

UNITED STATES OF AMERICA  
BEFORE FEDERAL TRADE COMMISSION



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In the Matter of )  
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CHICAGO BRIDGE & IRON COMPANY, N.V., )  
a foreign corporation, )  
 )  
CHICAGO BRIDGE & IRON COMPANY, )  
a corporation, and )  
 )  
PITT-DES MOINES, INC., )  
a corporation. )  
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**PUBLIC VERSION**

Docket No. 9300

MINUTES SECTION

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FEDERAL TRADE COMMISSION

To: Commission

**COMPLAINT COUNSEL’S RESPONSE TO CB&I RESPONDENTS’  
FURTHER BRIEFING ON SPECIFIC REMEDY ISSUES**

The Commission has concluded that “Respondents have created – at least to an extent – any problems associated with unwinding the transaction (and restoring competition), [so] equity necessitates that they help solve them.”<sup>1</sup> Towards that end, the Commission directed Respondents Chicago Bridge & Iron Company N.V. and Chicago Bridge & Iron Company (collectively, “Respondents” or “CB&I”) to “identify those assets in the ‘Relevant Business’ definition that are unnecessary to build the relevant products and the water tank products,” and to “explain why the inclusion of such assets is unnecessary, especially in light of the facts that: (1) the assets identified in the ‘Relevant Business’ definition match those identified in PDM’s offering memorandum to CB&I; and (2) the assets defined as CB&I’s ‘Relevant Business’ are integrated with the assets

<sup>1</sup> Opinion (“Op.”) at 94, quoting *Ford Motor Co. v. United States*, 405 U.S. 562, 573 n.8 (1972).

necessary to build the relevant products.”<sup>2</sup> Respondents were also to “address which assets outside of the United States the ‘Relevant Business’ definition encompasses and why the inclusion of such assets is unnecessary for an effective divestiture.” *Id.* Finally, the Commission afforded Respondents an opportunity to provide “an alternative suggestion for a divestiture package that is consistent with [the Commission’s] findings.” *Id.*

In response, Respondents have presented a series of conclusory, unsubstantiated and inaccurate assertions in support of their arguments that the definition of “Relevant Business,” which describes the scope of assets available to create a viable divestiture package that meets the standards for competitiveness, marketability and economic viability set forth in the Order, should be narrowed. As discussed herein, Respondents’ Further Briefing provides no reliable basis on which to carve any specific assets out of the definition of “Relevant Business” at this point in the proceeding.

Respondents’ alternative proposed relief would [

] the Relevant Products. Because it is impossible to determine what the needs of potential Acquirers will be in the abstract, before any concrete divestiture proposal has been submitted to the Commission, Complaint counsel believe Respondents’ alternative proposal is insufficient to assure effective divestiture relief.

For these reasons, Complaint counsel believe the scope of assets included within the definition of “Relevant Business” as it appears in the Final Order is necessary in order to ensure that divestiture relief ultimately is effective and viable. Moreover, as Respondents acknowledge,

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<sup>2</sup> Decision and Order Partially Denying Respondents’ Petition for Reconsideration and Directing Further Briefing on Specific Remedy Issues, at 24 (May 10, 2005) (“May 10<sup>th</sup> Order”).

the Final Order already provides the means by which CB&I can submit for Commission approval a proposed package of assets comprising “New PDM” from which any or all of the assets included within the scope of “Relevant Business,” other than assets involving any Relevant Product, may be excluded from the ultimate divestiture.<sup>3</sup> The Final Order and the divestiture application process provide CB&I with the opportunity and “flexibility to decide how best to effectuate the Final Order’s requirement,”<sup>4</sup> via procedures in which CB&I can present *and substantiate* its arguments on the scope of assets to be divested *at the appropriate time, i.e.*, within the context of CB&I’s proposed divestiture of “New PDM” to the Acquirer proposed by CB&I. Consistent with the Commission’s findings, the Final Order does not limit relief to “the restoration of the status quo ante” but rather provides that which is “necessary and appropriate in the public interest to eliminate the effects of the acquisition offensive to the statute.”<sup>5</sup>

Removing assets from the pool of those available for potential inclusion in the divestiture on the basis of inaccurate and unsupported assertions could irreparably prejudice the Commission’s ability ultimately to obtain a divestiture that remedies the lessening of competition from the Acquisition. Accordingly, Complaint counsel believe it is premature and inappropriate to exclude assets that may ultimately be needed to assure the viability and competitiveness of the divested business. Therefore, Complaint counsel ask that the Commission affirm its Final Order.

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<sup>3</sup> See Respondents’ Further Briefing on Specific Remedy Issues (“Further Briefing”) at 3 n.3, filed June 6, 2005 (citing Final Order ¶ IV.A., which states “if the Acquirer, with the concurrence of the Monitor Trustee, determines that acquiring any or all of [such assets] is not necessary to achieve the purposes of this Order”). In addition, the Final Order allows Respondents to determine, in the first instance and consistent with Paragraph III., the specific assets of the Relevant Business to be assigned or transferred to “New PDM” and to “New CB&I.”

<sup>4</sup> May 10<sup>th</sup> Order at 23.

<sup>5</sup> Op. at 94.

**A. The “Relevant Business” as Defined in the Commission’s Final Order Is the Appropriate Business from which New CB&I and New PDM Should Be Created to Restore Competition to the Relevant Markets.**

CB&I and PDM were roughly equal competitors prior to the Acquisition. May 10<sup>th</sup> Order at 23. Respondents concede that an effective divestiture would need to include assets related to businesses outside the Relevant Products,<sup>6</sup> and enough assets to re-create the combined former PDM Engineered Construction (“PDM EC”) and Water Divisions for the resulting entity to be competitively viable.<sup>7</sup> Indeed, the record in this proceeding establishes that an effective and viable remedy requires divestiture of assets *beyond* those involved in the construction and sale of the Relevant Products and water tanks.

Nothing in Respondents’ Further Briefing provides a reliable basis on which to narrow the scope of the definition of “Relevant Business.” Respondents’ statements are either wholly unsupported or are based on incorrect or misleading assertions about the scope of PDM EC’s assets and capabilities prior to the Acquisition.

The definition of “Relevant Business” in the Final Order is consistent with the broad scope of PDM EC’s capabilities and operations as it existed prior to the Acquisition by CB&I and accomplishes the purpose of divestiture – to eliminate the anti-competitive effects of the

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<sup>6</sup> See, e.g., Leon, Tr. 8311-12 (“[I]f you were only to spin off some personnel and assets to make products in these markets, that company would wilt like a rose left out too long. There is not enough business. So, you would have to give it all this other stuff to make flat bottom tanks, to make gravel (sic) tanks, to make all kinds of other stuff. You would have to give it enough personnel so that everybody would have the expertise to do every kind of tank”); Simpson, Tr. 3607 (“an entity that would be divested would have to include assets that would enable the divested firm to compete not just in the markets in this case but also in markets such as flat bottom tanks, egg-shaped digesters and water tanks.”).

<sup>7</sup> See, e.g., Scorsone, Tr. 4779-80; CX 552 at 45-48, 52-53 (Braden, Dep.); Byers, Tr. 6780.

Acquisition.<sup>8</sup> As currently drafted, the definition accounts for the market realities that non-U.S. assets play an important role in U.S. tank projects; that CB&I inextricably intermingled PDM's assets with its own; and that growth, development and innovation have occurred in the five years since the Acquisition to create additional assets which may be necessary to create a viable competitor. The definition of "Relevant Business," therefore, is sufficiently broad to include such additional assets as available for *potential* inclusion in the divestiture package.

**1. The Assertions in Respondents' Further Briefing Do Not Justify Narrowing the Scope of Assets included in the "Relevant Business."**

In their Further Briefing, Respondents portray CB&I's "Relevant Business" as being much broader than the business engaged in by the PDM EC and Water Divisions at the time of Acquisition.<sup>9</sup> However, the distinctions drawn by Respondents are not supported by the facts and often appear to be the result of different nomenclature used by PDM versus that used by CB&I to identify equivalent product and service offerings.

The record shows that the nature and scope of PDM EC's capabilities and operations as it existed prior to the Acquisition were substantially broader than just the Relevant Products and water tanks and included product and service offerings roughly equivalent in scope to those currently offered by CB&I. Both CB&I and PDM's business documents show that, at the time of the Acquisition, the Relevant Products accounted for only a portion of the diverse array of

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<sup>8</sup> "The relief which can be afforded [from the illegal Acquisition] is not limited to the restoration of the status quo ante, [but rather] must be directed to that which is 'necessary and appropriate in the public interest to *eliminate the effects* of the acquisition offensive to the statute.'" Op. at 94, quoting *Ford Motor Co. v. United States*, 405 U.S. 562, 573 n.8 (1972).

<sup>9</sup> Respondents assert that "[i]n contrast to PDM's EC Division, which primarily was a U.S. tank builder, CB&I's business" is broader in scope and includes "not only construction of the Relevant Products and water tanks, but also hydrocarbon processing plants, offshore structures, pipelines, hydrocarbon storage tanks, and other steel structures and their associated systems." Further Briefing at 4.

products that were offered by PDM EC.<sup>10</sup> For example, “hydrocarbon storage tanks,”<sup>11</sup> which Respondents assert were not included in PDM EC’s business, in fact represented the mainstay of PDM EC’s business, accounting for 56.7 percent of PDM EC’s revenues over the three-year period 1997-1999. CX 385 at 15 (internal Page 12). Similarly, “other steel structures and associated systems,”<sup>12</sup> which Respondents also claim were not included in PDM EC’s business, accounted for 30.3 percent of PDM EC’s revenues in 1997 and 15.1 percent of PDM EC’s revenues over the period 1997-1999. *Id.*

Additionally, the inclusion of “industrial process systems” in the definition of “Relevant Business” is consistent with the scope of PDM EC’s business. Respondents argue that because the term “industrial process systems” is not expressly stated in the offering memorandum, its inclusion in the definition “Relevant Business” would expand the scope of potential divestiture far beyond

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<sup>10</sup> By PDM’s own account, PDM EC was, at the time of the Acquisition, “a leading global engineering and construction company specializing in the design and field erection of bulk liquid terminals, storage tanks, *process vessels*, low temperature and cryogenic storage facilities and *other specialty plate structures and their related systems*.” CX 385 at 4 (internal Page 1) (emphasis added). *CB&I agreed* with this description, which goes well beyond the Relevant Products and water tanks for the domestic market. In its Form 10-K for 2001, CB&I stated that PDM EC “engineers, fabricates and constructs storage tanks and systems, *process systems*, and *unique plate structures* for the petroleum, petrochemical, cryogenic, liquid natural gas, defense and aerospace industries.” CX 1033 at 44 (internal page 37) (emphasis added).

<sup>11</sup> “Hydrocarbon tanks” are a type of industrial tank that PDM EC’s offering memorandum variously refers to as bulk liquid terminals, storage tanks or flat bottom tanks.

<sup>12</sup> “Other steel structures and associated systems” include thermal vacuum chambers, specialty plate structures and other products. CB&I identifies thermal vacuum chambers as one of a variety of specialized, large metal structures engineered, fabricated and constructed by CB&I, including wind turbine generators, research wind tunnels, aircraft engine test facilities, aluminum laser target chambers and nuclear reactor vessels. CB&I WORLD, Issue 1, at 15 (“Special Features”) (2004) (Attachment A); *see* CX 1629 at 5 (thermal vacuum chamber shown as illustrative of CB&I Specialty & Other Structures; CB&I Market Position - “Acknowledged technical expertise worldwide in all types of steel plate structures”). PDM EC’s offering memorandum also identified wind tunnels, fusion facilities and autoclaves as examples of specialty plate structures that PDM EC designed, fabricated and constructed. CX 385 at 13 (internal Page 10).

the type of tank business that was conducted by PDM EC. Further Briefing at 6-7. However, at the time of the Acquisition, process systems and process vessels were identified by Respondents as being included in PDM EC's business, both in CB&I's 2001 Form 10-K and in PDM EC's offering memorandum.<sup>13</sup>

In other words, PDM EC's business and pre-Acquisition capabilities encompassed products that Respondents' Further Briefing claim are beyond the scope of PDM EC's business.<sup>14</sup> Accordingly, Respondents' Further Briefing provides no reliable basis on which to carve any specific assets out of the definition of "Relevant Business."<sup>15</sup>

**2. Divestiture Should Restore the Competition Represented by PDM, a Global Competitor, by Recreating Two Viable Businesses Capable of Competing Effectively in the Relevant Products in the United States.**

Prior to its acquisition by CB&I, PDM EC conducted business operations on a global scale

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<sup>13</sup> As noted *supra* n.10, in reporting on the Acquisition in its 2001 Form 10-K, CB&I identified *process systems* as among the products engineered, fabricated and constructed by PDM EC. CX 1033 at 44 (internal page 37). Moreover, the offering memorandum expressly identifies *process vessels*, which are used in process systems and plants, as among the products offered by PDM EC. CX 385 at 12 (internal Page 9). Further, shortly before the Acquisition, PDM EC identified future business opportunities and projected that the "Clean Fuels Act will provide demand for *towers, pressure vessels*, some storage, *vessel retrofit*." CX 1713 at CBI/PDM-H 4015076 (PDM Engineered Construction Financial Forecast 2001-2004) (emphasis added).

