

PUBLIC RECORD VERSION

In the Matter of Chicago Bridge & Iron Company, et al.
Docket No. 9300

Opinion of the Commission

By SWINDLE, Commissioner:

I. Introduction and Statement of Issues

This case involves the acquisition of a company by its closest competitor in four relevant markets.¹ On February 7, 2001, in the midst of the Commission's investigation of the acquisition,² Respondent Chicago Bridge & Iron (CB&I) acquired certain assets of the Engineered Construction and Water Divisions of Respondent Pitt-Des Moines (PDM). At the time of the acquisition, both parties designed, engineered, and constructed storage tanks for liquefied natural gas (LNG), liquefied petroleum gas (LPG), and liquid atmospheric gases such as nitrogen, oxygen, and argon (LIN/LOX), as well as thermal vacuum chambers (TVCs), which are used to test satellites for the aerospace industry. The Commission's Complaint, issued October 25, 2001, charged that the acquisition may substantially lessen competition or tend to create a monopoly in violation of Section 7 of the Clayton Act, 15 U.S.C. § 18, and Section 5 of the Federal Trade Commission Act, 15 U.S.C. § 45, and that, through the acquisition, the parties engaged in unfair methods of competition in or affecting commerce in violation of Section 5 of the Federal Trade Commission Act, 15 U.S.C. § 45.³

¹ This Opinion uses the following abbreviations for citations:

Tr. – Transcript of testimony before the Administrative Law Judge
ID – Initial Decision (page number)
IDF – Initial Decision Finding of Fact (the number of the factual finding)
CCFF – Complaint Counsel's Finding of Fact (the number of the factual finding)
RAB – Respondents' Appeal Brief
CCACAB – Answering and Cross-Appeal Brief of Counsel Supporting the
Complaint
RRCARB – Respondents' Reply and Cross-Appeal Response Brief
OA – Transcript of the Oral Argument on Appeal
CX – Complaint Counsel's Exhibit
RX – Respondents' Exhibit
JX - Joint Exhibit

² Tr. at 4079-81.

³ This Opinion uses the following abbreviations for third-party companies referenced herein: ABB Lummus Global (ABB Lummus), Air Liquide Process and Construction (Air Liquide), Air Products and Chemicals (Air Products), American Tank & Vessel, Inc.

A. The Initial Decision⁴

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

(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, for the LPG and LIN/LOX tank markets, the Initial Decision concluded that the actual and potential entry identified by Respondents is not sufficient to constrain CB&I's market power.¹² It also found no evidence of actual or potential entry in the TVC market.¹³

In addition, the Initial Decision rejected Respondents' argument that customers in these markets are sophisticated and can thus constrain CB&I's pricing.¹⁴ It found that past pricing is not well known in three of the four relevant markets,¹⁵ and that most customers therefore do not

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

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.*

B. Legal Standards²³

Section 7 of the Clayton Act provides, in relevant part, that “no person subject to the jurisdiction of the Federal Trade Commission shall acquire the whole or any part of the assets of another person . . . where in any line of commerce or in any activity affecting commerce in any section of the country, the effect of such acquisition may be substantially to lessen competition, or to tend to create a monopoly.”²⁴ “As its language suggests, [S]ection 7 is ‘designed to arrest in its incipiency . . . the substantial lessening of competition from the acquisition by one corporation of the whole or any part of the stock’ or assets of a competing corporation.”²⁵ Merger law “rests upon the theory that, where rivals are few, firms will be able to coordinate their behavior, either by overt collusion or implicit understanding, in order to restrict output and achieve profits above competitive levels.”²⁶ Thus, it is settled law that “[s]ignificant market concentration makes it ‘easier for firms in the market to collude, expressly or tacitly, and thereby force price above or farther above the competitive level.’”²⁷ The threat is that “firms in a concentrated market might in effect share monopoly power, setting their prices at a profit-maximizing, supracompetitive level by recognizing their shared economic interests and their interdependence with respect to price and output decisions.”²⁸

The unifying theme of Section 7 decisional law and economic teaching is that “mergers

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.*, 868 F.2d 901, 905 (7th Cir. 1989).

²⁷ *University Health*, 938 F.2d at 1218 n.24 (quoting *United States v. Rockford Mem’l Corp.*, 898 F.2d 1278, 1282-83 (7th Cir. 1990)).

²⁸ *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 227 (1993).

should not be permitted to create or enhance market power or to facilitate its exercise.”²⁹ A merger or acquisition is illegal under Section 7 if the remaining firm or firms will be more likely to engage in conduct that enables it or them profitably to maintain prices above competitive levels for a significant period of time, even if that conduct would be lawful in itself.³⁰ In general, unlawful accretions of market power may come about in several ways. First, a merger may result in a single firm that so dominates a market that it is able to maintain prices above the level that would prevail if the market were competitive. While antitrust case law has long recognized that a competitor may achieve and maintain market dominance or monopoly status through its own prowess, or even through “historic accident,”³¹ Section 7 expressly forbids acquisitions and mergers that “tend to create a monopoly.”³² Second, a merger may result in only a few firms accounting for most of the sales of a product and thereby enable those firms to exercise market power by explicitly or tacitly coordinating their actions.³³ Third, in some circumstances, a merger may result in a single firm that is not a monopolist but nonetheless is able to exercise market power without the concurrence of – or coordinated responses by – other firms in the market.³⁴ In each of these circumstances, the exercise of market power results in lower output

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 Section 7 “is concerned with far more than ‘collusion’ in the sense of an illegal conspiracy; it is very much concerned with ‘collusion’ in the sense of tacit coordination not amounting to conspiracy.” 4 Phillip E. Areeda, Herbert Hovenkamp & John Solow, Antitrust Law: An Analysis of Antitrust Principles and Their Application, ¶ 916, at 85 (rev. ed. 1998); see *Merger Guidelines* § 2.1.

³¹ *United States v. Grinnell Corp.*, 384 U.S. 563, 571 (1966).

³² 15 U.S.C. § 18.

³³ Areeda, Hovenkamp & Solow, *supra* note 30, ¶ 901b2, at 9; see, e.g., *University Health*, 938 F.2d at 1219 (four firms “easily could collude to [raise prices or reduce output] without committing detectable violations of . . . the Sherman Act”).

³⁴ Such unilateral effects are most likely to result in either of two circumstances. First, a firm might be able to increase prices in markets where competitors are distinguished primarily by differentiated products and the merging firms produce products that a substantial number of customers regard as their first and second choices (or, more precisely, where a substantial volume of sales are to customers who regard the products of the merging firms as their first and second choices). See *FTC v. Swedish Match*, 131 F. Supp. 2d 151, 168 (D.D.C. 2000); *New York v. Kraft Gen. Foods, Inc.*, 926 F. Supp. 321, 333-35 (S.D.N.Y. 1995); see generally *United States v. Oracle Corp.*, 331 F. Supp. 2d 1098, 1113-21 (N.D. Cal. 2004). Second, although no case seems to have dealt directly with such facts, economic learning holds that a firm might be able to increase prices above competitive levels in some markets where

and higher prices and a corresponding transfer of wealth from buyers to sellers or a misallocation of resources. As we discuss in this opinion, CB&I’s acquisition of PBM raises the very competitive problem that is the focus of Section 7 – an accretion of market power and a tightening of oligopoly market conditions.

We are guided in our assessment of this merger by the case law and the *Merger Guidelines*, both of which set out the general framework for our analysis and provide instruction for the issues raised on appeal. Under this framework, Complaint Counsel must first establish a prima facie case that the acquisition is unlawful. Typically, this has been accomplished by showing that the transaction will significantly increase market concentration,³⁵ which in turn establishes a “presumption” that the transaction is likely to substantially lessen competition.³⁶ Of course, “market share and concentration data provide only the starting point for analyzing the competitive impact of a merger.”³⁷ “That the government can establish a prima facie case through evidence on only one factor, market concentration, does not negate the breadth of this analysis. Evidence of market concentration simply provides a convenient starting point for a broader inquiry into future competitiveness.”³⁸ The strength of the initial presumption also varies according to how high the concentration numbers are. As we will discuss, Complaint Counsel may establish a prima facie case with concentration data and introduce other types of evidence relating to market and entry conditions to bolster their concentration data.

Respondents may rebut the prima facie case by producing evidence that

“show[s] that the market-share statistics [give] an inaccurate account of the acquisition[’s] probable effect[] on competition” in the relevant market. In so doing, the defendant may rely on “nonstatistical evidence which casts doubt on the persuasive quality of the statistics to predict future anticompetitive consequences,” such as: “ease of entry into the market, the trend of the market either toward or away from concentration,

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-the-circumstances approach to [Section 7], weighing a variety of factors to determine the effects of particular transactions on competition.” *United States v. Baker Hughes, Inc.*, 908 F.2d 981, 984 (D.C. Cir. 1990).

³⁶ *Merger Guidelines* §1.51; *FTC v. H.J. Heinz Co.*, 246 F.3d 708, 715 (D.C. Cir. 2001); *Baker Hughes*, 908 F.2d at 982.

³⁷ *Merger Guidelines* § 2.0.

³⁸ *Baker Hughes*, 908 F.2d at 984.

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

The relevant product and geographic markets are uncontested in the present case. As the Initial Decision found, they are field-erected LNG storage tanks, field-erected LPG storage tanks, field-erected LIN/LOX storage tanks, and field-erected TVCs (all four built in the United States).⁴¹ Respondents also do not contest that CB&I and PDM were the dominant suppliers of the products in these four relevant markets prior to the acquisition. Rather, at the heart of this case are Respondents’ arguments that post-acquisition entry has occurred in the LNG tank market and that smaller incumbents have expanded their presence in both the LPG and the LIN/LOX tank markets.⁴² Respondents contend that this entry and expansion make the parties’ former dominance irrelevant, that the Commission should focus solely on this post-acquisition period, and that the Commission should find that the acquisition does not violate the antitrust laws.

Established antitrust principles hold that entry must be not only likely to occur in a timely manner but also sufficient to constrain post-merger price increases to pre-merger levels.⁴³ In our assessment of whether the entry in these markets meets this standard, we have considered both

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 markets⁴⁴ and the bidding history of those markets. The history of these markets reveals that they have not been characterized by easy entry and expansion and have been dominated by Respondents for decades.⁴⁵ Despite the fact that suppliers have come and gone in these markets over the years and have, on occasion, been awarded a bid and constructed a tank, the evidence demonstrates that the real competition in these markets has been between CB&I and PDM. The evidence strongly suggests that this dynamic would have continued absent the merger, and Respondents' own strategic planning documents predicted that the merged firm would "dominate" the relevant markets.⁴⁶ Thus, to determine whether the entry Respondents suggest is likely to restore the competition lost from the merger, we must determine whether a sea-change has occurred in these markets so as to render inapplicable the competitive conditions that have held for so long. Based on the evidence, we conclude that such is not the case and that the entry and expansion alleged by Respondents are not sufficient to constrain CB&I's conduct in the foreseeable future (and thus offset the harm to competition resulting from the acquisition).

In Part II of this Opinion, we discuss the product markets and review the conditions that

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 relevant markets and conclude, contrary to the Initial Decision, that this history not only bolsters the HHI evidence but also provides an independent reason for finding that Complaint Counsel met their burden. Finally, we examine evidence related to entry conditions in each of the relevant markets and conclude that entry in each market is extremely difficult.

In Part IV, we examine Respondents' rebuttal case. We first reject Respondents' argument that the small size of the relevant markets precludes finding liability under Section 7 of the Clayton Act. We also examine Respondents' evidence of entry in the LNG, LPG, and LIN/LOX tank markets and conclude that the entry and expansion identified by Respondents are inadequate to restore these markets to their premerger state. Because we find that entry into the relevant markets is difficult and that effective entry and expansion are not likely to occur in the foreseeable future, we also reject Respondents' potential competition argument. Finally, we examine evidence related to whether customers can constrain a price increase by CB&I and determine that they cannot. We conclude that Respondents have not rebutted Complaint Counsel's prima facie case.

Part V of the Opinion discusses the likely competitive effects of the acquisition and concludes that the acquisition is likely to lessen competition substantially in the relevant markets.

In Part VI, we explain why, given our conclusions in Parts III, IV, and V, we do not need to consider the issues raised by Complaint Counsel's cross-appeal to the extent it argues that the ALJ erred in not finding that the acquisition resulted in actual anticompetitive effects.

In Part VII, we consider and reject Respondents' argument that competition in the relevant markets was not harmed because PDM would have exited the four relevant markets absent the acquisition.

Part VIII sets out the remedy that we are ordering in this matter and addresses the issues raised by Respondents' and Complaint Counsel's respective objections to the ALJ's order.

In sum, we adopt the Initial Decision's holding that the acquisition violated Section 7 of the Clayton Act and Section 5 of the Federal Trade Commission Act in all four relevant markets, and we adopt the findings set out in the Initial Decision to the extent they are not inconsistent with our Opinion. We also make a number of new factual findings based upon our de novo

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 more⁴⁹ 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

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*).

and a carbon steel tank (to hold the insulation in place).⁵⁴ Both of these tanks are enclosed by a concrete or earthen dike.⁵⁵ A double-containment tank also consists of an outside container that encloses the inner 9 percent nickel steel and carbon tanks. However, unlike the structure surrounding the nickel-steel tank in a single-containment tank, the outer container in a double containment tank is also capable of holding the LNG so that if the inner tank fails, the liquid will be contained.⁵⁶ A full-containment tank has the 9 percent nickel steel tank used in a single-containment tank encased in a layer of concrete, so that both liquid and vapor are contained in the event of a spill.⁵⁷ Customers choose between tank types based on the nature of the area (urban versus rural), the land area for the site, the size of the tank, and the Federal Energy Regulatory Commission's (FERC) vapor dispersion and thermal radiation requirements.⁵⁸

The inner 9 percent nickel steel tank for any LNG tank is difficult to make. The sheets constituting these tanks must be curved and beveled correctly, and the design, welding, and erection of the tanks must take account of specific characteristics such as the fact that the thickness of the plate varies from top to bottom.⁵⁹ Among other things, the foundation of the tank also must be designed and constructed to protect the ground from the tank's cold temperatures, and piping connections and pumps must be designed and constructed to properly move the fluid in and out of the tank.⁶⁰ An LNG tank supplier must also identify, contract with, and supervise traveling field crews and local labor crews and maneuver the project through various federal and local regulatory processes. This entire process must occur in a timely manner, because delays in the project result in unrealized cash flow and economic losses to the

⁵⁴ Tr. at 530, 4110.

⁵⁵ Tr. at 531, 6170.

⁵⁶ Tr. at 531, 6171.

⁵⁷ Tr. at 532, 6170.

⁵⁸ FERC regulations require that the radiation intensity of a potential fire and the vapor dispersion from a potential spill not exceed certain limits at the boundary of the site. Tr. at 533, 6969. A computer model calculates the distance needed from the center of the tank to the site boundary based on the size of the tank. Tr. at 6970. Because full-containment tanks result in lower vapor dispersion and thermal radiation values, they can be placed on smaller parcels of land than can accommodate single-containment or double-containment tanks. Tr. at 533-34. Similarly, double-containment tanks can be placed on smaller pieces of land than comparably sized single-containment tanks. Tr. at 6971.

