A. The Initial Decision[4]

The Initial Decision held that CB&I's acquisition of PDM violated Section 7 of the Clayton Act and Section 5 of the FTC Act in four relevant lines of commerce in the United States: (1) field-erected LNG storage tanks, (2) field-erected LPG storage tanks, (3) field-erected LIN/LOX storage tanks, and (4) field-erected TVCs.[5] Although the Initial Decision rejected Complaint Counsel's proffered Herfindahl-Hirschman Indices (HHIs) as unreliable forecasters

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(AT&V), Atlanta Gas Light Co. (Atlanta Gas), BOC Gases (BOC), Boeing Satellite Systems (Boeing), British Petroleum (BP), Chart Process Systems (Chart), Chattanooga Boiler & Tank (Chattanooga), CMS Energy (CMS), Dynegy, Inc. (Dynegy), El Paso Corp. (El Paso), Enron Corp. (Enron), Fluor, Inc. (Fluor), Graver Tank (Graver), Freeport LNG Development LP (Freeport LNG), Howard Fabrication (Howard), Intercontinental Terminals Co. (ITC), Ishikawa Heavy Industries (IHI), Linde BOC Process Plant LLC (Linde), Matrix Service Co. (Matrix), Memphis Light, Gas & Water (MLGW), Morse Construction Group (Morse), Process Systems International (PSI), S.N. Technigaz (Technigaz), Skanska AB (Skanska), Toyo Kanetsu K.K. (TKK), TRW Space & Electronics (TRW), Whessoe International (Whessoe), Williams Energy (Williams), XL Technology Systems (XL), Yankee Gas Services Co. (Yankee Gas), Zachry Construction Corporation (Zachry). All other references to companies use the particular company's full name or the only name referred to in the record.

[4] The Initial Decision states that when the Commission amended its Rules of Practice for Adjudicative Proceedings, 16 C.F.R. § 3.51, in 2001 it removed the requirement under Rule 3.51(c)(3) that an Initial Decision be supported by substantial evidence. ID at 85. Accordingly, it states that its findings of fact are based on "reliable and probative evidence." *Id.* To clarify, we note that when the Commission removed the word "substantial" from Rule 3.51(c)(3), it did not change the evidentiary standard upon which its decisions must be based.

The Federal Register Notice made clear that, prior to the amendment, the "substantial evidence" language in Rule 3.51(c)(3) referred to the standard for agency decisions under Section 556(d) of the Administrative Procedure Act, 5 U.S.C. § 556(d), which specifies the quantum of evidence (in most cases a preponderance) needed to support findings of fact. FTC Rules of Practice, 66 Fed. Reg. 17,622, 17,626 (Apr. 3, 2001). The Notice also made clear that the amendment removed the "substantial evidence" language merely to eliminate any confusion between Section 556(d) and the more deferential substantial evidence standard for judicial review of agency action. *Id.* Thus, we take it as settled law that regardless of the standard under which a reviewing court must accept the Commission's findings of fact, the Commission (and its ALJ) normally must base findings upon a "preponderance of the evidence." *See Carter Prods., Inc. v. FTC*, 268 F.2d 461, 487 (9th Cir. 1959). Of course, the Commission's factual and legal review of this matter is *de novo*.

[5] IDF 18-19; ID at 126.

of the acquisition's competitive effects,[6] it nonetheless found that Complaint Counsel had established a prima facie case in each of the relevant markets.[7] Specifically, the Initial Decision found that Complaint Counsel demonstrated that "CB&I and PDM were the number one and two competitors . . . and that no other company provides effective competition."[8]

The Initial Decision also held that Respondents' evidence of actual or potential entry did not rebut Complaint Counsel's prima facie case.[9] It found that "potential and actual entry is slow and ineffective and cannot keep [the relevant] markets competitive."[10] For the LNG tank market, the Initial Decision concluded that many of the steps taken by recent or potential entrants are too preliminary to provide a basis for determining whether they can challenge CB&I's market power and that several other projects suggest that the new entrants do not constrain CB&I.[11] Similarly,

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[6] ID at 89-93.

[7] ID at 89.

[8] ID at 125.

[9] ID at 100-103.

[10] ID at 102.

[11] ID at 103-105.

[12] ID at 105-106.

[13] ID at 106.

[14] ID at 109.

[15] *Id*. The Initial Decision does not delineate in which relevant markets customers lack pricing information. In addition, because it references only those findings of fact related to the LNG tank market and its findings with respect to customer sophistication in other markets do not clearly establish a lack of price information (*see* IDF 204-07), we cannot determine which three markets the Initial Decision means to include in its analysis.

have significant bargaining power.[16] It concluded that Respondents' evidence of customer sophistication did not rebut Complaint Counsel's prima facie case.[17]

Because it found that Respondents did not rebut Complaint Counsel's prima facie case, the Initial Decision concluded that Complaint Counsel carried their burden of persuasion that the merger was likely to substantially lessen competition in violation of Section 7 of the Clayton Act and Section 5 of the FTC Act.[18]

Although not required to do so, the Initial Decision also considered Complaint Counsel's evidence of post-acquisition price increases in the LNG tank, LIN/LOX tank, and TVC markets and concluded that the evidence did not show such price increases.[19]

Finally, the Initial Decision dismissed Respondents' argument that the merger did not harm competition because PDM planned to exit the relevant markets even absent the merger.[20] The Initial Decision found that Respondents did not establish that PDM had made a decision to close the business or that PDM had conducted an exhaustive effort to sell the package of assets sold to CB&I.[21] It thus concluded that even if an exiting assets defense is legally recognizable, Respondents did not establish such a defense in this case.[22]

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[16] ID at 109.

[17] *Id*.

[18] ID at 114-15.

[19] ID at 110-114.

[20] ID at 115-118. Respondents argued that (1) PDM would have liquidated its EC Division absent the merger; (2) CB&I was the only potential purchaser; and (3) the merger thus did not result in a substantial lessening of competition. ID at 115.

[21] ID at 116-118.

[22] *Id*.

[23] In the present case, the alleged violation of the Federal Trade Commission Act's Section 5 prohibition against unfair methods of competition follows from the alleged violation of Section 7 of the Clayton Act. *See FTC v. Cement Inst.*, 333 U.S. 683, 694 (1948) (conduct that violates other antitrust laws may violate Section 5 as well). Similarly, a seller's participation in an unlawful transaction may violate Section 5 of the FTC Act. *See Yamaha Motor Co. v. FTC*, 657 F.2d 971, 985 (8th Cir. 1981) (upholding, solely on Section 5 grounds, a Commission finding that a sale of stock was unlawful). Accordingly, we determine that the alleged Section 5 violation does not require an independent analysis in this matter.

[24] Clayton Act §7, 15 U.S.C. § 18 (2004).

[25] *FTC v. University Health, Inc.*, 938 F.2d 1206, 1218 (11th Cir. 1991) (quoting *United States v. E.I. du Pont de Nemours & Co.*, 353 U.S. 586, 589 (1957)).

[26] *FTC v. PPG Indus.*, 798 F.2d 1500, 1503 (D.C. Cir. 1986); *see FTC v. Elders Grain Inc.*

[29] U.S. Dep't of Justice & Federal Trade Comm'n, *Horizontal Merger Guidelines* § 0.1 (1992, as amended 1997), *reprinted in* 4 Trade Reg. Rep. (CCH) ¶ 13,104 (hereinafter *Merger Guidelines*).

[30]

capacity is constrained and competitors may not be able to increase output in response to an output restriction by the merged firm. *See, e.g., Merger Guidelines* § 2.22.

[35] As the D.C. Circuit has observed, "[t]he Supreme Court has adopted a totality-of-

and the continuation of active price competition." Additionally, the defendant may demonstrate unique economic circumstances that undermine the predictive value of the government's statistics.[39]

If Respondents are successful in their rebuttal efforts, the evidentiary burden shifts back to Complaint Counsel and merges with the ultimate burden of persuasion, which remains with Complaint Counsel at all times.[40]

C. Issues and Summary of Decision

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[39] *University Health*, 938 F.2d at 1218 (citations omitted).

[40] *Id*. at 1218-19.

[41] The Complaint initially pled the relevant lines of commerce as TVCs, LNG tanks, LNG peak-shaving plants, LNG import terminals, LPG tanks, and LIN/LOX/LAR tanks (which are also known as LIN/LOX tanks). However, the Initial Decision found the four relevant markets we identify, and the parties have not contested these markets. IDF 18-19.

[42] Although Respondents characterize both the LIN/LOX and the LPG tank markets as attracting new entry post-merger, we find that a more accurate characterization of the phenomenon to which Respondents point is an attempted expansion by smaller incumbents.

[43] *Merger Guidelines* §§ 3.2-3.4.

the post-acquisition bidding evidence in the relevant markets[44] and the bidding history of those

[44] Some post-acquisition evidence may not necessarily receive as much weight as other types of evidence. *See United States v. General Dynamics Corp.*, 415 U.S. 486, 504-05 (1974) ("If a demonstration that no anticompetitive effects had occurred at the time of trial . . . constituted a permissible defense to a §7 divestiture suit, violators could stave off such actions merely by refraining from aggressive or anticompetitive behavior."); *Hospital Corp. of America v. FTC*, 807 F.2d 1381, 1384 (7th Cir. 1986) ("Post-acquisition evidence that is subject to manipulation by the party seeking to use it is entitled to little or no weight."); *B.F. Goodrich Co.*, 110 F.T.C. 207, 341 (1988) (same). *See also FTC v. Consolidated Foods Corp.*, 380 U.S. 592, 598 (1965) (finding that the court of appeals gave too much weight to post-acquisition evidence that, among other things, showed a declining share).

[45] Areeda, Hovenkamp & Solow have commented that "[t]he only truly reliable evidence of low barriers is repeated past entry in circumstances similar to current conditions." 2A Phillip E. Areeda, Herbert Hovenkamp & John Solow, Antitrust Law: An Analysis of Antitrust Principles and Their Application, ¶420b, at 60 (2d ed. 2002). *See also FTC v. Cardinal Health, Inc.*, 12 F. Supp. 2d 34, 56 (D.D.C. 1998) ("[T]he history of entry into the relevant market is a central factor in assessing the likelihood of entry in the future.").

[46] *See* CX 74 at PDM - C 1005941(PDM document evaluating a possible acquisition of CB&I and stating that it would result in "[m]arket dominance in [the] Western Hemisphere"); CX 648 at PDM-HOU 000267 (recommendation to PDM's Board that states that acquiring CB&I will result in "[m]arket dominance"); Tr. at 5169 (testimony from Luke Scorsone [now the head of CB&I's Industrial Division] that he believed that an acquisition of CB&I by PDM could result in worldwide market dominance for LNG and LPG tanks). *See also* CX 1686 at CBI/PDM-H 4005550 ("When the integration process is over," CBI "will truly be the world leader instorage [sic] tanks").

characterize sales in those markets. Specifically, Part II explains how LNG tanks, LPG tanks, LIN/LOX tanks, and TVCs are constructed and how bidding takes place in each of these markets.

Part III of the Opinion examines the sufficiency of Complaint Counsel's prima facie case, deals with the Initial Decision's exclusion of the HHI evidence, and explains the role of such evidence in our assessment of Complaint Counsel's case. We also examine the bidding history in each of the ras8bvat C

review of the record.[47] We order Respondents to divest such assets and take such actions as are necessary and appropriate to establish a viable competitor to the market that will restore the competition lost from this acquisition.

II. Industry Background

A. LNG Tanks

LNG tanks are field-erected tanks that can store between 2.5 million and 42 million gallons of natural gas (primarily comprising methane)[48] at cryogenic temperatures (-260° F). These tanks are very large, potentially having a diameter of 200 feet or more[49] and a height of 100 to 150 feet, and can cost approximately $35 million to $50 million.[50] Because they store the gas cryogenically, LNG tanks must have inner walls made of 9 percent nickel steel.[51] The metallurgical properties of this 9 percent nickel steel require special welding techniques to ensure against cracking and other problems. If LNG leaks through the tank due to faulty welding, the consequences can be disastrous,[52] and although this result is unlikely given the quality checks now in place, faulty welding can result in significant construction delays and substantial economic and financial losses.[53]

There are three types of LNG tanks currently produced: (1) single-containment tanks, (2) double-containment tanks, and (3) full-containment tanks. A single-containment tank is a double-walled steel tank that comprises one 9 percent nickel steel tank surrounded by insulation

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[47] Throughout this Opinion, our legal conclusions and findings of fact are intermixed according to subject matter.

[48] Tr. at 537, 1560, 4452, 4964. The transcript describes LNG tank capacity in terms of both gallons and barrels. For consistency, we have converted all capacity figures to gallons. There are 42 gallons in a barrel. Tr. at 320, 5007.

[49] IDF 24.

[50] Tr. at 4566, 6260.

[51] Tr. at 530.

[52] Tr. at 564-65, 1789, 6234-35.

[53] *See, e.g.*, Tr. at 6285-87 (liquidated damages account for the fact that the revenue stream does not begin until the facility is finished and that delay can result in the loss of "a lot of revenue") (*in camera*).

customer, which may result in liquidated damages for the tank supplier.[61]

LNG storage tanks generally serve two types of facilities: LNG import terminals and peak-shaving plants. LNG import terminals receive LNG from tankers and offload the LNG to storage tanks. As the LNG is distributed, the import terminal pumps the liquid out of the LNG storage tanks, vaporizes and pressurizes the gas, and sends it to the pipeline.[62] In an import terminal, this process usually happens at roughly the same time that the liquid is unloaded from the tanker. A peak-shaving plant, on the other hand, is used by local utilities to store LNG to provide reserves in case of a shortage.[63] Thus, as natural gas is delivered, it is liquefied and stored in the tanks. When the gas is needed, the liquid is vaporized and then sent back through the natural gas pipeline. The two major components of a peak-shaving plant are the liquefaction unit (which brings the gas in, treats the gas so it can be liquefied, and then performs the liquefaction) and the LNG storage tanks.[64] Field-erected LNG tanks at peak-shaving plants tend to have smaller capacity than those used in LNG import terminals.[65]

B. LPG Tanks

LPG tanks are field-erected, refrigerated tanks for liquefied gases including propane, butane, propylene, and butadiene.[66] These tanks store liquefied gases at low temperatures, around G50° F.[67] LPG tanks are also very large, store hundreds of thousands of barrels of LPG, and cost approximately $5 million.[68]

As with LNG tanks, the steel for LPG tanks is fabricated in pieces, shipped to the site, assembled, and welded.[69] The tanks also require proper insulation and a foundation that protects

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61 Tr. at 6184, 6265-66, 6481-82.

62 Tr. at 6170; IDF 25.

63 IDF 26.

64 *Id*.