<sup>14</sup> Moreover, as discussed at pages 11-12, *infra*, PDM EC's business, as now commingled with the merged firm, offers various offshore LNG tank and terminal designs.

<sup>15</sup> Respondents also imply, without support, that reductions in the purchase price for PDM occurred as the result of a reduction in the *scope* of the assets and business acquired by CB&I from PDM. Further Briefing at 6 n.6. However, the ALJ found that the reductions in purchase price were due to financial losses in PDM EC and PDM Venezuela, both acquired by CB&I and both covered by the PDM EC Offering Memorandum. Initial Decision by Administrative Law Judge D. Michael Chappell (June 18, 2003), Findings of Fact, ¶ 11 ("IDF") available at [www.ftc.gov/os/2003/06/cbiid.pdf](http://www.ftc.gov/os/2003/06/cbiid.pdf). In addition, the purchase price may have been reduced because CB&I agreed to [

] See Post-Closing Risk Allocation Agreement (Feb. 7, 2001) (Attachment B).

from its headquarters in The Woodlands, Texas, which today still serves as CB&I's own operations headquarters.<sup>16</sup> Moreover, PDM EC's offering memorandum described the global scope of its sales,<sup>17</sup> procurement capabilities,<sup>18</sup> operations and strategic alliances,<sup>19</sup> all of which contributed significantly to PDM EC's profitability and financial viability.<sup>20</sup> CB&I similarly informed investors, following the Acquisition, that CB&I's "global reach makes us an attractive partner for large, global energy and industrial companies with geographically dispersed operations and also allows us to allocate our internal resources to geographies and industries with the greatest current demand." CX 1033 at 4; *accord* Attachment A at 9 ("Bonny Island"). Thus, by CB&I's own account, large, global energy and industrial companies are more likely to select CB&I for projects in the United States because of CB&I's ability to meet the customers' needs throughout the world.

Moreover, innovations developed or implemented by the merged firm throughout the world

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<sup>16</sup> CX 522 at TAN 1003368; CB&I Global Locator, <http://www.cbiepc.com/locator/> (CB&I's Worldwide Administrative Office is located in The Woodlands, Texas).

<sup>17</sup> In the three years prior to the Acquisition one-half of PDM EC's sales were outside the United States. CX 385 at 21 (internal Page 18).

<sup>18</sup> PDM EC had a strong global procurement organization which enabled it to purchase steel plate and other materials on a competitive worldwide basis. CX 385 at 16 (internal Page 13).

<sup>19</sup> PDM EC reported that in order to participate effectively in markets outside the United States, PDM EC maintained strategic alliances with engineering and construction companies in China, India, Australia, South Korea, Mexico, and Saudi Arabia. CX 385 at 4-5, 8 (internal Pages 1-2, 5); *see* CX 802. PDM EC explained that these alliances complement PDM EC's technology and project management capabilities by providing local capabilities in regions outside the United States and allowing PDM EC to pursue global projects. CX 385 at 5, 8-9 (internal Pages 2, 5-6).

<sup>20</sup> According to PDM EC's offering memorandum, its global strategic alliances enabled PDM EC to obtain higher margins for its technical and project management services. CX 385 at 9 (internal Page 6).



are applied to projects in the United States, personnel are shifted between United States and foreign projects as local demand conditions warrant, and CB&I relies on its global procurement network in bidding for and completing United States projects. For example, Respondents' claims that no non-U.S. CB&I assets are utilized in U.S. tank projects and that CB&I's assets and operations outside the United States "are wholly unrelated to the U.S. tank business" (Further Briefing at 8) are contradicted by CB&I's own public statement that in designing, engineering and constructing the recent expansion of the Lake Charles, Louisiana LNG import terminal, CB&I "called on resources from around the world to execute the complex project. Engineering expertise was combined with procurement capabilities on three continents and an experienced project team with a history of proven performance in existing facilities in Louisiana."<sup>21</sup>

A key element that enabled PDM EC's global reach was its human capital in the form of expert employees capable of designing, engineering, erecting and managing projects around the world. The Commission has noted that the evidence shows that employees that build the Relevant Products also build other types of tanks. May 10<sup>th</sup> Order at 24 n.111. For the same reason, it is equally likely that many employees may possess the same skills necessary to design, manage and complete foreign as well as domestic projects, including in tandem with foreign partners. Because we do not yet know what potential Acquirers will need in terms of human capital and other assets to assure the competitiveness and viability of the divestiture relief, the definition of "Relevant

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<sup>21</sup> Attachment A at 12 ("The expanded Lake Charles terminal is North America's largest operating LNG terminal"). In this 2004 publication, CB&I highlighted the characteristics and achievements that, according to CB&I's CEO, make CB&I unique in the engineering and construction industry. *Id.* at 3. In its investor presentations CB&I notes that it is "Executing Projects Around the World" and that "CB&I operates a global network of sixty facilities and has the capability to rapidly mobilize people, materials and equipment virtually anywhere in the world." CB&I Investor Presentation, Credit Suisse First Boston, Engineering & Environmental Services Conference, at 5 (June 2005) (Attachment C).

Business” does not contain a geographic limitation to U.S.-only assets.<sup>22</sup> To include such a limitation at this point in the proceeding would severely impair the Commission’s ability ultimately to ensure viable and effective divestiture relief for the illegal Acquisition.

**3. The Scope of the “Relevant Business” Must Account for the Fact that following the Acquisition, CB&I Intermingled PDM EC’s Assets and Business with CB&I’s Assets and Business.**

Respondents submit that the plant and equipment held by PDM EC five years ago “reflect the precise assets necessary to compete against CB&I in the tank business.” Further Briefing at 4. This throwback to relief even more limited than that ordered by the ALJ ignores PDM’s broad array of intangible assets that have been intermingled by CB&I with its own intangible assets and further intermingled by the merged firm with intangible assets developed or acquired since the Acquisition. It further ignores innovation, product development and growth by the merged firm since the Acquisition, which will likely continue until the divestiture is completed.

In the months prior to the Acquisition CB&I convened integration teams consisting of personnel of CB&I, Howe-Baker,<sup>23</sup> PDM EC and PDM Water to integrate the operations of the companies with respect to sales, engineering, project management, fabrication, construction and procurement. CX 1713 at CBI/PDM-H 4015059. In its Form 10-K for 2001 CB&I acknowledged that it is “leveraging Howe-Baker’s advanced hydrocarbon processing engineering and technical capabilities across [CB&I’s] worldwide marketing and execution platform.” CX 1033 at 3.

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<sup>22</sup> Because Customer Contracts may contain key employee clauses that require customer approval to replace key employees on a project (IDF 580), it is possible and foreseeable that the allocation of employees between the two entities Respondents are required to create pursuant to Final Order ¶ III may, among other things, necessitate the transfer of Customer Contracts and assets relating to projects outside the United States to the Acquirer.

<sup>23</sup> Howe-Baker, acquired by CB&I on December 28, 2000, provides hydrocarbon processing plants for the refining, petrochemical and natural gas industries. CX 1033 at 3.

Following the Acquisition CB&I similarly commingled PDM EC's intangible assets across CB&I's businesses. CB&I explained in its 2001 10-K Report:

[W]e are creating synergistic growth by integrating the PDM Divisions' storage tank technology, execution capabilities and customer relationships with our existing businesses to expand our product offerings. We will also focus on imparting best practices and technologies from each business throughout the organization.

CX 1033 at 5.<sup>24</sup> In July 2002 CB&I again acknowledged that the acquisition of PDM's EC and Water Divisions "enhances our engineering and execution capabilities" and "provides access to an expanded customer base" (CX 1021 at 36 (internal page 30)). PDM's entire body of relevant know-how, experience and customer relations was disseminated throughout CB&I following the Acquisition. In July 2002 CB&I informed investors that it would execute the following growth strategy:

*Leveraging the Strengths of Howe-Baker and the PDM Divisions.* Our acquisitions of Howe-Baker and the PDM Divisions have broadened our capabilities and resources to meet customer needs in our end markets, and *we intend to focus on imparting best practices and technologies from each business throughout the organization.*

*Id.* at 6 (internal page 2) (emphasis added). Following the Acquisition CB&I informed investors that its acquisitions of PDM's EC and Water Divisions "Enhances CB&I management team

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<sup>24</sup> CB&I explained how its acquisition of PDM's EC and Water Divisions enhanced CB&I's product and service offerings:

On February 7, 2001, we acquired the Engineered Construction and Water Divisions of Pitt-Des Moines, Inc., which **specialize in the design and engineering, fabrication and construction of products for the petroleum, petrochemical, cryogenic, liquefied natural gas, defense and aerospace industries, as well as water storage and treatment facilities.** This acquisition enhances our engineering and execution capabilities, provides access to an expanded customer base, and is producing significant synergies from the application of best practices and the elimination of duplicative costs.

CX 1033 at 3-4 (emphasis added).

depth.” CX 1629 at 17. In sum, Respondents have inextricably commingled CB&I’s and PDM’s intellectual property and other intangible assets into the merged firm.

Respondents’ assertion that “contrary to the implication in the Briefing Order, CB&I’s other businesses were not and are not an integrated part of its U.S. tank business” (Further Briefing at 4), is contradicted by CB&I’s public announcement that its offshore LNG terminals draw on CB&I’s combined experience in LNG tanks and in offshore structures. CB&I July 12, 2004 Press Release: “CB&I Supports Offshore LNG Terminal Development” (Attachment D) at 1. CB&I acknowledges that

CB&I is in a unique position to offer full engineering, procurement and construction (EPC) services for offshore LNG facilities. A pioneer and technology leader in the LNG industry, CB&I has designed and constructed more than 40 LNG terminals and peak shaving plants and more than 200 LNG storage tanks around the world. Furthermore, with the broad offshore experience and capabilities of its CB&I John Brown unit, CB&I’s integrated approach to offshore LNG import terminals leverages extensive worldwide offshore project background and technology.

*Id.* CB&I reaffirmed this announcement in Attachment A at 4 (“CB&I Supports Offshore LNG Terminal Development”). CB&I recently announced development of a steel plate structure – vertical plate coke drums. Attachment A at 17 (“Technology & Innovations; Coke Drums Designed for Longer Life”). Process vessels, hydrocarbon processing plants, and clean fuels projects, discussed at 5-7, nn.10, 13, *supra*, provide other examples of how CB&I has combined the technology of PDM EC, Howe-Baker and CB&I.

It is not feasible to purge CB&I of the intellectual property and goodwill it acquired through the Acquisition, because PDM’s knowhow, trade secrets and goodwill have been disseminated throughout CB&I and reside in employees who will continue to work for CB&I following the divestiture. For this reason, restoring the competition that was eliminated by the Acquisition also requires that the divestiture include new product development and growth of the

Relevant Business since the Acquisition.<sup>25</sup>

**B. Respondents' Alternative Proposal is Insufficient To Assure an Effective Divestiture that Restores the Competition Eliminated by the Acquisition.**

Without waiving their rights of appeal, Respondents propose to divest, in lieu of the divestiture ordered by the Commission, [

] Further Briefing at 9, n.9 (footnote omitted). Respondents propose that [

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Respondents' alternative proposed relief would [

] the Relevant Products. For example, Respondents' proposal would exclude from the divestiture [

] In addition, the Relevant Products are often purchased as a component of a larger project including complementary products within the

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<sup>25</sup> CB&I's revenues have tripled since the Acquisition, increasing from \$612 million in 2000 to \$1,897 million in 2004. Attachment C at 7. CB&I's revenues, in low temperature/cryogenic tank and systems, the category that includes the three Relevant Products LNG tanks, LPG tanks and LIN/LOX tanks, grew five-fold, with an increase from \$90 million dollars in 2000 to \$456 million in 2004. *Id.* CB&I reports that it is "[c]urrently working on 10 LNG projects with total revenue of approximately \$2.5 billion." *Id.* at 13. CB&I's revenues for specialty and other structures, the category that includes thermal vacuum chambers, tripled from \$54 million in 2000 to \$154 million in 2004. *Id.* at 7. In order to restore competition to the relevant markets, New PDM and New CB&I should each reflect a share of the growth in the Relevant Business since the Acquisition.

Relevant Business. A purchaser of an LPG tank or LNG tank may also require other hydrocarbon tanks, vessels and spheres or specialty structures. The Acquirer may be at a competitive disadvantage to CB&I, in competing in the Relevant Products, if it is unable to provide the variety of industrial tanks and specialty structures offered by CB&I.

Further, neither Respondents' proposal that the Acquirer [

] nor Respondents' proposal that the Acquirer [

] appear to describe an Acquirer that is likely to be approved by the Commission. *Id.* at 10. Moreover, Respondents' proposal is objectionable because (1) it would give CB&I a financial interest in the projects of its competitor; (2) it would allow CB&I to retain control over the projects of its competitor by controlling the availability of the CB&I employees; (3) it creates an inherent conflict of interest between the employees and the Acquirer, as employee loyalty will run to CB&I (the employee's ultimate employer); and (4) it creates an environment where competitive secrets are more likely to be leaked and collusive behavior is more likely occur, notwithstanding any "firewalls" as suggested by CB&I.