⁵⁹ Tr. at 5898.

⁶⁰ Tr. at 5920-5922.

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 -50° 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

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 If this temperature migration were to occur, the resulting frost would damage the structure of the tank.⁷¹ Similar to LNG tanks, LPG tanks are a critical component of LPG import/export terminals in that they receive LPG from ships (to be moved through pipelines) and from pipelines (to be placed on ships and exported).⁷² An LPG terminal with adequate storage capacity can both import and export LPG.⁷³

C. LIN/LOX Tanks

LIN (liquid nitrogen), LOX (liquid oxygen), and LAR (liquid argon) (collectively, LIN/LOX) tanks are field-erected cryogenic tanks that store various liquid gas products at cryogenic temperatures at approximately -300° F or lower.⁷⁴ Their design is similar to that of LNG tanks, and they usually include inner and outer shells.⁷⁵ However, they are smaller than LNG tanks,⁷⁶ holding 300,000 to 1,000,000 gallons of liquid.⁷⁷ A typical LIN/LOX tank costs \$500,000 to \$1.5 million.⁷⁸

LIN/LOX tanks are an essential part of integrated air separation facilities used by major industrial gas firms such as Air Liquide, Air Products, Praxair, BOC, and MG Industries. Air separation facilities separate air into its constituent components of nitrogen, oxygen, and argon.⁷⁹ Air separation facility customers use the gases for various industrial applications that require large amounts of storage capacity.⁸⁰

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 -292° to -238° F and a range of extreme vacuum levels.⁸³ Field-erected TVCs can be as large as 45 by 45 by 60 feet⁸⁴ 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

⁸¹ Tr. at 1262.

⁸² Tr. at 1263.

⁸³ Tr. at 1262. The testimony characterized the temperature range as -180° to -150° 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 various stages of the project, such as the front-end engineering and design (FEED) work for the facility or the LNG tank. On the other hand, a facility owner may hire an Engineering, Procurement, and Construction (EPC) firm to manage the full breadth of the project. As the name suggests, an EPC contractor engineers the project, procures equipment and material, and constructs (or manages the construction of) the facility. Depending on its abilities and the customer’s preference, an EPC contractor can perform the entirety of the work itself, subcontract portions of the work (such as LNG tanks) to other providers, or simply manage the various subcontractors for the owner.⁹⁴ In addition, although many LNG tank customers use competitive bids to select an EPC firm, some customers choose to negotiate sole-source contracts with

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

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 share data overstated the competitiveness of the acquired firm going forward, because they did

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 sales data over a period of years can present a compromise. On the one hand, aggregating sales over a longer period increases the risk that competitive conditions will have changed significantly over the period. On the other hand, extending the time period in order to enlarge the sample of sales reduces the risk that chance outcomes will obscure the competitive significance of the different firms. In other words, aggregating sales data over a longer period can either increase or decrease the degree to which the corresponding HHIs accurately reflect competitive conditions.

Here, the evidence shows that competitive conditions have not changed sufficiently over an extended period to undercut the HHIs' central implication – that CB&I's acquisition of PDM combined the two principal competitors in these markets and is therefore likely to have harmed competition. Unlike the market described in *Baker Hughes*, the markets in this case are not volatile and shifting. Rather, these two companies are the only competitors that have made significant sales in each of the four markets for at least the past two decades. This fact is unquestionably reflected in the concentration levels presented by Complaint Counsel. Therefore, we believe that an extended time frame is an appropriate period in which to analyze the parties' sales data. Although the 11-year period chosen by Complaint Counsel is not the only option that was available, we are satisfied that the data present a representative picture of the various markets, given Respondents' long history of dominance in these markets preceding the acquisition. We also believe that the 1996-2001 period on which the ALJ focused provides a less reliable barometer than a more extended period.

The HHIs presented by Complaint Counsel for the four relevant markets range from 5,000 to 10,000 post-acquisition, with concentration increases that range from 2,600 to 5,000. They are thus well above the level needed to establish a prima facie case and entitle Complaint Counsel to a presumption that the merger is “likely to create or enhance market power or facilitate its exercise.”¹⁰⁸ As we will discuss, however, Complaint Counsel also presented evidence of pre-acquisition bids, contemporaneous documents from the parties, and customer testimony that all suggest that the acquisition will have an anticompetitive effect in each relevant market. We find that this additional evidence not only bolsters the validity of Complaint Counsel's HHIs but also provides ample reason for finding that they established a prima facie case.

B. Pre-Acquisition Competition in the Relevant Markets

¹⁰⁷ 415 U.S. at 493.

¹⁰⁸ *Merger Guidelines* § 1.51.

In all four relevant markets the evidence establishes that CB&I and PDM were each other's closest competitor prior to the acquisition, and that together they largely dominated the sales of LNG, LPG, and LIN/LOX tanks and TVC tanks. These two companies also closely monitored each other's activities, and customers were frequently able to play one firm off against the other in order to obtain lower prices. The acquisition eliminated this substantial direct competition between them and left CB&I with an "undue" percentage share of each market. In this section, we further examine Complaint Counsel's market share case to consider the conditions that prevailed in each of the four markets. Based on this examination, we conclude that the qualitative evidence leaves no doubt that the acquisition has left CB&I as the dominant player – indeed, the only major player – in all of the markets and, as just noted, provides an independent reason for finding a strong prima facie case of presumptive liability. Accordingly, the evidence "creates, by a wide margin, a presumption that the merger will lessen competition" in each of the four markets.¹⁰⁹

1. Pre-Acquisition Competition in the LNG Tank Market

The evidence establishes that prior to the acquisition CB&I and PDM had a virtual duopoly in the manufacture and construction of LNG tanks. From 1990 to the acquisition in 2001, these two firms were the only winners of bids to build LNG tanks in the United States. While one could argue (as Respondents do) over whether 1990 to 2001 is the appropriate period to examine, the choice of another period would not dramatically change the results: CB&I and PDM were the only companies with non-trivial sales of LNG tanks for over three decades.¹¹⁰

¹⁰⁹ *Heinz*, 246 F.3d at 716. However, *Baker Hughes* noted that "evidence of market concentration simply provides a convenient starting point for a broader inquiry into future competitiveness." *Baker Hughes*, 908 F. 2d at 984. *See also General Dynamics*, 415 U.S. at 498 (1974) ("[S]tatistics concerning market share and concentration, while of great significance, [are] not conclusive indicators of anticompetitive effects[.]"); *Merger Guidelines* § 2.0 ("[M]arket share and concentration data provide only the starting point for analyzing the competitive impact of a merger."). Nonetheless, where concentration levels are extraordinarily high – as they are in this case – Respondents bear the burden of demonstrating that the HHIs are unreliable in predicting a transaction's competitive consequences. *See Heinz*, 246 F.3d at 715.

¹¹⁰ From 1975 to the time of the acquisition, PDM and CB&I were the only companies that constructed LNG tanks for import terminals. Similarly, out of the 95 LNG tanks awarded for United States peak-shaving facilities in the 35 years prior to the acquisition, only seven tanks went to companies other than CB&I and PDM, and none went to other companies in the preceding 11 years. CX 125, CX 1645. CX 1645 discusses two additional peak-shaving projects not identified in the 93 projects listed in CX 125 – the 1995 MLGW project and the 1995 Pine Needle LNG project. The Citizen's Gas & Coke and South Carolina Pipeline Corp.

In the 11 years prior to the acquisition, CB&I and PDM were also the only bidders for the vast majority of projects.¹¹¹ The evidence reveals that firms other than CB&I and PDM bid in only two projects of nine.¹¹² Moreover, both of those projects demonstrate that CB&I and PDM did not face significant competition from other suppliers. Although Lotepro teamed with Whessoe and Black & Veatch teamed with TKK, and both groups submitted bids for MLGW's peak-shaving plant in Capleville, Tennessee,¹¹³ their bids were well above that of CB&I.¹¹⁴ Similarly, evidence suggests that CB&I and PDM were each other's closest competitor in bidding for the Atlanta Gas peak-shaving plant. Although the project was ultimately cancelled, Atlanta Gas evaluated another bidder (Marlborough Enterprises) and deemed its bid inferior to those of CB&I and PDM.¹¹⁵

Testimony from customers and industry participants establishes that PDM and CB&I were the only viable LNG tank suppliers prior to the acquisition and that the acquisition

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 CX 161.

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 out there with experience that could come into the market and compete with CB&I/PDM.”¹¹⁷ A representative of another customer, People’s Light, Gas & Coke, testified that the acquisition eliminated a choice and would have a “negative impact.”¹¹⁸ He elaborated that “[w]hat makes a vendor bid a lower price is not altruism but a fear that if you do not bid that lower price, you won’t get the job.”¹¹⁹ An industry consultant echoed this concern and stated, “[T]here’s plenty of people out there that will bid, but I think it will be difficult for anybody to come in and beat a bid from CB&I at this point.”¹²⁰

The parties’ internal documents also confirm that CB&I and PDM did not consider other firms to be significant competitive threats. In the years prior to the acquisition, CB&I and PDM focused almost exclusively on each other in their assessment of the competitive landscape and paid little or no attention to what other companies were doing. For example, PDM’s 1998 President’s Report to the Board of Directors devoted two of seven pages to CB&I, with virtually no mention of any other competitor.¹²¹ PDM’s 2000 Business Plan also analyzed the “Domestic LNG” market and concluded that “CB&I is PDM EC’s domestic competition for LNG tanks.”¹²² In fact, Luke Scorsone, who now heads CB&I’s Industrial Division,¹²³ candidly admitted that prior to the acquisition he viewed PDM as CB&I’s lone competition in the LNG tank market.¹²⁴

2. Pre-Acquisition Competition in the LPG Tank Market

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

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).

alternatives to Fluor for its Sea-3 project were PDM and CB&I.¹³³ In addition, as is the case with the LNG market, the parties' own documents reflect that they viewed each other as the primary competition for LPG tanks. PDM strategic planning documents identified CB&I as "PDM EC's only competitor on domestic . . . LPG . . . projects."¹³⁴ CB&I's documents echo this sentiment. A presentation for CB&I's Board of Directors examined business conditions for 2000 and remarked that "[t]he combination of CB&I/PDM would be very strong in aggregating technology expertise, field crews and customer relationships."¹³⁵ Mr. Scorsone also testified that PDM was a formidable competitor to CB&I in LPG tanks in the Western Hemisphere.¹³⁶

As with the LNG market, Respondents projected that the acquisition would give them market power in LPG tanks. In August 1999, PDM's CEO suggested to the PDM Board that PDM acquire CB&I, with an eye to achieving "[m]arket dominance in [the] Western Hemisphere, . . . LPG worldwide market dominance."¹³⁷ Although Scorsone testified that he made these statements merely to elicit enthusiasm from the Board and that it would have been very hard to dominate the domestic market,¹³⁸ we find that these statements were more than mere puffery. CX 648 is replete with references to CB&I and makes no reference to the competitive impact of other firms. At his investigational hearing, Scorsone also testified that CB&I was the largest in the world and an "icon for us [PDM] to focus on."¹³⁹ He admitted that he had believed that "market dominance" could be an outcome of an acquisition when he made the presentation to PDM's Board in 1999.¹⁴⁰ In addition, testimony from two major LPG customers reflects the

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 Tr. at 4788-87; CX 648 at PDM-HOU000267 (August 1999 presentation to PDM Board of Directors).

¹³⁸ Tr. at 4786-88.

¹³⁹ Tr. at 5168.

¹⁴⁰ Tr. at 5168-69. *See also* CX 68 at 8 (August 1998 PDM Board presentation) ("CBI is PDM EC's major competitor in almost all of the significant markets PDM EC serves.").

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

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 frequently pitted PDM against CB&I to get better prices.¹⁵⁶

Documentary evidence related to bids also confirms that PDM was an aggressive competitor in the LIN/LOX tank market and frequently underbid CB&I.¹⁵⁷ Sometimes this dynamic caused both firms to submit bids with negative profit margins.¹⁵⁸ Respondents' documents also confirm that CB&I and PDM viewed each other as their primary competition. For example, CB&I and PDM monitored each other's past LIN/LOX bids but did not follow the bids of AT&V or Matrix.¹⁵⁹ In addition, both parties' documents often mention each other, with

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 pairing¹⁶² 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

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

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

sheltered from the threat of new entry and any market power it has would be more secure.¹⁷² In contrast, if entry is easy, any market power gained from a merger can be quickly eroded in the event that incumbent firms, acting alone or in unison, increase prices to a supracompetitive level.¹⁷³

In the absence of actual new entry or expansion by smaller incumbents, predictions about entry require speculation firmly rooted in market realities. Indeed, Areeda & Hovenkamp have commented that “[t]he only truly reliable evidence of low barriers is repeated past entry in circumstances similar to current conditions.”¹⁷⁴ Over the years, however, courts and commentators¹⁷⁵ have identified a host of variables that might prohibit or deter a new entrant, including government regulation,¹⁷⁶ high initial investments,¹⁷⁷ incumbent control of an essential

elsewhere in our analysis, because Complaint Counsel introduced this evidence as part of their prima facie case. At least one court has noted this same difficulty. *See University Health*, 938 F.2d at 1219 n.25 (noting that the government introduced all of its evidence at one time and that defendant responded in kind, and concluding that it would analyze whether the FTC had demonstrated that it had “satisf[ie]d its ultimate burden of persuasion,” *id.* at 1219, rather than focusing on shifting burdens).

¹⁷² *See Heinz*, 246 F.3d at 717 (high entry barriers eliminate the possibility that the competition lost from the merger will be mitigated by new entry); *United States v. Visa U.S.A., Inc.*, 163 F. Supp. 2d 322, 342 (S.D.N.Y. 2001) (“The higher the barriers to entry, and the longer the lags before new entry, the less likely it is that potential entrants would be able to enter the market in a timely, likely, and sufficient scale to deter or counteract any anticompetitive restraints.”), *aff’d*, 344 F.3d 229 (2d Cir. 2003).

¹⁷³ *Baker Hughes*, 908 F.2d at 987 (“In the absence of significant barriers a company probably cannot maintain supracompetitive pricing for any length of time.”); *United States v. Syufy Enters.*, 903 F.2d 659, 671 n.21 (9th Cir. 1990) (noting that low barriers to entry precluded Syufy from maintaining market share and controlling prices).

¹⁷⁴ 2A Areeda, Hovenkamp & Solow, *supra* note 45, ¶420b, at 60 (2d ed. 2002). *See also Cardinal Health*, 12 F. Supp. 2d at 56 (“[T]he history of entry into the relevant market is a central factor in assessing the likelihood of entry in the future.”).

¹⁷⁵ Areeda, Hovenkamp & Solow identify and discuss economies of scale, high initial investment, capital market imperfections, risk, scarce inputs or customers, product reputation and promotion, and governmental constraints as potential barriers to entry. 2A *id.* ¶ 421, at 65-74.