65 IDF 27.

66 IDF 30; CX 993 at PDM-HOU021479.

67 Tr. at 2722-23.

68 Tr. at 6575, 6719-20, 7281.

69 Tr. at 6567, 6574.

against the very cold temperatures of the stored liquid moving from the tank into the earth.

[70] Tr. at 6579-81.

[71] Tr. at 6581.

[72] Tr. at 6709.

[73] *Id*.

[74] Tr. at 825, 833-34; CX 650 at CBI/PDM H4019758.

[75] Tr. at 833.

[76] Tr. at 1346, 4072; CX 170 at CBI-PL009650.

[77] Tr. at 1346.

[78] Tr. at 1507-08.

[79] Tr. at 338, 824-26, 1386.

[80] JX 37 at 33.

At ambient temperatures, LIN is used to create inert (non-reactive) environments in applications such as chemical blanketing or purging. In its liquid form, LIN has cooling or freezing applications in the food and manufacturing industries. In manufacturing, LIN can also shrink materials that otherwise would not fit in the fabrication process. LOX, which unlike LIN is a very reactive gas and combines directly with virtually all elements, is used in the medical industry for oxygen treatment and in the steel and glass industries for combustion and melting. LAR is even more inert than LIN and has applications where an extremely inert environment is required, such as high-quality welding (where it is used as a shielding gas) and primary metal furnaces (where it acts to protect the furnace from high temperatures).

D. TVCs

A field-erected TVC is the outer shell of a large vessel that is used to simulate outer space in order to test satellites before they are launched.[81] TVCs also contain a thermal vacuum system composed of an inner shroud, vacuum insulated pipe, a thermal conditioning unit, and cryogenic pumps or other pumping equipment.[82] Together, this highly sophisticated system of temperature and vacuum controls allows the chamber to attain temperature ranges from G292° to G238° F and a range of extreme vacuum levels.[83] Field-erected TVCs can be as large as 45 by 45 by 60 feet[84] and can cost $12 million to $17 million.[85]

Typically, one company builds the shroud and another company builds the surrounding tank.[86] The dominant shroud constructors have been PSI (aka Chart) and XL, which, prior to the merger, formed alliances with the dominant tank constructors – PDM and CB&I, respectively.

E. Bidding

As we further discuss in Part III.B, *infra*, all four relevant markets are characterized by a purchasing process that uses some form of competitive bidding. In the LNG, LPG, and LIN/LOX tank markets, for example, buyers try to create a competitive environment by sending

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[81] Tr. at 1262.

[82] Tr. at 1263.

[83] Tr. at 1262. The testimony characterized the temperature range as G180° to G150° C. For consistency, we have converted these figures to Fahrenheit.

[84] Tr. at 1264.

[85] Tr. at 1891 (*in camera*), 1923 (*in camera*), 2074.

[86] Tr. at 1264.

bid packages to multiple bidders.[87] Both LNG and LIN/LOX customers testified that they prefer to have at least three bidders.[88] In addition, although it appears most prevalent in the LPG and LIN/LOX tank markets, customers in all three tank markets use a second round of bidding to negotiate price so that they can "leverage the competitive environment prior to contract award."[89] Customers in all three tank markets also sometimes inform bidders of the existence of competition in order to reduce the prices bid.[90] Similarly, in the TVC market, customers solicit proposals from multiple bidders and then either select one bidder with whom to negotiate a best and final offer (BAFO)[91] or negotiate BAFOs with multiple bidders.[92]

Bidding for LNG tanks, however, is particularly complicated, because the construction of peak-shaving plants and LNG import terminals can be organized in a number of ways.[93] For example, a facility owner may choose to manage the project and solicit competitive bids for

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[87] Tr. at 2302, 2307, 7083.

[88] Tr. at 347-38, 4618-19, 6495.

[89] Tr. at 2299; *see also* Tr. at 349-50, 1992-93.

[90] Tr. at 2304-05, 4954, 5040, 6603, 6626-27.

[91] Tr. at 1440.

[92] Tr. at 211.

[93] Tr. at 704 (*in camera*). In addition to engaging in multiple iterations of bidding, LNG tank customers also employ blind bids, where a bidder has one shot to submit its bid and does not know who its competition is.

[94] Where the EPC contractor takes on responsibility for the subcontractor's work or performs the work itself, the contract amounts to a turnkey contract. A turkey contractor for an LNG import terminal or peak-shaving facility is responsible for building the entire plant from the engineering through the start-up of the plant. Tr. at 1323. Suppliers prefer to provide the customer with the entire facility, because such projects have higher margins than stand-alone LNG tanks. Tr. at 2812-13; CX 660 at PDM-HOU005013.

certain suppliers.[95] This practice appears less prevalent in the LPG and LIN/LOX tank markets.[96]

III. Complaint Counsel's Prima Facie Case

A. Herfindahl-Hirschman Index Calculations

At trial, Complaint Counsel presented sales evidence from 1990 to 2001 and asserted that CB&I and PDM accounted for over 70 percent of all sales made in each of the relevant markets (and 100 percent of all sales in both the LNG and TVC markets).[97] Complaint Counsel argue that these sales data translate into HHIs that entitle them to a presumption that the acquisition will lessen competition.[98] Complaint Counsel alleged – and the Initial Decision found – that the acquisition would result in post-acquisition HHIs of 5,845 for the LIN/LOX tank market, 8,380 for the LPG tank market, and 10,000 for the LNG tank and TVC markets.[99] Based on Complaint Counsel's evidence and the Initial Decision's findings, the acquisition resulted in HHI increases of 2,635 for the LIN/LOX tank market, 3,911 for LPG tank market, 4,956 for the LNG tank market, and 4,999 for the TVC tank market.[100]

HHIs measure market concentrations and can indicate market power (or the lack thereof). They have been consistently employed by courts assessing the likely impact of a merger or acquisition.[101] The Initial Decision, however, refused to rely on the HHI data that Complaint Counsel put into evidence. The ALJ reasoned that in markets with sporadic sales, finders of fact must treat concentration data with a fair bit of skepticism, because the numbers may not accurately represent the competitive landscape. The Initial Decision also pointed out that the changes in concentration in this case are sensitive to the time period chosen and therefore

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95 Tr. at 6180-82, 6267.

96 *See* Tr. at 6712-13.

97 CCACAB at 21.

98 *Id.* at 20.

99 Tr. at 3443, IDF 273 (LIN/LOX); Tr. at 3403-04, IDF 218 (LPG); Tr. at 3055, IDF 68 (LNG); Tr. at 3494, IDF 371 (TVC).

100 *Id.*

101 *See, e.g., Heinz*, 246 F.3d at 716; *PPG Indus.*, 798 F.2d at 1503; *Cardinal Health*, 12 F. Supp. 2d. at 53-54.

concluded that the HHIs are arbitrary and unreliable.[102] Specifically, the ALJ noted that because CB&I did not build an LNG or LPG tank or a TVC between 1996 and the acquisition, the change in concentration for that time period would be zero.[103]

We understand the ALJ's point and agree that in markets with sporadic sales, finders of fact must treat concentration statistics with care. However, total disregard of the concentration statistics is an entirely different matter and is a step we are unwilling to take in this case. Were one to look at a snapshot of a particular time, the HHIs taken alone might give the impression that CB&I was not a competitive force at that time. But such a notion is contradicted by other evidence in this case.[104] The ALJ's observation – which reflects a recognition that the sales in these markets are indeed sporadic – simply shows why it is appropriate to consider an extended period of time in analyzing these markets. Therefore, we reverse the ALJ's conclusion and will take account of the HHIs in this case.

We have considered the probative value of the concentration data in this case in light of all other evidence and have concluded that the evidence here corroborates – rather than refutes – the inferences that can be drawn from the HHIs. For example, in all four relevant markets, CB&I and PDM made by far the greatest number of sales, not only for the time period focused on by Complaint Counsel, but also for at least two decades. Indeed, as we noted earlier,[105] Respondents do not contest that they were the dominant suppliers in all four markets prior to the acquisition. In addition, none of the relevant markets is characterized by easy entry, and other firms making tanks in the various markets have not expanded their presence by any appreciable measure. We thus believe the nature of sales in these markets distinguishes the instant case from cases in which courts have given HHIs little weight due to market conditions. In *Baker Hughes*, for example, the government did not present evidence beyond the concentration levels themselves, and the court found those data unreliable given the volatile nature of the market and low entry barriers.[106] Similarly, in *General Dynamics*, the Supreme Court found that the market

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[102] ID at 91-92.

[103] ID at 91.

[104] Respondents' own economic expert, Dr. Barry Harris, acknowledged that it would be incorrect to conclude that the merger does not hurt competition simply because one Respondent accounted for all the sales in a relevant market over some period of years and the other Respondent accounted for none. Tr. at 7228.

[105] *See* Part I.C, *supra.*

[106] 908 F.2d at 986 (citing *United States v. Baker Hughes*, 731 F. Supp. 3, 11 (D.D.C. 1990)).

not take into account that firm's depleted reserves and commitment contracts.[107]

In a case such as this, where there are very few sales in any given year, the aggregation of

[107] 415 U.S. at 493.

[108] *Merger Guidelines* § 1.51.

projects discusses in CX 1645 are peak-shaving plants but CX 125 accounts for them. The Granite State Gas and Atlanta Gas projects were cancelled. CX 1645 at 2. The Enron, Cove Point, and Liquid Carbonic projects were not peak-shaving plants. CX 173 at CBI-PL010403, CX 853 at PDM-HOU011488.

[111] IDF 72-73.

[112] IDF 65, 72.

[113] The bid for this project was awarded in 1995. CX 1645.

[114] Tr. at 560, 3196-98. Although PDM was disqualified from bidding on this project because it did not meet the specifications in the request for proposals, MLGW's project manager testified that once the bids were adjusted for quality, PDM's bid was very close to CB&I's. Tr. at 1876.

Respondents argued at trial that the tank bids themselves were competitive and that the difference in the MLGW bids is mostly attributable to the liquefaction portion of the bid. The evidence indicates, however, that CB&I's tank bid was well below those of Black & Veatch/TKK and Lotepro/Whessoe. CB&I bid $36 million for the facility – $22 million for the liquefaction facility and $14 million allocated to the tank. Tr. at 648, 1809. In contrast, Lotepro/Whessoe's bid was $40 million. Tr. at 1809. Although there is no evidence on the precise breakdown of Lotepro's bid, the project manager for MLGW testified that the tank portion of Lotepro's bid was "quite a bit higher" than CB&I's. Tr. at 1810. Similarly, Black & Veatch/TKK's bid was $47.7 million, of which $31 million was allocated to the liquefaction process and $16.7 million was allocated to the tank. Tr. at 648.

[115] b e c a u s

substantially harmed competition.[116] MLGW testified that it was concerned about the competition for its upcoming project in 2006, because post-acquisition it does not "see anyone

[116] The testimony discussed in this paragraph of text comes from witnesses who observed first-hand the competition between CB&I and PDM.

[117] Tr. at 1830.

[118] Tr. at 324.

[119] *Id.*

[120] Tr. at 703 (*in camera*).

[121] CX 68.

[122] CX 94 at PDM-HOU017580.

[123] Prior to the acquisition, Mr. Scorsone was head of PDM's Erected Construction Division, which was the division responsible for sales of the various storage tanks and the TVCs at issue in this case.

[124] Tr. at 4851.

Although the LPG tank market appears not to have been a duopoly prior to the acquisition,[125] only two of the 11 projects bid from 1990 until the acquisition were won by firms other than CB&I and PDM.[126] Furthermore, we find that fully crediting these two projects overstates their competitive impact. First, although Morse won a bid in 1994, it was later acquired by CB&I and is no longer in the market.[127] Second, although AT&V won a small project near its Gulf Coast fabrication facilities in 2000, the record suggests that this award was an anomaly given the small size and the proximity of the tank to its facilities.[128] Even if we credit these wins fully, CB&I and PDM still stand as the dominant players and closest competitors, with only an occasional job going to other firms.

We have taken note that CB&I had not won any LPG tank jobs from 1994 until after the acquisition.[129] While this fact, at first blush, seems to undermine the pre-acquisition competitive significance of CB&I and suggests that the acquisition may not have actually lessened competition between CB&I and PDM in LPG tanks, the record shows that CB&I's string of losses after 1993 is not competitively significant. One of the LPG jobs that PDM won during this period (the Sea-3 project) is anomalous because PDM's bid left out a $400,000 piece of equipment that should have been included in the price.[130] It is not clear that PDM would have won the bid absent this error. In addition, during this period, CB&I continued to bid on each of the available LPG jobs, and the evidence suggests that its presence constrained PDM's pricing.[131]

Demand for LPG tanks has been declining,[132] and therefore customer testimony on the potential effect of the acquisition is scant. Nevertheless, Fluor testified that the competitive

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[125] In addition to CB&I and PDM, the record identifies AT&V, Matrix, Wyatt, Morse, and Pasadena Tank as bidders. Tr. at 3750, 5040, 6550, 6561, 7286. *See also* JX 23a at 119-123 (*in camera*), CX 397.

[126] IDF 210.

[127] Tr. at 6546.

[128] Tr. at 7129-31, 7133-34; CX 107 at PDM-HOU005015**.**

[129] Complaint Counsel's expert calculated the probability of CB&I's losing five straight bids if it were one of two equal bidders as 3.13 percent. Tr. at 3686-87. If it were one of three equal bidders, the probability would be 32/243 (or 13 percent). Tr. at 3688.

[130] Tr. at 4826.

[131] Tr. at 2300, 2306, 3375; CX-63, 68, 94 at PDM-HOU017582, 116, 660.

[132] *See* Tr. at 2309 (Fluor not aware of any field-erected LPG tanks being planned by anyone).

[133] Tr. at 2307-08. Matrix, a would-be entrant, also stated that CB&I and PDM were the only competitors for LPG tanks. Tr. at 1614.

[134] CX 107 at PDM-HOU005016 (PDM's "Strategic Plan 2000"); CX 68, 94, 648, 660.

[135] CX 216 at CBI-PLO33892.

[136] Tr. at 4263-64; *see also* CX 163 (CB&I document mentioning PDM as main competitor in the low temperature and cryogenic market, which includes LPG); CX 216 (CB&I Board of Directors' September 2000 Strategy Meeting document) at CBI-PL033886 (PDM a "formidable competitor" to CB&I in LPG in Western Hemisphere).