Without knowing what resources and existing business the proposed Acquirer brings to the table, Respondents' proposal [ ] would likely reduce the viability and competitiveness of New PDM in the Relevant Products and would impair the Commission's ability to obtain effective relief.

**C. The Final Order and the Divestiture Application Process Provide Appropriate Means for Determining, at the Appropriate Time, What Assets, If Any, Within the “Relevant Business” May Be Excluded from Divestiture.**

In their Further Briefing, Respondents express numerous objections to the definition of “Relevant Business,” which they claim is overly broad. However, Respondents have provided no reliable basis on which to narrow the definition at this point in the proceeding. Moreover, pending finality of the divestiture obligation, CB&I will be in control of the location, organization and disposition of the affected assets and businesses subject only to the Final Order’s asset maintenance requirements. Respondents have not suggested that they would be prejudiced if their proposed exclusions of assets arguably within the definition of “Relevant Business” were deferred until the Commission or its staff could conduct a meaningful evaluation of such proposals, particularly with reference to potential divestitures to potential Acquirers.

Complaint counsel believe that narrowing the scope of the definition of “Relevant Business” at this point in the proceeding could irreparably prejudice the Commission’s ability ultimately to achieve effective, viable and competitive divestiture relief. We also believe this is not necessary because the Final Order itself and the divestiture application process provide appropriate opportunities and procedures through which Respondents can present and substantiate their arguments on the scope and nature of assets to be divested.

Indeed, the Final Order allows Respondents to determine, in the first instance and consistent with Paragraph III., the specific assets of the Relevant Business to be assigned or transferred to “New PDM” and to “New CB&I.”<sup>26</sup> Further, the proviso to Paragraph IV.A. of the

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<sup>26</sup> CB&I is required, *inter alia*, to reorganize its Relevant Business into two entities, each “fully, equally, and independently engaged in all aspects of the Relevant Business.” Final Order ¶ III.A. Because CB&I will be entitled to retain one of these entities, it should have the proper incentives to ensure each entity meets this standard. The Final Order also includes provisions for appointment of a Divestiture Trustee (Final Order ¶ V) “to ensure that CB&I has

Final Order expressly provides that CB&I may propose to divest a package of assets comprising “New PDM” from which any or all of the assets included in the Relevant Business, other than assets involving any Relevant Product, may be excluded “if the Acquirer, with the concurrence of the Monitor Trustee, determines that acquiring any or all of [such assets] is not necessary to achieve the purposes of this Order.” As an initial step, therefore, Paragraph II.A. requires that Respondents “retain a Monitor Trustee, acceptable to the Commission.”<sup>27</sup> The Monitor Trustee is expected to play an important part in the process by which CB&I proposes to reorganize its “Relevant Business” for divestiture,<sup>28</sup> and should facilitate Commission staff’s evaluation of Respondents’ compliance with their Order obligations. CB&I will also select the Acquirer in accordance with Paragraph IV.A. of the Final Order.

Thus, the Final Order prescribes a broad and flexible process for: (1) identifying assets, including Customer Contracts, that are part of the Relevant Business; (2) reorganizing the Relevant Business into two independent, viable and competitive entities with approximately equal shares of the markets for the Relevant Products; and (3) divesting one such entity, including transferring employees with relevant technical experience and expertise, to an Acquirer. Each step will be accomplished by CB&I with input from the Monitor Trustee (chosen by CB&I and

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an incentive to assemble a package of assets that will be sufficient to create a viable competitor and readily attract an acceptable buyer” within a reasonable time frame. Op. at 94.

<sup>27</sup> CB&I has already selected and proposed a Monitor Trustee for Commission approval. See Application for Approval of Proposed Monitor Trustee and Monitor Trustee Agreement filed by Respondents Chicago Bridge & Iron Company N.V. and Chicago Bridge & Iron Company (filed May 26, 2005).

<sup>28</sup> For example, the Final Order requires CB&I, *inter alia*, to submit reports to the Monitor Trustee identifying “all of the assets of the Relevant Business and all Customer Contracts” (Final Order ¶ IV.E.), and to consult with the Monitor Trustee to “ensure that New PDM and New CB&I are each assigned Customer Contracts, equitably apportioned among the types of products relating to the Relevant Business.”(Final Order ¶ III.B.)



appointed by the Commission) and Commission staff, prior to the Commission's final review of the specific divestiture package and Acquirer proposed by CB&I or a Divestiture Trustee. The Commission's review will be conducted in accordance with the agency's established practices for reviewing divestiture applications.<sup>29</sup> Significantly, in the divestiture application process pursuant to F.T.C. Rule of Practice 2.41(f), 16 C.F.R. § 2.41(f), Respondents will be required to establish "with supporting materials" that the divestiture of "New PDM" to the proposed Acquirer will satisfy the Final Order's remedial purpose.<sup>30</sup> This process will assure that all necessary facts regarding the specific assets, including Customer Contracts, that CB&I proposes to divest and the specific employees that CB&I proposes to allocate to each business entity it organizes (one to be retained by CB&I and one to be divested) are considered at a time reasonably proximate to the divestiture.

Respondents can therefore assert their arguments that certain assets should be excluded from their divestiture obligation at the appropriate time and in the proper manner in connection with the reorganization and divestiture application process so that the Commission and its staff can fully evaluate the merits of such proposals.

---

<sup>29</sup> See Statement of the Federal Trade Commission's Bureau of Competition on Negotiating Merger Remedies ("Negotiating Merger Remedies") at 2, 9-10, available at [www.ftc.gov/bc/bestpractices/bestpractices030401.htm](http://www.ftc.gov/bc/bestpractices/bestpractices030401.htm).

<sup>30</sup> See Negotiating Merger Remedies at p. 9 & n. 29, citing *Dr Pepper/Seven-Up Companies Inc. v. FTC*, 991 F.2d 859 (D.C. Cir. 1993) (in proceeding for FTC approval pursuant to Rule 2.41(f), the burden of proof is on the party seeking approval to demonstrate that it should be granted).

**D. CONCLUSION.**

For the foregoing reasons, Complaint counsel request that the Commission reaffirm its Final Order.

DATED: June 20, 2005.

Respectfully submitted,



---

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**CERTIFICATE OF SERVICE**

I hereby certify that I today caused:

One original and twelve copies of Complaint Counsel's Response to Respondents' Further Briefing on Specific Remedy Issues to be served, by hand delivery, and one copy to be served, by electronic mail, upon:

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ATTACHMENT A

CB&I WORLD  
Issue 1, 2004

Available at [http://www.cbiepc.com/about/issues/CBI\\_World\\_2004\\_1b.pdf](http://www.cbiepc.com/about/issues/CBI_World_2004_1b.pdf)



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New Contracts

## Welcome to CB&I World

Welcome message by Gerald Glenn

## Technology & Innovations

## Special Features

CB&I Conference

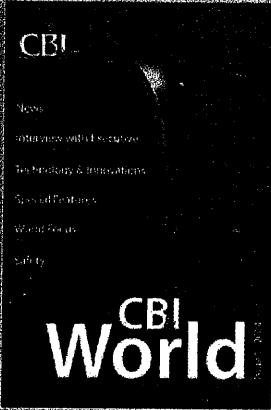
## World Focus

Worldwide Projects

## Safety

# CB&I World

Issue 1, 2004



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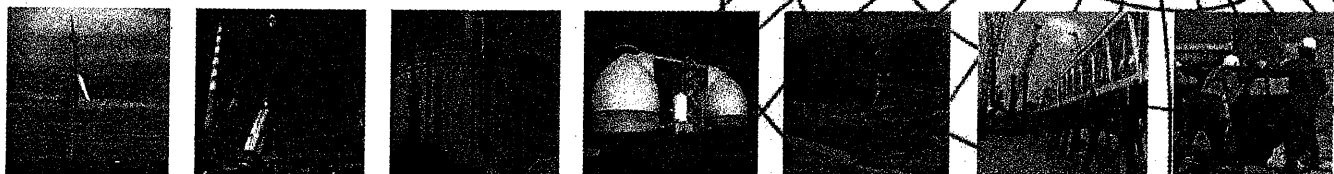
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[www.CBlepc.com](http://www.CBlepc.com)

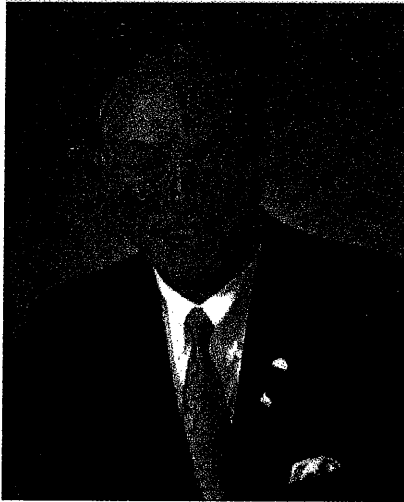
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# Welcome to CB&I World

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*"It gives me great pleasure to welcome you to the first issue of CB&I World, our new periodic publication about CB&I activities worldwide."*

*Gerald M. Glenn, Chairman, President and Chief Executive Officer*

**Gerald M. Glenn**  
Chairman,  
President and Chief Executive Officer

*Many of you are familiar with CB&I, but you may not be aware of the global scope of our business. For others, this may be your first introduction to our company. We welcome all of you and hope this magazine gives you a better understanding of the capabilities, technologies and services we can deliver anywhere in the world.*

*CB&I was founded in 1889 and is a global specialty engineering, procurement and construction (EPC) company. With a worldwide network of some 40 offices and established labor and supplier relationships, our 10,000 employees come together from many nations to provide engineered facilities and services that help our customers produce, process, store and distribute the world's natural resources in a safe, efficient, economical and environmentally responsible manner.*

*CB&I serves customers in several primary end markets, including oil and gas; petrochemical and chemical; power; water and wastewater; and metals and mining. Our projects include hydrocarbon processing plants, LNG terminals and peak shaving plants, bulk liquid terminals, water storage and treatment facilities, and other steel structures and their associated systems. We also provide a broad range of maintenance and repair services, including complete turnarounds for petroleum refining and petrochemical plants.*

*Over the years, we have achieved by practice and design a record of exemplary safety performance, which translates directly to lower cost, timely completion of projects, and reduced risk to our employees, subcontractors and customers.*

*CB&I operates as a fully-integrated EPC service provider, offering a complete package of conceptual design, engineering, procurement, fabrication, field erection, mechanical installation and commissioning. These capabilities combined with our safety performance, experience in risk management and disciplined project controls process - allow us to execute global projects on a lump-sum, turnkey basis. Lump-sum contracting provides advantages in terms of cost and schedule that our customers depend on to meet their business objectives.*

*In each issue of CB&I World, we plan to highlight some of the characteristics and achievements that we believe make CB&I unique in the engineering and construction industry.*

*We hope you enjoy our inaugural issue.*

# News & Contracts

## Valero Energy Corp. awards major clean fuels contract to CB&I

Sept. 27, 2004 - The board of directors of Valero Energy Corp. (NYSE:VLO) recently approved funding for its McKee refinery to enter into an engineering, procurement and construction contract with CB&I Matrix, a subsidiary of CB&I. Under the terms of the agreement, CB&I Matrix will design, build and install a 35,000 barrel per day (BDP) gasoline desulfurization unit at Valero's 170,000 BDP McKee refinery in Sunray, Texas. With its completion in fall 2005, the unit will reduce sulfur content of naphtha feedstock using technology licensed from Catalytic Distillation Technologies, a partnership between ABB Lummus Global and Chemical Research & Licensing Co. based in Pasadena, Texas. That, in turn, will enable Valero to better and more cost-effectively comply with U.S. Environmental Protection Agency Tier II gasoline specifications.

## CB&I supports offshore LNG Terminal development

Jul. 12, 2004 - Leveraging its decades of experience and leading technologies in liquefied natural gas (LNG) storage and offshore structures, CB&I now offers a variety of solutions for the design and construction of offshore LNG import terminals. One such solution combines conventional cylindrical LNG storage tanks with a concrete gravity based structure (GBS). Ideal for shallow water environments such as the Gulf of Mexico, CB&I's GasPORT™ concept offers significant advantages in terms of shorter schedule, lower cost and flexible design using proven technology. CB&I's GasPORT incorporates a concrete GBS as the primary component acting as the foundation and support structure for the facility. The terminal is equipped with integrated facilities for mooring and berthing of the LNG carrier; berthing of supply vessels; LNG unloading, storage and regasification; utilities; natural gas transport to shore; and crew accommodations. LNG storage is provided in a series of conventional cylindrical tanks that are anchored to the GBS.

GasPORT is designed to withstand the adverse environmental conditions typically found in offshore locations. Design loadings have been factored into CB&I's terminal concept to achieve maximum reliability and safe operation. CB&I's engineers have evaluated wind, wave states, scour and anchorage of the GBS on the ocean floor, as well as graving dock, towing and mooring requirements in their design considerations.