¹⁷⁶ *See, e.g., Syufy*, 903 F.2d at 673 (“some of the most insuperable barriers in the great race of competition are the result of government regulation”); *United States v. Franklin Elec. Co.*, 130 F. Supp. 2d 1025, 1031 (W.D. Wisc. 2000) (identifying a patent as an entry

or superior resource,¹⁷⁸ access to customers,¹⁷⁹ reputation,¹⁸⁰ and economies of scale.¹⁸¹ In addition, some courts have embraced the economic concept that for an entry barrier to exist, it must impose long-run costs on the new entrant that the incumbent did not shoulder.¹⁸²

We first turn to Respondents' argument that entry barriers are low in the LNG, LPG, and LIN/LOX tank markets based on the alleged entry in those markets.¹⁸³ Respondents point to the facts that three new suppliers in the LNG tank market have contacted customers and that one of these suppliers will be awarded the job to build an LNG tank for Dynegy's Hackberry, Louisiana import terminal.¹⁸⁴ Similarly, Respondents attest that new entrants have bid in both the LPG and LIN/LOX tank markets and that one supplier has won awards to build three LIN/LOX tanks post-merger.¹⁸⁵ They thus conclude that although "[t]he ALJ identified several requirements that new entrants must meet in order to enter the relevant markets[,] . . . these requirements are not

barrier).

¹⁷⁷ See, e.g., *Visa*, 163 F. Supp. 2d at 341 (finding, among other barriers to entry, an up-front investment of over \$1 billion).

¹⁷⁸ *Rebel Oil Co. v. Atlantic Richfield Co.*, 51 F.3d 1421, 1439 (9th Cir. 1995) (identifying, among other things, control by the incumbent of essential or superior resources as a barrier to entry).

¹⁷⁹ *Cardinal Health*, 12 F. Supp. 2d at 58; see also *Visa*, 163 F. Supp. 2d at 342 (identifying the inability of Visa to obtain customers and therefore vendors as a barrier to entry).

¹⁸⁰ See, e.g., *Swedish Match*, 131 F. Supp. 2d at 170-71; *Avery Dennison Corp. v. Acco Brands*, 2000-1 Trade Cas. (CCH) ¶ 72,882, 87557 (also available at 2000 U.S. Dist. LEXIS 3938 (C.D. Cal. Feb. 22, 2000)). See also *Franklin Electric*, 130 F. Supp. 2d at 1031-32 (finding customers' insistence on firms with a track record a barrier to entry); *United States v. United Tote Inc.*, 768 F. Supp. 1064, 1079 (D. Del. 1991) (same).

¹⁸¹ *Cardinal Health*, 12 F. Supp. 2d at 57.

¹⁸² See *Western Parcel Express v. UPS of America*, 190 F.3d 974, 975 (9th Cir. 1999); *Rebel Oil*, 51 F.3d at 1439 ("capital market evaluations imposing higher capital costs on new entrants").

¹⁸³ RAB at 20, 25-26.

¹⁸⁴ RAB at 14-17.

¹⁸⁵ RAB at 17-19.

the same as entry barriers.”¹⁸⁶ If Respondents are correct and if entry barriers are low, the merger is not likely to create or enhance market power and thus is not anticompetitive.

We conclude, however, that Respondents’ argument misses a crucial point: in order to deter or counteract the competitive effects of a merger, entry must restore the competition lost from the merger. As the *Merger Guidelines* instruct, entry must be not only likely to occur in a timely manner but also sufficient to constrain post-merger price increases to pre-merger levels.¹⁸⁷ This mode of analysis has enjoyed widespread acceptance in courts, in the economic literature, and among antitrust scholars.¹⁸⁸ Indeed, cases prior to the 1992 revision of the *Merger Guidelines* also examined the sufficiency of entry in their analyses. These cases frequently focused on the ability of the new entrant to take market share from or reduce the prices of the incumbent firms. For example, in finding low entry barriers, *Baker Hughes* relied on, *inter alia*, the fact that a firm had entered the market and expanded from insignificance to become the market leader.¹⁸⁹ The court thus concluded that the market was “volatile and shifting”¹⁹⁰ and predicted that “competitors not only [could], but probably [would], enter or expand if [the] acquisition [led] to higher prices.”¹⁹¹ The court’s description of that market made clear its understanding that new entrants or smaller incumbents could effectively constrain the merging entity. Similarly, the *Syufy* court found it dispositive that a post-merger entrant took a significant share of the first-run film market away from the incumbent firm, rendering benign what on its surface had been a merger to monopoly.¹⁹²

The focus on sufficient entry has also led some courts to reject the type of argument that

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 *Id.* at 989.

¹⁹² 903 F.2d at 665.

Respondents make in this case – that because new players have entered in some nominal sense, entry barriers are low or non-existent. For example, the court in *Rebel Oil* rejected the argument that the existence of two new entrants constituted evidence of low entry barriers and stated that “[t]he fact that entry has occurred does not necessarily preclude the existence of significant entry barriers.”¹⁹³ The court noted that because the new entrants would be unable “to take significant business away from the predator, they are unlikely to represent a challenge to the predator’s market power.”¹⁹⁴ The court in *Oahu Gas Service* also refused to find an absence of entry barriers because the new entrants had remained relatively small.¹⁹⁵ Similarly, the trial court in *Tote* found entry insufficient to rebut the government’s prima facie case, because new entrants could not constrain anticompetitive price increases by the incumbents.¹⁹⁶ This focus on the competitive impact of the new entry echoes precisely the question posed by the sufficiency prong of the *Merger Guidelines* and relevant case law, and frames the ultimate question we must answer in this case.

In the LNG, LPG, and LIN/LOX tank markets, the mere fact that new entrants and fringe firms have an intent to compete does not necessarily mean that those firms are significant competitors capable of replacing lost competition. The evidence establishes that the firms that Respondents have identified in these markets are pursuing work and that customers have testified that they will consider bids from suppliers other than CB&I.¹⁹⁷ However, these facts at most show that these firms have the capacity to submit a bid.¹⁹⁸ Although the ability to submit a bid is obviously a necessary first step, we find it insufficient to answer the ultimate question – whether the new entry or smaller incumbent expansion can constrain CB&I at the level it was constrained pre-acquisition. As we discuss below, the evidence shows that to compete effectively with CB&I – and thus sufficiently constrain it – bids from these new entrants must also be taken seriously by the customers in these markets and present the customers with

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

¹⁹⁴ *Id.*

¹⁹⁵ *Oahu Gas Serv. Inc. v. Pacific Res. Inc.*, 838 F.2d 360, 366-67 (9th Cir. 1988).

¹⁹⁶ 768 F. Supp. at 1082.

¹⁹⁷ AT&V has also won three awards to build LIN/LOX tanks. However, as we discuss in Part IV.B.3.a.(1), *infra*, AT&V’s performance on these jobs calls into question its ability to compete in the future.

¹⁹⁸ In the LNG tank market, Skanska/Whessoe, TKK/AT&V, and Technigaz/Zachry have submitted bids for Dynegy’s Hackberry, Louisiana project. In addition, AT&V and Matrix have submitted bids for LPG tank projects, and AT&V, Matrix, and Chattanooga have submitted bids for LIN/LOX tank projects. RAB at 14-19.

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

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 in dire consequences – as the failure of an LNG tank surely would. The court in *Franklin Electric* found that a consumer’s reluctance to switch away from firms with long track records in manufacturing submersible turbine pumps would likely prohibit meaningful entry.²¹⁰ Similarly, in *Tote*, the fact that a new entrant would need to demonstrate that its system could operate flawlessly for one to two years as a prerequisite to market acceptance was a factor that would impede new entrants from gaining market share and constraining price increases.²¹¹

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.

This precedent notwithstanding, Respondents cite *Baker Hughes* for the proposition that the mere fact that customers place great importance on product quality and reliable future service does not constitute a “high entry barrier.”²¹² This argument not only misreads *Baker Hughes* but is wholly inapplicable to this case. In the passage cited by Respondents, the court of appeals specifically acknowledged that a customer’s focus on product quality and reliable future service “may handicap new entrants.”²¹³ It merely refused to overturn the district court’s conclusion that other factors – such as actual entry and expansion – outweighed the evidence regarding customers’ concerns.²¹⁴ In the instant case, the record presents quite a different picture. The evidence demonstrates that far from being “general statements” – as Respondents suggest²¹⁵ – the customers’ preference for experience repeatedly manifests itself in the way customers view potential suppliers and award bids in real-world contests. Moreover, unlike in *Baker Hughes*, there is no evidence in this case that new entrants or smaller incumbents can expand their presence in the LNG tank market. Quite to the contrary, the LNG tank market is characterized by long-standing dominance by the two merged firms and a reluctance on the part of customers to take a chance on firms with no experience.

The customers’ focus on experience is understandable, because building an LNG tank is not easy.²¹⁶ In addition, while some of the skills necessary to build an LNG tank may be of a general nature, others are not. Black & Veatch testified, for example, that the welding, foundation work, and pipeline connections for these cryogenic tanks require specialized skills to be done properly.²¹⁷ Similarly, Yankee Gas testified that it will not credit experience in building petroleum tanks as the type of experience necessary to build LNG tanks, because the cryogenic properties of LNG tanks require a special construction skill set.²¹⁸ To deal with these technical

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 reputation by itself does not necessarily reflect barriers to entry. *Omega Environmental Inc. v. Gilbarco*, 127 F.3d 1157, 1164 (9th Cir. 1997); *Syufy*, 903 F.2d at 669. As in *Baker Hughes*, entry in both of these cases occurred and expanded in the relevant markets. *Omega Environmental*, 127 F.3d at 1164; *Syufy*, 903 F.2d at 665. We thus find these cases inapplicable to the case before us, in which the markets have not seen competitively significant new entry or expansion post-acquisition.

²¹⁵ RAB at 21.

²¹⁶ See discussion *supra* at Part II.A.

²¹⁷ Tr. at 565.

²¹⁸ Tr. at 6701-02.

challenges, both CB&I and PDM developed specialized construction procedures, trained supervisors to manage various parts of the tank construction, and developed working relationships with traveling field crews and local labor. For a new entrant to be taken seriously, it would need to demonstrate that it has access to a group with similar knowledge and expertise. We thus find that it is critical for a tank supplier to have experienced and knowledgeable supervisors as well as access to specialized field crews.

One customer testified that it is necessary for an LNG tank supplier to have supervisors on staff, because they are otherwise difficult to find.²¹⁹ This statement is supported in the merging parties' own business practices. Prior to the acquisition, both PDM and CB&I had on salary a staff of supervisors for the construction of the tanks, and CB&I has retained such employees following the acquisition.²²⁰ These supervisors must also be trained to ensure that they are familiar with LNG projects.²²¹

Similarly, tank suppliers must employ and train field crews to perform some of the more specialized work on these tanks.²²² The training not only focuses on such obvious skills as the requisite specialized welding techniques, but also teaches the crew familiarity with the firm's procedures and the use of its equipment.²²³ These crews, which can range from 40 to 60 people, travel from job to job and are distinct from the local labor pool.²²⁴

Respondents suggest that because field crews are hourly (rather than salaried) employees and because they can work for multiple companies, knowledge of and connections with these crews do not represent a competitive advantage for the merged firm.²²⁵ We disagree. While it is true in theory that a prospective new entrant could hire members of these field crews, the crew would not be familiar with either the new entrant's procedures or its equipment and would thus need to be trained – a process that would result in additional time and costs to the new entrant.²²⁶

²¹⁹ Tr. at 6231-32.

²²⁰ Tr. at 2626-27.

²²¹ Tr. at 2625-26.

²²² Tr. at 2633-34.

²²³ Tr. at 2625-26.

²²⁴ Tr. at 1598-99.

²²⁵ RAB at 23.

²²⁶ Tr. at 1641 (*in camera*), 2626.

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

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 Dynegey 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.

old way.”²³⁵ Matrix, which supplies LIN/LOX tanks, also testified that if it were to try to supply LNG tanks, it would need to develop specialized welding procedures.²³⁶ As a result, we find that a new entrant would need to develop welding procedures, train its welders in those procedures and the use of its equipment, and demonstrate to customers that it would be able to safely weld and deliver an operable tank in a timely manner.

We also find that knowledge of and connections with local labor are a necessary prerequisite to an LNG tank supplier’s ability to compete effectively. Several customers testified that LNG tank suppliers must have knowledge of these markets.²³⁷ One customer even testified that it would not consider a foreign LNG tank designer for a U.S. project unless that designer teamed with an American construction firm.²³⁸ In addition to having general knowledge of local labor markets in the United States, a new entrant would also need to learn how to employ those labor resources most effectively in the construction of LNG tanks and would need to develop relationships with local vendors and suppliers. In its SEC filings, CB&I has repeatedly pointed to the fact that it has cultivated such relationships and has stated that these relationships confer a competitive advantage.²³⁹ In addition, CB&I’s CEO testified that a company’s local presence can translate into a competitive advantage through knowledge of the local vendors and suppliers and of the local labor markets.²⁴⁰

Respondents argue that much of the construction labor is contracted locally and that the construction skills necessary – including welding – can be easily learned. As proof of this position, they point out that Whessoe completed LNG tanks in Dabhol, India, with the use of local labor. We find, however, that Respondents’ argument misses an essential point and that the experience in Dabhol actually exemplifies why entry and expansion in the U.S. market are difficult. The ability to hire local welders untrained in welding LNG tanks presupposes that a

²³⁵ *Id.*; see also CCF 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 is viewed as a local contractor in a number of the regions it services by virtue of its long-term presence and participation in those markets” and that “[t]his perception may translate into a competitive advantage through knowledge of local vendors and suppliers, as well as of local labor markets”); CX 1575 at 7 (same). To avoid any possible confusion, we emphasize that the possession or acquisition of a “competitive advantage” is not illegal, but it can be a relevant factor when a merger is defended on the ground that entry is easy.

²⁴⁰ Tr. at 4230.

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

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*).

costs for the customer.²⁴⁵ Thus, customers take FERC experience into account when they evaluate potential bidders.²⁴⁶ In fact, BP commented that the foreign companies would need to demonstrate the capability to steer a project through the FERC process before it would award them a bid.²⁴⁷ The evidence also demonstrates that CB&I itself recognizes the importance of experience with the FERC approval process, because it touts its own FERC experience in dealing with prospective customers.²⁴⁸

The evidence thus establishes that, at a minimum, a new entrant would need to go through a time-consuming process to develop procedures to meet the unique challenges of building LNG tanks; recruit and hire supervisors with highly specialized experience; gain access to local labor forces; and acquire expertise in dealing with complex regulatory requirements.²⁴⁹

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 In recent correspondence with a potential customer, the merged firm noted that “CB&I brings unmatched experience in preparing the documents . . . that are necessary for permitting and/or filing for FERC authorization permits.” CX 140. In the same correspondence, CB&I further described itself as a firm “whom the permitting agencies, most especially FERC, know and respect.” *Id.*

²⁴⁹ We reject Complaint Counsel’s suggestion that access to raw materials and ownership of fabrication facilities are necessary for a new entrant to be competitive. Although the 9 percent nickel steel for LNG tanks used to be sourced in the U.S., it appears that it is now sourced from Japan and Europe. Tr. at 4891 (CB&I purchases its 9 percent nickel steel from Japan and Europe). In addition, while owning a fabrication plant may be helpful in other relevant markets, there is no evidence to suggest that owning such a plant makes a difference for

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 While we find such testimony highly probative of AT&V's intent to stay in the market and its plans to become a competitive force, we find that, as of the time of trial – nearly three years after the acquisition – AT&V still has not become a factor in the market. It cannot yet constrain CB&I, and it certainly has not replaced the competition that was lost from the acquisition. Furthermore, we cannot predict when – or even whether – it might do so.

