasonably interchangeable); see also *United States v. Gen.*

*Dynamics Corp.*, 415 U.S. 486, 518 (1974) (finding that geographic markets narrowly drawn according to each area with the same freight rate did not correspond to commercial realities). Accordingly, defendants have not shown that the government's product market for disposal of lower-activity LLRW is flawed because it does not separate "true A" from VLLW. (D.I. 218 at 1684:9-15)

Defendants likewise argue that Energy Solutions and WCS do not offer reasonably interchangeable products in disposal of either higher-activity LLRW or lower-activity LLRW, because there is not complete overlap in their product offerings. Some percentage of higher-activity LLRW cannot be subjected to concentrating averaging and, therefore, must go to WCS's compact waste facility. (D.I. 212 at 362:4-5 (claiming that only a "small fraction" of higher-activity LLRW is susceptible to down-blending)) Similarly, some percentage of lower-activity LLRW is too high in radioactive concentration to be disposed of in WCS's exempt cell. Nevertheless, defendants repeatedly admitted—as they must—that there is some competitive overlap between Energy Solutions and WCS. (D.I. 220 at 2128:10-15 (defendants admitting "there is overlap" in disposal of low level waste but emphasizing that it is "small"); *Id.* at 2130:20-22 (defendants stating that "down-blendable resins is the one area where there appears to be overlap between these two companies, and it's a small segment"); *Id.* at 2134:11-13 (stating that "the overlap between Energy Solutions and WCS in this proposed [decommissioning] market again would be narrow"))

As an initial matter, the evidence shows that the overlap for disposal of lower-activity LLRW is not, as defendants' claim, small: WCS's exempt cell can accept approximately 90% of the waste that goes to Clive. (PTX 91 at -258; PTX 92 at -284;

D.I. 211 at 53:9-12) In addition, the overlap for disposal of higher-activity LLRW is not a fixed boundary: In 2010, Energy Solutions accepted waste up to SOF<3 and it now accepts waste up to SOF<6. (D.I. 218 at 1731:1-16) Most important, “complete interindustry competitive overlap need not be shown” for the court to conclude that companies offer reasonably interchangeable products. *Cont'l Can*, 378 U.S. at 457. It is sufficient that there is some overlap, even if that overlap is (as defendants claim) “small.” *Fed. Trade Comm’n v. Food Town Stores, Inc.*, 539 F.2d 1339, 1345 (4th Cir. 1976) (“The fact that the markets in which the firms compete may be small is irrelevant under the Clayton Act, and does not affect the legality of the merger.”). “The fact that [Energy Solutions] may offer more comprehensive services than [WCS] does not change the fact that, with respect to the type of services offered by [WCS], [Energy Solutions]’ services overlap with those of [WCS] and are reasonable substitutes.” *Novak v. Somerset Hosp.*, 2014 WL 4925200, at \*13 (W.D. Pa. Sept. 30, 2014) (concluding that tertiary hospitals and primary care hospitals compete in the same product market).

Finally, defendants argue that there is no competition between Energy Solutions and WCS, because WCS is not an effective competitor. According to defendants, “customers did not leave Energy Solutions [for WCS] even though they had a chance to,” because “WCS does not have the capabilities to provide the services that [Energy Solutions] does.” (D.I. 211 at 27:1-10; *Id.* at 30:18-31:12) For example, Talen Energy Corp. shipped two containers of waste to WCS’s exempt cell but some of it was shipped back as non-conforming and the rest has been sitting at a processor for over a year. (D.I. 220 at 2144:6-16) Anti-trust law does not distinguish between effective and

ineffective competitors. *El Paso*, 376 U.S. at 661 (“Unsuccessful bidders are no less competitors than the successful one.”). WCS’s mishaps in customer service or failure to win every contract does not mean that Energy Solutions and WCS do not offer reasonably interchangeable products. “Customer preferences towards one product over another do not negate interchangeability.” *United States v. Oracle Corp.*, 331 F. Supp. 2d 1098, 1131 (N.D. Cal. 2004); *Allen-Myland, Inc. v. Int’l Bus. Machs. Corp.*, 33 F.3d 194, 206 (3d Cir. 1994) (explaining that reasonable interchangeability exists where “one product is roughly equivalent to another for the use to which it is put” even if there is “some degree of preference for the one over the other”). Accordingly, the government has made a prima facie case that Energy Solutions and WCS offer competing products in the same relevant product markets for disposal of higher activity-LLRW and disposal of lower-activity LLRW.