"Drawing upon more than 65 years of combined experience in the LNG and offshore industries, we believe our GasPORT LNG terminal concept offers a cost-effective and reliable solution to help meet the growing U.S. demand for natural gas," said Gerald M. Glenn, CB&I's Chairman, President and CEO. "We're pleased to offer this new development, based on proven technology and our unparalleled experience, as well as a number of other offshore terminal concepts to companies seeking to tap the burgeoning LNG import market."

CB&I is in a unique position to offer full engineering, procurement and construction (EPC) services for offshore LNG facilities. A pioneer and technology leader in the LNG industry, CB&I has designed and constructed more than 40 LNG terminals and peak shaving plants and more than 200 LNG storage tanks around the world. Furthermore, with the broad offshore experience and capabilities of its CB&I John Brown unit, CB&I's integrated approach to offshore LNG import terminals leverages extensive worldwide offshore project background and technology. CB&I John Brown has been responsible for engineering and project management of more than 100 jacket structures, over 15% of the world's offshore semi-submersible/tension leg platforms, and numerous subsea flow lines, trunk lines and production/lift systems. In addition to gravity based structure designs, CB&I has the technical capabilities and experience to develop offshore LNG terminals based on more traditional jacket substructures and topsides for the regasification equipment.

## ConocoPhillips selects CB&I to supply hydrogen plants at four U.S. refineries

June 28, 2004 - ConocoPhillips (NYSE:COP) selected CB&I (NYSE:CBI) to provide technology, engineering and fabrication for four hydrogen plants at its refineries in Billings, Montana; Bayway, New Jersey; Ponca City, Oklahoma; and Borger, Texas. As part of ConocoPhillips' clean fuels initiative, these plants will supply hydrogen for use in hydrotreating applications to lower the sulfur content of diesel fuels. These projects represent a total investment by ConocoPhillips in excess of US\$110 million.

CB&I, through its Process & Technology Group, is executing the projects on a lump-sum basis, including engineering, procurement and modular fabrication. Each facility will use the Company's proprietary HYFORMING™ steam methane box reformer technology, which provides superior process performance and proven reliability within a robust mechanical design. In all of the plants the process is designed to produce 99.9% purity hydrogen for use in clean fuels production. The first facility is scheduled for completion in late 2005.

## CB&I wins follow-on award for further expansion of U.S. LNG Terminal

June 14, 2004 - CB&I (NYSE: CBI) was awarded a lump-sum turnkey contract valued in excess of US\$55 million for a liquefied natural gas (LNG) terminal expansion project in Lake Charles, Louisiana, USA. Owned and operated by Trunkline LNG Company, a subsidiary of Southern Union Company (NYSE: SUG), the expanded Lake Charles terminal is North America's largest operating LNG terminal.

CB&I's work scope for the Phase II expansion project includes the engineering, procurement, construction and commissioning of new second stage pumps and vaporizers to increase plant send out; the mechanical topsides of a second new ship unloading dock; and related civil, mechanical and electrical works. The project will increase the facility's send out capacity to 1.8 billion standard cubic feet per day (SCFD) of natural gas from 1.2 billion SCFD. The project is expected to be completed by mid-2006, and the terminal will remain in operation during CB&I's work.

In 2003, CB&I was awarded the EPC contract for the initial expansion of the terminal. Upon completion, which is scheduled for late next year, the Phase I expansion will add a 140,000 cubic meter LNG storage tank and increase plant send out from 630 million SCFD to 1.2 billion SCFD.

"We are pleased that Trunkline LNG has chosen to continue their relationship with CB&I for the further expansion of the Lake Charles terminal," said Gerald M. Glenn, CB&I's Chairman, President and CEO. "We believe our unique ability to perform every aspect of an LNG import terminal project will enable us to bring value to this job from start to finish."

## CB&I receives award for LNG Facility in Equatorial Guinea

April 6, 2004 - CB&I was awarded a lump-sum turnkey contract valued in excess of US\$60 million to design and construct a liquefied natural gas (LNG) storage facility for Marathon Oil Company on Bioko Island in Equatorial Guinea. The facility will store LNG produced by a new liquefaction plant that Marathon and GEPetrol, the National Oil Company of Equatorial Guinea, plan to construct on the island, which is located about 20 miles (32 kilometers) off the coast of Cameroon in west central Africa. The plant is designed to produce 3.4 million metric tonnes of LNG per year, with a projected start-up in late 2007. Bechtel Corporation is the prime contractor for the overall project.

CB&I's work scope for the project encompasses the engineering, procurement and construction of LNG tankage with a total capacity of 272,000 cubic meters, including civil and foundation work, tank insulation, in-tank pumps and piping to grade. CB&I's scope also includes the design and construction of nine smaller tanks for miscellaneous storage.

The Company is currently on site on Bioko Island constructing three low temperature tanks for liquefied petroleum gas (LPG) storage as part of Marathon's Phase 2B LPG expansion project. In addition, as part of the expansion project CB&I Howe-Baker designed and fabricated a modular cryogenic gas processing plant that was delivered to the island earlier this year and is currently being installed. With a capacity of 870 million standard cubic feet per day (MMSCFD), it is the largest plant of its type ever built by the Company.

"We are pleased to continue our association with Marathon as they develop a new LNG source to help meet the growing worldwide demand for natural gas," said Gerald M. Glenn, CB&I's Chairman, President and CEO. "Our current mobilization on site should allow us to transition our forces seamlessly to this important project."



# World Focus: Current Projects

## EUROPE

### Buzzard

*The Buzzard field development is one of the largest North Sea projects in over a decade. Operated by EnCana (U.K.) Limited and employing contractors in multi locations, the development is gathering pace and Buzzard is expected to come on-stream late in 2006.*

The Buzzard field is a major offshore development located in the UK Outer Moray Firth, central North Sea, some 100 kilometers northeast of Aberdeen and 55 kilometers from the nearest landfall at Peterhead. Major contract awards were made by EnCana (U.K.) Limited during 2003 with CB&I John Brown winning the contract for Concept Definition and Project Specification (CDPS) for the Buzzard installation in August 2002.

Buzzard is one of the largest discoveries made in the UK North Sea in over 10 years. It's a product of innovative thinking, where EnCana (U.K.) Limited applied creative geological techniques to a basin once considered by some to be too mature for world class discoveries.

CB&I John Brown completed the CDPS phase of work in June 2003. The team is now working on the detailed design and procurement of equipment and bulk materials for the three platform topsides facilities. The design work is being undertaken at our offices in Paddington, Central London, with a team of over 600 people.

The platform topside facilities are being fabricated in a number of locations:

- The Production deck is being fabricated by Dragados in Cadiz, Spain
- The Wellhead deck is being fabricated by Burntisland Fabricators Ltd in Scotland, United Kingdom
- The Utilities deck is being fabricated by Heerema in Hartlepool, United Kingdom
- The Buzzard jackets are being fabricated by Aker Verdal in Norway

The Buzzard field development is on course with the fabrication and construction of all topside facilities under way. Hundreds of people are now working on the topsides design, steel jacket fabrication, pipeline engineering and facilities installation. A huge and exciting challenge lies ahead. The field is anticipated to begin producing by late 2006. At peak rates Buzzard could account for 10% of the UK's total oil production.

More information on the Buzzard development is available on [www.encana.com](http://www.encana.com)

**Martin Daniels**

## Leading the Way in the Caspian:

CB&I John Brown has increased its involvement in Azerbaijan and Georgia on one of the largest pipeline projects in the world today.

*Since 1948, CB&I John Brown has provided superior pipeline systems safely and on schedule. We take pride in engineering and delivering innovative, technically sound and cost-effective solutions. Today CB&I John Brown is participating in one of the largest projects being undertaken in the world, the AGT (Azerbaijan-Georgia-Turkey) pipelines project.*

The AGT pipelines project includes the construction of two major pipelines, the Baku-Tbilisi-Ceyhan (BTC) oil pipeline and the South Caucasus gas pipeline (SCP), as well as the associated above ground facilities. The BTC pipeline is 1,768 km in length, and will send oil from the Sangachal terminal near Baku on the Caspian Sea coast in Azerbaijan, past Tbilisi in Georgia, and finally to the Mediterranean port of Ceyhan in Turkey. CB&I John Brown is responsible for corridor and pipeline engineering for the Azeri and Georgian sections of the BTC pipeline, and for construction engineering of the BTC pump stations in Turkey. The South Caucasus Pipeline (SCP), 692 km in length, will transport natural gas from the Shah Deniz field in the Caspian along the same route as the BTC pipeline, through Azerbaijan and Georgia to the Turkish border, and then into the Turkish distribution system. CB&I John Brown is the engineering and procurement services contractor for the SCP from Azerbaijan to Turkey. The two pipelines largely parallel the Western Route Export Pipeline (WREP), previously completed by CB&I John Brown in 1999.



The success of the WREP encouraged additional investment by the BP-led international oil companies, leading to the award of further major contracts to CB&I John Brown, for world-class oil and gas export pipelines from the Caspian region. Today two new pump stations are being installed on the Azerbaijan section of the BTC pipeline, two in Georgia, and four in Turkey. The pipelines depart from the Western Route approximately 20 km into Georgia and head to the Georgian/Turkish border. In Azerbaijan, the BTC pipeline is 443 km in length and 42" in diameter, and 249 km long and 46" diameter in Georgia.

In Turkey, the diameter reduces again to 42", and then to 34" as it approaches Ceyhan. The pipeline will begin operating in 2005, and by the end of the decade it should be flowing 1,000,000 barrels per day. SCP has a diameter of 42" throughout its length. Construction follows completion of the BTC pipeline. It will commence operation in 2006, and have an initial capacity of 7.3 billion cubic meters (BCM) of gas per year, with a future expansion capacity of up to 22 BCM. The construction of the BTC pipeline is well under way.

CB&I John Brown personnel are actively involved in all three countries, and have a significant role in the BP-led Integrated Project Management Team (IPMT) overseeing the engineering and construction work performed by the contractors.

In Baku, we are providing project and pipeline engineering and inspection services. In Georgia, our staff are key players in the Technical Group in Tbilisi, and on site along the pipeline route they are providing construction management, field engineering, logistics and construction inspection services.

In Turkey, we are assisting with project management support and construction engineering services for the pump stations construction and installation.



### Using state-of-the-art geographical information system (GIS)

Under the client leadership and as part of the Caspian pipeline project team, CB&I John Brown developed a project-specific GIS. This system was used during the design phase of the projects, alongside more established design software packages, such as AutoCad and PDMS.

GIS was used to manage, interrogate and interpret an extensive range of available data, allowing the project team to develop detailed routing and constraints maps to avoid known sensitive or densely populated areas, cultural monuments and archaeological sites, and known geohazards. It is also used to maximize the safe, uninterrupted construction and operation of the pipelines and the potential for reinstatement, and to minimize the risk of oil spill and the amount of land required for pipeline construction.

During construction and operation, the GIS allows rapid and effective data management. The system proved to be an essential tool not only during design, but also during the process of consultation with governments and NGOs, as well as potentially affected communities and interest groups at the local, regional and international level. As a result of the meticulous route selection process, not a single person will be required to move from their home because of the BTC and SCP pipelines, nor will there be any permanent disruption to the livelihood of the local communities. The GIS will also provide an active link to the pipeline tracking system, enabling continuous monitoring of materials movement and progress of pipeline installation and testing. During pipeline operation, it will be an essential tool for pipeline surveillance, maintenance and repair.

Rees Brislin



# RUSSIA & FSU

## Building the First LNG Plant in Russia

**In June 2003, CB&I was awarded lump-sum EPC contracts for two full containment liquefied natural gas (LNG) storage tanks and two pressure vessel spheres at a natural gas liquefaction plant in the far eastern portion of the Russian Federation. The two LNG tanks, which are being constructed as part of the Sakhalin II project, will be the first LNG tanks designed and constructed in Russia.**

The Sakhalin II integrated oil and gas development represents the largest single direct foreign investment project in Russia to date, with total investment estimated to exceed US\$10 billion. The huge gas resource base of this development will guarantee supplies of more than nine million tonnes a year for at least 25 years to Sakhalin's key markets in the growing economies of Asia. It is the first oil and gas project in Russia to be developed under a production sharing agreement (PSA), the first offshore development in Russia, and the first LNG project in Russia. Our work scope includes the engineering, procurement and construction of two 100,000m<sup>3</sup> full containment LNG storage tanks including all insulation, piping, mechanical equipment, and electrical systems, two 1,630m<sup>3</sup> Hortonsphere<sup>®</sup> pressure vessels made from 9% nickel plate materials, and a concrete batching plant to supply concrete for the foundations and containment. We are self-performing all civil works for the project.

We were chosen because of our long tradition of working with Russia and the countries of the former Soviet Union. Our capabilities in Russia include:

- Ability to work with Russian design institutes, manufacturing entities, federal authorities, and local contracting organizations
- Working knowledge of Russian regulations and requirements
- Ability to provide full service and support through our established Russian office
- Legal qualification to perform engineering, procurement and construction in Russia
- Thorough understanding of the capabilities available within Russia
- Experience of working in extreme climate conditions
- Proven capabilities as a lump-sum contractor

As a result of these abilities, we are in a unique position among global contractors to meet local content obligations in Russia. Hiring local Russian labor is essential for companies who want to establish a good track record of Russian projects, and it is a requirement specified in the agreements of many projects.