As we will discuss more fully in Part IV.B.1, *infra*, we also find that CB&I's long-standing presence in the U.S. confers on it a virtually insurmountable advantage in many of the attributes we just discussed, at least for the foreseeable future. It has many years of experience in building LNG tanks in the United States. This experience not only gives CB&I an advantage in terms of cost and efficiency but also provides it a reputation for quality and reliability.²⁵¹ We believe this dynamic explains why Asian tank manufacturers historically have built the majority of LNG tanks in Asia, European-based tank manufacturers have built the bulk of tanks in Europe, and PDM and CB&I have built the only tanks in the United States.²⁵² In essence, a new entrant faces a conundrum: its lack of experience and inability to build a reputation place it at a competitive disadvantage in terms of winning a bid, which is the very thing it needs to gain

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

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 market, but they are high nonetheless.²⁶⁷ LPG tanks are bigger than LIN/LOX tanks but smaller than LNG tanks, and they hold their contents at temperatures that are low (about -50° F) but above those of LNG tanks.²⁶⁸ An LPG entrant would not need as many field personnel as an LNG entrant, and (unlike an LNG tank entrant) it would have no FERC requirements to master.²⁶⁹ Generally, LPG tanks use the same kind of construction as LNG tanks but are able to use enhanced carbon steel or a special type of conventional steel (unlike LNG tanks, which require 9 percent nickel steel and more specialized welding techniques).²⁷⁰ Nonetheless, LPG tank suppliers must develop specialized welding procedures and train welders to build these

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 between the LNG and LIN/LOX markets in the difficulty of its technical requirements and the size of the projects it involves. That is, an LNG tank manufacturer might easily bid on an LPG project, as the latter would be less technically demanding and smaller in scope than an LNG project. If a very large LPG project were available, it might (in theory) attract bids from LNG tank suppliers. There is no record evidence, however, that any LNG tank supplier has shown such interest. In addition, it might appear that a LIN/LOX tank supplier could attempt to make the leap into the LPG market – particularly if a smaller, relatively uncomplicated project were opened for bid. As we discuss in detail in Part IV.B.3 below, however, the existing LIN/LOX tank suppliers (other than CB&I) seem to have difficulty meeting the technical requirements for smaller LIN/LOX tanks, so we find it unlikely that they will be able to compete effectively in the LPG market. Thus, for the foreseeable future, it does not appear that a foreign LNG tank firm will step into the U.S. LPG tank market, or that any LIN/LOX tank supplier identified in the record would be a credible entrant in the LPG market.

3. Entry Conditions of the LIN/LOX Tank Market

We find that entry barriers in the LIN/LOX tank market are also high. A great deal of specialized know-how and critical skills are required in the engineering, fabrication, and construction of LIN/LOX tanks.²⁷³ Design of the tanks requires sophisticated engineering and adherence to stringent regulatory codes.²⁷⁴ Experienced workers are also critical.²⁷⁵

As with the LNG market, ample evidence demonstrates that reputation and experience play a crucial role in a customer's acceptance of LIN/LOX tank manufacturers, making it difficult for new entrants to gain acceptance. LIN/LOX tanks can be very dangerous if they are improperly constructed. Tank failure can cause leaks of the cryogenic liquids and create a

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 important factor when it selects a LIN/LOX tank vendor.²⁷⁸ In addition, LIN/LOX tank customers are liable to their customers for any tank failure.²⁷⁹ Linde and Air Liquide testified that because of this potential for liability, they have to be very careful in selecting a LIN/LOX vendor.²⁸⁰

LIN/LOX tanks are an integral part of the construction and operation of large air separation facilities. Thus, even if a LIN/LOX tank does not fail outright, any problems in the completion or operation of a LIN/LOX tank can have a cascading effect on the much larger air separation plant that the customer is building and on the chemical or manufacturing facility that the plant will serve.²⁸¹ Therefore, meeting schedule deadlines is critical to LIN/LOX customers.²⁸² If a supplier falls behind schedule in the completion of a LIN/LOX tank, it is costly for the tank customer.²⁸³ LIN/LOX customers are liable for liquidated damages to their air separation plant customers if they do not have the plant completed on time.²⁸⁴ Consequently, LIN/LOX tank manufacturers need to be able to demonstrate a successful track record of completing LIN/LOX tanks on schedule.²⁸⁵

Customers are also reluctant to contract with an inexperienced LIN/LOX tank supplier because LIN/LOX tanks sometimes do not fail until several years after they are built. Thus,

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 experience²⁹¹ 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

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; *see 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).

difficult for a manufacturer that has never built a LIN/LOX tank to win a bid.²⁹⁶

Based on the evidence, we conclude that it is very difficult, if not almost impossible, for new LIN/LOX entrants to overcome these obstacles. Therefore the LIN/LOX tank market displays the same conundrum that characterizes the LNG market – an entrant must have a proven track record and a solid reputation to win a bid, but it can only obtain these qualities after it has already successfully completed prior LIN/LOX projects.

4. Entry Conditions of the TVC Market

As noted earlier (n.170, *supra*), Respondents do not dispute that technical barriers to entry into the TVC market are very high. A significant technological challenge in the building of a successful TVC vessel is the highly specialized welding technique needed to maintain a near-perfect vacuum: “if the welds are improper and there’s [sic] overlaps that trap gas . . . there will be a continuous leak.”²⁹⁷ Any such leak will jeopardize the accuracy of testing done in the TVC because the required vacuum levels are so high. One customer testified that “the vacuum levels that we deal with are almost – you can almost count the number of molecules of gas that remain[] in the chamber.”²⁹⁸ If the chamber has a larger defect, it may lose vacuum rapidly

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 tanks, LIN/LOX tanks must be made of 9 percent nickel steel to contain the cryogenic liquid they hold. LPG tanks, which do not require liquid to be contained at such cold temperatures, use enhanced carbon steel.

²⁹⁷ Tr. at 1142.

²⁹⁸ Tr. at 1141.

during a satellite test, creating “a serious issue with saving the satellite.”²⁹⁹

A field-erected TVC tank maker needs to have “a crew that virtually lives in the field for elongated periods of time. . . . You need construction management people, safety people.”³⁰⁰ In the TVC market, buyers place a premium on having the entire project – from engineering to turnkey operability – handled by a tightly integrated team.³⁰¹

Customers also place great importance on the TVC tank maker’s ability to stay on schedule.³⁰² While a satellite is being tested in a TVC, the satellite engineers working on the project are put on hold and are not reassigned to other work.³⁰³ TVC tests take between 2 weeks and 40 days, and each day of testing delays completion of the satellite program by at least a day.³⁰⁴ Moreover, satellite makers may incur penalties for delaying a spacecraft launch.³⁰⁵

We thus find that the absence of any entry into the TVC market, together with the immensely difficult technical challenges any new entrant into that market would face, “largely eliminates the possibility that the reduced competition caused by the merger will be ameliorated by new competition from outsiders and further strengthens” Complaint Counsel’s prima facie case.³⁰⁶

5. Conclusions on Entry Conditions

We conclude that entry and expansion in each of the four relevant markets are difficult and time-consuming. At a minimum, the entry conditions we have outlined are likely to foreclose new entrants and smaller incumbents from winning bids for some time to come, because they would need to accumulate experience in order to compete with CB&I. Moreover, the new entrants’ and smaller incumbents’ attempts to gain this experience run up against

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

³⁰⁰ Tr. at 1103.

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

³⁰² Tr. at 206.

³⁰³ Tr. at 1734.

³⁰⁴ Tr. at 1734-37.

³⁰⁵ Tr. at 1737.

³⁰⁶ *Heinz*, 246 F.3d at 717 (citing *University Health*, 938 F.2d at 1219 & n.26).

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 competitive presence in the market. However, they lack experience and are unable in a reasonable time frame to build a reputation for quality and reliability – in markets that, for obvious reasons, highly value such a reputation. We therefore find that entry and expansion in these markets are not likely to replace the competition lost through the acquisition or to sufficiently constrain CB&I in a timely manner.

D. Conclusions on Complaint Counsel's Prima Facie Case

As set forth in more detail above, Complaint Counsel have established extraordinarily high levels of concentration through HHIs, provided additional evidence of pre-merger bids that independently demonstrates the markets to be highly concentrated and enhances the HHIs, and strengthened that showing with evidence of difficult entry conditions. Accordingly, we find that Complaint Counsel have established a strong prima facie case and now turn to Respondents' rebuttal case.

IV. Respondents' Rebuttal Case

Once Complaint Counsel has established a prima facie case, the burden shifts to the respondent to establish that the case inaccurately predicts the probable effects of the merger. As we noted earlier, “[t]he Supreme Court has adopted a totality-of-the-circumstances approach to [Section 7], weighing a variety of factors to determine the effects of particular transactions on competition.”³⁰⁷ Accordingly, a respondent in a Section 7 case may introduce evidence on a wide variety of qualitative or quantitative factors to show that Complaint Counsel's prima facie case gives an inaccurate account of the acquisition's probable effects on competition in the relevant markets.³⁰⁸

In the present case, Respondents do not challenge the relevant product and geographic markets identified in the Initial Decision. They also do not dispute that each of the markets was highly concentrated before the acquisition or that the acquisition increased concentration levels substantially.³⁰⁹ Rather, Respondents proffer a number of other claims (listed in the order in

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

which we treat them): that the acquisition did not violate Section 7 because the relevant markets are minuscule and do not affect a “substantial” line of commerce; that any possible anticompetitive effects of the acquisition have been cured by post-acquisition entry into the LNG tank market and the expansion of other competitors in the LPG and LIN/LOX tank markets;³¹⁰ that potential entry already constrains CB&I or can be expected to occur in the event of an anticompetitive price increase; that economic evidence demonstrates that CB&I cannot profitably raise prices; that customers in each of the markets are sophisticated and can thus restrain CB&I from imposing post-acquisition price increases; and that PDM would have exited the market even absent the acquisition.

We begin our analysis of these defenses by noting that Respondents’ burden on rebuttal is linked to the strength of Complaint Counsel’s case.³¹¹ Where, as here, Complaint Counsel have established a strong prima facie case, Respondents’ burden is high.

A. Small Size of the Relevant Markets

At the outset, we address Respondents’ argument that the ALJ erred because “he failed to consider that, in light of the small size of the relevant markets, substantial effects on competition are unlikely.”³¹² Respondents read Section 7 of the Clayton Act to require substantial effects in a relevant market in terms of some threshold of unit or dollar sales. As support for their position, they cite language in the *Baker Hughes* district court decision to the effect that “[t]he minuscule size of the market creates problems for the government’s case, because one element of a Section 7 violation is that ‘the market must be substantial.’”³¹³

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.”).

³¹² RAB at 10.

³¹³ 731 F. Supp. at 9 (citing *du Pont*, 353 U.S. at 595).

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 Act³¹⁴ 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 the government had defined both the relevant product and geographic markets too narrowly.³¹⁸ The court then added that the narrow line of commerce advocated by the government resulted in insignificant figures in terms of numbers of sales and that the government's statistics were thus vulnerable, given the sporadic nature of sales in the market.³¹⁹ Only then did the court conclude, as noted above, that "[t]he minuscule size of the market creates problems for the government's case, because one element of a Section 7

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 TTK’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

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

Respondents, however, argue that the new entrants have an international reputation that will be recognized and credited by LNG customers in the United States. Indeed, they point to testimony by some customers who stated that they are less hesitant to consider the three foreign tank designers, given their alliances with U.S. construction firms.

Although we think such statements indicate a positive long-term potential for additional competition to develop in the United States, we do not think the statements take Respondents where they want to go. We are even willing to assume that U.S. customers are likely to credit the new entrants' reputations in tank design, but we are unable to make the same assumption about their construction capabilities in the United States. The evidence suggests that customers evaluate not only the experience of a design firm but also the experience of its domestic construction partner. One customer even testified that the ability of the new entrants to compete depends on the capabilities of the U.S. construction companies.³²⁴ We thus find it significant that the U.S. construction companies with which the design firms are partnered have no experience in constructing and erecting LNG tanks, even though they would be expected to lead such efforts.³²⁵ Given CB&I's long history of both designing and building LNG tanks in the U.S., and based on the record as it relates to post-acquisition bids (Part IV.B.1.b, *infra*), we simply cannot conclude that United States customers would rate the new entrants – each a combination of an experienced tank designer and an inexperienced tank constructor – as having a reputation on par with that of CB&I.

Thus, Respondents' reliance on testimony from a number of U.S. customers that plan to consider bids from various combinations of the three new entrants³²⁶ falls far short of proving

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 Part IV.B.3.a.(1), *infra*.

³²⁶ Tr. at 1326-27, 4487-89, 6993, 6999, 7005.

Respondents' point that entry has been sufficient to replace the competition lost from the acquisition. Unless they were willing to consider these new bidders, LNG tank customers in the United States would have no choice other than CB&I. We thus take their testimony as little more than a refusal to throw themselves on CB&I's mercy. Moreover, these general statements say nothing about the ability of the new entrants to compete effectively with CB&I. We also note that some customers with upcoming projects were unaware of the existence of one or more of the new entrants,³²⁷ which suggests that these new firms' international reputations may not necessarily place them in parity with CB&I.

(2) The New Entrants' Lack of Trained Supervisors and Unfamiliarity with Field Crews and Local Labor Markets

CB&I's supervisors are located in the United States and are experienced at managing the construction of LNG tanks. Because the new entrants' U.S. construction partners do not have any such experience, the tank designers either would need to train the construction company employees to supervise the project or would need to send their own supervisors to the U.S. work sites.³²⁸ In either case, they would bear costs that CB&I does not, and these costs likely would make the new entrants less competitive, at least over the next several years.³²⁹

In addition, we find that CB&I enjoys a competitive advantage due to its relationships with the field crews that construct these tanks. The evidence is mixed regarding whether the U.S. construction partners of the new entrants would have adequate access to field crews at all. At least in theory, it would seem that field crews, who are (or work for) independent contractors, should be willing to sign on with any tank supplier to work on a project. The real world, however, does not seem to work that way. A former Zachry employee testified that Zachry would have needed to hire plate welders, plate erectors, and insulation installers to be competitive with CB&I on the Dynege project, but he had no information on Zachry's chances of doing so.³³⁰ AT&V also testified that TKK planned to train some of AT&V's employees to be a field crew, which suggests that TKK is not relying on access to the field crews that have traditionally worked with CB&I (or PDM).³³¹ Moreover, as noted earlier, a tank supplier needs

³²⁷ Tr. at 1326, 1846-48, 1852-53. *Cf.* Tr. at 6424-25; IDF 142-43 (Calpine had contacted only CB&I to discuss its upcoming LNG import terminal).

³²⁸ See discussion Part III.C.1, *supra*, at p. 39; Tr. at 2626-27.

³²⁹ Tr. at 2379-80; IDF 147 (AT&V's Vice President believes that AT&V's employees will need a few years of experience in the construction of LNG tanks before they work as efficiently as CB&I's employees).