#### **B. Anticompetitive Effects**

The government can establish a prima facie case of anticompetitive effects by showing that the merger would produce a firm controlling an “undue percentage of the relevant market” and result in a “significant increase” in market concentration. *United States v. Phila. Nat’l Bank*, 374 U.S. 321, 362 (1963); *Heinz*, 246 F.3d at 715; *Hart Intercivic, Inc. v. Diebold, Inc.*, 2009 WL 3245466, at \*6 (D. Del. Sept. 30, 2009). The government’s expert, Dr. John Mayo, presented statistics on market shares and market concentration for each of the government’s four proposed product markets. (D.I. 213 at 597:23-605:8; *Id.* at 646:5-647:2) For higher-activity operational waste, Dr. Mayo opined that pre-merger, WCS holds a 72.8% share and Energy Solutions holds a 27.2% share of the market. (*Id.* at 600:1-7) Post-merger, Energy Solutions would hold a 100%



share, resulting in a merger to economy (100%) for lower-activity/over-activity operational waste, Dr. Mayo opined that pre-merger, WES holds a 77% share, Energyshare/ Energy Solutions holds an 89.0% share, and BSFR holds a 35% share of the market (the market - (2) at 593-3-16). Post-merger, Energy Solutions would hold a 96.7% share (100%) share. (1d)

Calculating market shares for the Macommissioning market proved difficult, because there is no data that disentangles the revenue from charges from disposal of higher-activity and lower-activity LLRW from May at 593-16. As a result, Dr. Mayo presented market

share, WCS holds a 7.7% share and BSFR holds a 3.3% share (D.B-213 at 598:8-

15; *Id.* at 646:8-18) (Further, Dr. Mayo opined that post-merger, post-merger Energy Solutions would

hold a 96.7% share in the market for lower-activity/operational waste and a 94.5% share

in the market for decommissioning waste (D.B-213 at 598:16-18; *Id.* at 646:19-22)

For the reasons explained above, the court identified two relevant product markets: disposal of higher-activity LLRW and disposal of lower-activity LLRW. The court found no good reason to further subdivide the markets by markets by operational and

that Energy Solutions had an 89% share of the lower-activity operational market and a 90.3% share of the decommissioning market (which is predominately lower-activity).

While there is no bright-line rule as to the minimum percentage that qualifies as undue, the Supreme Court has held that a post-merger market share of 30% triggered the presumption of anticompetitive effects. *Phila. Nat'l Bank*, 374 U.S. at 364; see also *United States v. H & R Block, Inc.*, 833 F. Supp. 2d 36, 72 (D.D.C. 2011) (finding a presumption of anticompetitive effects where the combined firm would have a market share of 28.4%). The defendants' pre- and post- merger market shares spectacularly exceed those percentages, making it difficult to show under any measure that the merger would not result in Energy Solutions holding an undue percentage of the relevant product markets. Indeed, for one product market – disposal of higher-activity LLRW – the transaction results in a merger to monopoly.<sup>17</sup>

Market concentration is measured using the Herfindahl–Hirschmann Index (“HHI”). *Penn State*, 838 F.3d at 347. HHI is “calculated by summing the squares of the individual firms’ market shares.” *Id.* at 346. “[B]oth the post-merger HHI number and the increase in the HHI resulting from the merger” determine “whether the HHI demonstrates a high market concentration.” *Id.* at 346–47. A post-merger market with an HHI above 2,500 is “highly concentrated,” and a merger that increases the HHI by more than 200 points is presumed to be anti-competitive. *Id.* at 347; *ProMedica*, 749 F.3d at 568.

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<sup>17</sup> Defendants did not present any analysis showing that the market shares would change if the court excluded “true B/C” and “true A” as they suggested. Dr. Mayo did perform this analysis and reached “exactly the same conclusion,” a “presumption of anticompetitive harm.” (D.I. 213 at 611:6-613:8)