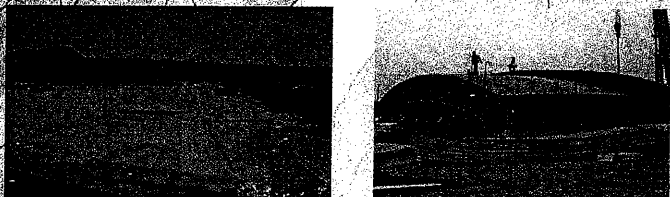
Our policy of direct hire and sole source EPC responsibility provides Sakhalin Energy with the best combination of local content and industry expertise. Our long-term commitment to personnel training and development leads to improved project results and benefits both the economy and the people in the community.

We are also adept at applying best international practice to projects in Russia while maintaining compliance with Russian standards and regulatory bodies. Our previous experience in the design and construction of the crude oil tankage at the Novorossiysk marine terminal was indicative of our ability to successfully execute projects in Russia. Because storage tanks of the size needed for the Novorossiysk project had never before been built in the former Soviet Union, local codes did not address their design or construction. Our scope included obtaining federal and local approval of the technical specifications developed for the tanks. Similarly, the Sakhalin II LNG tanks were not covered by existing codes; we developed the required documents and worked with the Russian authorities to obtain the necessary approvals. We are also working with Russian design institutes to ensure all local compliance issues are met and to harmonize international, contractor, and Sakhalin Energy standards with the Russian system.

In addition to being the first major western development in Russia, the Sakhalin II project presents a number of challenges, including:

- Contending with and designing for sub-arctic conditions (drift ice, earthquakes, temperatures that fall below -20°C, snow accumulations of 2 meters)
- Providing a high degree of technical expertise and applying innovative technologies (completion of high-productivity gas wells, erection of earthquake-proof and ice-proof platforms, compliance with all environmental protection regulations in a sensitive area)
- Dealing with the island's lack of infrastructure (roads, harbors, codes, distant supply points)

Our off-site and on-site fabrication abilities and expertise, as well as innovative techniques for dealing with the harsh conditions gained from worldwide experience, position us uniquely well to address these challenges. For the LNG tanks, our team of highly qualified, experienced design engineers developed an innovative construction solution to contend with the harsh climate. By building a freestanding liner for the tanks and air raising the roofs before completing the outer wall, we were able to secure protection from the weather and take the concrete containment wall off the critical path. By completing this work before the end of December, we expect to be able to keep the construction project moving year round, a difficult thing to do in sub-arctic climates. The LNG tanks are currently in construction phase, and it has been underway for several months. The site has been teeming with activity 24 hours a day as the land was quickly reshaped in preparation for the building activity to come. The slab construction started in May 2004 and is on schedule to be completed by the end of 2004. In the true global nature of CB&I, employees from our offices in Moscow, Yuzhno-Sakhalinsk, London, Dubai, UAE and Plainfield have all contributed to the excellent performance realized to date. The majority of the procurement is being handled out of an office in Dubai with materials coming from suppliers in Russia, the Middle East, Europe, North America and Asia. Our project team has rapidly established an excellent working relationship with the client team and is looking forward to meeting the challenges ahead on this exciting project. We are scheduled to complete the tanks in spring 2007 and are currently on track to successfully meet this expectation.



Zaliv Aniva

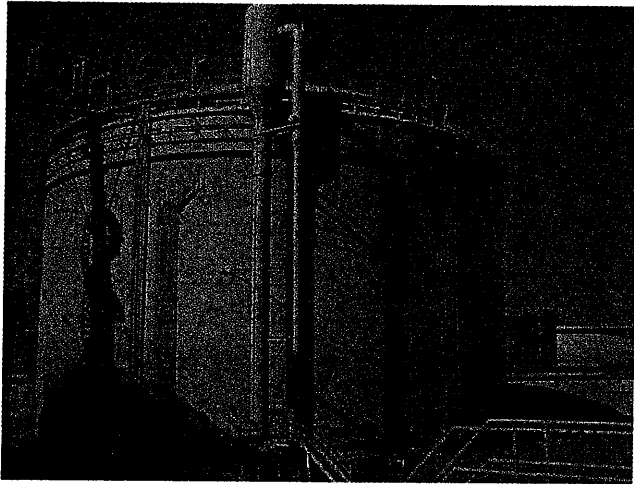
Martin Brockman



## MIDDLE EAST

### CB&I Completes Oil/Water Separation Facility in Qatar

*CB&I first executed work in Qatar in 1969. Since then, we have accomplished dozens of projects in country and are proud to have played an important role in the development and expansion of the Qatari oil and gas industry.*



In June 2002 CB&I was awarded a lump sum turnkey contract by Occidental Petroleum of Qatar (Occidental) for the engineering, procurement and construction of new oil/water separation facilities offshore of Qatar. The Halul Island PWHF Project is part of Occidental's ongoing development of the Idd El Shargi North Dome and South Dome offshore oil fields located approximately 80 kilometers northeast of Doha in the territorial waters of the State of Qatar. Halul Island is a storage and export terminal for Qatar's offshore oil. The island (about 1.5 sq. km) is home for 11 giant crude oil storage tanks, pumping stations, power generation, water desalination plants and a heliport in addition to staff accommodation, sports and recreational facilities. Known as the PS-1 Produced Water Handling Facilities (PWHF) on Halul Island, CB&I was responsible for the engineering, procurement, installation and commissioning (EPIC) of new oil/water separation facilities for crude oil and produced water from Occidental's offshore PS-1 production complex. Today, the facilities are able to process up to 435,000 barrels per day of liquids.

The project involved the construction of two 150,000 barrel capacity separation tanks, crude oil pumping and fiscal metering facilities, pumping and filtration facilities, a remote flare system, a local equipment and control room and associated facilities. CB&I were responsible for the engineering, supply and on-site construction of the facilities. The plant is now being commissioned. CB&I completed the project on a lump-sum turnkey basis in June 2004. The CB&I Project Team completed the Facility in accordance with schedule and without incurring a lost-time accident.

### Sohar Refinery Project

*CB&I has worked in Oman since the 1970s and has built several large-scale tankage projects, including a 600,000-barrel storage facility in Muscat in 1999 and a 1 million-barrel storage facility in Mina al Fahal in 1993. Today CB&I is participating in the major Sohar Refinery Project - a top-priority project in Oman's energy strategies, which when finished will provide the refinery with more than 1 million cubic meters of bulk liquid storage and more than 40,000 cubic meters of pressurized storage for propylene and liquefied petroleum gas.*

The Sohar Refinery is to be built in Sohar, about 250 km northwest of Muscat, the capital of Oman. The refinery is owned jointly by the Sultanate of Oman and Oman Oil Co. CB&I was awarded a \$50 million contract for all tankage at the grassroots Sohar Refinery in November 2003. CB&I's work scope includes engineering, material supply, fabrication, construction, testing, painting and insulation of 55 miscellaneous storage tanks, 16 spheres and one elevated water storage tank. In total there are 39 uniquely designed structures amassing 25,000 metric tons of steel.

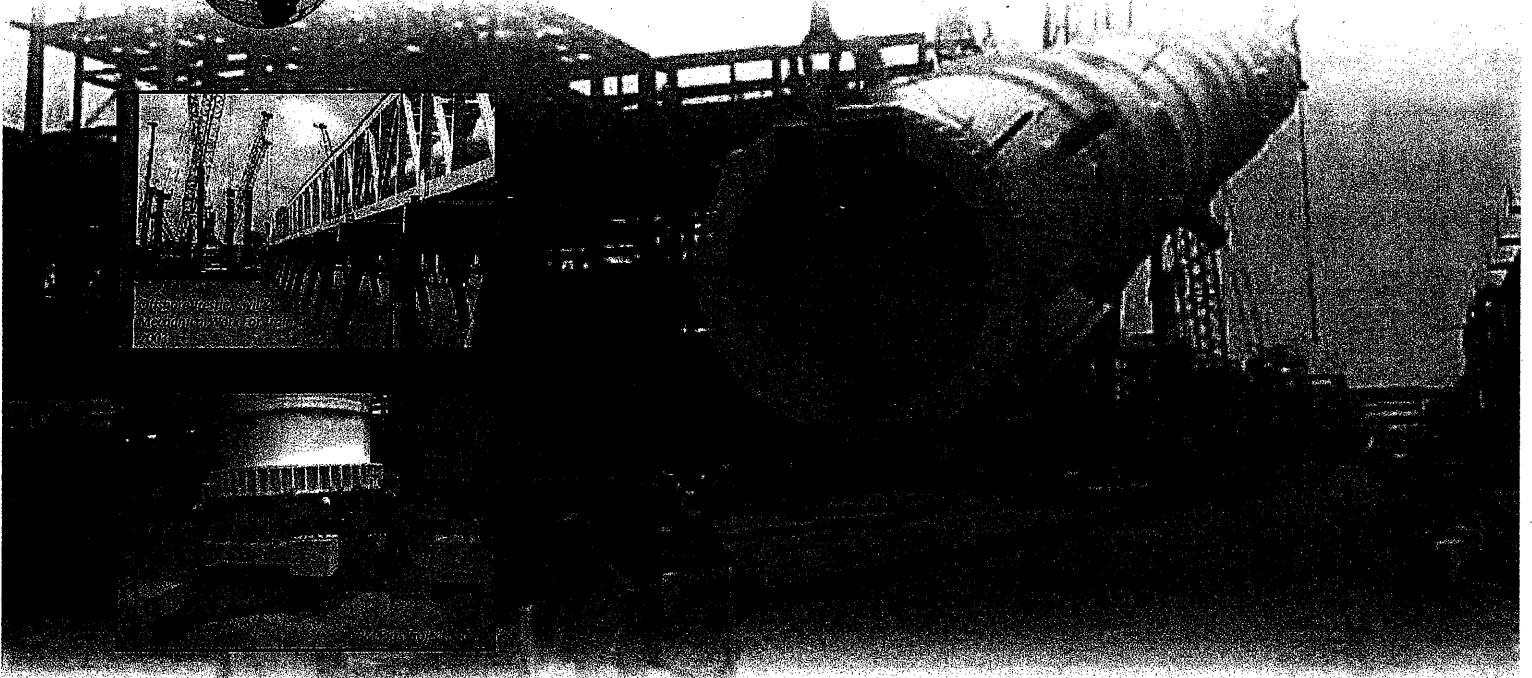
To help overcome the difficulties associated with engineering 39 unique structures, CB&I engineering has implemented the philosophy of standardizing components and drawings. For example, nozzles, man ways, sumps as well as many other tank and sphere components are detailed on one or two drawings for all structures instead of individual drawings for each structure. In addition to reducing the number of drawings by 20%, the standardization allows for fabrication to be done in an assembly line manner instead of waiting for individual drawings to be completed for each structure before commencing the work for a particular structure. Another significant achievement has been the advance billing of all material in addition to the main steel plate, which is typically done for tanks and spheres. This has allowed us to more easily consolidate purchase orders for other items such as pipe, pipefittings, flanges and structural steel. In addition to the cost benefits, the end result has been that much of the material is arriving well ahead of the construction need dates.

We are now moving into the construction phase of the project, and we have mobilized nearly 300 people to site. One of the biggest challenges that we will now face is the requirement to employ a workforce containing 30% local employees and yet maintain the productivity levels we expect from our experienced crews. We have made the commitment to not only hire the required numbers of local employees but also to train and integrate the local employees as productive members of our international work force. Within three weeks of award, with the help of the local labor authorities and government sponsored training organizations, CB&I recruited 60 locals to participate in a six month training program. After each recruit passes the training program the new employee will be integrated into our experienced crews where they will benefit from on the job training with our multi-national crews.

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## AFRICA



### Bonny Island:

## Participating in one of the largest construction projects in Africa and the fastest growing LNG project in history

The Bonny Island LNG facility, situated at the southern edge of Rivers State in the Niger Delta of Nigeria, Africa, is being developed by Nigeria LNG Limited (NLNG). The NLNG is a joint venture company whose shareholders are the Nigerian National Petroleum Corporation (NNPC) 49%, Shell Gas BV (Shell) 25.6%, Ceag Limited (Elf) 15% and Agip International BV (Agip) 10.4%.

NLNG is one of the world's major exporters of LNG. In 1999 NLNG commenced an Expansion Project to increase liquefaction capacity by 50% with the addition of a third LNG production train. The expansion also added process units to produce more than 1 million tonnes per year of liquefied petroleum gas (LPG). The project will utilize the gas reserves of the eastern part of the Niger Delta by converting them to liquefied natural gas for export to industrial customers in Europe and Turkey. The LNG shipments leaving Bonny Island represent the first LNG to be exported from sub-Saharan Africa, and the plant has one of the world's largest single LNG trains, producing 2.95 million metric tons per year. CB&I was selected to design and build one full-containment LNG storage tank, two double-wall LPG storage tanks, two smaller tanks and associated foundations and civil works. We completed the work in early 2003, achieving a world-class safety record in the process on one of the largest construction projects in Africa.