³³⁰ Tr. at 1641-42 (*in camera*).

³³¹ Tr. at 2325-26.

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, TTK/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

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*).

significant advantage over other tank builders.³³⁶ BP elaborated that although other LNG manufacturers were doing some work, none had demonstrated that it can actually get through the FERC application process in a reasonable amount of time.³³⁷ This general view is supported by BP's own business practices. Although Skanska/Whessoe heavily marketed itself to BP, BP entered into sole-source contracts with CB&I for each of its North American projects.³³⁸ Similarly, when CMS needed to hire a company to help it meet a FERC filing deadline in a short time, it turned to CB&I alone.

Respondents argue that the new entrants have the requisite regulatory experience because "U.S. standards are de facto international standards."³³⁹ We reject this argument, which contradicts both the testimony and the real-world behavior of customers demonstrating that FERC experience is crucial. The only firm to gain any FERC experience as of the record's close is Skanska/Whessoe, which successfully steered Dynegy's LNG project through the FERC application process.³⁴⁰ Based on the evidence, we do not find that this single experience puts Skanska/Whessoe on par with CB&I. We note, for example, that BP's testimony about the advantage conferred on CB&I because of the latter's FERC experience occurred after the announcement that Dynegy's facility obtained FERC approval. We thus find that, on balance, the evidence establishes that the new entrants do not have the level of FERC experience necessary to compete effectively in this market.

(4) Conclusions on Entry in the LNG Tank Market

We do not suggest that the new entrants would be totally incapable of building an LNG tank in the U.S. It is true that the new entrants have taken a necessary step toward competing in the United States by partnering with U.S. construction firms, which have experience in a wide variety of construction projects and may have some knowledge about various local labor markets

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*). One reason for this decision appears to be grounded in CB&I's FERC experience. After CB&I refused to prepare the FERC application unless it was able also to build the entire facility, BP structured a deal to meet CB&I's demands – despite its initial reluctance to do so. Tr. at 4180, 6069-71.

³³⁹ RAB at 22.

³⁴⁰ Tr. at 4932-33; RX 926.

that the new entrants can use.³⁴¹

The evidence establishes, however, that being successful at building LNG tanks in the United States requires years of experience in managing the overall project, attracting qualified field crews and local labor, having working relationships with subcontractors, and making regulatory filings.³⁴² The fact that CB&I has cultivated these skills through decades of experience means that it has some advantages compared to a supplier that has not yet built a tank in the U.S.³⁴³ In addition, CB&I has extensive knowledge of and relationships with various U.S. labor forces and a knowledge of the U.S. regulatory environment, which are attributes customers value. All of these factors work together to help form CB&I's reputation for quality and reliability. While no single competitive advantage we have identified necessarily makes entry difficult, in the aggregate they preclude new entrants from sufficiently constraining CB&I in any reasonable time frame. Thus, we find that even entrants with the technical wherewithal to build LNG tanks have not restored the competition lost from the acquisition and likely cannot do so in the foreseeable future.³⁴⁴

Prior to the acquisition, CB&I and PDM were on relatively equal footing. Both firms had experienced tank designers and builders, long experience with the regulatory processes necessary to build LNG facilities, connections to local labor forces, and solid reputations. In other words, each firm had the attributes necessary to satisfy any LNG tank customer. While the new suppliers appear to have gained or are seeking to gain a toehold in the market, they are not on equal footing with CB&I, and their modest progress cannot restore the vibrant competition that once existed.

³⁴¹ Tr. at 656-57 (Zachry has civil engineers and access to labor in the United States); Tr. at 657-59 (Skanska has a presence in the U.S.); Tr. at 4487 (Zachry is a big construction firm in the U.S. that is generally familiar with U.S. construction practices, labor forces, and pricing).

³⁴² It is curious that Respondents' description of the process for constructing an LNG tank comes from a project manager for an LNG tank to be built in Bonny Island, Nigeria, rather than from any of the numerous projects CB&I has built or is under contract to build in the United States. *See* Tr. at 5868. Unlike in the United States, CB&I has no particular advantage in the Bonny Island market, so this witness's testimony is not probative of the state of competition in the U.S. market.

³⁴³ *See, e.g.*, Tr. at 6224 (El Paso testimony about cost savings resulting from knowledge of and existing relationships with suppliers).

³⁴⁴ In apparent recognition of the importance of its advantage, internal CB&I correspondence conveyed a concern that should CB&I win the Dynegy project, it would work side-by-side with Skanska and thus expose its "crews, suppliers, and construction methods" to a competitor. CX 1528.

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 contract³⁴⁵ 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

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.

evaluating the LNG tank bids,³⁵¹ and these safeguards satisfied both TKK/AT&V and Technigaz/Zachry.³⁵² Nonetheless, for months CB&I continued to refuse to bid on the LNG tanks and also continued to insist that it be allowed to bid for the facility on a turnkey basis.³⁵³ Only at the close of the bidding did CB&I approach Dynegy with an offer to bid on the LNG tanks themselves. At that point, Dynegy declined CB&I's offer, because it had come too late in the bidding process.³⁵⁴

Although it appears that CB&I may have overplayed its hand in negotiating with Dynegy, we cannot conclude on these facts that Skanska/Whessoe, TKK/AT&V, and Technigaz/Zachry effectively constrain CB&I. At most, Respondents have established that LNG customers may award a bid to one of the new entrants when CB&I effectively refuses to bid. This observation, of course, says nothing about the state of competition between the new entrants and CB&I. No evidence suggests that, had CB&I chosen to bid, the new entrants would have overcome the competitive disadvantages we identified earlier. In fact, CB&I's reluctance to give Dynegy what it wanted and Dynegy's repeated attempts to bring CB&I into the fold may suggest that Dynegy was concerned about the new entrants' disadvantages. Black & Veatch, which was hired to help evaluate bids for the project, testified that it "had concerns that if [it did] not have a domestic tank price for that project that the prices that the client would receive for those tanks would be higher."³⁵⁵

Even if we assume that CB&I lost the Dynegy bid on the merits, we would have to weigh that loss against CB&I's other post-acquisition wins. CB&I is in or has completed sole-source negotiations for six LNG tanks post-acquisition.³⁵⁶ In addition to the significance of this fact standing alone, we find that the circumstances surrounding most of these projects suggest that the new entrants do not constrain CB&I in any meaningful way. For both the CMS and El Paso projects, the new entrants were not even considered as possible suppliers. CMS testified that it was under time constraints and contacted CB&I because it was already familiar with CMS's

³⁵¹ Tr. at 4576; RX 144.

³⁵² Tr. at 4577.

³⁵³ CX 139, 140, 1528.

³⁵⁴ Although the record does not definitively establish whether Dynegy's bidding period had actually closed, Dynegy's project manager testified that considering CB&I's bid at such a late stage would have been unfair to the other bidders. Tr. at 4572.

³⁵⁵ Tr. at 622.

³⁵⁶ In addition to the awards of CMS, El Paso, and three BP projects, CB&I has entered into sole-source negotiations with Poten & Partners for an LNG tank. Tr. at 4399. The record, however, does not elaborate on the circumstances surrounding the Poten & Partners bid.

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

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.

have been traded for a concession on another point.³⁶³ CB&I's Mr. Scorsone even conceded that CB&I "negotiated some things in exchange for [the] price reduction" on the El Paso project.³⁶⁴ In addition, Respondents' argument fails to recognize that the customers' ability to exert pressure by threatening to use another supplier is limited by the strength of the alternative suppliers. We find that the evidence amply demonstrates that the new entrants are not a strong alternative to CB&I and thus do not confer much power on the customer. We therefore view the customers' general statements about switching merely as evidence that the customers are not willing to contract with CB&I at any cost. These statements, however, in no way prove that CB&I is constrained to the same degree that it was before the acquisition. Moreover, the price reductions cited by Respondents occurred well after the Complaint in this case issued and are the type of evidence that is wholly manipulable.³⁶⁵ We find far more compelling the fact that these customers chose CB&I as their supplier in the first instance.

As evidence of entry, Respondents also point to the fact that the new entrants have contacted a number of customers with projects in the very early stages of development.³⁶⁶ While this fact may be credible evidence that the new entrants have a desire to compete, it does not establish that meaningful entry has occurred. Simply put, evidence that new entrants are soliciting business (or are even providing some services to the market) is not itself evidence that they are now, or will be in the near future, firms that can sufficiently constrain CB&I. At the time of trial, these projects were at too early a stage to be probative of the state of competition in the LNG tank market. For example, Freeport LNG had applied for FERC approval and had hired S&B/Daewoo to do its FERC work; however, it had plans to bid its EPC contract competitively.³⁶⁷ In addition, it had not yet awarded – or indeed even identified – potential bidders for the construction of the tank.³⁶⁸ CB&I's CEO even testified that he believes CB&I to be in the running for this project.³⁶⁹ Similarly, although Yankee Gas had sought budget pricing and had met with CB&I and Skanska/Whessoe, it had not yet pre-qualified any manufacturers and had not sent out requests for proposals for its tank.³⁷⁰ Finally, MLGW and Calpine testified

³⁶³ See Tr. at 6285 (CMS identified escalation clauses, change orders, and financial security issues as topics of negotiations) (*in camera*).

³⁶⁴ Tr. at 5080 (*in camera*).

³⁶⁵ See *supra* note 44.

³⁶⁶ RAB 15-16.

³⁶⁷ Tr. at 6974-76, 6978, 7049.

³⁶⁸ See Tr. at 7043 (Freeport LNG will send out requests for proposals once the FERC application is approved).

³⁶⁹ Tr. at 4142-45.

³⁷⁰ Tr. at 6447-49, 6451.

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

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.

Enron at the time but never actually saw the bids. In addition, his testimony is uncorroborated by other evidence. While Carling remembered the relative positions of the bidders and that they were within 7 to 10 percent of one another, there is no evidence regarding the details of the pricing (*e.g.*, budget or firm prices) or whether the bids were quality-adjusted.³⁷⁵

Respondents' Trinidad example is similarly flawed. CB&I's Mr. Scorsone testified that Bechtel informed him that CB&I's initial bid was 5 percent higher than another bidder's and that, despite CB&I's subsequent price reduction, TKK/AT&V was awarded the bid.³⁷⁶ Respondents argue that this award is an "example of the ability of foreign entrants to discipline CB&I in North America."³⁷⁷ However, the evidence concerning TKK/AT&V's winning bid comes exclusively from Mr. Scorsone, whose testimony was not corroborated by any other evidence and, indeed, was offered solely to show his state of mind.³⁷⁸ In addition, the record does not contain any details about the submitted bids and does not reveal why the job was awarded to TKK/AT&V. Accordingly, even if we were inclined to consider evidence from these two projects, it would be impossible to draw conclusions about them from the record before us.

c. Evidence of CB&I's and Customers' Views on the LNG Tank Market

Respondents argue that CB&I views the new entrants as significant competitors and that its assessment of these firms factors into its bidding.³⁷⁹ The chief evidence on this point again comes from CB&I's own employee, Mr. Scorsone, who testified that upon hearing TKK/AT&V's, Technigaz/Zachry's, and S&B/Daewoo's joint venture announcements, he believed that these joint ventures were serious about winning contracts and that the pairings would make strong competitors.³⁸⁰ However, because Respondents put forward no contemporaneous evidence to corroborate Scorsone's views, we view his testimony with considerable skepticism. Moreover, in the post-acquisition period, CB&I has not acted as if it took the new entrants into account in its negotiations with potential customers. For several post-

³⁷⁵ Tr. at 4481.

³⁷⁶ Tr. at 4492.

³⁷⁷ RAB at 39.

³⁷⁸ Tr. at 4951. Mr. Rapp, the project manager for the most recent expansion in Trinidad, was deposed prior to the tank award to TKK/AT&V. When Rapp was deposed, CB&I, TKK, and MHI (among others whose names he could not remember) had not gone past being pre-qualified. Tr. at 1318.

³⁷⁹ RAB at 35; *see generally* Tr. at 4860-72.

³⁸⁰ Tr. at 4853-54, 4856, 4858, 4860-72.

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 has available to build an LNG tank.³⁸² However, in our view, the Freeport LNG representative could not credibly have made assumptions about these new entrants and their competitive ability based on past experience. Although he had been involved in various LNG projects worldwide, he had not been involved in selecting the tank constructor but rather had focused on the preliminary design aspects.³⁸³ He also had no prior experience with the construction of an LNG tank in the United States.³⁸⁴ Moreover, the Freeport LNG project was at an early stage, and the company had not yet requested proposals on the tank.³⁸⁵ Although Freeport may yet consider CB&I, Technigaz, TKK, Daewoo, and IHI as potential bidders in the future, at present Freeport LNG has not evaluated either the new entrants or their ability to constrain CB&I.³⁸⁶ Similarly, BP’s statement that it had sufficient competition to ensure reasonable prices is unpersuasive because the testimony is inconsistent with BP’s internal documents (discussed at p. 60, *supra*) and its actual conduct. Rather than seeking another supplier, BP agreed to give CB&I a turnkey contract for three of its facilities despite what appears to have been an initial reluctance to do so.³⁸⁷ This evidence suggests that BP did not consider other suppliers as equivalent to CB&I, nor did BP have any experience with evaluating the new entrants’ capabilities or pricing.

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 customers relied upon by Respondents were in a position to have evaluated the state of competition post-acquisition. Accordingly, we view the testimony of these customers as little

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.

other than speculation that new entrants might constrain CB&I at some level – which, of course, does not demonstrate that they are an adequate replacement for the competition that has been lost.

2. Actual Entry in the LPG Tank Market

a. Entrants into the LPG Tank Market

The LPG tank market has been characterized more by exit than by entry as numerous firms that competed in the 1970s today are out of business.³⁹⁴ The actual or potential entrants in this market also appear vastly overmatched by CB&I.

(1) AT&V

AT&V successfully won and completed a very small LPG tank project in 2000.³⁹⁵ Its success with this project, however, says little about AT&V's ability to compete on larger LPG projects so as to act as a constraint against CB&I. The evidence suggests that this project not only was small but also was within the region of the country where AT&V is located.³⁹⁶ It is therefore questionable whether this win indicates an ability to compete nationwide with CB&I. AT&V's Vice President testified, for example, that his firm's ability to compete with CB&I is limited by AT&V's lack of equipment, lack of trained welding personnel, and CB&I's years of experience.³⁹⁷ He also stated that CB&I automatically gets bidding opportunities that AT&V does not.³⁹⁸ In addition, he testified that AT&V has limited capacity to obtain bonding due to its small size and uncertain financial position.³⁹⁹ To overcome some of its shortcomings, AT&V has partnered with TKK, which supplies the refrigeration expertise that AT&V lacks⁴⁰⁰ and

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 Competitor”).

³⁹⁷ Tr. 2379-80.

³⁹⁸ Tr. at 2421-22.

³⁹⁹ Tr. at 2365-66.

⁴⁰⁰ JX 23 at 49-50, 57 (*in camera*).