Here, the market for disposal of higher-activity operational LLRW would increase 3,957 points, resulting in a post-merger HHI of 10,000, the theoretical maximum. (D.I. 213 at 608:10-609:12) The market for disposal of lower-activity operational LLRW would increase 1,370 to a post-merger HHI of 9,348. (*Id.* at 608:7-609:8) The government did not present to the court Dr. Mayo's HHI calculations for the decommissioning market based on revenue (the measure on which the court relied for market shares), only RFPs. But clearly the post-merger HHI for higher-activity decommissioning waste would be 10,000, because Energy Solutions would hold a monopoly on disposal of all higher-activity LLRW, whether decommissioning or operational. For lower-activity decommissioning waste, there is no reason to doubt that (with only three players in the market) the numbers would similarly blow past the presumptive barriers "in spectacular fashion." *ProMedica*, 749 F.3d at 568. Accordingly, the government has made a prima facie case that market concentration will result in anti-competitive effects. See *Heinz*, 246 F.3d at 716 (merger that increased HHI by 510 points to 5,285 created presumption of anticompetitive effects by a "wide margin"); *H & R Block*, 833 F. Supp. 2d at 72 (merger that increased HHI by approximately 400 points to 4,691 created presumption of anticompetitive effects); *ProMedica*, 749 F.3d at 568 (HHI increase of 1,078 and post-merger HHI of 4,391 was presumptively anticompetitive).

### **C. Rebuttal**

Once the government establishes a prima facie case, the defendant must "show that the market-share statistics [give] an inaccurate account of the acquisitions' probable effects on competition." *United States v. Citizens & S. Nat'l Bank*, 422 U.S.

86, 120 (1975). Before trial, defendants asserted that the following factors would rebut the government's prima facie case: (1) customers' ability to substitute defendants' services with self-help; (2) the existence of powerful buyers; (3) the existence of regulatory schemes that constrain anticompetitive effects; (4) efficiencies to be gained from the merger; (5) the weakened competitor doctrine; (6) the ease of entry and expansion into the market; and (7) the failing firm defense.

The court has already rejected defendants' argument that self-help is a reasonable substitute for defendants' services. To the extent defendants are arguing that storage constrains anti-competitive pricing, they did not present any evidence to support the assertion beyond some anecdotal evidence that customers have raised the issue of storage in negotiations. (D.I. 211 at 204:8-12; D.I. 212 at 357:1-14; D.I. 215 at 1033:9-19). This anecdotal evidence, by itself, is not sufficient to show that storage is an effective constraint on anti-competitive pricing.<sup>18</sup> See *Fed. Trade Comm'n v. Univ. Health, Inc.*, 938 F.2d 1206, 1223 (11th Cir. 1991) (holding that defendants' rebuttal must be grounded in facts and not speculation). To the extent defendants presented evidence or argument at trial regarding sophisticated or powerful buyers, it was to argue that they can threaten storage. (D.I. 217 at 1631:4-9; D.I. 218 at 1754:20-23) Because the court has already addressed storage, it need not separately address powerful buyers. Defendants did not mention in either their opening or closing arguments that some regulatory scheme would constrain anticompetitive effects. (D.I. 211 at 17:5-

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<sup>18</sup> For example, defendants have not shown that prices actually changed in response to a threat of storage. Moreover, defendants have not shown how storage can constrain anti-competitive pricing when generators must dispose of the stored waste eventually.

43:21; D.I. 220 at 2125:7-2192:5) Accordingly, the court will not evaluate this legal argument and search for supporting evidence. In closing argument, defendants represented that they were “not standing on an efficiencies defense.” (D.I. 220 at 2153:4-8) Therefore, the court will not address the substantial evidence presented by the government to show that defendants could not establish an efficiencies rebuttal. (See, e.g., D.I. 211 at 14:16-15:11; D.I. 220 at 2113:1-2114:5) Defendants similarly appeared in closing to disclaim any rebuttal based on a weakened competitor doctrine. (D.I. 220 at 2158:15-2159:13 (explaining that the weakened competitor doctrine is different from the failing firm defense and, therefore, weakened competitor cases were inapplicable to this action)) Based on the foregoing, defendants’ rebuttal rests on: (1) ease of entry and expansion into the market; and (2) the failing firm defense. The court will address each of these arguments in turn.