[137]

view that the only competitive alternatives in the LPG tank market were PDM and CB&I.[141]

3. Pre-Acquisition Competition in the LIN/LOX Tank Market

The LIN/LOX tank market includes (and has historically included) several small fringe firms. Thus, like the LPG tank market prior to the acquisition, the LIN/LOX market was not an outright PDM/CB&I duopoly. In addition, Graver manufactured LIN/LOX tanks from 1990 until its exit in 2001.[142] Two additional firms, AT&V and Matrix, entered the market not long before the acquisition.[143] Chattanooga was an active bidder both before and after the acquisition but has yet to win a bid.[144] One additional firm, BSL, bid for a time and then exited the market.[145]

Despite the appearance, and disappearance, of multiple competitors in the LIN/LOX market, our examination of recent market history, customer testimony, and company documents leads us to find that the real competition in LIN/LOX tanks prior to the acquisition consisted of only CB&I, PDM, and Graver – and then of only CB&I and PDM after Graver exited in 2001. From 1990 to the acquisition, 109 LIN/LOX tanks were constructed.[146] Of these tanks, CB&I won 25, PDM won 44, Graver won 34, Matrix won 4, and AT&V won 2.[147] Graver was a well-known competitor in LIN/LOX tanks.[148] Its exit in 2001 was a significant event that further concentrated an already concentrated market.[149] Matrix had just entered the market a few years

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[141] Tr. at 2308, 3367.

[142] IDF 269-70.

[143] IDF 313, 320; Tr. at 4599.

[144] IDF 325-27.

[145] Tr. at 954-55, 1351-52, 1378-80, 1577-78, 2001.

[146] IDF 269; ID at 95.

[147] *Id.*

[148] *See* Tr. at 479, 1350-51, 1378, 1988-89, 6424-25.

[149] *See* Tr. at 1988-89. Before it exited the market in 2001, Graver's performance had been deteriorating following its acquisition by Iteq (several years before CB&I acquired PDM). Tr. at 2425.

prior to the acquisition.[150] Shortly before the acquisition, AT&V also was finally able to win a LIN/LOX bid and has since completed the project and won two additional bids.[151] The section on entry below (Part IV.C.3) discusses in detail why none of these third-party firms has been a sufficient entrant – that is, one that has replaced the competition lost from the acquisition.

Customer testimony supports the conclusion that CB&I and PDM were the two principal competitors in the U.S. LIN/LOX tank market after Graver's exit in 2001 and that the acquisition substantially reduced competition. Air Liquide testified that it was concerned about the acquisition because competition had already been reduced by Graver's exit and because prices would tend to rise with only one viable LIN/LOX tank supplier left.[152] Linde testified that the acquisition drastically reduced its choice to one vendor.[153] Air Products testified that the acquisition eliminated a low-cost, preferred bidder and that it expects prices in LIN/LOX to go up as a result.[154] MG Industries testified that the acquisition took away an aggressive competitive bidder and that it is worse off after the acquisition, without PDM in the market.[155] PDM was the lowest bidder for the last three or four project inquiries for MG Industries, which

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150 IDF 320.

151 Tr. at 2321-22, 2504-05, 4599.

152 Tr. at 1988-91.

153 Tr. at 878.

154 Tr. at 1352-53.

155 Tr. at 475.

156 Tr. at 462.

157 CX 183; CX 193 at CBI-PL20339; IDF 279-82.

158 CX 183; CX 193 at CBI-PL020339.

159 IDF 277-79.

relatively little attention to other competitors.[160] Taken as a whole, this evidence supports the conclusion that the market was dominated by CB&I and PDM and that they were each other's closest competitor at the time of the acquisition.

4. Pre-Acquisition Competition in the TVC Market

Only CB&I, PDM, and Howard have submitted bids for TVC tank projects since 1990. The record demonstrates, however, that despite Howard's bidding presence, it has not been a significant factor in the TVC market. Howard has never won a project and is not regarded by customers as a credible bidder.[161] In fact, although Howard submitted a lower bid for Raytheon's Long Beach project, Raytheon chose the CB&I/XL pairing[162] because Raytheon believed that CB&I/XL had a superior technical approach.[163] In addition, Howard's total yearly revenues are small, ranging from $2.5 million-$3.0 million, and its bonding capability is correspondingly small.[164]

Customers agree that the main competition for TVCs was between CB&I and PDM and that the acquisition would eliminate this competition to their detriment. For example, TRW testified that when it learned that CB&I had acquired PDM, it estimated that the cost for its planned chamber would increase 50 percent.[165] Another customer, Spectrum Astro, testified that it considers competition between at least two suppliers important to foster innovation and to keep prices down.[166]

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[160] *Id.*

[161] Tr. at 192-93, 384-87, 1443. In addition, Howard's founder testified that he did not believe that Howard had any real chance of winning a large TVC project. Tr. at 192-93.

[162] Typically, one company builds the shroud and another company builds the tank that encloses it. Tr. at 1264. The dominant shroud constructors have been PSI (aka Chart) and XL, which have formed alliances with the dominant tank constructors, PDM and CB&I. Thus, in the bidding on field-erected TVC projects, PSI/PDM has typically been pitted against XL/CB&I.

[163] Tr. at 383-87.

[164] Tr. at 181, 200.

[165] Tr. at 1456-57.

[166] Tr. at 2050-51.

As with the other product markets, Respondents' documents show us that the real competition for TVCs rested in CB&I and PDM. A draft business plan for CB&I and XL's strategic alliance to bid for TVC projects described the "only competition for the thermal vacuum systems market" as the PSI/PDM "strategic alliance."[167] Witnesses representing the two makers of shrouds for TVCs testified that the only companies able to construct tanks for field-erected TVCs were PDM and CB&I,[168] one stating that "there were basically two dominant companies that supplied the field-erected chambers and two dominant companies that supplied [thermal vacuum control] systems."[169]

5. Conclusions on Pre-acquisition Competition

The qualitative record evidence thus bolsters the conclusions that can be drawn from the HHIs, which show extremely high levels of concentration in all four markets. The acquisition has resulted in a merger to monopoly or near-monopoly in each relevant market, giving rise to a very strong presumption that the merger is anticompetitive. We next turn to a discussion of entry conditions to determine if there is any evidence to suggest that the acquisition is less anticompetitive than the concentration levels show.

C. Entry Conditions

In addition to their prima facie case based on concentration numbers and a more detailed examination of competitive conditions in each market, Complaint Counsel presented evidence that the LNG, LPG, and LIN/LOX tank markets are difficult to enter.[170] Although Respondents present a very different entry argument as a major part of their defense, we analyze entry conditions in the context of Complaint Counsel's prima facie case. We do this because evidence of high entry barriers necessarily strengthens the conclusions to be drawn from Complaint Counsel's showing of high concentration levels.[171] If entry is difficult, then CB&I would be

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[167] CX 212 at CBI-PL031721; Tr. at 1159.

[168] Tr. at 1110, 1115, 1118, 1267.

[169] Tr. at 1118.

[170] The difficulty of entry into the TVC market is not in dispute. Rather than suggesting that new entrants or expanding smaller incumbents will restore competition, Respondents argue that CB&I was not a competitive presence in the TVC market. RAB at 48.

[171] In addition, while we acknowledge the conceptual framework of shifting burdens of production, we note that as a practical matter it would be difficult to consider this evidence

barrier).

[177] *See, e.g.*, *Visa*, 163 F. Supp. 2d at 341 (finding, among other barriers to entry, an

[186] RAB at 20.

[187] *Merger Guidelines* §§ 3.2-3.4.

[188] *See Visa*, 163 F. Supp. 2d. at 342 (entry must be "timely, likely, and [of a] sufficient scale to deter or counteract any anticompetitive restraints"); *Cardinal Health*, 12 F. Supp. 2d at 55-58 (same); Robert D. Willig, *Merger Analysis, Industrial Organization Theory, and Merger Guidelines*, Brookings Papers on Economic Activity: Microeconomics, 281, 307 (1991) ("[T]he likelihood, timeliness, and sufficiency of the induced entry are the critical elements of the analysis."); 2A Phillip E. Areeda, Herbert Hovenkamp & John Solow, *supra* note 45, ¶422, at 74-78. *See also FTC v. Staples Inc.*, 970 F. Supp. 1066, 1088 (D.D.C. 1997) (finding that expansion by Wal-Mart would not constrain the merging parties' prices).

[189] 908 F.2d at 988-89.

[190] *Id.* at 986.

[191]

193 51 F.3d at 1440 (quotation marks omitted).

194 *Id.*

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credible alternatives.[199]

1. Entry Conditions of the LNG Tank Market

LNG tank customers require potential suppliers to have a good reputation, knowledge of the local labor force, knowledge of federal and local regulatory requirements, and employees who are skilled at designing and constructing tanks. In other words, suppliers must have experience to compete. The evidence suggests that customers view experience in the LNG tank market as evolving over time, with each successfully completed project improving a supplier's ability to provide a quality product and to obtain future work. For example, customers evaluate a potential supplier's strength in each of the aforementioned categories. Moreover, it appears that as an LNG tank supplier builds more tanks, it becomes more efficient both in terms of costs and its ability to build a quality product.[200] This dynamic is particularly important in the United States, where CB&I has decades of experience and has solidified a reputation for quality and reliability. To enter the U.S. market effectively, an LNG tank supplier must not only meet customers' basic requirements but also must be able to match CB&I's long-honed abilities.

The evidence clearly establishes that an LNG tank supplier's reputation plays a key role in its ability to compete. Several customers testified that they prefer to deal with companies with experience in both designing and building tanks and that an LNG tank supplier needs to have constructed more than one tank to be viewed favorably. Yankee Gas, for example, testified that a supplier that has constructed only one tank will not meet the "broad level of experience that [it] will require in [its] evaluation."[201] Similarly, Dynegy testified that it prefers someone with LNG tank construction experience,[202] and Black & Veatch testified that it would be hesitant to use an inexperienced supplier.[203]

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[199] We find the Initial Decision's discussion of entry barriers relevant in that it correctly identified a number of credentials any new entrant must have as well as market characteristics that a new entrant must overcome to successfully compete with CB&I. *See generally* IDF 46-54, 166-76, 237-53, 328-33, 415-18; ID at 99-108.

[200] *See, e.g.*, Tr. at 1639-40 (a former Zachry employee notes that the more LNG projects it completes, "the more [it] can optimize [its] methods and be more competitive" in terms of costs) (*in camera*).

[201] Tr. at 6702.

[202] Tr. at 4581-82.

[203] Tr. at 564-77.

We find support for this testimony in the behavior of various customers when they select bidders. The first step many companies take in putting together a slate of bidders is to determine which companies have successfully built LNG tanks in the past.[204] Moreover, past performance is an essential aspect of a customer's evaluation of a potential LNG tank supplier. For example, in choosing an LNG tank supplier for its Capleville project, MLGW specifically assessed and rated the various bidders' experience.[205] Although that project occurred several years prior to the acquisition, the evidence suggests that customers continue to take a potential supplier's track record and reputation into account. El Paso testified, for example, that in qualifying bidders it evaluates, among other things, a company's history with previous projects.[206] Similarly, Yankee Gas testified that experience will carry a lot of weight in its evaluation of bids for an upcoming project.[207] CB&I itself recognizes the importance of reputation and markets itself to customers based on the success of its past projects and cites this experience as a reason for choosing it instead of other suppliers.[208]

Antitrust law has long recognized that reputation can be a barrier to entry and expansion.[209] This principle applies especially to markets in which a product failure may result

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[204] Tr. at 4544-45.

[205] Tr. at 1788-91.

[206] Tr. at 6166-67.

[207] Tr. at 6702-03.

[208] CX 140, CX 162, CX 173. *Cf.* CX 1719 (investor fact sheet emphasizing "112 years of industry experience").

[209] In *Cardinal Health*, for example, the court found that, among other things, the "strength of [the defendants'] reputation" served as a "barrier[] to competitors as they attempt to grow significantly." 12 F. Supp. 2d at 57. Similarly, courts in other cases have found that brand loyalty can make meaningful entry unlikely. *See, e.g.*, *Swedish Match*, 131 F. Supp. 2d at 170-71; *Avery Dennison*, 2000-1 Trade Cas. (CCH) ¶ 72,882 at 87,557 (also available at 2000 U.S. Dist. LEXIS 3938 at *42-44).

[210] 130 F. Supp. 2d at 1031.

[211] 768 F. Supp. at 1079-1081.

[212] RAB at 21.

[213] 908 F.2d at 989 n.10.

[214] 908 F.2d at 989. We also note that the Ninth Circuit has concluded that

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As one CB&I employee stated, "[T]here's obviously a learning curve as that person learns a particular company's procedures and equipment."[227] He elaborated that a person working on an initial project "would probably be not as efficient as someone who had worked with the company's procedures and equipment for years."[228] This familiarity reduces CB&I's costs and is likely to factor favorably into a customer's assessment of a bid from CB&I.[229] CB&I can assure a customer not only that it has access to the needed field crews but also that its crews' familiarity with CB&I will save the customer time and money over other options.[230] A new entrant would thus need to cultivate such relationships and be able to demonstrate to customers that it could match CB&I's proficiency in attracting and working with field crews.

Respondents have also argued that access to welders is not a hurdle to entry in this market, because "[w]elding processes for LNG tanks are non-specific."[231] The weight of the evidence suggests otherwise. Regardless of whether the welding is done by field crews, local labor, or the employees of a tank construction company, a tank supplier must first have welding procedures in place. CB&I has developed specialized, proprietary welding procedures that it does not share with the industry, and prior to the acquisition PDM did the same.[232] In fact, in a 2002 discussion with its investors, CB&I's CEO emphasized that building an LNG tank involves very specialized work and that facility owners recognize this fact and do not want to take a chance on "shoddy welding."[233] Similarly, AT&V's Vice President testified that "the [welding] equipment is quite expensive to develop. You can go buy it, but the stuff you buy has to be modified and tailored, and then you have to build procedures around it."[234] He elaborated that because LNG tanks are constructed of sophisticated materials, "you don't just weld them up any

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227 Tr. at 2633-34.

228 Tr. at 2634.

229 Tr. at 2633-34.

230 A Technigaz employee testified that CB&I has experienced field crews that can erect a tank in a shorter time than newly trained field crews. Tr. at 4713 (*in camera*). Similarly, a former Zachry employee stated that there is a learning curve associated with construction of LNG tanks, Tr. at 1637 (*in camera*), and that a company's costs decrease as it builds more tanks. Tr. at 1639-40 (*in camera*). We find this testimony borne out in the Dynegy bid, where Technigaz/Zachry (which has never built an LNG tank) was excluded for price reasons. Tr. at 4760 (*in camera*).

231 RAB at 22.

232 Tr. at 6028-29; CX 109 at PDM-HOU006700; CCFF 331-32.

233 CX 1731 at 44.

234 Tr. at 2379.

[235] *Id.*; s*ee also* CCFF 327.

[236] Tr. at 1601.

[237] *See, e.g.*, Tr. at 310, 4521, 7017-18.

[238] Tr. at 7017-18.