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 market⁴⁰³ 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

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.

it has the ability and the necessary equipment to design and build a field-erected LPG tank,⁴⁰⁹ that it has employees who are experienced in building such tanks,⁴¹⁰ and that it plans to pursue LPG jobs in the future.⁴¹¹ These assertions are questionable, however, because the same witness mistakenly characterized methane tanks as LPG tanks,⁴¹² thought gasoline was LPG,⁴¹³ and did not know whether propane, butane, propylene, and butadiene would be in a gaseous or liquid state at ambient temperature.⁴¹⁴ In addition, the Chattanooga witness did not recall whether any of Chattanooga's tanks were built for -50° Fahrenheit, though he was confident that Chattanooga would have no trouble building one.⁴¹⁵ In short, Chattanooga's ability to compete in the LPG market is questionable at best.

(3) Morse

Respondents also use Morse as an example of easy "hit-and-run" entry. Morse had never built an LPG tank before it bid on and won a 1994 Texaco job near its home base in the Pacific Northwest. It was able to complete the project quickly and profitably.⁴¹⁶ According to Respondents, Morse was thus poised in 1994 to move from being a regional operation into the nationwide market for LPG tanks. However, after the job for Texaco, Morse did not bid on any other LPG contract in the United States, and internal CB&I and PDM documents do not discuss Morse as a nationwide competitor.⁴¹⁷ Significantly, CB&I acquired Morse in November 2001 – about a month after the Complaint was issued in this case.⁴¹⁸ Moreover, CB&I acquired Morse

⁴⁰⁹ Tr. at 6355, 6393.

⁴¹⁰ Tr. at 6356.

⁴¹¹ Tr. at 6365.

⁴¹² Tr. at 6357-58

⁴¹³ Tr. at 6388.

⁴¹⁴ Tr. at 6402.

⁴¹⁵ Tr. at 6388-89.

⁴¹⁶ Tr. at 7297.

⁴¹⁷ Morse did participate in at least the first round of bidding on an LPG tank in Canada. Tr. at 6589. However, Morse was not asked to bid on an important LPG project, Sea-3/Tampa – reinforcing the characterization of Morse as a regional, not national, competitor. *Id.*; see also CX 107 at PDM-HOU005015 (PDM strategic planning document for 2000 describing Morse as "mostly a Northwest tank company").

⁴¹⁸ Tr. at 6545.

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 believe it would be able to take PDM's place in the LPG market.⁴²⁰

(4) Foreign Suppliers

Foreign suppliers do not present a credible entry scenario sufficient to support Respondents' argument. TKK has partnered in the past with AT&V to bid on LPG projects, but has not shown consistent interest in this market.⁴²¹ Technigaz has built only one LPG tank of the type used in the United States.⁴²² In short, while Respondents point to firms that theoretically might enter the LPG market, no such firm presents more than a speculative possibility of effective entry in the foreseeable future.

(5) Conclusions on Entry in the LPG Tank Market

Of the two firms that have actually won bids in the LPG market, one (Morse) has now been acquired by CB&I, while the other (AT&V) was involved only in one very small, local project that would have little effect on future success in the LPG market. On the basis of the record before us, the other firms identified by Respondents – Matrix, Wyatt, Pasadena Tank, and Chattanooga – are not convincing potential entrants. We therefore conclude that these firms cannot sufficiently constrain CB&I or restore the competition lost from the acquisition.

b. Post-Acquisition Bids in the LPG Tank Market

Respondents cite the single post-acquisition LPG tank project as evidence that the merged firm does not have market power and that the market has become significantly more competitive since the acquisition. AT&V and Wyatt participated in the bidding on this project but lost to CB&I – apparently not only because CB&I lowered its profit margins in the second round of bidding but also because AT&V and Wyatt were not responsive to the customer's technical questions.⁴²³

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. After the first round of bidding, ABB Lummus told CB&I it was in third place out of three bidders.⁴²⁴ CB&I then found ways to cut costs by redesigning other parts of the project, lowered its margins from over 4 percent to approximately 2½ percent, and won the job in the second round of bidding.⁴²⁵ This project would seem to suggest that AT&V and Wyatt were acting as constraints on CB&I's exercise of market power, at least in one instance. However, we have found that the other bidders for this job are not convincing entrants. Moreover, the most probative evidence related to this transaction – CB&I's reduction in price – is the type of post-acquisition evidence on which courts and the Commission have been reluctant to rely, because that evidence was controlled by CB&I itself.⁴²⁶ CB&I's price reduction may well have been influenced by CB&I's knowledge that its acquisition of the PDM assets had been challenged and its desire to preserve the transaction.⁴²⁷ As a result, this evidence, standing alone, does not overcome the other evidence related to the difficulty of fully replacing the competition lost by the merger.

In short, the post-acquisition evidence in the LPG tank market demonstrates no more than that two minor competitors submitted bids after the acquisition. We are not, however, persuaded that CB&I's cost-cutting and margin-shaving represent a “sea-change” in the market sufficient to overcome the contrary evidence.

3. Actual Entry in the LIN/LOX Tank Market

a. Entrants into the LIN/LOX Tank Market

Our assessment of entry into the LIN/LOX tank market is aided by the experiences of a few firms that have entered or attempted to enter the market. Respondents argue that the entry of AT&V, Matrix, and Chattanooga rebuts Complaint Counsel's prima facie case in the LIN/LOX

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

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 be 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

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 Air Liquide elaborated that development of a new LIN/LOX tank supplier entails technical, commercial, and financial risks and requires due diligence.⁴⁴⁷

As of the time of trial, [redacted] redacted [redacted].⁴⁴⁸ AT&V did not execute several of the specifications on the tank that Air Liquide required [redacted] redacted [redacted].⁴⁴⁹ AT&V also was behind schedule by three months and had informed Air Liquide of another month-long delay just before the Air Liquide witness gave his testimony. Air Liquide testified that this delay will have negative repercussions for both Air Liquide and its customer, Dow Chemical. In the worst-case scenario, Dow could have [redacted] as a result of the delay.⁴⁵⁰ This result [redacted] redacted [redacted] exemplifies the importance of quality [redacted] and reputation to customers.

[redacted] redacted [redacted].⁴⁵¹ Air Liquide further stated that the only manufacturer [redacted] is CB&I because CB&I has the technical capability, a good reputation in the industry, and a good performance record and relationship with Air Liquide.⁴⁵² Although Air Liquide contacted CB&I about replacing AT&V on the

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.*

project, CB&I declined.⁴⁵³ Air Liquide testified that it would not be willing to contract with Matrix [redacted] because Matrix is [redacted] not pre-qualified by Air Liquide's standards.⁴⁵⁴ Air Liquide elaborated that to contract with Matrix, it would have to go through the whole process of qualifying Matrix as a bidder (including due diligence) and that it can no longer afford to take a chance with an inexperienced supplier.⁴⁵⁵

In addition, AT&V's performance on this job has eliminated any savings that Air Liquide may have enjoyed at the outset. Air Liquide anticipated spending between \$100,000 to \$150,000 to develop AT&V as a supplier – less than the \$200,000 price advantage in AT&V's bid. But Air Liquide testified that it has already spent the full \$200,000 difference in pricing and, with the further delays, expects to incur another \$100,000 to \$150,000 in costs by the end of the project.⁴⁵⁶ [redacted]⁴⁵⁷

(2) Matrix

Matrix was active in the LIN/LOX tank market in the late 1990s, having successfully completed four tank projects between 1997-2000.⁴⁵⁸ As was the case with AT&V, the Matrix witness testified that it took Matrix a long time and hundreds of thousands of dollars to enter.⁴⁵⁹ It took between one and one-half and two years from Matrix's initial decision to enter before it won its first contract, and then another year to successfully complete the tank.⁴⁶⁰ Matrix's entry was also in part customer-driven.⁴⁶¹ Matrix subsequently completed three tank projects for

⁴⁵³ Tr. at 5036.

⁴⁵⁴ Tr. at 2253 (*in camera*).

⁴⁵⁵ *Id.*

⁴⁵⁶ Tr. at 2254-55 (*in camera*).

⁴⁵⁷ Tr. at 2255-56 (*in camera*).

⁴⁵⁸ IDF 320.

⁴⁵⁹ Tr. at 1567, 1584-85.

⁴⁶⁰ Tr. at 1585.

⁴⁶¹ Praxair needed a union builder and, as between CB&I and PDM, only CB&I did union work. Tr. at 1617. Matrix had built a cluster tank in Ohio for Praxair, so Praxair was familiar with Matrix and awarded Matrix the job. Tr. at 2174-75.

Praxair and one for Air Products.⁴⁶²

However, Matrix sold its Brown Steel fabrication facility in August 2000.⁴⁶³ Matrix testified that since that sale, it has been at a competitive disadvantage and has elevated costs.⁴⁶⁴ Whereas the tanks that Matrix built previously were made when it still owned Brown Steel, today Matrix must subcontract some of the work, which increases its costs.⁴⁶⁵ Specifically, the plates for the outer tanks would have to be sent out for blasting and priming.⁴⁶⁶ The testimony related to post-acquisition bids reflects that these increased costs have made Matrix non-competitive. For example, Matrix testified that some customers have informed it that its bids were high and questioned its qualifications.⁴⁶⁷ Several customers corroborated this view and testified that Matrix has indeed been bidding high.⁴⁶⁸ Moreover, Air Liquide was reluctant to contract with Matrix because of its lack of experience⁴⁶⁹ and would not consider [redacted] Matrix [redacted].⁴⁷⁰

Matrix testified that it is not planning to exit the LIN/LOX market and that it intends to continue to bid for jobs, though its offering will not be as competitive.⁴⁷¹ Although the acquisition has presented Matrix with some limited opportunities,⁴⁷² the evidence suggests that Matrix's viability as a competitor has diminished. Matrix has not won a LIN/LOX job since CB&I acquired the PDM assets. In addition, other LIN/LOX tank suppliers do not view Matrix as a serious competitor. AT&V testified that its only competitors are CB&I and, on a much

⁴⁶² IDF 320.

⁴⁶³ Tr. at 1589-90.

⁴⁶⁴ Tr. at 1590.

⁴⁶⁵ Tr. at 2159-61.

⁴⁶⁶ *Id.*

⁴⁶⁷ Tr. at 2155.

⁴⁶⁸ Tr. at 489, 1019, 2000-01.

⁴⁶⁹ Tr. 1588, 2021-22.

⁴⁷⁰ Tr. at 2253 (*in camera*).

⁴⁷¹ Tr. at 1595.

⁴⁷² Tr. at 2182.

smaller scale, Matrix.⁴⁷³ Air Products also testified that Matrix has not replaced PDM.⁴⁷⁴ We thus find that the preponderance of the evidence supports the Initial Decision’s conclusion that Matrix’s competitive viability has diminished since the sale of its Brown Steel facility and that it no longer is a competitive constraint on CB&I.

(3) Chattanooga

Although Respondents assert that “Chattanooga has recently entered this market,”⁴⁷⁵ it is more accurate to say that Chattanooga has continued its attempts to gain LIN/LOX business that it began prior to the acquisition. Despite the fact that it has bid on projects since prior to the acquisition, Chattanooga still has not won a bid, and it has yet to construct a LIN/LOX tank.⁴⁷⁶ Although Chattanooga hired some former Graver employees and bought some equipment from Graver when the latter exited the market,⁴⁷⁷ the Chattanooga witness testified that it has never created any strategic plans or pricing strategy for designing, engineering, fabricating, or erecting LIN/LOX tanks, and that it has not been participating in the LIN/LOX market.⁴⁷⁸

In certain instances, potential entrants like Chattanooga can have a competitive influence on incumbents by bidding, even though they have not yet won a bid. However, in the LIN/LOX tank market such influence does not come from submitting a bid alone. Rather, customers must take the bid seriously, and the bid must be competitive if the bid is to have any constraining effect. As discussed above, customers also have extensive qualifications that a manufacturer must satisfy.

LIN/LOX tank customers may acknowledge a bid from a firm, but they will not take it seriously if it is too high, as has been the case with Chattanooga. For example, MG Industries testified that it ignored Chattanooga’s March 2002 bid on MG’s new Johnsonville, Tennessee, project, which was 30 percent higher than CB&I’s bid.⁴⁷⁹ The MG Industries witness also

⁴⁷³ Tr. at 2332-33.

⁴⁷⁴ Tr. at 1354.

⁴⁷⁵ RAB at 19.

⁴⁷⁶ IDF 325.

⁴⁷⁷ Tr. at 6318.

⁴⁷⁸ Tr. at 6421-22, 6426. The Chattanooga witness testified that LIN/LOX is a market it will be interested in pursuing when there is sufficient demand. Tr. at 6422.

⁴⁷⁹ Tr. at 451, 461-62.

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

The competitive capabilities of the firms identified by Respondents as entrants in the LIN/LOX tank market are insufficient to replace the competition that was lost from the acquisition in a meaningful time frame. The LIN/LOX tank market is not "volatile and shifting," as the court found in *Baker Hughes*.⁴⁸⁷ Indeed, the structure of the market today is not significantly different from what it was prior to the acquisition, except that PDM is now absent. We see no evidence that AT&V, Matrix, and Chattanooga have, in the aggregate, expanded their

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 progress may be questionable in light of AT&V’s negative performance with Air Liquide – Matrix has lost ground. Prior to the acquisition, Matrix was gaining a foothold with a few completed tanks. Since the acquisition, however, Matrix has not won any bids and, by its own admission, is not as competitive as it used to be because of the sale of its Brown Steel fabrication facility. Chattanooga was an insufficient entrant prior to the acquisition and continues to be insufficient. Consequently, Respondents have not presented any evidence of “dramatic changes in the market”⁴⁸⁹ that would lead us to believe that future attempts at new entry or expansion will be any different from the past experiences recounted above. Respondents also have not demonstrated that entry into the LIN/LOX market would be sufficient to replicate the competition lost from the acquisition, nor is there evidence that firms other than AT&V, Matrix, or Chattanooga plan to enter.

We should note that it is not surprising that customers have attempted to develop suppliers to replace PDM in the LIN/LOX tank market; customers testified that they prefer to have multiple suppliers.⁴⁹⁰ Even before the acquisition, the exit of Graver – the only firm that approached CB&I’s and PDM’s level of experience and reputation – led to a highly concentrated market. The acquisition further concentrated it.

However, the mere fact that a customer may try to develop an additional supplier in an attempt to enhance competition does not mean that the competition lost from an acquisition has

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] 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] 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

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.

time⁴⁹⁹ and has turned down the opportunity to bid for LIN/LOX tanks due to capacity constraints.⁵⁰⁰ In addition, as we discussed in the previous section, AT&V's competitive viability is now marred by its recent negative performance on Air Liquide's Freeport project. AT&V will not receive a favorable reference from Air Liquide, and this will have some impact on its ability to get future work.⁵⁰¹ Thus, we find that AT&V's post-merger wins do not establish that it can restore the competition lost from CB&I's acquisition of the PDM assets.