### **1. Ease of entry and expansion**

Defendants may rebut the government’s prima facie case by showing that new firms can easily enter or existing firms can easily expand into the relevant product market in response to supracompetitive pricing.<sup>19</sup> *Fed. Trade Comm’n v. Cardinal Health, Inc.*, 12 F. Supp. 2d 34, 54–55 (D.D.C. 1998); *Anthem*, 2017 WL 685563, at \*38. How easily firms may enter or expand is determined by the barriers to entry. *Cardinal Health*, 12 F. Supp. 2d at 55. Barriers to entry include, among other things, regulatory requirements, high capital costs, or technological obstacles. *Broadcom Corp. v.*

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<sup>19</sup> Conversely, if the government demonstrates high barriers to entry, that fact “further enhance[s]” any proof of “the anticompetitive effect of the merger.” *Heinz*, 246 F.3d at 717; see also *Univ. Health, Inc.*, 938 F.2d at 1220 (stating that the government can bolster its prima facie case, as it did here, “with evidence that substantial barriers to entry into the relevant market exist”).

*Qualcomm Inc.*, 501 F.3d 297, 307 (3d Cir. 2007). The entry or expansion must be “timely, likely and sufficient in its magnitude, character, and scope.” *H & R Block*, 833 F. Supp. 2d at 73. Entry is timely only if it is rapid enough to deter or render insignificant the anticompetitive effects of the merger. *Anthem*, 2017 WL 685563, at \*38. Entry is likely only if it would be profitable and feasible, accounting for all the attendant costs and difficulties. *Id.* And entry is sufficient only if it can “affect pricing” and “scale to compete on the same playing field” as the merged firm. *Id.*

There is no dispute that the barriers to entry in LLRW disposal are incredibly high. (See, e.g., D.I. 213 at 637:5-9 (Dr. Mayo explaining that “entry barriers are incredibly high” as should be expected when dealing with radioactive waste); D.I. 215 at 1202:6-12 (CEO of WCS agreeing “there are incredibly high barriers to entry”); D.I. 212 at 282:6-9 (processor stating that “the opportunities for opening a facility are ...onerous”)) The defendants themselves recognize that these high entry barriers insulate them from competition. (See, e.g. PTX 102 at -902 (Energy Solutions presentation to lenders stating that Clive, as the “[l]argest commercial Class A disposal site in the U.S.[,] creates significant barriers to entry”)) Building and operating a LLRW disposal facility requires, among other things, legislative approval, a radioactive waste license from the environmental protection agency, a multi-million dollar upfront capital investment, a site with unique geological features, and employees trained in a multitude of subjects related to radioactive waste and radiation safety. (D.I. 215 at 1087:10-1088:15; *Id.* at 1191:3-10)

“[T]he history of entry into the relevant market is a central factor in assessing the likelihood of entry in the future.” *Anthem*, 2017 WL 685563, at \*38. WCS's entry cost

was over \$700 million and took 17 years to build (D.I. 213 at 1087:1-5, 1088:14-5, 1089:8-14) WCS is the only firm in the last three decades to successfully enter and obtain and obtain a license for commercial disposal of Class A, B or C LLRW. (D.I. 213 at 637:15-16, 637:15-16) No other firm is currently pursuing licensing or construction of a commercial LLRW disposal facility. (D.I. 215 at 1202:13-17 (CEO of WCS is not aware of any other firm currently pursuing construction of a LLRW disposal facility and I would definitely caution any caution any who tried to run away"); D.I. 212 at 281:22-282:12 (process of testifying that it has no intent of opening a LLRW



464.16-465.3 [REDACTED]

[REDACTED]

[REDACTED] Accordingly, the court finds expansion by existing RBY existing RCRA facilities into the market for disposal of lower activity LLRW to be highly unlikely.

The other competitors currently active in the relevant product market (US Ecology at its Grandview Ohio facility and BSFR) are also unlikely to expand in a manner sufficient to offset the deleterious effects of the effects of the merger. Neither have a

## 2. Failing firm defense

The failing-firm doctrine applies a “choice of evils” approach where “the possible threat to competition resulting from an acquisition is deemed preferable to the adverse impact on competition and other losses if the company goes out of business.” *Gen. Dynamics*, 415 U.S. at 507; *Mich. Citizens for an Independent Press v. Thornburgh*, 868 F.2d 1285, 1288 (D.C. Cir. 1989). To successfully assert the defense, defendants have the burden of showing “(1) that the resources of [WCS] were ‘so depleted and the prospect of rehabilitation so remote that it faced the grave probability of a business failure,’ and (2) that there was no other prospective purchaser for it.” *United States v. Greater Buffalo Press, Inc.*, 402 U.S. 549, 555 (1971). Because the doctrine is “narrow in scope,” *Citizen Pub. Co. v. United States*, 394 U.S. 131, 139 (1969), it “rarely succeeds,” Philip E. Areeda & Herbert Hovenkamp, *Antitrust Law* ¶ 951e (4th ed. 2016).