[239] *See, e.g.*, CX 1061 at 10-11 (reporting in an SEC 10-K that CB&I "believes that it

tank supplier is ready and able to train and supervise those workers. Although it contracted with a local construction company in India that employed skilled workers, Whessoe needed to bring a large number of supervisors to the work site. We would expect the same to hold true in the United States, given that any foreign firms that enter the U.S. market likely would have U.S. construction partners without experience in building LNG tanks. In fact, the evidence suggests that the international tank design firms recognize this fact and have plans to train U.S. construction employees in the management of these projects – an endeavor that will take a long time and be costly.[241] In addition, even after the U.S. construction employees are trained, it would likely take them a few years to become as efficient as those of CB&I – a fact that AT&V's Vice President acknowledged regarding his firm's employees.[242] Thus, whether the international design firms provide supervisors for a particular job or train employees in the United States, the new entrants face a long and costly learning process before they can become effective competitors to CB&I.

Finally, customers testified that an LNG tank supplier must be able to steer a proposed project through the FERC application process in a timely manner.[243] While it takes expertise to complete the tank drawings and various resource reports required by FERC, many customers testified that it is also of paramount importance to secure approval in a timely manner.[244] Because construction on the LNG tank cannot begin until the FERC application is approved, delay in the approval process translates into delay in the construction and erection of the tank, which in turn delays completion of the entire facility. This delay, of course, can represent real

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[241] *See, e.g.*, Tr. at 2324-26 (TKK plans to train AT&V employees project managers and has thus far trained one), 2626-27(CB&I employee explaining that project managers must be trained).

[242] Tr. at 2379-80; IDF 147.

[243] Because the FERC regulations apply only to interstate commerce, they are usually not applicable to peak-shaving facilities, which serve only local markets. However, in some instances, an owner may specify that its peak-shaving facility be built to comply with the FERC regulations. Tr. at 4930.

[244] Tr. at 310 (stating a reluctance to use an inexperienced LNG tank supplier, because, among other things, the supplier would not be "familiar with all the [regulatory] parties that have requirements and how to satisfy all those parties in a reasonable time"). *Cf.* Tr. at 566 (meeting the schedule is important, and if the tank is delayed, that time is added to the project); Tr. at 627 ("delays in completing the tanks or problems with utilizing the tanks will impact the schedule and the success of the project"); Tr. at 6287 (CMS believed the number one risk on the project was schedule) (*in camera*).

[245] *See, e.g.*, Tr. at 3192 (missing deadlines causes "potential damage to the [LNG tank] client"); Tr. at 6286-87 (the revenue stream does not start until the LNG facility is ready for service) (*in camera*). These costs are usually mitigated by liquidated damages or other penalties. Tr. at 3191-92, 6286-87 (*in camera*).

[246] Prior to the acquisition, Atlanta Gas evaluated bids based partially on the bidders' FERC experience. CX 161. Similarly, CB&I's FERC experience appears to have played a crucial role in CB&I's post-acquisition negotiations with both BP and CMS. As will be discussed more fully in Parts IV.B.1.(a)-(b) of this Opinion, the evidence suggests that CB&I successfully leveraged its completion of the FERC applications into sole-source contracts with BP despite BP's initial reluctance to grant such contracts. When BP hired CB&I, it believed that CB&I's FERC experience gave CB&I a significant advantage. Tr. at 6093 (*in camera*). CMS also chose CB&I based in part on CB&I's FERC experience. Tr. at 6283 (*in camera*). Although some customers hire consultants and EPC contractors to help with the FERC approval process, Tr. at 4991, the evidence suggests that for some customers – especially those in sole-source negotiations – a bidder's FERC experience is crucial.

[247] Tr. at 6092 (*in camera*).

[248]

Without such attributes, an entrant's bid is not likely to be taken seriously, and it will be unable to constrain CB&I effectively. In fact, the new entrants recognize these requirements. AT&V's Vice President, for example, testified that TKK planned to train AT&V's employees in project management skills such as estimating, scheduling, and coordinating as well as in construction techniques, welding, and the operation of welding equipment.[250]

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building LNG tanks. There is some general testimony that owning a fabrication plant might reduce one's costs on LNG projects, Tr. at 1636 (*in camera*), but we find more persuasive the fact that CB&I had its steel for some recent projects fabricated at the foreign steel mill and delivered directly to the site. Tr. at 4893-94.

[250] Tr. at 2325.

[251] Tr. at 1637-38 (a supplier that builds an LNG tank incurs expenses "that [it] can improve when [it] perform[s] the same work the second or the third time or subsequent times") (*in camera*); Tr. at 2633-34 ("For any type of tank project, there's obviously a learning curve as that person learns a particular company's procedures and equipment, and during the initial project that person was used on he would probably be not as efficient as someone who had worked with the company's procedures and equipment for years."); Tr. at 4713 (CB&I has a cost advantage over Technigaz/Zachry because it has "experienced field crews that can erect an LNG tank in a shorter period of time than a newly trained field crew that has no past experience.") (*in camera*). *See also* CX 392 at 4 (affidavit seeking in camera treatment for documents related to improving CB&I's "processes and methods" that "improve [CB&I's] efficiency and lower [its] costs").

[252] *See* Tr. at 699 (*in camera*), 717-18 (*in camera*); CX 1649 (world map plotted with global tank sales).

experience and build a reputation.

2. Entry Conditions of the LPG Tank Market

The evidence shows that conditions of entry and expansion in the LPG tank market are similar to those in the LNG tank market. It is very difficult to get work without an established record for building high-quality, field-erected LPG tanks.[253] Bidders are selected for inclusion in the bidding process based on past performance, technical capabilities, safety record, quality programs, the size and scope of structures built previously, the volume of work performed, number of employees, qualifications of welders, and financial information.[254] Both Fluor and ITC, for example, pre-qualify bidders using these criteria.[255] It is also important to customers that a contractor show that it has managed a project of similar size,[256] that it is not stretched too thin at the time the project is to be built,[257] and that it has the ability to manage cash flow.[258] Moreover, as with the LNG tank market, an LPG tank supplier's depth of experience matters. AT&V testified, for example, that it would need not only automated equipment and extensive welding training but also years of experience to catch up to CB&I.[259]

Safety is a critical concern for LPG customers. The hazards of a leak are severe, as exemplified by the catastrophic failure of a Whessoe-built LPG tank in Qatar.[260] A builder's reputation and safety record are therefore among the most important considerations for

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253 *See* Tr. at 1609 (LPG tank market characterized as having "learning curves and expenses" similar to the LNG tank market).

254 Tr. at 2290-97, 7083-84; JX 27 at 115-16. Sometimes buyers send bid packages to firms that would not meet qualification standards. Tr. at 7134. The buyer does not expect that such bidders will be accepted but allows them to bid as a matter of courtesy. Tr. at 7134; JX 27 at 57.

255 Tr. at 2289-91, 7084.

256 Tr. at 2291-92, 2295.

257 Tr. at 2295.

258 Tr. at 2297.

259 Tr. at 2379-80.

260 Tr. at 3323; *see also* Tr. at 7141-42.

customers,[261] and buyers are not inclined to contract with builders that have not already built similar tanks.[262] ITC testified that it sends packages to firms that it thinks are reputable and have the capability to build the tank.[263] ITC prefers an experienced builder for any tank that will contain liquid below -3° F, and even a 10 percent price cut would not make it worthwhile to use an inexperienced supplier.[264] ITC testified that at times it allows suppliers to bid even though it does not think they will be competitive, simply to foster its "relationships with them."[265] After the first round of bids comes in, however, it evaluates whether the low bidder is "capable of doing the job that [it] want[s] done."[266] There is no evidence in the record that an inexperienced bidder has made it past this first bidding round.

Technical barriers to entry are not as high in the LPG tank market as in LNG tank

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[261] JX 27 at 70.

[262] Tr. at 7141 ("[P]eople want to see you have built one."); JX 23a at 195 (*in camera*).

[263] Tr. at 7084.

[264] JX 27 at 115-16.

[265] Tr. at 7134; JX 27 at 57.

[266] Tr. at 7083.

[267] Morse testified that it did not have to extensively train its fabrication personnel to work on an LPG project. Tr. at 6570-71. Although Morse's testimony may be viewed as self-serving because CB&I now owns it, we nonetheless find that owning a fabrication facility is not an entry barrier in the LPG tank market.

[268] Tr. at 1609-10, 4073.

[269] Tr. at 1609-10.

[270] Tr. at 4890.

tanks.[271] Although many companies can make pressure spheres or various flat-bottomed tanks, the record does not indicate that any of these firms have either the requisite special equipment or welding crews that are both experienced with the materials required for LPG tanks and able to travel to the site to work on an extended LPG project.[272]

Arguably, one might expect supply-side substitution to occur if CB&I were to attempt to exert market power in the LPG tank market, because the LPG tank market lies somewhere

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271 Tr. at 6570-71.

272 Tr. at 7106-07; JX 27 at 43, 59.

273 Tr. at 842, 1343-1346, 2198-99.

274 Tr. at 1566-67.

275 Tr. at 2190.

potentially catastrophic situation. For example, liquid nitrogen can cause severe (and potentially fatal) burns as well as asphyxiation.[276] Similarly, liquid oxygen is highly volatile, and its release can support intense fire that will consume everything in its path.[277] Customers are thus hesitant to contract with an inexperienced manufacturer. Air Liquide testified that safety is the most

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276 Tr. at 848, 1996-97.

277 *Id.*

278 Tr. at 1996-97.

279 Tr. at 849.

280 Tr. at 849, 1996-99.

281 Tr. at 4658-59.

282 Tr. at 849, 2400-01.

283 *Id*.; Tr. at 1997.

284 Tr. at 849.

285 Tr. at 849, 1996-97, 2399-2401.

customers like to see that a vendor's tanks have held up over time,[286] and some customers refuse outright to hire a supplier that has never constructed a LIN/LOX tank.[287] In addition, suppliers that have built multiple tanks over time have an advantage that increases as they build more tanks.[288] Air Products testified, for example, that it would be risky to contract with a supplier that had never built a LIN/LOX tank.[289] Air Liquide testified that it would not buy a LIN/LOX tank from a manufacturer that had never built one before and that it prefers a supplier that has built many LIN/LOX tanks.[290] MG Industries testified that it is very important for a LIN/LOX tank supplier to have prior experience[291] and that it would not contract with Matrix until Matrix gained experience.[292]

This emphasis on experience is reflected in customers' bidding procedures. For example, as part of Air Products' pre-qualification process, it requires the provision of an experience list and calls past customers for references.[293] Air Products requires that the engineers, field crew, and supervisors all have prior LIN/LOX experience.[294] Moreover, customers have a very strict pre-qualification process that a LIN/LOX tank manufacturer must go through before the customer will entertain a bid from the vendor. Much as in the LNG tank market, LIN/LOX tank customers examine the manufacturer's safety record, experience, technical capability, reputation, track record, and financial stability.[295] Given these pre-qualification requirements, it is very

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286 Tr. at 998-99, 2399.

287 Tr. at 467, 1995-99, 2017. *Cf* Tr. at 1388 (discussing the stringent requirements that a LIN/LOX supplier with no experience would need to meet).

288 Tr. at 467, 1995-99, 2017; s*ee also* Tr. at 2399.

289 Tr. at 1391.

290 Tr. at 1995-99, 2017.

291 Tr. at 467.

292 Tr. at 489.

293 Tr. at 1357-60.

294 Tr. at 1388-91.

295 Tr. at 1357-60 (Air Products uses safety criteria, technical capability, financial viability, and price to select a LIN/LOX tank supplier); Tr. at 1994 (a supplier's technical abilities, safety record, and financial strength are factors that Air Liquide focuses on in selecting a LIN/LOX supplier); Tr. at 849 (Linde is very careful when selecting a LIN/LOX vendor).

[296] Tr. at 2398-99. LNG and LPG tank suppliers have expertise similar to that needed to build LIN/LOX tanks, and, as a result, there is the theoretical possibility that a supplier in one or both of the two former markets might also be a credible LIN/LOX tank supplier. However, as of the time of the trial in this matter, none of the new entrants in the LNG tank market had submitted a bid to build a LIN/LOX tank, and no evidence suggests any plans to do so in the future. While there is some overlap among firms in the LPG tank and the LIN/LOX tank markets – Matrix, Chattanooga, and AT&V each participate in both markets – those LPG tank suppliers that have historically focused solely on building LPG tanks have not bid on any post-merger LIN/LOX projects, and there is no evidence that they plan to do so. As we discuss in Parts IV.B.2-3, *infra*, for the most part the firms participating in both markets have not been successful in either. Moreover, we find that experience in building LPG tanks does not necessarily mean that a supplier would be proficient and efficient at building LIN/LOX tanks without some experience in the LIN/LOX market. For example, LIN/LOX and LPG tanks are made of different types of steel. Like LNG ta

[299] Tr. at 1144; *see also* Tr. at 1454.

[300] Tr. at 1103.

[301] Tr. at 385-87, 1920 (*in camera*).

CB&I's long-standing presence in each of the markets, which gives it a decided advantage over inexperienced suppliers. We do not conclude that these new suppliers will never become a

[307] *Baker Hughes*, 908 F.2d at 984.

[308] *See University Health*, 938 F.2d at 1218, and cases discussed therein.

[309] Respondents do argue that CB&I was not a competitive force in the TVC market at the time of the acquisition and that it is "questionable whether CB&I would have the necessary expertise to construct TVCs absent the [a]cquisition." RAB at 48. However, the

evidence shows that CB&I continued to exert competitive pressure on PDM in the TVC market up to the time of the acquisition. *See* Part. III.B.4, *supra*.

[310] Respondents argue that the ALJ erred by not considering post-acquisition evidence in his evaluation of Complaint Counsel's prima facie case. However, the post-acquisition evidence proffered by Respondents goes to whether new firms have entered the LNG market or fringe firms have expanded in the LPG and LIN/LOX markets. The proper place to analyze this evidence is in Respondents' rebuttal case, and accordingly we will do so.

[311] *Heinz*, 246 F.3d at 725 ("The more compelling the prima facie case, the more evidence the defendant must present to rebut it successfully.") (citing *Baker Hughes*, 908 F.2d at 991); *FTC v. Arch Coal, Inc.*, No. 04-0534 (D.D.C. Aug. 16, 2004) (slip op. at 30); *see also* 2A Areeda, Hovenkamp & Solow, *supra* note 45, ¶422, at 74 ("The more concentrated the market and the greater the threat posed by the challenged practice, the more convincing must be the evidence of likely, timely, and effective entry.").