4. Actual Entry in the TVC Market

The record evidence shows no attempted entry into the TVC market by any suppliers. There is record testimony that new entry is unlikely because the market is small and because field-erected TVC tank fabrication has more exacting "design engineering," "leak testing and cleanliness" requirements than tank fabricators encounter in other markets.⁵⁰² In addition, entry by a foreign supplier is unlikely, since many of these projects require security clearances and may have "Buy America" requirements as well.⁵⁰³

5. Conclusions on Actual Entry

Given the evidentiary record, we believe Respondents' reliance on *Baker Hughes* is misplaced. It is certainly true that the district court in *Baker Hughes* relied on the fact that two companies had each won a contract for hydraulic rig orders in the U.S. to support its conclusion that the acquisition was unlikely to harm competition over the long term.⁵⁰⁴ However, those findings were corollaries of the court's determination that barriers to entry and expansion were low – as evidenced by one firm's entry and expansion to become the market leader. Indeed, the court of appeals in that case highlighted this growth as the rationale for its conclusion that competitors not only could, but probably would, enter the market in response to

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

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 loss in sales that would result from the hypothetical price increase. If the hypothetical price increase results in a loss of sales that exceeds the critical loss, then the price increase would not be profitable and would be unlikely to occur.

Critical loss analysis is a still-evolving analytical approach that some courts have applied

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.

for delineation of markets⁵¹⁵ and for competitive effects analysis.⁵¹⁶ Although we do not doubt the soundness of the logic underlying critical loss analysis (*i.e.*, that businesses are unlikely to impose price increases that will, on balance, be unprofitable), we are mindful that recent economic literature has cautioned that the analysis has certain vulnerabilities. The literature informs us that, if misapplied, critical loss analysis (like any other tool of economic analysis) can suggest results that are contrary to real-world experiences and inconsistent with established economic principles.⁵¹⁷ To take a simple example, critical loss principles hold that a firm may not have the power to increase prices profitably for products with high profit margins. This is so because price increases typically cause a loss of some sales and the profits earned from them. When the profit per unit is high, even a small loss of sales will produce a large loss in profits – so much so, that the higher profits on retained sales may not make up for the lost profits from the lost sales. In that situation, a critical loss analysis might conclude that a merged firm does not have the market power to profitably increase prices, because it will lose too many sales to its competitors (or due to consumers foregoing purchase of the product altogether). However, basic economic principles also tell us that high profit margins may be a sign of products with relatively inelastic demand (*i.e.*, products for which the quantity demanded is relatively insensitive to price, as could be the case if, for example, there are few or no substitutes). A merger between two firms that enjoy high profit margins and relatively inelastic demand may very well result in a price increase, because the merged firm may not anticipate losing any sales if it increases its price. Information on pre-merger and post-merger elasticities of demand is thus important to determine whether this condition is present. Accordingly, both critics of and adherents to critical loss analysis agree that critical loss analysis is only as good as the factual premises and the data that underlie it.⁵¹⁸ In particular, a solid evidentiary basis must support any assumptions used in the analysis and the actual loss of sales posited for a given price increase.

Here, Respondents proffered a critical loss analysis by their expert, Dr. Barry Harris. Dr. Harris testified that CB&I cannot profitably impose a price increase as a result of its acquisition of PDM, because post-acquisition CB&I has already lost actual sales far in excess of the level

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, *The State of Critical Loss Analysis: Let's Make Sure We Understand the Whole Story*, *The Antitrust Source* (Nov. 2003).

⁵¹⁸ See Katz & Shapiro, *supra*, note 517 at 52; Scheffman & Simons, *supra* note 517, at 4 n.11.

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 bids⁵²² 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

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 analysis helpful in assessing CB&I's ability to sustain price increases in any relevant market.

We have other concerns about Dr. Harris's analysis. For example, he included CB&I's sole-source contract with CMS, but excluded CB&I's sole-source contract with El Paso and CB&I's three sole-source contracts with BP.⁵²⁵ The omission of the El Paso and BP contracts significantly changes CB&I's post-merger win-to-loss ratio,⁵²⁶ and, as discussed below, Dr. Harris included three projects that we believe should not have been counted. We also question Dr. Harris's assumption that both the Dynegey and Trinidad projects represented instances of CB&I's losing a bid to new entrants in the LNG tank market. These concerns lead us to reject his analysis in this case.

Indeed, we find that the record does not support Dr. Harris's inclusion of at least three of the projects included in his analysis, because they either did not involve a relevant product or occurred before the acquisition. For example, Dr. Harris included a TVC award to XL/Votaw. Although he noted that this project was small – approximately the size of a shop-built tank – he testified that he included it because it was field-erected.⁵²⁷ However, no evidence suggests – and indeed, Respondents do not even assert – that Votaw is a competitor in the large, field-erected TVC market. We thus conclude that this award should not have been included in Dr. Harris's calculations. Similarly, without sufficient explanation for doing so, Dr. Harris included BOC's Midland, North Carolina, project, which was solicited in late 2000⁵²⁸ and awarded prior to the acquisition.⁵²⁹ Given the timing of this project, we think it was inappropriate to consider it without some explanation of its relevance. Finally, we question Dr. Harris's decision to include CB&I's Praxair win. Scorsone, the President of CB&I's Industrial Division, testified that this project was not bid competitively, because CB&I – as a result of its acquisition of the PDM assets – “inherited the responsibilities” from PDM to construct Praxair's LIN/LOX/LAR tanks at a 4 percent margin.⁵³⁰

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

We now turn to Dr. Harris’s examination of the LNG tank market. As with his more general analysis, he found that CB&I lost more sales post-acquisition than would have been profitable from a price increase.⁵³¹ This conclusion is premised on an assumption that CB&I’s not winning the Dynegy and Trinidad bids shows that it cannot profitably impose a 5 percent price increase in the LNG tank market. We find this assumption unsupported by the evidence.

We conclude that the Dynegy project is not illustrative of the alleged new entrants’ ability to constrain CB&I effectively. As we discussed earlier, time and again, CB&I refused to bid for the tanks on this project and repeatedly insisted that Dynegy contract with it on a turnkey basis. Only after the bidding process was nearly complete did CB&I approach Dynegy to submit a bid. We find that Dynegy’s refusal to accept CB&I’s bid at such a late stage does not represent the result of a competition on the merits, and this outcome therefore tells us little about whether an attempted exercise of market power by CB&I would lead to a loss of sales that exceeded a critical loss threshold.⁵³²

Dr. Harris similarly included the Trinidad project in his analysis because he found “a lot of similarities between Trinidad and the United States.”⁵³³ In addition to Trinidad’s close geographic proximity to the United States, Dr. Harris emphasized that LNG tanks in Trinidad are built to standards similar to those in effect in the U.S. and that CB&I, which had built the previous tank at the site, had “some local advantages.”⁵³⁴ However, as we have already stated, the Trinidad project provides little or no relevant information with which to assess LNG sales in the United States. Trinidad has no domestic incumbent LNG tank providers, and therefore all LNG tank suppliers stand on more equal footing. Despite Dr. Harris’s assertion that CB&I has

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

⁵³¹ Tr. at 7263.

⁵³² Moreover, even if we accepted Dr. Harris’s assumption that CB&I lost the Dynegy project, we could not conclude (based on the evidence) that CB&I could not raise prices post-merger. Like any other supplier, CB&I’s pricing is constrained at some level. However, the mere fact that buyers switch awards to new entrants at some point tells us nothing about the effectiveness of the new entrants’ ability to constrain CB&I’s prices to pre-acquisition levels. This concept, commonly referred to as the “Cellophane Fallacy,” derives from criticism of the approach taken by the Supreme Court in *United States v. E.I. du Pont de Nemours & Co.*, 351 U.S. 377 (1956). See, e.g., Steven C. Salop, *The First Principles Approach to Antitrust, Kodak, and Antitrust at the Millennium*, 68 Antitrust L.J. 187, 197 (2000).

⁵³³ Tr. at 7268.

⁵³⁴ *Id.*

local advantages, the evidence shows that CB&I is not an incumbent firm in the same sense that it is in United States market, where it has participated for decades. Thus, we are not convinced by his rationale for including this project, and we conclude that this outcome does not shed light on whether a price increase in the United States market would lead to a loss of sales that exceeds a critical loss threshold.

Because Respondents sponsored Dr. Harris's testimony, it was, of course, up to Respondents and Dr. Harris to show that his conclusions were sound and well supported.⁵³⁵ Based on the problems that we have identified, we find that Respondents have not carried this burden and that the ALJ correctly disregarded the analysis.

E. Customer Sophistication

There is some support for Respondents' point that sophisticated customers with bargaining power can ameliorate the anticompetitive effects of a merger.⁵³⁶ However, many of the cases in which courts have accepted buyer power or customer sophistication arguments have also found easy entry and expansion and have relied on both facts to determine that the prima facie case has been rebutted.⁵³⁷ At a basic level, customers must have alternative suppliers in order to have any real bargaining power. Despite the instant case's similarities to *Baker Hughes* – e.g., customers in all four relevant markets have elaborate bidding procedures and engage in competitive bidding – there is one determinative difference: the buyers in this case have no real alternatives to the monopolist. As we have discussed at length, the alternatives to CB&I are weak at best in the LNG, LPG, and LIN/LOX tank markets and non-existent in the TVC market. For example, the new entrants in the LNG tank market do not have a long-term presence or experience in the market and thus cannot effectively compete with CB&I – a fact that CB&I itself recognizes in its dealings with customers. The new entrants' inexperience also appears to have played a central role in CB&I's success in securing some of its post-acquisition sole-source contracts. Similarly, although there are more alternative suppliers in the LPG and LIN/LOX tank markets, they still face a variety of obstacles, including capacity constraints, lack of

⁵³⁵ Rules of Practice for Adjudicative Hearings, 16 C.F.R. § 3.43(a).

⁵³⁶ See RAB at 30 (“[T]he sophistication and bargaining power of buyers play a significant role in assessing the effects of [an acquisition].”) (brackets in original) (citations omitted). See *Baker Hughes*, 908 F.2d at 986-87.

⁵³⁷ See, e.g., *Advo Inc. v. Philadelphia Newspapers*, 854 F. Supp. 367, 375 (E.D. Pa. 1999) (noting the ability of customers to bring in other suppliers); *R.R. Donnelley & Sons Co.*, 120 F.T.C. 36, 191-92 (1995) (finding that buyers in the relevant market “use procurement designed to ensure negotiating leverage” and have the ability to “solicit and obtain *multiple* bids”) (emphasis added).

experience, and poor performance records.⁵³⁸ Indeed, many of the alternative suppliers in these two markets competed at least to some degree with CB&I prior to the acquisition, and there is no indication that they have collectively increased their presence after the acquisition. We conclude from this evidence that the competition to which Respondents refer does not provide a viable alternative to CB&I in the relevant markets and does not provide customers with any real ability to thwart price increases post-merger.

In addition, some evidence suggests that customers in the LNG, LPG, and LIN/LOX tank markets may suffer from inadequate information on pricing and thus may be unable to constrain CB&I from increasing prices post-acquisition.⁵³⁹ Any particular customer in each of these markets purchases a tank infrequently⁵⁴⁰ and therefore is unlikely to have the necessary information on hand to know whether it has been subjected to a price increase. For example, CMS testified that in order to evaluate CB&I's price for its Lake Charles expansion, it looked at the FERC filing for Cove Point's expansion, because that was the only place CMS could find costs.⁵⁴¹ CMS further testified that because the projects are not identical, the comparison was difficult to make.⁵⁴² Similarly, El Paso testified that it is "operating a little bit in the dark in terms of knowing . . . the costs . . . for LNG tank suppliers."⁵⁴³ There is also no evidence that customers in these various markets share information about the cost of their purchases with other potential customers.

On the other hand, other evidence indicates that at least some tank customers may have

⁵³⁸ See, e.g., Tr. at 1588, 1609, 2021-22, 2155, 2252 (*in camera*), 2365-66, 2379-80; JX 27 at 72-73. Respondents point to AT&V, Matrix, Wyatt, Chattanooga, and Pasadena Tank as alternatives to CB&I for the construction of LPG tanks. As we discussed above, however, these suppliers face a variety of difficulties.

⁵³⁹ The Supreme Court has recognized that a lack of information can impede a buyer's ability to exert its bargaining power by switching (or threatening to switch) to an alternative supplier. See, e.g., *Eastman Kodak Co. v. Image Technical Servs., Inc.*, 504 U.S. 451 (1992). In *Kodak*, the Court found that a lack of information regarding the cost of service and parts of Kodak's equipment explained why an increase in those costs did not affect Kodak's market share in the original sale of equipment. *Id.* at 473. While the facts of this case, of course, are not analogous to those of *Kodak*, we believe the broader point – that lack of the necessary information may impede a buyer's ability or incentive to switch to alternative suppliers – is relevant to our inquiry.

⁵⁴⁰ IDF 204, 210-11, 233-34, 269, 292-93.

⁵⁴¹ Tr. at 6290 (*in camera*).

⁵⁴² *Id.*

⁵⁴³ Tr. at 6238; IDF 207.

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 1990s⁵⁴⁶ 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

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.

difficult and that new entry or expansion by existing firms cannot replicate the competition lost as a result of the acquisition.

Respondents' evidence of entry into the LNG tank market and expansion of smaller incumbents in the LPG and LIN/LOX tank markets establishes neither that entry or expansion into these markets is easy nor that it has actually occurred at a level that will meaningfully constrain CB&I post-acquisition. Although some companies have shown interest in these markets, we find that this mere interest and intention to compete does not make them competitors sufficient to replace the competition lost from CB&I's acquisition of PDM. In addition, we are not persuaded by Respondents' critical loss argument or by their argument that sophisticated customers will be able to thwart a price increase by CB&I. This is especially true here because there are no alternative suppliers to which customers can turn in the face of supracompetitive pricing by CB&I. In accord with Complaint Counsel's economic expert, we find that customers in these markets will likely be harmed post-acquisition, because CB&I can significantly increase price or reduce quality before other suppliers can begin to constrain it.⁵⁴⁸ For these reasons, we conclude that Respondents have not rebutted Complaint Counsel's prima facie case.

VI. Anticompetitive Price Increases

Based on our analysis in Parts III-V, *supra*, we have concluded that the acquisition violates Section 7 of the Clayton Act and Section 5 of the Federal Trade Commission Act.⁵⁴⁹ We need not consider Complaint Counsel's cross-appeal to the extent that they argue that the ALJ erred in declining to find that the acquisition resulted in actual anticompetitive effects. Because Respondents have not rebutted Complaint Counsel's prima facie case, Complaint Counsel are not required to come forward with additional evidence to show actual anticompetitive effects. As several courts have observed, "Congress used the words 'may be substantially to lessen competition' . . . to indicate that its concern was with probabilities, not certainties."⁵⁵⁰

⁵⁴⁸ See Tr. at 3072-73. For example, Matrix testified that it is at a competitive disadvantage in the LIN/LOX market due to the sale of its Brown Steel subsidiary and that its costs are now higher. Tr. at 1590. The same Matrix witness testified later that the acquisition created some potential opportunities for the company in some limited circumstances. Tr. at 2182. One way to interpret this later statement is that it is consistent with an anticompetitive effect: if a higher-cost firm begins to see more market opportunities, the acquisition may have raised price levels in the market.

⁵⁴⁹ See *United States v. Penn-Olin Chem. Co.*, 378 U.S. 158, 171 (1964) (a Section 7 violation is established when a reasonable likelihood of a substantial lessening of competition is shown); *United States v. SunGard Data Sys.*, 172 F. Supp. 2d 172, 180 (D.D.C. 2001) (same).