Our substantial experience in low temperature and cryogenic storage terminals, coupled with our remote project execution ability, helped us add value to this project from engineering through construction to final commissioning. With the nearest major town, Port Harcourt, nearly two hours away by boat, mobilization was challenging. Setting up the site office, establishing reliable communications, recruiting and training local workers, receiving tons of steel and beginning construction was a massive undertaking ... but one at which we have excelled for decades. Our global reach makes us an attractive partner for large, multinational energy and industrial companies with geographically dispersed operations, and also allows us to allocate our resources to locations and industries with the greatest current demand. In addition, because of our long-standing presence in many markets around the world, we enjoy a prominent position as a local contractor in those markets.

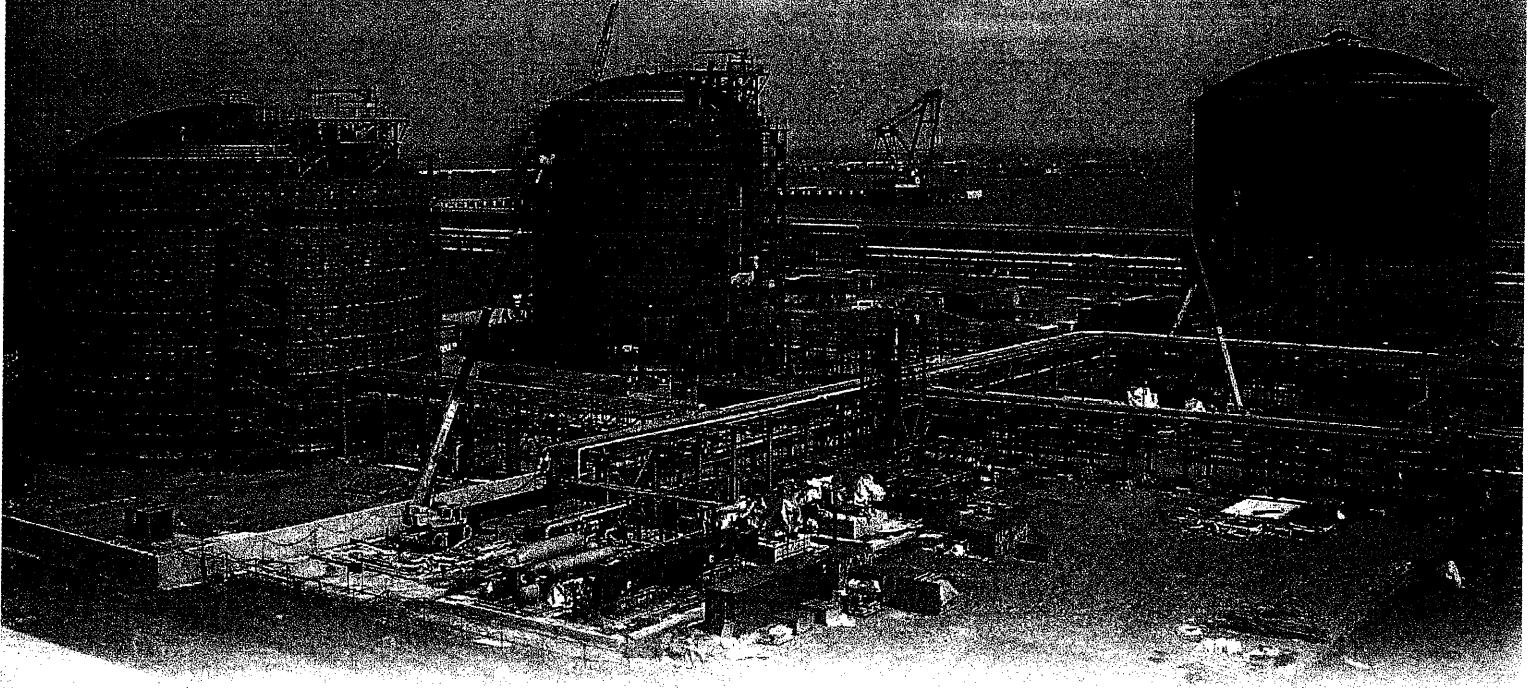
Building on our proven performance, in January 2003 CB&I in consortium with Bilfinger Berger AG of Germany was awarded a contract in excess of US\$100 million by the TSKJ group of companies - EPC contractor for the NLNG Expansion and Plus Projects - to provide civil and mechanical erection services for NLNG Plus Project. This award demonstrated TSKJ's confidence in our ability to execute complex technical projects, and further solidified our position as one of the world's leading providers of LNG liquefaction and storage facilities. CB&I is the mechanical erection contractor for the construction of a fourth LNG production train with a design capacity of 4.0 million tonnes per year, one of the largest capacity units in the world. Our excellent worldwide safety record, well proven QA/QC Management Systems, ISO 9001 Quality Management Program and Environmental Procedures, which are established in accordance with ISO 14001 guidelines, were instrumental in the company receiving the award. Our scope includes structural, piping and mechanical erection of Train 4 and the new area Offsite Works. Bilfinger Berger AG performs the civil work for Train 4. Our team mobilized on site in early 2003 and expects to complete the project in the spring of 2005.

*Peter Rano*





ASIA



## Shanghai Ethylene Cracker Complex (SECCO)

*Strong economic growth in China has led to increased demand for petrochemical products and, as a result, several major new production facilities are under construction. Shanghai SECCO Petrochemical Co. Ltd., founded in November 2001, is a Sino-foreign joint venture invested by Sinopec, Shanghai Petrochemical Co. Ltd. (SPC) and BPEast China Investment Co. Ltd. respectively.*

*CB&I first worked in China in the 1920s. Permanent presence was established in Shanghai in 2002 to better serve China's growing market and in support of our ongoing projects. In late 2002, we were awarded a contract by Shanghai Ethylene Cracker Complex (SECCO) to design and construct a low temperature liquids storage facility in a world-scale ethylene complex being developed near Shanghai. This is the first major project in China where CB&I has engineering, procurement and construction (EPC) responsibility. The three double-wall refrigerated tanks under construction at the site will store ethylene, ammonia and propylene, and will be the largest of their kind ever built in China.*

As one of the largest petrochemical projects of Sino-foreign joint ventures currently in China, the Shanghai SECCO 900,000 tons per annum Ethylene Project is a world class integration of upstream and downstream plants. The project is located in the Shanghai Chemical Industry Park on the coastal area of Hangzhou Bay, 50 kilometers southeast from Shanghai. The project comprises plants of 900 KTPA Ethylene, 500 KTPA aromatics, 600 KTPA polyethylene, 250 KTPA Polypropylene, 260 KTPA Acrylonitrile and common utilities.

With a total investment of US\$2.7 billion, the project kicked off in March 2002. Mechanical completion is expected in December 2004 and commercial operation will begin in May 2005.

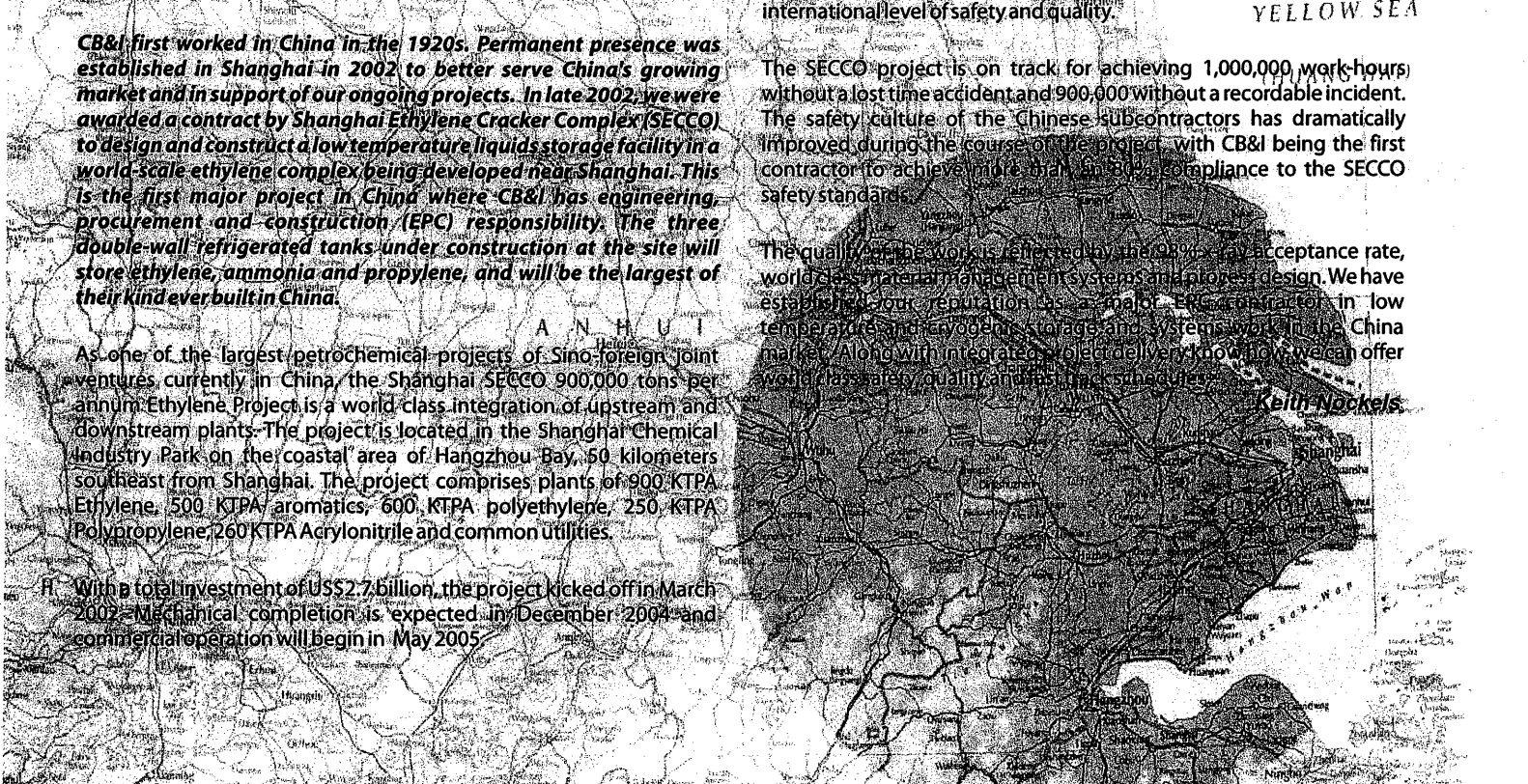
CB&I is unique in China with in-house multi-discipline abilities that give the client a single point source for engineering, worldwide procurement, construction and commissioning. The business model has been a mix of our international management and know-how with Chinese subcontractors and design institutes. The result is a combined approach of best practices that gives the best price along with an international level of safety and quality.

YELLOW SEA

The SECCO project is on track for achieving 1,000,000 work-hours without a lost time accident and 900,000 without a recordable incident. The safety culture of the Chinese subcontractors has dramatically improved during the course of the project, with CB&I being the first contractor to achieve more than an 80% compliance to the SECCO safety standards.

The quality of the work is reflected by the 98% x-ray acceptance rate, world class material management systems and project design. We have established our reputation as a major EPC contractor in low temperature and cryogenic storage and systems work in the China market. Along with integrated project delivery know-how, we can offer world class safety, quality and fast turnaround.

Keith Nockels





## AUSTRALIA

### CB&I Completes Clean Fuels Project in Australia

*CB&I provided the engineering, procurement, construction and pre-commissioning for a new hydrodesulfurization (HDS) plant at Shell's refinery in Geelong, Australia, participating in one of the major refinery development projects in Australia.*

CB&I has a long tradition of working in Australia and has participated in major refinery development projects in Australia for more than 50 years. In March 2002 CB&I was awarded a lump-sum turnkey EPC contract valued in excess of A\$90 million (approximately US\$50 million) by Shell Refining (Australia) Pty. Ltd. for a new Hydrodesulfurization (HDS) plant at Shell's refinery in Geelong, Victoria, Australia. Our relationship with Shell is very extensive on a global basis and, in Australia, has included involvement in the most recent major projects undertaken at both the Geelong Refinery near Melbourne, and Clyde refinery in Sydney. The Shell Geelong Refinery, situated approximately 70km Southwest of Melbourne, is the second-largest refinery in Australia and produces 15 per cent of the country's petroleum products (around 5.3 million tonnes of material per year) and about 50 per cent of Victoria's petrol. This 50 year old refinery is the larger of the two Shell refineries in Australia.

Following the global drive to cleaner petrol and diesel, the HDS plant, which has a design capacity of 6,000 tonnes per day, is designed to enable Shell to produce ultra-low sulfur diesel to meet the Australian Government's new clean fuels specifications that will become effective from January 2006. The plant acts as a reactor, removing sulfur from diesel by converting it into hydrogen sulfide, which is subsequently converted into solid sulfur for use as fertilizer. Lowering the sulfur content of diesel in turn reduces particulate emissions from diesel engines, resulting in a significant improvement in air quality. CB&I was responsible for the detailed engineering, procurement, construction and pre-commissioning of the project.