Respondents' reading of both Section 7 and the trial court's language in *Baker Hughes* is erroneous. Complaint Counsel correctly point out that the 1950 Celler-Kefauver Amendments to Section 7 of the Clayton Act[314] added the phrase "in any line of commerce" and that courts have consistently held that the volume or size of commerce affected by an acquisition is not a factor in determining the legality of a horizontal merger.[315] We note in addition that Congress extended Section 7 in 1980 to reach firms engaged "in any activity affecting commerce" and to apply to acquisitions by or from "persons," including natural persons and partnerships as well as corporations.[316] In short, we find nothing in the history of Section 7 or the case law even suggesting that some threshold must be reached before Section 7's prohibitions are triggered. As made clear by the statute itself, the relevant inquiry under Section 7 is whether "the effect" of a given transaction "may be substantially to lessen competition, or to tend to create a monopoly" "in any line of commerce or in any activity affecting commerce in any section of the country."[317]

We also find that, when placed in context, the *Baker Hughes* language quoted by Respondents is more correctly read as questioning whether the government had accurately defined a relevant market in the first instance. The language quoted by Respondents immediately follows a discussion of whether

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[314] Monopolies in Restraint of Trade – Supplementing Existing Laws, Pub. L. No. 81-899, 64 Stat. 1125, 1184 (1950).

[315] *See, e.g., FTC v. Food Town Stores*, 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."); *cf. United States v. Bethlehem Steel Corp.*, 168 F. Supp. 576, 595 (S.D.N.Y. 1958) ("a merger violates section 7 if the proscribed effect occurs in any line of commerce 'whether or not that line of commerce is a large part of the business of any of the corporations involved'").

[316] Antitrust Procedural Improvements Act of 1980, Pub. L. No. 96-349, § 6(a), 94 Stat. 1157.

[317] 15 U.S.C. § 18 (2004).

[318] 731 F. Supp. at 6-8.

[319] *Id.* at 9.

violation is that 'the market must be substantial.'"[320] Moreover, the *Baker Hughes* opinion's quotation from *du Pont* deals with the question of whether the relevant market was properly defined.[321] Thus, although the meaning of the *Baker Hughes* language that Respondents quote may not be perfectly clear, nothing in that opinion mandates our acceptance of the standard that Respondents advocate, particularly in light of the case law cited by Complaint Counsel, the history and scope of Section 7, and the failure of the appellate court in *Baker Hughes* to embrace the lower court's language.

B. Actual Entry

1. Actual Entry in the LNG Tank Market

a. Entrants into the LNG Tank Market

Respondents argue that increasing demand in the LNG tank market has triggered entry by international LNG tank designers that have formed alliances with U.S. construction companies. Respondents also posit that these new entrants have all of the assets necessary to make them competitive with CB&I, such as international reputations for design, connections with local labor forces, and knowledge of various regulatory requirements. They thus claim that three new entrants – Skanska/Whessoe, Technigaz's joint venture with Zachry, and TKK's joint venture with AT&V – now impose competitive constraints on CB&I.[322] At first blush, Respondents' story has some appeal. As we discuss below, however, a closer examination leads us to conclude that these new entrants do not confront CB&I with competition sufficient to constrain it from raising prices.

(1) The New Entrants' Lack of Reputation and Experience

We begin by noting that, as of the time of trial, none of the alleged new entrants had ever built an LNG tank in the United States. By themselves, they each lack a crucial attribute of any successful LNG tank supplier – a reputation with U.S. customers for quality and reliability.[323]

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[320] *Id*. (citation omitted).

[321] 353 U.S. at 595.

[322] RAB 14-17.

[323] We also question whether Skanska/Whessoe's reputation is wholly favorable. Whessoe was precluded from bidding on an expansion of Atlantic LNG's plant in Trinidad based on its previous performance. Tr. at 596. In addition, although it appears that Enron was ultimately satisfied with Whessoe's work on its Dabhol, India, project, problems at the outset of

the project required Enron to spend extra money to assist Whessoe. Tr. at 4458-59. Internal PDM documents suggest that Whessoe's poor performance on the Trinidad and Dabhol projects is known by customers and would hinder Whessoe's chances of winning a bid. *See* CX 115, 135 (*in camera*). *See also* CX 693 at BP 01 028 (BP internal document noting that "Whessoe did not perform at all well in Trinidad, and Bechtel had to provide substantial project management support.").

In addition, Technigaz has not itself constructed an LNG tank, so it is questionable whether it has the skills to transmit such knowledge to Zachry. Tr. at 4718 (*in camera*).

[324] Tr. at 4521.

[325] Zachry has never built a field-erected tank of any sort, much less a cryogenic LNG tank. Tr. at 1645 (*in camera*). Likewise, Skanska has never built an LNG tank in the United States. IDF 153. Although AT&V has constructed a number of LIN/LOX tanks, these projects have not been wholly successful, and it has never constructed an LNG tank. *See*

to provide substantial training to its field crews in proprietary techniques, company procedures, and the use of company-specific equipment. Thus, even if a new entrant had the needed access to these field crews, it would be at a competitive disadvantage because of the field crews' unfamiliarity with the entrant's procedures and equipment.[332]

We also find that the U.S. construction companies' inexperience in working with the local U.S. labor market in the construction of LNG tanks, combined with their subcontracting various parts of the tanks, has adverse competitive implications. Although the new entrants' U.S.-based construction companies have general familiarity with local labor regulations and knowledge of the local labor markets, CB&I (as the merged firm) has built virtually every LNG tank constructed in the United States. It thus knows in great detail how those labor markets can most effectively be accessed for the construction of LNG tanks. More important, CB&I has long-standing connections with various suppliers in these local markets. The evidence suggests that CB&I believes its knowledge of and connections with the local labor markets give it a competitive advantage. In a post-acquisition 10-K filing, CB&I stated that "it is viewed as a local contractor in a number of regions it services by virtue of its long-term presence and participation in those markets."[333] It further noted that "[t]his perception may translate into a competitive advantage through knowledge of local vendors and suppliers, as well as of local labor markets and supervisory personnel."[334] Thus, we cannot assume – as Respondents suggest – that these new entrants, who have never staffed or managed an LNG tank project, would have a knowledge and experience base comparable to that of CB&I.[335]

(3) The New Entrants' Lack of Regulatory Experience

In addition, it appears that the new entrants have little to no experience with the FERC process, which makes some customers hesitant to use them. For instance, BP testified that Skanska/Whessoe, TKK/AT&V, and Technigaz/Zachry all lacked the level of FERC experience that it would require for its upcoming project and that CB&I's FERC experience gave it a

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[332] A CB&I employee testified that CB&I's "field crews are trained in our [CB&I's] procedures and with our equipment, and hiring people off the street would involve training costs. . . . [Y]ou have to train them and ensure that they were experienced in your particular line of work." Tr. at 2626-27.

[333] Tr. at 4231; CX 1061 at 10-11.

[334] CX 1061.

[335] We also question whether the new entrants actually have adequate access to the local labor markets and note that Technigaz/Zachry did not bid for El Paso's Baja, California, LNG import terminal, in part because it did not believe it had access to the local labor it would need. Tr. at 1651-54 (*in camera*).

[336] Tr. at 6092-93 (*in camera*). BP testified that MHI, IHI, and Hyundai have virtually no regulatory experience; Daewoo, Technigaz, and Tractebel have a little more experience; and Whessoe might have even a bit more experience Tr. at 6094-95 (*in camera*).

[337] Tr. at 6103 (*in camera*).

[338] Tr. at 4180, 6069, 6087-88 (*in camera*

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b. Post-Acquisition Bids in the LNG Tank Market

As of the time of trial, no LNG tank bids in the United States had been awarded to any supplier other than CB&I. Nevertheless, Respondents contend that sufficient entry has occurred because Dynegy accepted bids from the three new entrants while precluding CB&I from bidding on its proposed import terminal. The evidence makes clear, however, that far from shunning CB&I, Dynegy negotiated with CB&I on multiple occasions and rejected its offer to bid on the LNG tanks only because CB&I's bid came too late in the process to be considered. The Dynegy project, where CB&I completely ignored its prospective customer's wishes and ultimately removed itself from the competition, comes up short as proof of vibrant competition.

At the outset, we address Respondents' suggestion that Dynegy's award of an EPC contract[345] to Skanska amounts to competition in the relevant market of LNG tanks.[346] This argument fails to distinguish between an EPC contract award and an award for LNG tanks. As we stated earlier, EPC contractors are essentially general managers for an LNG import terminal or a peak-shaving facility. Dynegy made clear to its potential suppliers that it intended to hire an EPC contractor but wanted to bid the LNG tanks separately from the engineering work to save costs.[347] In keeping with this strategy, Dynegy's award of the EPC contract to Skanska did not include an award on the LNG tank.[348] As a result, we discount Respondents' suggestion that this EPC award to Skanska amounts to competition in the relevant market (LNG tanks). We note, however, that even if we were to accept this premise, it appears that CB&I may have taken itself out of the running for the EPC award, which therefore is not evidence of the new entrants' ability to constrain CB&I.[349]

After the EPC contract was awarded to Skanska, CB&I refused to submit a bid for the LNG tanks alone, citing concerns about submitting bid information to a competitor's contractor.[350] As a result of these concerns, Dynegy created a firewall around those employees

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345 *See* discussion, *supra* Part II.E.

346 *See* RAB at 15 (arguing that post-merger "Skanska has *already won* the job of EPC contractor for this project, beating out CB&I and several major international engineering and construction firms") (emphasis in original).

347 Tr. at 4568-71.

348 Tr. at 4568.

349 Some evidence suggests that even if CB&I did not formally withdraw its name from consideration, it did so in effect by continuing to push a turnkey solution despite its customer's desire for an alternative. Tr. at 4571-72; CX 138, 139, 140.

350 Tr. at 4576-77.

facility and knew the FERC process.[357] As for BP's award of three tanks to CB&I, this appears to be an example of CB&I's ability to foreclose competition. Although BP wanted to offer the LNG tanks for its three facilities through competitive bidding, CB&I refused to undertake any FERC work without a commitment that would allow it to build the entire facility.[358] Rather than turn to another supplier, BP acceded to CB&I's demands and awarded it turnkey contracts for all three facilities.[359] It is notable that BP's internal analysis on these projects questioned Skanska/Whessoe's ability to perform the work, noted that Technigaz was "not active" in the U.S. market, and failed to mention TKK/AT&V at all.[360] Based on the evidence as a whole, we conclude that CB&I's increased market power following the acquisition is not constrained by the new entrants.

It is somewhat surprising that Respondents cite both the CMS and the El Paso (Southern LNG) sole-source negotiations as evidence of vibrant competition post-acquisition. Boiled down, their argument is that the customer can always seek out another supplier even in the course of a sole-source negotiation, and that accordingly CB&I does not have the ability to dictate price.[361] As evidence of this point, Respondents elicited testimony from both CMS and El Paso that they were prepared to solicit other suppliers if they were not satisfied in their negotiations with CB&I.[362] Respondents argue that this pressure from customers caused CB&I to reduce its price on these two projects.

We find these arguments unpersuasive. First, we note that the evidence about the supposed price reductions comes solely from CB&I and that the record does not provide adequate information to determine whether these price reductions occurred in an absolute sense. Both of these contract negotiations had multiple provisions, and any price decrease could easily

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357 Tr. at 6282-83 (*in camera*).

358 Tr. at 6069.

359 Tr. at 6069-71.

360 CX 693 at BP 01 028.

361 *See* RAB at 35-37. For the CMS project, Respondents also argue that CMS received a cost-competitive estimate that was lower than the budget price submitted by Skanska/Whessoe. RAB at 35-36. However, CB&I was unaware that CMS sought a bid from Skanska/Whessoe to check CB&I's competitiveness. Tr. at 6295 (*in camera*). Under these circumstances, the fact that Skanska's bid came in higher than CB&I's does not establish "the pro-competitive force of new entry" claimed by Respondents. RAB at 35. An alternative hypothesis – which is fully consistent with evidence – is that Skanska/Whessoe is unable to sufficiently constrain CB&I.

362 *See* RAB at 35-37.

that they were considering LNG projects, but they had done nothing more than request preliminary budget pricing.[371] Given the early stages of these projects – and, more important, the customers' consequential lack of information necessary to evaluate the new entrants' proposals – these projects provide inconclusive evidence of whether the new entrants pose a sufficient competitive threat to CB&I.

We also address Respondents' argument that the ALJ erred by disregarding evidence relating to Enron's project in the Bahamas and Atlantic LNG's expansion in Trinidad. Citing their expert's testimony, Respondents assert that "the ability of new entrants to compete effectively in places near the U.S. . . . sheds light on their ability to compete effectively in the U.S."[372] However, there is a crucial difference between competition in the United States market and competition in these other two markets. There are no incumbent firms in either the Bahamas or Trinidad. No one tank supplier enjoys the advantages that come from being the incumbent firm, and all firms can compete on a roughly equal playing field. In contrast, in the United States, the incumbent CB&I has a long-standing presence in the market and consequently enjoys a significant competitive advantage over new entrants.

Respondents argue that CB&I was the "incumbent" in Trinidad, because it had built the last tank there.[373] We cannot say whether building one tank in Trinidad makes an LNG tank supplier an "incumbent" in the sense that we have used that term throughout this Opinion, but it matters little. The record amply demonstrates the power of – and the advantages accruing to – CB&I's true incumbency in the United States and that these advantages are extremely difficult to overcome. We thus conclude that Atlantic LNG's project in Trinidad sheds no significant light on the competitive landscape in the United States. In our view, neither does it demonstrate that LNG tank suppliers can easily enter and effectively compete with CB&I in the United States. Therefore, we find that the ALJ properly excluded evidence related to the Trinidad and Bahamas projects.

Nonetheless, we have examined the evidence surrounding these two projects and conclude that they do not substantiate Respondents' assertion that the projects demonstrate that entry is easy in the U.S. LNG tank market. The testimony on Enron's Bahamas project is scant at best. Only slightly more than four of the nearly 8,400 pages of trial transcript are devoted to this project.[374] Further, the sole testimony about the bids came from Mr. Carling, who was at

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371 Tr. at 1825-28, 6493-94. In addition, Dominion's Cove Point II expansion project is at an early stage. As of the time of trial, CB&I had submitted only a budget price. Tr. at 4148, 4988.

372 RAB at 38.

373 *Id.*

374 *See* Tr. at 4477-4482.

[375] Tr. at 4481.

[376] Tr. at 4492.

[377] RAB at 39.

[378]

acquisition projects, CB&I has insisted that it do the work on a turnkey basis – even after customers have expressed a strong preference to bid parts of the project competitively. In negotiating with BP, Freeport LNG, and Dynegy, CB&I refused to do any design or FERC work without a commitment from the customer that it would award the entire project to CB&I. Although BP initially was reluctant, it eventually acceded to CB&I's wishes and agreed to allow CB&I to build its three proposed facilities (on the condition that it was satisfied with CB&I's work on the FERC application). CB&I's strategy was less successful with Freeport LNG and Dynegy, both of which selected other companies to do the desired work. However, the fact that CB&I thought it was in a position to make such demands and, in the case of Dynegy, to ignore its customer's wishes on multiple occasions speaks volumes about CB&I's view of the competitive landscape. If CB&I truly believed the new entrants provided meaningful competition, it is unlikely that it would have behaved in such a fashion.