⁵⁵⁰ *SunGard*, 172 F. Supp. 2d at 180 (citations omitted); see also *Heinz*, 246 F.3d at 708 (quoting *Brown Shoe Co. v. United States*, 370 U.S. 294, 323 (1962)).

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

Respondents' final argument is that absent the acquisition, PDM's Erected Construction Division would have ceased operating in the relevant markets and that CB&I's acquisition of these assets therefore had no impact on competition.⁵⁵² First, we want to be clear that Respondents are not arguing that PDM's EC Division met the requirements of the failing firm defense recognized under the *Merger Guidelines*.⁵⁵³ Rather, they rely on the so-called "exiting assets" defense outlined in a 1986 law review article, which suggests that where a company has made exhaustive efforts to sell assets that would actually have exited the relevant market absent the acquisition, such facts might justify an otherwise anticompetitive acquisition.⁵⁵⁴ The Commission, however, has not yet sustained this defense in any of the cases that have raised this issue,⁵⁵⁵ and this case is no different. We agree with the ALJ that Respondents did not present persuasive evidence that PDM had made the decision to close the business in the near future,⁵⁵⁶ nor did Respondents show that PDM conducted an exhaustive search for alternative buyers.⁵⁵⁷ Instead, PDM chose to sell its assets to its closest competitor, thereby creating a firm with unmatched market dominance. Even were we to accept the exiting assets defense in theory, we agree with the ALJ that Respondents have not established the defense on these facts.

VIII. Remedy

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 in the relevant markets. In addition, Complaint Counsel argue that Respondents must be compelled to take affirmative steps to ensure that a sufficient number of experienced employees are transferred to the buyer and to provide the buyer with necessary technical and administrative assistance for a period of time. Finally, Complaint Counsel argue in favor of the appointment of a monitor trustee who will oversee the divestiture process. In response, Respondents assert that they have had insufficient notice of all the relief demanded by Complaint Counsel and that they have not had a fair opportunity to respond to the final order proposed by Complaint Counsel.

This Part of our opinion is divided into two sections. In the first section, we discuss the remedy that we have fashioned to address the law violation and ensure that meaningful and effective competition is restored to the market. In the process of expounding on our Order

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

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 divest New PDM within six months after our Order becomes final. We have taken this approach to give CB&I, which is best positioned to know how to create two viable entities from its current business, the opportunity to do so. We also believe this approach will remedy the anticompetitive effects of the merger more quickly than would immediately appointing a divestiture trustee, who would have to learn the business before recommending a divestiture package. While we recognize that this approach places the burden of unscrambling the merger on CB&I's shoulders, we find this burden justified. CB&I proceeded with its acquisition of PDM with the knowledge that the Commission was still investigating the transaction. Because Respondents have created – at least to an extent – any problems associated with unwinding the transaction (and restoring competition), equity necessitates that they help solve them.

In addition, because common sense tells us that Respondents' self-interests will be best served by creating less rather than more competition from the divested assets, we have also included two provisions to ensure that CB&I creates a viable business and divests it to an appropriate buyer within a reasonable time frame. First, if CB&I has not divested New PDM under the requirements of our Order within 180 days of the Order's becoming final, we reserve the right to appoint a divestiture trustee⁵⁶⁷ to divest either New PDM or New CB&I. This provision should ensure that CB&I has an incentive to assemble a package of assets that will be sufficient to create a viable competitor and readily attract an acceptable buyer. It also provides CB&I with the incentive to maintain the strength and viability of the to-be-divested assets. Second, we have appointed a monitor trustee. Experience has shown not only that a seller has the incentive to create a weak competitor with its divestiture package, but also that buyers may lack the necessary information to assess properly the asset package. A monitor trustee will ensure that a good mix of assets is made available to the acquirer and that the acquirer receives what it needs to maintain a viable business. A monitor trustee also will make certain that the divestiture proceeds smoothly by providing a conduit between the acquirer and Respondents and promptly notifying the Commission of any problems.

In addition to the general requirement that CB&I create two viable, stand-alone businesses, the Order contains a number of specific provisions that warrant discussion. We begin this discussion by noting that the Supreme Court has recognized that “[t]he relief which can be afforded” from an illegal acquisition “is not limited to the restoration of the status quo ante.”⁵⁶⁸ “There is no power to turn back the clock. Rather, the relief must be directed to that which is ‘necessary and appropriate in the public interest to *eliminate the effects* of the

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.

acquisition offensive to the statute.”⁵⁶⁹ With this standard in mind, we explain the ancillary relief we have ordered in this matter.

We have included in the assets to be divested not only those assets necessary to build the four relevant products but also those necessary to build water tank products, similar to those tanks historically built by PDM’s Water Division. Respondents argue that such additional relief is inappropriate, because it does nothing to restore the competition in the relevant markets.⁵⁷⁰ They also argue that there is no evidence that a purchaser needs other tank assets to compete in the relevant markets.⁵⁷¹ Complaint Counsel, on the other hand, point to the irregular timing of sales in the relevant markets and the facts that PDM’s EC and Water Divisions were inter-related before the acquisition and were sold together as a going concern. They assert that given these facts, PDM’s Water Division assets are necessary to ensure the viability of a newly-created entrant.⁵⁷²

We think that Complaint Counsel have the stronger argument but acknowledge that it is impossible to know whether a new entrant must have the assets similar to those of PDM’s Water Division in order to compete in the relevant markets. However, there is no evidence to suggest that a smaller set of assets than those illegally acquired by CB&I will suffice to restore competition, and what we know with certainty is that this combination of assets has made a saleable package in the past. Thus, we follow the Supreme Court’s guidance in *du Pont* and resolve this dispute in favor of including broader rather than narrower relief. The Court in *du Pont* stated that “it is well settled that once the Government has successfully borne the considerable burden of establishing a violation of law, all doubts as to the remedy are to be resolved in its favor.”⁵⁷³ We find this rule especially compelling where – as here – Complaint Counsel have established such a strong prima facie showing, including the fact that entry is extremely difficult in each of the relevant markets. Moreover, to ensure that narrower relief is available if it is warranted by market conditions, we have included a provision that allows the exclusion of the water tank assets if the acquirer and monitor trustee both find them unnecessary and agree to exclude them.

The Order also requires CB&I to divide its customer contracts between its newly-created subsidiaries (New CB&I and New PDM) as successors to CB&I. While this may seem a drastic step at first blush, we find it a necessary one under the circumstances of this case. As we

⁵⁶⁹ *Id.* (emphasis in original) (citations omitted).

⁵⁷⁰ RAB at 56-57.

⁵⁷¹ *Id.* See *supra* note 560.

⁵⁷² CCACAB at 78.

⁵⁷³ *Du Pont*, 366 U.S. at 330.

discussed in Part III.C, *supra*, a supplier must gain experience and a good reputation from past jobs to compete effectively in each of the relevant markets. This task is difficult not only because of technical requirements, customer preferences, and the need to match the long-honed experience and reputation of the incumbent firm, CB&I, but also because of the irregular timing of the sales in these markets. Without a division of customer contracts, a purchaser would have virtually no on-going business on which to build a reputation and would have no way of knowing when – or if – it might make a sale.

The Supreme Court has recognized the importance of a customer base. In response to a vertical merger by which Ford Motor Company acquired a spark-plug manufacturer with a 15 percent market share, the Court upheld ancillary relief designed to provide the divested entity “an assured customer while it struggles to be re-established as an effective, independent competitor.”⁵⁷⁴ We find that approach equally valid where CB&I, through its illegal acquisition of PDM, has gained monopoly or near-monopoly power in markets characterized by extremely difficult and time-consuming entry. We thus conclude that a division of contracts is necessary to ensure that the purchaser will be able to gain the requisite experience in these markets and restore the vibrant competition lost from the acquisition. Moreover, to the extent that CB&I is unable to transfer or assign customer contracts, the Order requires CB&I – the party best-situated to deal with these issues – to “enter into such agreements, contracts, or licenses as are necessary to realize the same effect as such assignment or transfer.”⁵⁷⁵

We have also required CB&I to facilitate the transfer of employees so that New PDM and New CB&I each have the technical expertise to complete the customer contracts assigned to them and to bid on and complete new customer contracts. The evidence overwhelmingly demonstrates that experience is the lynchpin to success in any of the relevant markets, which logically means that the transfer of employees is crucial to this divestiture’s success. To effectuate this transfer and to ensure the employees are fairly allocated, our Order further requires CB&I to: (1) provide the acquirer with information about its employees, (2) remove contractual impediments that could prevent employees from accepting employment with the acquirer,⁵⁷⁶ (3) provide certain financial incentives to employees who accept offers of

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 business information between competitors and denies CB&I confidentiality regarding issues unrelated to the relevant products.” RRCARB at 56. Respondents’ first argument in fact supports the need for a monitor trustee, who can ensure that any problems related to an information exchange are resolved without violating the law. With regard to Respondents’

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

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).

Commission concerning the sale of the divested assets, a recommendation regarding the need for such services and, if he or she believes there is such a need, a recommendation with respect to the provision, manner, and duration of these services.⁵⁷⁸ We will consider this recommendation along with the acquiring firm's need for such assistance when we exercise our right of prior approval of the final divestiture package. If we determine that the provision of such services is a necessary part of the divestiture package, we will allow CB&I to recover its costs from any assistance it provides, which should ensure that the acquirer seeks CB&I's help only to the extent necessary. While we prefer a complete disentanglement between CB&I and the acquiring firm, we recognize that some level of assistance may be necessary to enable the acquiring firm to compete successfully.

Even though we did not accept Complaint Counsel's Proposed Order in its entirety, a number of our Order's provisions raise issues similar to those that Respondents raised in opposition to Complaint Counsel's proposals. Specifically, Respondents objected to the requirements that: (1) CB&I transfer employees to the divested entity,⁵⁷⁹ (2) CB&I assign customer contracts other than those formerly held by PDM,⁵⁸⁰ (3) CB&I waive contractual impediments to its employees' working for the acquirer,⁵⁸¹ and (4) CB&I provide transitional assistance.⁵⁸² Respondents argue that the evidence does not establish that any of these requirements are necessary for an effective divestiture and that these requirements may, in fact, harm competition.⁵⁸³ However, as we have just discussed, we find that the evidence provides clear support for these requirements.

In sum, we find that the additional water tank assets, allocation of customer contracts, and transfer of employees are necessary to ensure that the divested entity can compete effectively in the relevant markets. Depending on the details of the divestiture package, we also find it possible that the provision of technical assistance and administrative services may be needed for the divestiture to be effective. The record is replete with evidence that these markets are very difficult to enter and that a new entrant must have experience and a solid reputation.

⁵⁷⁸ We require the monitor trustee's assessment because we recognize that an information imbalance may exist between CB&I and the acquiring firm, which may not be in the best position to assess fully all of its needs before acquiring the divested assets. Given the monitor trustee's neutral role in the process, we anticipate that he or she will have access to information that the acquiring firm may not be able to get.

⁵⁷⁹ RRCARB at 50-52.

⁵⁸⁰ *Id.* at 52-56.

⁵⁸¹ *Id.* at 56.

⁵⁸² *Id.* at 57.

⁵⁸³ *See generally* RRCARB at 49-58.

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 competition lost from the acquisition.

B. Respondents' Other Arguments

Respondents make three additional arguments in opposition to divestiture and ancillary relief. First, they assert that a divestiture would harm competition by reducing “the number of competitors that can bid on large LNG projects.”⁵⁸⁴ Second, Respondents argue that they did not receive proper notice of the provisions of Complaint Counsel’s Proposed Order and that Complaint Counsel’s attempt to “raise new arguments” in the form of their cross-appeal to supplement the ALJ’s order should be “rejected on fundamental grounds of fairness.”⁵⁸⁵ Third, Respondents argue that before we consider implementing any of Complaint Counsel’s Proposed Order, we should remand this case for additional evidence on remedy issues. We find that Respondents’ arguments are not supported in the record or the law.

With respect to Respondents’ first argument, we note at the outset that prior to its acquisition of PDM, CB&I had no trouble convincing LNG customers to consider its bids, and Respondents presented no evidence to show why returning CB&I to its pre-acquisition state will preclude it from being a viable supplier. Instead, they point to testimony from three customers in support of their argument. We find that this testimony – when read in context – does not support Respondents’ position.

Calpine and CMS both testified that the financial and bonding capability of the two new companies would be of concern to them. However, we view their general testimony *in its totality* as stating the obvious – that LNG tank customers consider financial stability and bonding capacity in selecting a tank supplier. For example, in addition to testifying that he would be concerned about the new companies’ ability to guarantee a job,⁵⁸⁶ the Calpine representative testified that he “would have to take a fresh view of whether they would be put on the bid list.”⁵⁸⁷

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

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.

Furthermore, it should hardly come as a surprise that the type of general language contained in the Notice of Contemplated Relief often triggers the types of specific provisions set forth in our Order. For example, a number of consent orders that the Commission has entered into over the last several years included provisions that required the respondents to effectuate employee transfers by both removing contractual impediments⁵⁹² and providing financial

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 cross-appeal response, or at oral argument – to counter the evidence that suggests such a provision will be necessary to ensure effective competition. In any event, as we have discussed, the requirement to provide such assistance or services may be rendered unnecessary, depending on the contours of the final agreement negotiated by CB&I and the Acquirer and approved by the Commission. In addition, we note that the provisions allow Respondents to recover their costs for providing these services, so the provisions should result in no economic harm to CB&I. Thus, having weighed these factors, we conclude that the inclusion of these provisions is equitable.

⁵⁹² See *Baxter Int'l Inc. and Wyeth*, Dkt. No. C-4068 (Feb. 3, 2003) (Decision and Order), available at http://www.ftc.gov/opa/2003/02/baxter_wyethdo.pdf (requiring respondent to “remove any impediments within the control of Respondents that may deter these employees from accepting employment with the . . . [a]cquirer, including, but not limited to, any non-compete provisions of employment or other contracts with Respondents that would affect the ability or incentive of those individuals to be employed by the . . . [a]cquirer” (¶ II.H)); *MSC Software Corp.*, Dkt No. 9299 (Oct. 29, 2002) (Decision and Order), available at <http://www.ftc.gov/os/2002/11/mscdo.pdf> (requiring that respondent shall “eliminate any non-compete restrictions that would otherwise prevent employment of such employees by the Acquirer; and shall eliminate any confidentiality restrictions that would prevent employees who accept employment with the Acquirer from using or transferring to the Acquirer any information or Intellectual Property that is in the employee’s memory or that is part of the Licensed Rights” (¶ V.C.3.)); *Amgen, Inc. and Immunex Corp.*, Dkt. No. C-4056 (Sept. 3, 2002) (Decision and Order), available at <http://www.ftc.gov/os/2002/09/amgendo.pdf> (requiring respondents to “remove any impediments within the control of Respondents that may deter these employees from accepting employment with the Commission-approved Acquirer, including, but not limited to, any non-compete provisions of employment or other contracts with Respondents that would affect the ability or incentive of those individuals to be employed by the Commission-approved Acquirer” (¶ II.I)).

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

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/conocophilipsdo.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

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.

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.