Site works began in early July 2002 with the clearing of disused plant and excavations in preparation for pouring of 3,400 cubic meters of concrete which would form the foundations for the plant.



In parallel with the civil works, mechanical erection of 14 pipe rack and process modules started in late July 2002 at a yard established specifically for modularization. This yard was located on the Brisbane River approximately 2,400km to the north of the Shell site.

Mechanical erection at the Geelong site commenced with the placement of pipe rack modules, 24m(L) x 8m(W) x 7m(H), onto foundations at the end of February 2003. In all over 500 tonnes of modules were placed by the end of June 2003. The centerpiece of the plant, the 300 tonne reactor, was placed in October 2003 with mechanical and electrical and instrumentation works continuing through to early 2004.

Our team worked hard to meet Shell's best-in-class operational criteria. Australia's most southerly sited refinery is now equipped to produce fuels with a sulfur content of less than 50 ppm to meet the country's new fuel specifications and to help secure its long-term future.

**Mike Trzeciak**





## NORTH AMERICA

### LNG Expansion Project:

The expanded Lake Charles terminal is North America's largest operating LNG terminal

In 2001, Trunkline LNG, a Southern Union Company, chose to expand its Lake Charles, Louisiana LNG import terminal to meet increasing demand. The expansion would include increasing the terminal's unloading, storage and send-out capabilities. It was also critical to Trunkline LNG that operations of the existing facility not be interrupted by work on the expansion and that the project be completed as quickly as possible. Critical to the successful completion of the project was the selection of an EPC contractor, and in 2002 the company selected CB&I. To meet all of Trunkline LNG's requirements for the expansion, we called on resources from around the world to execute the complex project. Engineering expertise was combined with procurement capabilities on three continents and an experienced project team with a history of proven performance in existing facilities in Louisiana.

As the EPC contractor, we designed the unloading, storage and send-out systems to meet code requirements, to incorporate innovative ideas from our best practices and to blend smoothly with maintenance and operation of the existing facility. To procure the cryogenic vaporizers, pumps, unloading arms, recondenser, valves and 9% nickel material, our engineering and procurement groups worked together to develop specifications that incorporated both Trunkline LNG and CB&I requirements for design, operability, quality and schedule. Additionally, the Trunkline LNG and CB&I project teams, Trunkline LNG plant operations personnel and selected vendors together explored varied designs and details to find solutions that provide the latest technology yet fit well with the existing facilities operating procedures.

While engineering and procurement proceeded, our project team addressed the many construction issues that every project of this type presents. We focused on how to construct a cryogenic facility safely and on schedule within the confines of an existing facility. Many constraints had to be addressed using new ideas based on our past experience. We created procedures for working within the close confines of the existing facility that did not endanger the existing facility or its operations. Critical to the safe installation of equipment was the development of ways to lift new components into position without lifting over or threatening operating facilities.

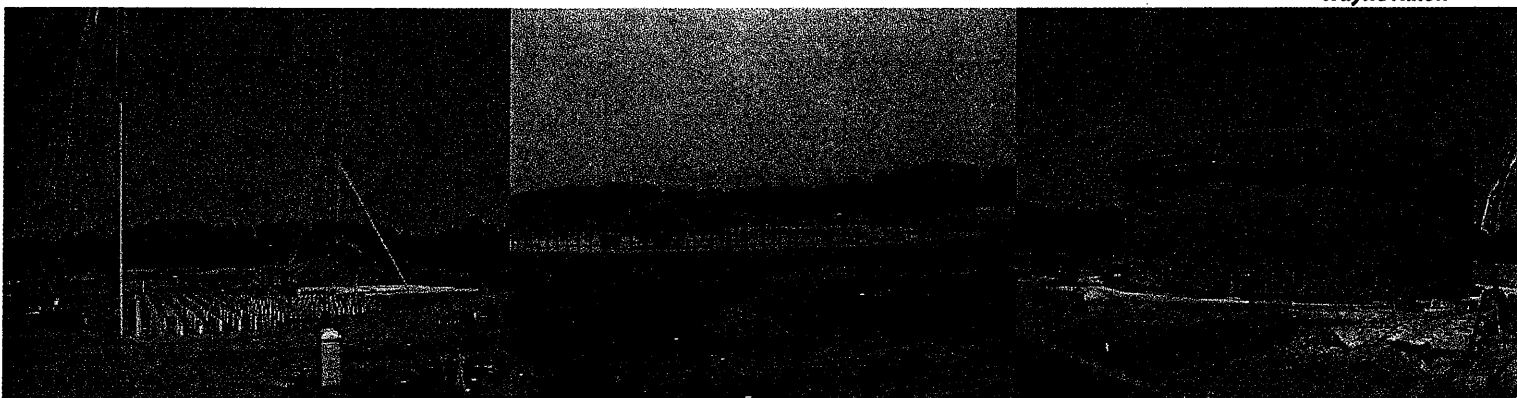
Additionally, Trunkline LNG operations personnel and the CB&I project team had to find the means to integrate the new systems into the existing mechanical and electrical systems without endangering personnel or equipment. This integration, or tie-in process, was addressed in two ways during the planning process. In many instances, methods for isolating a specific component in a manner that allowed safe work and did not interrupt plant operations were developed. Integral to development of these methods were our construction personnel, project engineer, project safety manager and corporate safety staff. Not all the tie-ins could be accomplished without interrupting plant operations. By working with Trunkline LNG project, plant and scheduling groups, CB&I planned two short duration outages to minimize plant shut down and the impact on ship unloading schedules.

In October 2003, the CB&I project team mobilized to the site to begin installation of the pile cap foundation for the new storage tank as well as to initiate other civil work on the site. Since then, installation of the pile cap has been completed. The storage tank's outer bottom and portions of the outer shell and roof have been erected. Dikes for the new tank as well as underground piping in the tank area are also being erected.

Work in the process area began in earnest in 2004 with the installation of foundations for a new pump building, recondenser and vaporizers. Portions of the underground piping were installed, as were tie-ins that could be made without an outage. By completing these tie-ins early in the project, the project team shifted work from very late in the schedule so that a more balanced work plan was created.

The CB&I project team that is responsible for safety, quality and schedule on the project has a varied background but brings many years of experience doing work on the United States Gulf Coast to the project. By blending experiences, in the construction of LNG storage tanks, process piping and petrochemical outage work, along with an absolute commitment to safety, the project team provides the knowledge and experience necessary to plan and deliver a successful project.

**Wayne Nixon**







## CENTRAL & SOUTH AMERICA



Aerial view of the construction site for the 210-megawatt electrical power plant in Choloma, Honduras.

### CB&I Helps Complete Choloma, Honduras, Power Plant in Record Time

2004 has been a great year for work in Honduras for CB&I. Currently, the Company is finishing up two propane spheres for ChevronTexaco in Puerto Cortes, Honduras, as well as building two cone roof tanks (CRTs) for Hondupetrol in Puerto Cortes that will store the heavy fuel oil needed to operate power plants. In addition, we are engaged in a large expansion project at the tank farm previously built for the Lufussa power plant in Western Honduras and we have begun construction on another CRT in Tela, Honduras. Our most recent project is a CRT farm built to support the fuel and lubricant requirements of a 210-megawatt heavy fuel oil fired electricity-generating plant in Choloma, Honduras. What is particularly noteworthy about this project is that CB&I completed the tank farm less than five months after contract award.

MAN B&W Diesel AG needed to supply five diesel engines to power the plant's electrical generators by the end of March 2004, so they contacted us to supply 14 CRTs to the plant within this timeframe. Due to the project's challenging schedule, we would have to rely on our experience and connections with key Central American countries and subcontractors to complete the project on time. CB&I built similar tank farms for Wartsila in Guatemala, Azua, in the Dominican Republic; for the previously mentioned Lufussa power plant in Western Honduras; and for MAN B&W Diesel AG seven years ago in El Salvador. We were determined to achieve the 11-week field schedule, which was originally estimated at 18 weeks.

CB&I Engineering, led by John Hormann's team, began detailing the main steel for the bottom, shell and roof of the first seven tanks in late November 2003. The demanding schedule called for the rolled shell plates to be delivered to the Port of Houston by the end of December 2003. The Houston fabrication shop exceeded all expectations and providing 94 shell plates to the port by the cutoff date. By December, MAN B&W Diesel AG had more than 400 people working in three shifts seven days a week on the civil work and foundations for the power plant and tank farm.

To support the tank erection schedule, CB&I had to have the liners and cathodic protection installed in January 2004, while the owner was clearing materials and equipment through customs. Superintendent Owen Penniston organized the field crew, and supervision was brought in from Trinidad, Jamaica, Guatemala, El Salvador, Panama, Venezuela, the Dominican Republic and the United States.

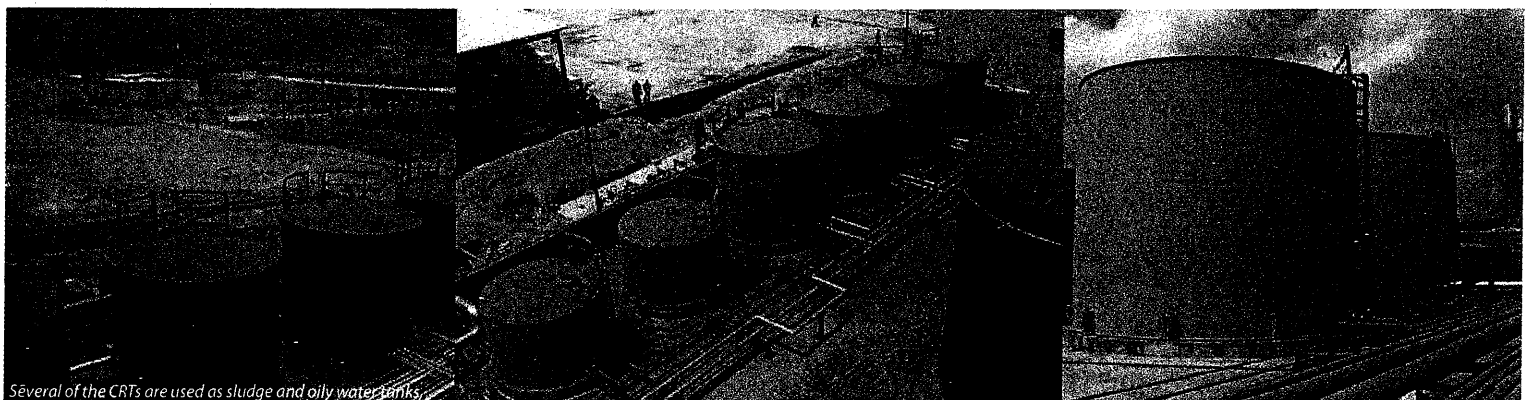
CB&I's resourcefulness and "can-do attitude" overcame all project challenges, and on March 31, 2004, the electric power plant was started up on schedule.

As promised, CB&I got the project done safely, on time and within budget. In the process, the Company also helped to set a world record for starting a new power plant of this size in the shortest amount of time. The inauguration of the power station was attended by Honduras' President Ricardo Maduro, who pointed out that commissioning of the power plant would finally stop the need for the import of expensive electricity and, therefore, make a considerable contribution to advancing Honduras' progress.

"The resulting savings will enable us to finance school lunches for some 800,000 children within the next five years, to employ 2000 policemen, 500 physicians, 1000 nurses and 1000 teachers", he stated.

We are proud to have had an opportunity to perform our portion of the project. Everyone in Sales, Engineering, Manufacturing, Procurement, Traffic and the field crew should be commended for the long hours and around-the-clock effort they put forth.

**Dave McIntosh**



Several of the CRTs are used as sludge and oily water tanks.

# WIND ENERGY

## CB&I - Supporting the Development of Wind Energy

30 years ago the use of wind power was a pipe-dream; 15 years ago it was being considered in a most theoretical way in research laboratories. Now it is a reality: power is being generated from the wind and wind energy market growth is explosive.

The current interest in wind energy for electricity generation can be traced back to the oil crisis of the 1970s. A number of government-funded research and development programs were initiated during this period, particularly in the United States, Denmark, Germany, Sweden, the Netherlands and the United Kingdom. Globally, wind energy is rapidly growing. It has become a multi-billion dollar industry with annual growth of around 25%. There is favorable regulatory support and technology development is ongoing to reduce the generation cost to that of conventional fossil fueled electricity. Wind energy continues to be the world's most dynamically growing energy source. By the end of 2003 global wind energy production stood at 39,151 MW. By 2008 this figure is expected to reach 100,000 MW. In Europe, offshore wind accounts for about 10% of wind energy produced, but this figure is set to rise in the next few years as large offshore wind farms are developed. Wind, and offshore wind in particular, is set to boom.