Further, the customer testimony cited by Respondents does not support their arguments about the competition provided by the new entrants.[381] Freeport LNG testified at trial that it would seek bids from the new entrants and that it was comfortable with the options it currently

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381 RAB at 39-41.

382 Tr. at 7018-19.

383 Tr. at 7025-30.

384 Tr. at 7025.

385 Tr. at 7043.

386 Tr. at 7023, 7043.

387 Tr. at 6069-71.

Finally, we are troubled by Respondents' characterization of some of the customer testimony. Respondents suggest that Bechtel stated that it could get a reasonable price by pitting Technigaz/Zachry against CB&I.[388] However, Bechtel actually testified that it would "assume" it could.[389] While this distinction may seem slight, the record is clear that the Bechtel witness knew very little about Technigaz/Zachry, had not yet pre-qualified it as a supplier, and assumed that the alliance between the two companies was organized to offer a suite of services competitive with those of CB&I.[390] We therefore view the testimony cited by Respondents as merely Bechtel's statement that if Technigaz/Zachry stacked up favorably against CB&I, Bechtel intended to engage them in competitive bidding. Similarly, Respondents cite testimony from Calpine to suggest that Calpine is satisfied with the state of competition post-acquisition.[391] Our review of the testimony (including that cited in Respondents' brief) reveals no such conclusion. Rather, Calpine merely testified that it would consider Technigaz/Zachry, Skanska/Whessoe, TKK/AT&V, and CB&I as potential bidders for its LNG tank when the time comes.[392] We note that at the time of trial, Calpine's project was at a preliminary stage. Requests for proposals had not been issued, and Calpine had done no evaluation of the new bidders. Therefore, we find that this testimony does not corroborate Respondents' assertion.

In sum, we do not view the customer testimony cited by Respondents as supportive of their argument that the new entrants have restored competition lost from the acquisition.[393] While we do not ignore the fact that these customers have not complained about the acquisition, all of these customers (except BP) are at early planning stages and have not issued requests for bids or received pricing from the new entrants. In addition, although BP has awarded three bids to CB&I, it did so only after it was confronted by CB&I's demand that it do the entire project alone, and it gave little consideration to the new entrants. Therefore, it is unlikely that the

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388 RAB at 40.

389 Tr. at 1334.

390 Tr. at 1333-36.

391 RAB at 39-40.

392 Tr. at 6495-96.

393 Nor does Respondents' reference to both El Paso's and MLGW's testimony support their position. *See* RAB at 40. Although El Paso testified that the acquisition has not harmed competition in the global market, Tr. at 6140-46, it is the United States market that we must consider. Similarly, MLGW testified that it would have no way of knowing whether a price increase had occurred, and that it would not know until it evaluated bids whether more competition exists now than in 1994. Tr. at 1858-61. This testimony does not establish that "the [a]cquisition has not substantially harmed competition." RAB at 40.

394 Tr. at 2391.

395 Tr. at 7088-89, 7129-31, 7133-34.

396 CX 107 at PDM-HOU005015 (AT&V characterized as a “Gulf-Coast Regional

allows AT&V to obtain bonding for larger projects than it could secure on its own.[401] This arrangement, however, is only intermittent and has been ineffective at times. For example, the record indicates that AT&V lost an LPG project in Trinidad to CB&I because TKK was not interested in the project and did not bid aggressively.[402] We also note that AT&V has had quality problems in the LIN/LOX tank market[403] post-acquisition, which raises doubts as to whether it could effectively constrain CB&I going forward in the LPG market.

(2) Matrix, Wyatt, Pasadena Tank, and Chattanooga

Respondents also identify as competitors four would-be LPG tank suppliers, none of which had won any bids as of the time of trial: Matrix, Wyatt, Pasadena Tank, and Chattanooga. The evidence related to Matrix, Wyatt, and Pasadena Tank is limited, but it establishes that all three of these suppliers are marginal at best and do not constrain CB&I effectively. For instance, although Matrix testified that it would pursue bidding on an LPG tank if it were given the opportunity, it also testified that it has never bid on an LPG tank.[404] Similarly, although Wyatt pursued LPG business "many years ago," it faces entry barriers because it has never constructed an LPG tank.[405] Wyatt bid on the ABB Lummus post-acquisition project; however, it lost to CB&I in part because ABB Lummus found Wyatt unresponsive to technical questions about the project.[406] In addition, it is not clear that Wyatt has the capability to compete in the LPG market. Pasadena Tank also appears to be no more than a marginal competitor. One customer is not willing to use Pasadena Tank because it was very late on an earlier project and had problems that it was unable to solve.[407] In addition, a PDM strategic planning document characterized Pasadena as having "one shop and one office" and as specializing in non-refrigerated tanks.[408]

The Chief Operating Officer and part owner of Chattanooga also testified that it believes

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401 Tr. at 2557.

402 Tr. at 2430-32.

403 *See* discussion *infra* at Part IV.B.3.(a).

404 Tr. at 1609.

405 JX 27 at 71-72.

406 Tr. at 3750-51.

407 JX 27 at 132-34.

408 CX 660 at HOU5015.

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for only $3 million, which indicates that it was a very small operation compared to CB&I or PDM.[419] In addition, there is testimony that CB&I's acquisition of PDM did not lead Morse to

419 *Id*.

420 Tr. at 6662-63.

421 Tr. at 2431.

422 Tr. at 4708 (*in camera*).

423 Tr. at 3750-51.

The post-acquisition project in question involved an LPG tank to be constructed for BASF/ABB Lummus in Port Arthur, Texas. Afte30.0ost-

[424] Tr. at 5040.

[425] Tr. at 5041-42.

[426] *Hospital Corp.*, 807 F.2d at 1384 ("[p]ost-acquisition evidence that is subject to manipulation by the party seeking to use it is entitled to little or no weight"); *B.F. Goodrich Co.*, 110 F.T.C. at 341 (same).

[427] Respondents correctly point out that they did not have the ability to control whether would-be competitors (AT&V and Wyatt) submitted bids for this post-acquisition job. However, CB&I's response to those bids provides more relevant information about the post-merger competitive landscape.

market.[428] However, we find that the experiences of these firms in entering the market, as well as the failed entry effort by a fourth firm not mentioned by Respondents, illustrate instead the high entry barriers in the LIN/LOX market. Furthermore, Respondents' examples do not adequately explain how entry into the LIN/LOX market will overcome the obstacles discussed below and constrain CB&I to the same degree that it was constrained before the acquisition. We thus agree with the Initial Decision's conclusion that Respondents have not demonstrated that entry is sufficient to constrain the exercise of market power by CB&I in the LIN/LOX tank market.

(1) AT&V

AT&V won its first bid to supply two LIN/LOX tanks to BOC in late 2000,[429] and it has since completed that project.[430] By the time of trial, AT&V had won two additional bids – one more for BOC and one for Air Liquide (which was under construction at the time of trial).[431] Far from establishing that entry into this market is easy, however, AT&V's experience demonstrates how difficult it is to gain a presence in supplying LIN/LOX tanks. AT&V testified that entry into the LIN/LOX market took years of effort.[432] For example, although AT&V started visiting customers and marketing itself as a LIN/LOX tank supplier in the early 1990s, it did not win a contract until 2000.[433]

AT&V testified that it took so long to win a contract because customers preferred the reputation and experience of CB&I and PDM.[434] It also testified that prior to the acquisition, customers generally wanted to deal only with CB&I or PDM and that those two companies

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[428] Respondents argue that AT&V, Matrix, and Chattanooga are examples of "new" entry that has taken place "in just three years." RAB at 19. This characterization is inaccurate. All three firms have been engaged in long-term efforts to obtain LIN/LOX business that predate the acquisition. Only AT&V and Matrix have been able to gain a foothold in the market by winning a few bids; Chattanooga was an unsuccessful bidder before the acquisition and continues to be unsuccessful.

[429] Tr. at 4599.

[430] Tr. at 4600.

[431] Tr. at 2235 (*in camera*), 2241 (*in camera*), 2504-05, 5291-92.

[432] Tr. at 2503-05.

[433] Tr. at 2397, 4599.

[434] Tr. at 2397-98, 2506-07.

dominated the marketplace.[435] Moreover, AT&V stated that Air Liquide told it that AT&V would have to build one operational LIN/LOX tank that performed well in order for it to win a contract from – or even by considered by – Air Liquide.[436] Thus, AT&V had a difficult time bidding on contracts between 1996 and 2000 because, despite its efforts, it had not yet garnered customer confidence.[437]

AT&V testified that *some* customers are giving it a more serious look because PDM is no longer in the market.[438] However, the evidence surrounding the projects AT&V has won suggests that it will not meaningfully constrain CB&I in the future.

AT&V was required to spend $50,000 on marketing before it won its first contract with BOC in 2000.[439] In addition, BOC testified that because of AT&V's inexperience, BOC planned to spend $50,000 in oversight to ensure that the tank would be delivered on time, on schedule, and on budget. BOC accounted for this expense by adding the $50,000 to AT&V's bid when BOC evaluated the bids, and AT&V's bid was still the lowest.[440] AT&V was thus finally able to convince BOC to take a chance on it, despite its lack of experience.[441] Although BOC was eventually willing to take a chance, the evidence suggests that some customers are more averse to risk. For instance, MG Industries testified that it was surprised that BOC was willing to contract with AT&V.[442]

In 2002, Air Liquide also awarded a LIN/LOX tank to AT&V for its Freeport, Texas, project.[443] AT&V was selected because it had a significant price advantage over the other bidders (approximately $200,000 less) and also because Air Liquide saw its project as an

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435 Tr. at 2389-90.

436 Tr. at 2466-68.

437 Tr. at 2506-08.

438 Tr. at 2572.

439 Tr. at 2383, 2507-08.

440 Tr. at 4620-21, 4655-56. However, a Linde witness testified that he was told by BOC that there were many cost overruns and that in the end AT&V's price was higher than those of the other bidders. Tr. at 931-32.

441 Tr. at 2506-08.

442 Tr. at 460-70.

443 Tr. at 2235 (*in camera*).

opportunity to develop another supplier as an alternative to CB&I.[444] The location of the project also affected Air Liquide's choice of AT&V. Because Freeport is very close to Air Liquide's office, Air Liquide felt that it could easily keep track of AT&V.[445] Air Liquide also testified that had PDM been in existence at the time and submitted a credible and competitive bid, Air Liquide would have been far less likely to have taken the risk of developing a new supplier.[446]

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[444] Tr. at 2235-37 (*in camera*).

[445] *Id.*

[446] Tr. at 2236 (*in camera*).

[447] Tr. at 2236-37 (*in camera*). Before awarding the bid to AT&V, Air Liquide contacted BOC and obtained a detailed assessment of AT&V's performance from BOC. Tr. at 2239 (*in camera*).

[448] Tr. at 2241 (*in camera*).

[449] Tr. at 2241-43 (*in camera*).

[450] Tr. at 2246-47 (*in camera*).

[451] Tr. at 2252 (*in camera*).

[452] *Id.*

questioned whether Chattanooga is a viable LIN/LOX tank supplier in light of its high costs.[480]

A firm like Chattanooga is at a further disadvantage because it lacks the experience and reputational assets of a firm such as CB&I. For example, Air Liquide was not even aware that Chattanooga competed for LIN/LOX tanks.[481] Consequently, Chattanooga has not been able to establish a foothold in this market. Based on the balance of the evidence, we agree with the Initial Decision's conclusion that Chattanooga "does not effectively compete in the LIN/LOX market."[482]

(4) BSL

BSL is a French company that has built LIN/LOX tanks in Europe and Asia.[483] BSL attempted to enter the U.S. LIN/LOX tank market through the use of subcontractors. It formed an alliance with a U.S. firm, Bay Construction, but customers did not consider BSL to be sufficiently qualified due to its lack of experience and proposed use of subcontractors.[484] As with Chattanooga, BSL's bids were too high,[485] and it never won a bid. BSL has since gone out of business.[486]

(5) Conclusions on Entry in the LIN/LOX Tank Market

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480 Tr. at 466.

481 Tr. at 2027.

482 IDF 325; *see also Merger Guidelines* § 3.4.

483 Tr. at 1342-43.

484 Tr. at 954, 2002-03; *see also* Tr. at 1577-78.

485 Tr. at 955, 1378-80; CX 608 at CBI-PL023631.

486 Tr. at 955, 1351, 1380, 2001.

487 908 F.2d at 986 (citing 731 F. Supp. at 11).

competitive presence post-acquisition or that they now constrain CB&I in the manner it was constrained prior to its acquisition of PDM.[488] While AT&V may have made some limited progress as a competitor in the few years before and after the acquisition – although even this

[488] MG Industries' experience with a LIN/LOX tank project bid after the acquisition is a good example of the dearth of competition provided by some of these firms. In April 2002, MG Industries received bids on a LIN/LOX tank project in New Johnsonville, Tennessee, from CB&I, Chattanooga, and Matrix. Tr. at 456-57. Matrix's and Chattanooga's bids were, respectively, 20 percent and 30 percent higher than CB&I's bid. MG Industries did not negotiate with either Matrix or Chattanooga, because those bidders would have had to drop their prices by 20 percent and 30 percent, and MG testified that it would have been concerned that such a price drop would be detrimental to the project. Tr. at 461. MG Industries attempted to bluff CB&I into giving it a lower price, but CB&I held firm on its price and was awarded the project. Tr. at 460-61; *see* IDF 306-10. MG Industries testified that the pre-acquisition PDM had bid lowest in its last three or four LIN/LOX projects and that it was able to use PDM in negotiations to get better prices from other suppliers. However, MG Industries testified that its negotiations concerning the New Johnsonville project were limited to making the best deal it could get from CB&I. Tr. at 462. AT&V was not invited to bid on this project because MG Industries was not aware of AT&V. Tr. at 482.

[489] OA at 4.

[490] Tr. at 347-49, 1531-32, 2030, 4618-19, 4673-75.

been replaced. Section 7 of the Clayton Act would be meaningless if a weak showing of entry sufficed to rebut a prima facie case. Consider Air Liquide's experience with AT&V. Air Liquide testified that it contracted with AT&V because it believed that it needed to develop a new supplier in the wake of PDM's removal from the market.[491] Air Liquide also testified that it would have been far less likely to take the risk of contracting with AT&V had PDM still been in the market and submitted a competitive bid.[492] [redacted redacted] Air Liquide expects that it will have cost Air Liquide $100,000 to $150,000 above and beyond the $200,000 price advantage in AT&V's bid.[493] [redacted redacted].[494] For obvious reasons, this project is hardly an example of *sufficient* entry or of a restoration of the competition lost from the acquisition.