The parties contest whether WCS is in imminent failure. There is evidence to support both sides of the issue.<sup>20</sup> Ultimately, however, the court need not decide that issue, because defendants have failed to demonstrate that Energy Solutions is the “only available purchaser.” “The failing company doctrine plainly cannot be applied in a merger or in any other case unless it is established that the company that acquires the failing company or brings it under dominion is the only available purchaser.” *Citizen Pub.*, 394 U.S. at 138. For Energy Solutions to be the only available purchaser, defendants must show that WCS made “good faith efforts to elicit reasonable alternative

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<sup>20</sup> The court does not mean to suggest that the evidence is in equipoise; only that it would require careful and time intensive consideration when the court must be mindful of the fact that defendants’ merger agreement will terminate by its own terms if the merger is not consummated by July 31, 2017. (DTX 322 at -263)

offers ... that would both keep it in the market and pose a less-severe danger to competition." *Orin Pepper/Severely Disabled Fed. Trade Comm'n*, 996 F.2d 859, 865 (D.C. Cir. 1993); *Joseph C. Boone & Son, Inc. v. Entelusa, Inc.*, 537 F.Supp. 623, 628 (E.D. Pa. 1982). (Invocation of that doctrine requires proof that the defendant acquired the failing company by way of a "reasonable offer which effects the least anti-competitive result.")

Defendants have not shown that WGS's parent, Valipment, Valip made a good faith effort

WCS argues that it has always had a “for sale” sign hanging out such that if there were another interested party, it would have appeared by now. But the facts suggest otherwise. It was well known in the industry that Energy Solutions made frequent overtures, or “annual calls,” to buy WCS and had been repeatedly rebuffed. In addition, the deal on which Valhi focused in 2014 was for a minority equity investment, not a sale of the entire company. There was no clear “for sale” sign until WCS announced its transaction with Energy Solutions and, then, Valhi could neither respond nor share information that would allow another interested party to formulate a credible bid, let alone a bid that provides the “least anti-competitive result.” *Joseph Ciccone & Sons*, 537 F. Supp. at 628. Considering the foregoing, the court does not give any weight to the fact that no other company but Energy Solutions has made a firm offer.

Finally, under the horizontal merger guidelines, a reasonable alternative offer is “[a]ny offer to purchase the assets of the failing firm for a price above the liquidation value of those assets.” Horizontal Merger Guidelines (2010) § 11 n. 6. Valhi was clearly focused on obtaining what it perceived to be WCS’s fair value, not an offer above the liquidation value, which is likely to be less. The court is sympathetic to the fact that if Valhi genuinely wants to exit the LLRW disposal market, there may be few (if any) potential buyers that would not raise some anti-trust concerns. The parties did not address whether the law gives Valhi the ability to sell WCS without it being a failing firm. Nevertheless, under the facts presented here, defendants have not shown that Valhi/WCS made good faith efforts to elicit reasonable alternative offers that would pose a less severe danger to competition.

#### IV. CONCLUSION

A merger is unlawful under Section 7 if it is likely to result in a substantial lessening of competition in “any line of commerce” in “any section of the country.” 15 U.S.C. § 18. For the foregoing reasons, the government has established that the merger is substantially likely to lessen competition in the market for disposal of higher-activity LLRW and lower-activity LLRW. Therefore, judgment on the claims in the complaint is granted in favor of the government and against defendants. (D.I. 1)

This court has the authority “to prevent and restrain” violations of Section 7 of the Clayton Act before they occur. 15 U.S.C. § 25; *Brunswick Corp. v. Pueblo Bowl-O-Mat, Inc.*, 429 U.S. 477, 485 (1977). The preferred remedy for a merger violating Section 7 is for the court to issue a “full stop injunction” preventing the parties from completing their unlawful merger. *PPG Indus.*, 798 F.2d at 1506–07; *see also Phila. Nat’l Bank*, 374 U.S. at 363 (stating that if the government’s claim succeeds, the merger “must be enjoined”). Accordingly, the court hereby enjoins Energy Solutions’ acquisition of WCS as memorialized in the merger agreement between Rockwell Holdco, Inc. and Andrews County Holding, Inc. dated November 18, 2015 and any amendments thereto. (DTX 125) An appropriate order shall issue.