We also note that the decline in demand for LIN/LOX tanks may make entry/expansion of existing or bidding firms even less likely. Chattanooga testified that the demand for LIN/LOX tanks has decreased, making it less desirable for Chattanooga to enter the LIN/LOX market.[495] While both Matrix and Chattanooga testified that the acquisition has created an opportunity for them because customers will be looking to replace PDM,[496] the fact remains that neither has been able to win a bid post-acquisition.

b. Post-Acquisition Bids in the LIN/LOX Tank Market

Respondents point out that AT&V has won three of four competitively bid LIN/LOX tank projects in support of their argument that entry into this market rebuts a prima facie case.[497] It is true that AT&V has gained a foothold in the LIN/LOX tank market by continuing the efforts to compete that it began prior to the acquisition. However, AT&V does not have nearly the reputation or capacity of CB&I.[498] AT&V testified that it can construct only four tanks at a

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491 Tr. at 2235-36 (*in camera*).

492 Tr. at 2236 (*in camera*).

493 Tr. at 2254-55 (*in camera*).

494 *See* Tr. at 2252 (*in camera*), 5036.

495 Tr. at 6380-82.

496 Tr. at 2182-83, 6367-68.

497 RAB at 18.

498 IDF 315-19.

[499] Tr. at 2376.

[500] Tr. at 2375.

[501] *See* Tr. at 2400. Customers are very careful to check a firm's references before awarding a LIN/LOX tank. Before Air Liquide hired AT&V, it visited BOC and inspected the tank that AT&V built for BOC. Tr. at 2239 (*in camera*).

[502] Tr. at 1272.

[503] Tr. at 1147-49.

[504] 731 F. Supp. at 10.

supracompetitive pricing.[505]

In contrast, and as explained at length above, the relevant markets in the instant case are not prone to such activity. The LNG tank market, for instance, has been dominated by CB&I and PDM for nearly three decades. These two companies not only won the vast majority of projects but in many instances were the only bidders. Moreover, while it appears that some new suppliers have decided to compete in the LNG tank market following the acquisition, we find them unable to constrain CB&I sufficiently. Similarly, in both the LIN/LOX and LPG tank markets, the firms to which Respondents point were present prior to the acquisition, and there is no evidence to suggest that these firms have increased their aggregate market presence. Thus, while other firms may enter and exit each of these markets, the evidence shows that their presence has not diminished the market dominance of the merged firm, nor have they undermined the conclusion that CB&I and PDM would have remained the only two major players in these markets absent the acquisition.

We therefore concur with the ALJ and find the markets in this case analogous to that at issue in *Tote*, where the court found, among other things, that the technical requirements associated with creating a totalisator system coupled with the customers' need for reliability would "hinder both new entrants and incumbents in their efforts to gain market share or affect prices."[506] In reaching this conclusion, the court rejected defendants' argument that a new entrant's submission of a number of bids and contacts with customers constituted evidence of entry.[507] The court did not agree that the mere submission of a bid made the new entrant a genuine competitor. Rather, the court examined the likely strength of those bids and their ability to constrain anticompetitive price increases by the incumbents.[508] We have employed that same approach in this case and conclude that the entry pointed to by Respondents is insufficient to constrain CB&I post-acquisition.

C. Potential Entry

Respondents assert that evidence of potential entry in both the LNG tank and LPG tank markets rebuts Complaint Counsel's prima facie case. They contend that the actual entrants they have pointed to "empirically demonstrat[e] that entry barriers are low."[509] In light of these

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505 908 F.2d at 989.

506 768 F. Supp. at 1081.

507 *Id*. at 1080-81.

508 *Id.* at 1081-82.

509 RAB at 20.

assertedly low entry barriers, Respondents then argue that potential entrants either already constrain CB&I or can be expected to enter the market in the event of anticompetitive price increases by CB&I.[510] Of course, for a potential entrant or the threat of a potential entrant to act as a competitive constraint on incumbent firms, entry – at least for that firm – must be easy.[511] As discussed above, entry into both the LNG tank and LPG tank markets is extremely difficult and time-consuming.[512] We thus reject Respondents' arguments.

D. Critical Loss Analysis

Respondents also argue that the ALJ erred in disregarding their expert's conclusion (based on his critical loss analysis) that CB&I could not raise prices, and they assert that this evidence shows that the acquisition has not harmed competition.[513] Critical loss analysis provides a quantitative framework for testing whether a hypothesized price increase of a certain magnitude will be profitable. The first step in a critical loss analysis is to calculate the critical loss threshold, *i.e.*, the fraction of current sales that would need to be lost to render a hypothesized percentage price increase unprofitable.[514] To accomplish this, one must weigh the profits forgone on the sales that would be lost as a result of the price increase against the increased profits on the retained sales. The critical loss is the fraction of sales that would need to be lost to balance exactly those countervailing effects. The second step is to estimate the likely

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[510] *Id*. at 19.

[511] *United States v. Marine Bancorporation Inc.*, 418 U.S. 602, 628 (1974) ("[E]ase of entry . . . is a central premise of the potential-competition doctrine."); *FTC v. Procter & Gamble Co.*, 386 U.S. 568, 581 (1967) (Procter exerted influence on the market because, *inter alia*, "barriers to entry by a firm of Procter's size and with its advantages were not significant").

[512] *See* discussion, *supra* at Parts III.C.1-2.

[513] RAB at 47-48.

[514] Tr. at 7259.

[515] *FTC v. Tenet Health Care Corp.,* 186 F.3d 1045 (8th Cir. 1999); *FTC v. Occidental Petroleum Corp.*, 1986-1 Trade Cas. (CCH) ¶ 67,071 (D.D.C. Apr. 29, 1986).

[516] *FTC v. Swedish Match*, 131 F. Supp. 2d at 169.

[517] *See generally* Michael L. Katz & Carl Shapiro, *Critical Loss: Let's Tell the Whole Story*, 17 Antitrust 49 (Spring 2003); Daniel P. O'Brien & Abraham L. Wickelgren, *A Critical Analysis of Critical Loss Analysis*, 71 Antitrust L.J. 161 (2003). *But see* David T. Scheffman & Joseph J. Simons,

that would have been consistent with a profitable price increase.[519] He further stated that new entrants and fringe suppliers have simply been able to defeat CB&I post-acquisition.[520] We have carefully considered Dr. Harris's analysis, but in the end, we are not convinced that he has reached the correct conclusion for this case – especially because that conclusion is at odds with the competitive effects that established economic principles conclude likely follow from the extraordinarily high concentration levels that we discussed in Part III.A, *supra*, the state of pre-acquisition competition that we discussed in Part III.B, *supra*, and the nearly insurmountable entry barriers that we found to predominate in Part III.C, *supra*.

Besides finding that his analysis is outweighed by the contrary evidence in this case, we conclude for several other reasons that we must reject Dr. Harris's analysis. First, it appears from the record that Dr. Harris did not perform a critical loss analysis for each distinct relevant market.[521] Instead, he combined the post-merger sales for all four relevant markets and concluded generally CB&I has lost "in excess of half" of the bids[522] and roughly 82 to 83 percent of the dollars available from the post-merger projects.[523] Even if one assumes, *arguendo*, the validity of Dr. Harris's underlying factual assumptions – several of which we discuss below – this approach is not informative of CB&I's ability to raise prices in any particular relevant market and thus does not convince us that CB&I cannot raise prices in the relevant markets. Although the four relevant markets share some characteristics, each is distinct. For example, none of the markets has the same mix of new entrants or fringe competitors, and the strength of these new entrants or expanded fringe firms in *each* of the relevant markets is a crucial consideration in the assessment of CB&I's ability to raise price. In addition, grouping the sales of multiple relevant product markets together can skew results. For example, AT&V's three post-merger wins in the LIN/LOX tank market in large part form the basis for Dr. Harris's conclusion that CB&I has lost in excess of half the bids in all four relevant markets.[524] Dr. Harris did not explain why it was appropriate to group all four relevant product markets together in his critical loss analysis, and his testimony did not shed light on how (or whether) he might

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[519] Tr. at 7263, 7265-66.

[520] Tr. at 7345-46 (Dr. Harris noting that, in contrast to Dr. Simpson, he believes that the entrants have been successful competitors).

[521] In addition to this general analysis, Dr. Harris performed a separate critical loss analysis for the LNG tank market, which we discuss below.

[522] Tr. at 7356.

[523] Tr. at 7357. Dr. Harris did not have the aid of a calculator in testifying and thus qualified these figures as being approximate.

[524] RX 951. (RX 951 was admitted into evidence for demonstrative purposes only. However, we reviewed it because it forms the basis for Dr. Harris's general discussion about CB&I's post-acquisition losses.)

have accounted for market differences. Nor can we, on our own, discern any compelling reason to treat the four separate markets as a single market. Accordingly, we do not find his critical loss

[525] *Id.*

[526] Dr. Harris concluded that CB&I won 4 out of 10 projects post-merger. Even if we assume that Dr. Harris is correct and that CB&I has won only 40 percent of the post-merger bids, inclusion of these other 4 bids would have increased CB&I's win-to-loss ratio to 8 out of 14, or roughly 60 percent.

[527] Tr. at 7355-56.

[528] Tr. at 4599.

[529] *See* RX 951 (project awarded Feb. 1, 2001); *see also* RX 208.

[530] Tr. at 5019-20. Although the history of the CB&I/Praxair agreement is not corroborated by other evidence, we mention it out of an abundance of caution – the exclusion of

this project would benefit Dr. Harris's calculation, because it would reduce the number of CB&I's post-merger wins.

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[538] *See, e.g.*

access to information they would need to adequately assess whether CB&I has raised prices. For example, in the LNG tank market CMS employed a consultant to help it evaluate CB&I's price, and the consultant provided a rough benchmark for what level of pricing to expect.[544] In addition, there may be better price information in the LIN/LOX and LPG tank markets because customers have traditionally purchased these types of tanks more frequently. ITC, an LPG tank customer, testified that it regularly evaluates confidential bids from multiple tank suppliers.[545] Similarly, MG Industries, a LIN/LOX tank customer, testified that it purchased 14 tanks in the 1990s[546] and decreased its costs prior to the merger by informing vendors that their prices were too high.[547]

However, even if customers had access to the pricing information for multiple projects, such information would not necessarily assist them in detecting a price increase. In seeking to rebut Complaint Counsel's proof of anticompetitive effects, Respondents elicited a large volume of testimony to demonstrate that it is difficult, if not impossible, to compare prices of various tanks because the specifications vary so widely from project to project. This conclusion appears sound, yet it leads to the related conclusion – not helpful to Respondents' argument – that it would be difficult, if not impossible, for customers to look at these projects and determine whether the prices they pay after the acquisition exceed what they would have paid but for the acquisition.

Therefore, we conclude that Respondents have not carried their burden to produce evidence of customer sophistication sufficient to rebut Complaint Counsel's prima facie case.

V. Competitive Effects of the Acquisition and Conclusions

Based on the totality of the evidence, we find that Complaint Counsel established that CB&I's acquisition of PDM is likely to lessen competition substantially throughout the United States in each of the four relevant product markets. Complaint Counsel presented a strong prima facie case through both extraordinarily high levels of concentration and other evidence of Respondents' dominance in sales over the last decade. The evidence shows that CB&I purchased its closest competitor in the LNG tank, LPG tank, LIN/LOX tank, and TVC markets. Complaint Counsel's case was enhanced by proof that entry in each of the relevant markets is

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[544] Tr. at 6290-91 (*in camera*); *see also* Tr. at 6239 (consultants "can provide a rough benchmark" and inform customers, "based on their experience, [that] a tank should cost [a certain amount] per cubic meter of storage").

[545] Tr. at 7082-83.

[546] Tr. at 478.

[547] Tr. at 350; IDF 354.

[548] *See* Tr. at 3072-73. For example, Matrix testified that it is at a competitive

Nonetheless, Complaint Counsel argue that CB&I has engaged in several instances of actual anticompetitive conduct since the acquisition and that these instances provide the Commission another reason for finding liability under the antitrust laws.[551] In light of our holdings above, we decline to address these arguments.

VII. Exiting Assets

[551] *See* CCACAB at 51-60 (alleging actual post-merger price increases for several LNG, LIN/LOX and TVC projects).

[552] RAB at 58-61.

[553] OA at 30.

[554] John E. Kwoka, Jr. & Frederick R. Warren-Boulton, *Efficiencies, Failing Firms, and Alternatives to Merger: A Policy Synthesis*, 31 Antitrust Bull. 431 (1986).

[555] *See Olin Corp*, 113 F.T.C. at 618 (finding that management of the acquired company had not conducted an exhaustive search).

[556] ID at 116-17; IDF 504-14.

[557] Tr. at 2931; ID at 116-18; IDF 517-20, 524.

After concluding that Complaint Counsel had presented sufficient evidence to prove that the acquisition violated Section 5 of the FTC Act and Section 7 of the Clayton Act, the ALJ fashioned a remedy to address the law violation he found. In relevant part, his Order directed CB&I to divest: (1) all the assets (including PDM's Water Division) that it acquired from PDM along with any additional assets that it has acquired to replace or maintain the acquired PDM assets; (2) all intellectual property and rights to such property, including the PDM name, that it acquired from PDM; (3) all contracts that it acquired from PDM, to the extent they have not been fully performed; and (4) "if possible," a sufficient revenue base to assure the divested assets can actively compete in the LNG market.

In their appeal, Respondents object that the ALJ's Order may actually harm competition by reducing the number of competitors who are able to bid on large projects.[558] They also argue that the divestiture will result in two "higher cost companies" instead of one low cost company and accordingly that Complaint Counsel failed to show the efficacy of divestiture as a remedy in this case.[559] Respondents also object to the divestiture of PDM's Water Division assets, arguing that there is no evidence to show that another firm could not "compete in the relevant markets without the Water Division assets."[560]

Complaint Counsel in a cross-appeal argue that aspects of the ALJ's Order are vague and ambiguous and that it does not go far enough. Specifically, Complaint Counsel assert that, in addition to divesting all the assets identified by the ALJ, Respondents must also assign to the prospective buyer a percentage share of all work in progress so that the firm can be assured of becoming a viable competitor iing a viabt gbically, Company

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[558] RAB at 52.

[559] RAB at 55-56.

[560] RAB at 57. Respondents' appeal brief actually states: "Nor is there evidence that a party purchasing the EC Division could compete in the relevant product markets without Water Division assets." We assume, however, that Respondents meant to say that there is no evidence that a purchaser could *not* compete without the Water Division assets.

provisions and our rationale for adopting them, we address all the arguments raised by Complaint Counsel and most of the arguments raised by Respondents. In the second section, we examine any remaining arguments, to the extent they are not addressed in the first section.

A. Standard and Explanation of Remedy

CB&I's acquisition of PDM's Erected Construction and Water Divisions resulted in a monopoly or a near-monopoly in all four relevant markets, and violated both Section 7 of the Clayton Act and Section 5 of the FTC Act. We thus must determine how most effectively to "pry open to competition [the] market[s] that [have] been closed by defendants' illegal restraints."[561] Based on our review of the record, we agree with the Initial Decision's determination that divestiture is the most appropriate remedy to effectuate this outcome. The Clayton Act itself contemplates that, upon our finding that Section 7 of the Act has been violated, we order Respondents to divest themselves of "the stock, or other share capital, or assets held" in violation of that section.[562] Much of the case law has echoed this sentiment and found divestiture the most appropriate means for restoring competition lost as a consequence of a merger or acquisition. In the *du Pont* case, the Supreme Court stated that "[t]he very words of §7 suggest that an undoing of the acquisition is a natural remedy"[563] and that divestiture "should always be in the forefront of a court's mind when a violation of § 7 has been found."[564] Similarly, the Court stated in *Ford Motor* that "[c]omplete divestiture is particularly appropriate where asset or stock acquisitions violate the antitrust laws."[565] In this case, the evidence shows that in four separate markets, CB&I acquired its closest competitor and thus obtained monopoly or near- monopoly power, entry is extremely difficult, and no new entry or fringe expansion has been able to challenge CB&I effectively. Given these facts, we find it highly unlikely that the relevant markets will return to their pre-acquisition state absent divestiture. In addition, as we will discuss in this portion of our Opinion, we find that a number of ancillary provisions are crucial to establishing a viable entrant to replace the competition lost from CB&I's acquisition of PDM.[566]

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561 *Du Pont*, 366 U.S. at 323.

562 15 U.S.C. § 12(b).

563 *Du Pont*, 366 U.S. at 329.

564 *Id*. at 331.

565 *Ford Motor Co. v. United States*, 405 U.S. 562, 573 (1972).

566 Section 11(b) of the Clayton Act and pertinent case law afford the Commission broad remedial powers. 15 U.S.C. § 21(b) (granting the Commission the power to order divestiture "in the manner and within the time fixed by said order").

We order CB&I to reorganize its Industrial Division (and, to the extent necessary, its water tank unit) into two separate, stand-alone divisions (New PDM and New CB&I) and to

[567] Our Final Order specifies that the monitor trustee, who will oversee the divestiture requirements of our that Order, may be the same person as the divestiture trustee (whom we may appoint if Respondents fail to divest the required assets in accordance with the Order). Final Order ¶ V.C.

[568] *Ford Motor Co.*, 405 U.S. at 573 n.8.

[574] *Ford Motor Co.*, 405 U.S. at 576-577.

[575] Final Order ¶ III.B.

[576] Such impediments can include, but are not limited to, "any non-compete or confidentiality provisions of employment or other contracts with CB&I that would affect the ability of the Relevant Business Employee to be employed by the Acquirer." Final Order ¶ IV.D.2.(ii). Respondents argue that this provision "encourages the exchange of confidential

employment from the acquirer, and (4) refrain from inducing employees hired by the acquirer to terminate their employment with the acquirer.

Finally, we turn to issues concerning the provision of technical assistance and administrative services. Complaint Counsel object to the ALJ's failure to order technical assistance and administrative services. Like the ALJ, we recognize that such requirements raise the possibility of coordination in markets with few major participants. As we have noted throughout this Opinion, the relevant products all require a great deal of technical competence and knowledge to produce – some of which is proprietary information known only to CB&I. We anticipate, however, that the transfer of employees will likely provide the technical competence and knowledge needed for the acquirer to produce the relevant products without the technical assistance of CB&I. Because technical knowledge typically resides with the people who implement it, we believe that the acquiring firm's need for technical assistance and administrative services may be inversely proportional to the quantity and quality of experienced personnel who transfer from CB&I to the acquiring firm.

Of course, apart from directing CB&I to provide incentives and remove obstacles to facilitate employee transfers, we cannot control the degree to which the transfers occur. We are also unable to predict at this point in the divestiture process whether a critical mass of employees will make the transfer to adequately provide the necessary knowledge and technical competence to the acquirer (and obviate any need for the acquiring entity to seek either assistance or services from CB&I).[577] Given these uncertainties, we conclude, as we did with respect to the divestiture of PDM's Water Division assets, that the monitor trustee must determine whether, and if so to what extent, these services may be necessary to restore the competition lost through the acquisition. We believe this issue needs to be finally resolved in the context of our review of a specific divestiture package for prior approval.

Accordingly, we direct the monitor trustee to include in the final report to the

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second point, we note that the purpose of the provision is to ensure that current CB&I employees are not prevented from working for the acquirer by a breach of contract suit (or the threat of it). The provision is thus qualified as requiring a waiver only as to contractual provisions that "would affect the ability" of the transferred employee "to be employed by the [a]cquirer." Final Order ¶ IV.D.2.(ii). This qualifier should protect CB&I's interest with respect to those products not involved in the divestiture.

[577] We also note that even with transfer of experienced personnel, there remains the possibility that technical assistance may be required. As we have stated, constructing the relevant products is extremely difficult and draws on the knowledge and experience of a variety of CB&I employees. Therefore, it is possible that transferred employees, while experienced and able to construct these products in a general sense, may have gaps in their knowledge that would necessitate assistance (at least in the short term).

With these provisions, both New PDM and New CB&I will have on-going projects upon which to build a reputation as well as knowledgeable and skilled employees to do the work. Therefore, the Order should thus insert a competitive acquirer into the market and help replicate the

[584] RAB at 52.

[585] RRCARB at 48.

[586] Tr. at 6510-11.

[587] Tr. at 6511. Respondents also cite testimony by a witness from Calpine that he did not believe that PDM would make Calpine's bid list and that CB&I's inclusion on the list would depend on what was left of the company. RAB at 53. However, he also testified that he had no knowledge of how either company would look post-divestiture and that he was merely speculating about the post-divestiture world. Tr. at 6538.

Similarly, CMS did not testify "that a break-up would create two companies that CMS would not want to deal with" as Respondents suggest,[588] but rather testified that it "would have to look at" the impact a break-up would have on either company's ability to guarantee a job.[589]

We also find Respondents' reliance on testimony from El Paso misplaced. El Paso testified that the acquisition gave it some comfort in CB&I's ability to guarantee a job (because El Paso can now seek more assets in the event CB&I fails to construct the tank). However, this testimony says nothing about El Paso's comfort level with CB&I pre-merger or the impact of a Commission-required divestiture on El Paso's assessment of either CB&I or a new company going forward. It is thus not probative of the impact a divestiture will have in the LNG tank market. In fact, in its speculation about a post-divestiture world, El Paso did not testify that a break-up might cause it not to consider buying from either CB&I or a new company, but rather that "it would be less inclined to do any more than maybe one or two jobs with them total."[590] For obvious reasons, this testimony does not suggest that either New CB&I or New PDM will be unable to compete post-divestiture.

We have also considered Respondents' argument that they did not receive proper notice of Complaint Counsel's Proposed Order. We reject this assertion as lacking factual support. Far from providing the "barest" sketch, the Notice of Contemplated Relief that accompanied the Complaint in this matter stated that if CB&I's acquisition of PDM was found to violate either Section 5 of the FTC Act or Section 7 of the Clayton Act, the Commission could order, among other things, "[r]eestablishment by CB&I of two distinct and separate, viable, and competing businesses, one of which shall be divested by CB&I." Later in the same paragraph, the Notice elaborated that a divestiture could include "such other businesses as necessary to ensure each [new business's] viability and competitiveness" in the relevant markets, and "all intellectual property, knowhow, trademarks, trade names, research and development, customer contracts, and personnel, including but not limited to management, sales, design, engineering, estimation, fabrication, and construction personnel . . ." We thus reject Respondents' claim that they were not on notice that the relief in this case might include the assignment of contracts, the transfer of employees, and the divestiture of water tank assets similar to those acquired by CB&I from

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[588] RAB at 54.

[589] Tr. at 6265. Furthermore, the quote from a CMS employee that CMS "wouldn't have wanted anyone smaller than CB&I," which Respondents cite as evidence of the potential harm that will flow from a divestiture, is taken out of context. *See* RAB at 54. Rather than discussing the potential impact of a divestiture, this testimony discusses the ability of the new entrants to guarantee their work. Tr. at 6288-89 (*in camera*). Given the context, it is inappropriate to interpret this customer's testimony as a commentary on divestiture.

[590] Tr. at 6155-56.

[591] We note that the technical assistance and administrative services requirements are not specifically enumerated in the Notice but rather are covered under the language "and such other arrangements as necessary or useful in restoring viable competition in the lines of commerce alleged in the complaint." Plainly, "such other arrangements" encompass terms that were not specifically enumerated but are related to the enumerated relief and geared to make such relief effective. As discussed above, that is precisely the nature of the additional terms at issue. Moreover, Respondents have not proffered any new evidence – in their appeal or

incentives.[593] In addition, while the issue of contract allocation does not occur as frequently as the other provisions Respondents have challenged, it should be noted that in cases involving such issues, the Commission's orders have set forth a requirement that the respondents realize the same effect of a transfer or assignment in the event that they are unable to transfer contractual rights.[594] We are mindful that a consent order is not binding authority in a legal sense. Nonetheless, the fact that these provisions appear time and again – and without substantial variation – demonstrates that those same provisions could logically be part of a remedy for an acquisition that has been adjudged illegal.

Respondents' last argument is that Complaint Counsel were required to present some evidence that their remedy is likely to be efficacious and that their failure to do so "deprived [Respondents] of proper judicial resolution on the issue of remedy."[595] They thus contend that before we implement any provisions of Complaint Counsel's Proposed Order, we must remand this case to take evidence on the remedy issue. Respondents are certainly correct that a "party has the right to judicial resolution of disputed facts not just as to the liability phase, but also as to appropriate relief."[596] It is also true that Complaint Counsel did not introduce evidence showing definitively that their proposed remedy will be efficacious and feasible once it is implemented. However, the standard Respondents propose is not grounded in the law, which asks only whether "the relief required effectively . . . eliminate[s] the tendency of the acquisition condemned by §7."[597] In this vein, Complaint Counsel presented evidence – discussed at length in this Opinion – that demonstrates that a new entrant would need experience, knowhow, and a

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[593] *See Baxter/Wyeth*, *supra* note 592 (requiring respondents to provide employees with incentives to accept employment with the acquirer, including a bonus equal to 10 percent of the employee's current salary and commissions (including any annual bonuses_ (¶ II.H.4.)); *Amgen/Immunex*, *supra* note 592 (requiring respondents to provide employees "an incentive equal to three (3) months of [an] . . . employee's base annual salary" to accept employment with the Commission-approved acquirer (¶ II.J)).

[594] *See, e.g.*, *Conoco Inc. and Phillips Petroleum Co.*, Dkt. No. C-4058 (Feb. 7, 2003) (Decision and Order), *available at* http://www.ftc.gov/os/2003/02/conocophillipsdo.htm (requiring respondents to assign customer contracts (¶ II.B.) and to "substitute equivalent assets or arrangements" in the event that they are unable to effectuate a transfer of contractual rights (¶¶ II.J, II.L., V.E)).

[595] RRCARB at 49; *see generally Id*. at 49-57.

[596] RRCARB at 49 (citing *du Pont*, 353 U.S. at 607); *see also United States v. Microsoft Corp.*, 253 F.3d 34, 101 (D.C. Cir. 2001) ("A hearing on the merits – *i.e.*, a trial on liability – does not substitute for a relief-specific evidentiary hearing unless the matter of relief was part of the trial on liability, or unless there are no disputed factual issues regarding the matter of relief.").

[597] *Du Pont*, 366 U.S. at 325.

solid reputation to compete effectively. This is, of course, the type of evidence that courts have consistently used to determine whether ancillary relief is warranted to reverse the anticompetitive effects of an illegal acquisition.[598] As we discussed in the previous section, this evidence led us to find that the relief ordered in the Initial Decision "leaves a substantial likelihood that the tendency towards monopoly of the acquisition condemned by §7 has not been satisfactorily eliminated."[599] We thus have decided to include additional water tank assets, to order Respondents to divide current contracts and to effectuate the transfer of employees to the new companies, and to require Respondents to provide the new company with technical assistance and administrative support.

We also decline to remand this case to receive evidence on remedy. Although Respondents assert that the appellate court's decision in *Microsoft* requires a remand, we do not agree. As the ALJ concluded, *Microsoft* is inapposite, because it is not a merger case and that decision "does not impose on Complaint Counsel the burden of presenting evidence related to the effectiveness of Complaint Counsel's proposed remedy for this violation of the Clayton Act."[600] In addition, unlike in the *Microsoft* case, Respondents have not proffered any new evidence to dispute the remedy provisions they challenge.[601] Instead, they argue that Complaint Counsel did not present evidence to demonstrate the efficacy of their remedy and that the customer testimony *in the record* demonstrates that a divestiture may harm competition. Because we have already resolved these disputes in our analysis, we find no reason to delay these proceedings further, and accordingly we have issued a Final Order.

In addition, the other case law that Respondents cite – *du Pont*, *Ford Motor*, and *Ward Baking* – does not support their argument.[602] In *du Pont*, the Supreme Court ordered divestiture and remanded as to the specifics of any ancillary relief, because the record bore "on the tax and market consequences for the owners of the du Pont and General Motors stock" rather than on "the competition-restoring effect of the several proposals."[603] As we have discussed, the evidence in case before us forms the basis of the relief we have ordered. Therefore, *du Pont* does not apply to these facts. Respondents also point out that the Court in *Ford Motor* required the remedy at issue to be supported in the evidence. Yet in finding support for the ancillary relief in that case, the Court looked to the very types of evidence that exist in the record of the

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598 *See, e.g.*, *Ford Motor Co.*, 405 U.S. at 572-78 (finding the ancillary provisions necessary given certain market conditions).

599 *Du Pont*, 366 U.S. at 331-32.

600 ID at 120.

601 *United States v. Microsoft Corp.*, 253 F.3d at 98-103.

602 *See* RAB 54-56; RRCARB at 49-50.

603 *Du Pont*, 366 U.S. at 320-21.

present case – the structure and competitive conditions of the market.[604] Finally, we find *Ward Baking* wholly inapplicable to this case. The issue before the Court in *Ward Baking* was whether the district court properly entered a consent judgment without the actual consent of the government (which had objected to the judgment and asked for stronger relief).[605] Indeed, the Court in *Ward Baking* held that the government could not be foreclosed from a right to go to trial and returned the case to the trial court so the government could prove the scope of the alleged law violation.[606]

Thus, having found that CB&I's acquisition of PDM's Erected Construction Division violates both Section 7 of the Clayton Act and Section 5 of the FTC Act, we order divestiture and ancillary relief as prescribed by our attached Order.

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604 *See generally Ford Motor Co.*, 405 U.S. at 572-77.

605 *United States v. Ward Baking Co.*, 376 U.S. 327 (1964).

606 *Id*. at 334-35.