Country	Additional capacity in 2003 (MW)	Rate of growth in 2003 (%)	Total capacity installed End of 2003 (MW)
Germany	2608	21.7	14609
USA	1685	36.0	6390
Spain	1372	28.4	6202
Denmark	230	8.0	3110
India	408	24.0	2110
Italy	119	15.2	904
Netherlands	187	27.3	873
United Kingdom	97	17.6	649
China	99	21.2	567
Japan	173	51.5	506
Australia	276	197.9	415
Sweden	71	21.6	399
Greece	99	35.9	375
Canada	86	36.4	322
Portugal	105	54.1	299
France	91	61.5	239
Australia	94	91.5	197
Ireland	49	35.8	186
Rest of World	133	19.4	819

Source: World Wind Energy Association, March 2004

Onshore wind energy has grown enormously over the last decade to the point where it generates more than 10% of all electricity in certain regions (such as Denmark, Schleswig-Holstein in Germany and Gotland in Sweden). Currently the wind market is dominated by land-based projects, but the developers are looking offshore for greater wind resources and lower costs. Plans are well advanced for large projects in Denmark, Sweden, Holland and Germany and now the UK. Current UK legislation requires that 10% of energy is produced from renewable resources by 2010 and the UK government has already indicated its intent of raising this target to 15% by 2015. As of August 2004 there are 89 completed wind farm projects in the UK, both on and off-shore. These 89 projects have 1123 turbines producing 767 MW of electricity, which is enough to power 440,000 homes.

Best of all, the resultant reduction in pollution from this clean energy compared to hydrocarbons is enormous:

- CO<sub>2</sub> reductions - 1,730,000 tonnes
- SO<sub>2</sub> reductions - 20,200 tonnes
- NO<sub>x</sub> reductions - 6,050 tonnes

Offshore wind has the potential to deliver substantial quantities of energy more cheaply than many other renewable sources, but is currently more expensive than onshore wind. It also has the added attraction that it has minimal environmental effects and, broadly speaking, the best European resources are reasonably well located relative to the centers of electricity demand. Wind speeds are generally higher offshore than onshore and with reduced turbulence. Experience from early installations is already bringing down energy costs and so the prospects for large-scale exploitation of Europe's large resource at modest cost are becoming increasingly attractive. Additionally turbine size on land is limited to around 2MW, but offshore the target must be 10MW turbines to reduce the cost. Currently the most powerful offshore turbine in production is the GE 3.6MW.

Offshore wind farms promise to become an important source of energy in the near future: it is expected that within 10-15 years, wind parks with a total capacity of thousands of megawatts will be installed in European seas. This will be equivalent to several large traditional coal-fired power stations. Plans are currently advancing for such wind parks in Swedish, Danish, German, Dutch, Belgian, British and Irish waters.

The pace of technology development continues to be rapid, partly due to the research and development programs currently under way in most of the industrialized nations, largely due to market stimulation programs. The primary aim of the market stimulation programs is to encourage the development of technologies with low (or in the case of wind energy, zero) carbon dioxide and other emissions. Rapid growth in Denmark, Spain and Germany shows no sign of slowing and there are plans for further capacity in the United States, Canada, the Middle East and the Far East. With the development of a number of new wind energy proposals in the UK and Europe, and with such excellent potential on its doorstep, CB&I with its extended capabilities to provide services for upstream, downstream and now airstream, has the opportunity to be at the center of this new industry. The design, engineering and installation of offshore and onshore wind energy requires just the type of skills and facilities that are already available in CB&I.

### CB&I Onshore Wind Tower Experience

CB&I built support towers for wind turbines at Goldendale, Washington, and performed similar work on other towers built in Medicine Bow, Wyoming; near San Francisco, California and in Hawaii. CB&I was a subcontractor to Boeing Engineering and Construction Company Co., which was the prime contractor on the structures for NASA and the U.S. DOE. Each of the experimental turbines was capable of producing 2500 kilowatts of electricity. CB&I was contracted by Boeing to fabricate and erect the support towers for three wind-turbine generators (WTG) in Washington. The three WTGs are positioned 1500 to 3000 feet apart in a triangle on hills overlooking the Columbia River Gorge. As general contractor, Boeing handled the installation of all other components. Each WTG measures 350 feet tall with blades vertical and weighs 316 tons. More than one-third of the weight of each is attributed to the CB&I-built cylindrical-shaped all-welded steel tower soaring 200 feet into the sky. CB&I also participated in the fabrication, erection and shop painting of another Boeing designed WTG near Medicine Bow.

# Special Features

This 2.5 megawatt turbine generator was built for the Bureau of Reclamation of Colorado. CB&I also built a fifth all-welded steel tower for Boeing and Pacific Gas & Electric. A 2.5 megawatt turbine generator, similar in size and appearance to the WTGs in Washington and Wyoming, this WTG was built on the windswept hills of Solano County. In addition, for Boeing/Hawaiian Electric, CB&I built a 192' tall tower, 15'-18" in diameter at Kahuku, Hawaii. The blade was 310' in diameter and the turbine generator was a type Mod 5. (5MW). CB&I has also built a variety of other specialized, large metal structures. These have included research wind tunnels, aircraft engine test facilities, space simulation chambers for testing satellites and their components, aluminium laser target chambers and nuclear reactor vessels.

## Major Offshore Contractor

Offshore oil and gas forms one of the core business areas of CB&I John Brown, part of CB&I Process & Technology Group. CB&I John Brown is one of the leading offshore engineering and project management companies, and can provide everything from field concept screening studies through to realization of full EPC offshore projects. CB&I John Brown is a 900 strong group of people with a heritage stretching back through Earl and Wright, Humphreys and Glasgow and John Brown itself. Our projects span all major offshore areas of the world. The geographical areas covered by CB&I John Brown projects represent a diverse range of industry and local requirements, and it is a corporate culture of CB&I that it establishes in each of its operational areas an organization and commitment locally which ensures real added value both to its client and to the local community.

## CB&I John Brown Offshore Wind Energy Experience

We have been active in pursuing the emerging offshore wind energy market in Europe for the last 10 years. The parallels with offshore oil and gas are obvious and the offshore industry has much to offer. There are some significant differences, though. Wind farms are located in shallow water, often on sandbanks, where shipping is not an issue. Here, breaking waves add significantly to the environmental loads, and the dynamics of the turbine are the dominant fatigue loading. We are transferring the best of our offshore oil and gas structural, marine and foundation technologies into the design of offshore wind farms. However, due to the unmanned nature of these facilities cost must be kept to a minimum. Offshore wind speeds are higher than coastal wind speeds at sea level. Ten kilometers from the shore, speeds may be 25% higher than at the coast and there are large areas of the North Sea and Baltic with wind speeds above 8 m/s (at 50m). In theory, estimating offshore winds should be straightforward, as the surface of the sea is more homogeneous than the land, but in practice the influence of land features can extend a considerable distance (c. 50 km or more) out to sea. This makes estimation difficult in the zone where most early wind farms will be built. For this reason Met masts are installed prior to wind farm development to collect this data, and allow optimization of the wind farm layout. The design of offshore wind turbines demands knowledge about wave conditions, particularly the extreme wave heights. Wave heights generally increase with wind speed although there is a time lag, so that extreme winds and waves do not necessarily coincide. Wave heights increase with water depth and so the extreme waves vary with geographical location. The design of offshore wind farms may need to take into account the possibility of ice formation in the sea, particularly in more northern latitudes. This affects foundation design, the design of the structure (to protect it against possibility of collisions with ice floes) and operation and maintenance strategies. In regions where the sea freezes over completely, this is likely to influence estimates of the offshore resource, simply because access for maintenance purposes may be completely impossible for periods of up to five months. The logistics of installation are also an order of magnitude more complex because of the multiple activities necessary for example, a thirty unit wind farm requires in excess of 150 lifts, with continuous construction operations offshore for up to six months.

Indeed, many people believe that the availability of suitable installation vessels may be one of the key constraints that finally determine the rate of deployment of offshore wind farms, both in the UK and in Europe. Based on the existing market, our current strategy is to pursue contracts for the supply and installation of the Balance of Plant (BOP) wind farms, and to market our expertise in engineering, project management and offshore logistics.

The BOP consists of everything but the Wind Turbine Generator (WTG), namely the WTG foundation support, offshore transformer platforms, offshore inter-array cabling, offshore and onshore export cables and connection into the electrical grid via a substation.

Over the last few years our work carried out in the wind industry consisted mainly of Owner's Engineer's roles. We are now entering a different phase; we have teamed up with GE Wind Energy (GEWE) to target specific large offshore wind farm developments in the UK. For 2004 these have included the Powergen Robin Rigg (200MW) and the Centrica Lynn and Inner Dowsing (180MW) Projects. Both of these projects are due for award early in 2005 and are part of the initial Round 1 licences granted by the UK authorities. If successful, GEWE will supply up to 60 3.6MW wind turbines at each site with the BOP being provided by CB&I. A DTI Report published at the end of 2002 predicted that worldwide expenditure on offshore wind farms will be £644 million per annum by 2007. The Round 2 licensing in the UK is focused on three areas; the Wash, the Thames Estuary and Liverpool Bay. 29 developers expressed interest and two of the proposals are for wind farms with capacities of more than 2GW, equating to 400 turbines. These will be billion-pound projects with installation taking several years, and will provide significant commercial as well as technical challenges. On 18th December 2003, the DTI and The Crown Estate announced 12 successful developers, which have been offered 15 site leases, with a potential combined capacity of 5.4 to 7.2GW of offshore wind energy. Round Two, also known as 'Further Offshore' launched in July 2003 and licenses were awarded in December 2003.

*Mike Smith*



A 3.6MW GE Wind Turbine Generator (WTG)  
Arklow Banks, Ireland, courtesy of GE

# Business Profile

## Water Storage and Water Treatment

Since CB&I built our first elevated water storage tank in 1894 in Fort Dodge, Iowa, our water storage division has provided a steady flow of business that has resulted in the design and construction of more than 25,000 water tanks during the past 100 years. Currently, we construct approximately 175 tanks each year. As new technologies and water markets are developed and the demand for clean water increases, we are planning to meet current and future needs in the evolving water storage and water treatment markets.

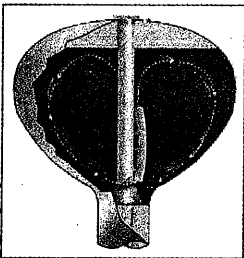
### Water Storage

Most water tank companies are only able to offer limited types of tanks in certain regions, whereas CB&I because of our worldwide execution presence can deliver any style of tank regardless of location. This is one of the main differentiators between us and our competitors. Although we have an expansive offering of solutions, all our tanks are generally classified in one of two categories: elevated and ground storage. A tank is considered elevated if it stores water at a height above the ground sometimes 100 feet or more while the ground storage tank, also referred to as a flat bottom tank, stores water at ground level. So how do municipal and private owners decide between building an elevated tank versus a flat bottom one?

Owners generally consider several factors, including initial cost, operating costs and aesthetics. Elevated tanks usually result in lower operating costs because once water has been pumped into the tank, gravity takes over and does the remaining work. This system permits water availability even during power outages, which is especially important for tanks designated for fire protection. CB&I has sold more Waterspheroid® elevated tanks in recent years followed closely by the Hydropillar™ than other types of water tanks. Reliable and secure, the Waterspheroid is often found in areas of high visibility. The Waterspheroid is slender and sleek and takes up less surface area, which makes it aesthetically more appealing to some customers. For larger tanks with capacities exceeding one million gallons, our Hydropillar and Composite Elevated Tank tend to be more economical and are often the preferred tank choices.

Our ability to take the available space inside the support tower and convert it into usable space has made the Hydropillar popular with many customers. CB&I has installed community centers, fire stations, meeting rooms, storage areas and offices inside these towers. This ability to design, build and market these tanks with multiple uses and purposes also differentiates us from our competitors. We have recently developed a new innovative product, called the Precast Waterspheroid, which is similar to the Composite Elevated Tank.

Both are supported by a concrete shaft; however, the Precast Waterspheroid uses concrete elements that are precast at a supplier's facility and shipped to the job site to be erected by the crew. Over the years, CB&I has developed several innovative processes for water storage that have helped the company maintain a leadership position in the water industry.



One such innovation is the patented FreshMix™ mixing system, which eliminates stagnant sections of water by using a vertical draft tube and inlet nozzle to keep the water circulating (see Figure 1).

With no moving parts, no additional energy and low maintenance costs, this system is being selected more and more frequently by tank owners.

While expanding on these innovations helps the company continue to meet the needs of its customers, we know that we must do so while at the same time providing a low-cost service that makes these projects

### Water Treatment

CB&I continues to expand our water business base by pursuing new opportunities within the water market. The company has a number of innovative water treatment systems available to meet the needs of the water treatment market, including the ClariCone™ and the FiltraCone™.



The ClariCone™ design

The ClariCone's design makes it more economical to operate and maintain than many other water treatment systems. Mixing, tapered flocculation and sedimentation all take place within a completely hydraulically driven vessel. They are constructed entirely without mixers, scrapers, recycle pumps or other continuously moving parts, eliminating the need for oil changes and gear overhauls.

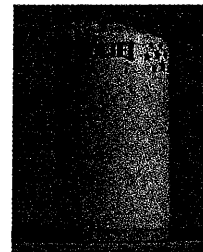
The FiltraCone™ system brings together the ClariCone™ clarifier with self-backwashing peripheral filters in a fully enclosed system, providing exceptional treated water quality with minimal maintenance, power use and cost.

### Safety

Safety has always been an integral and critically important part of our culture. Because much of the construction work for water projects is performed at heights, safety is a top priority for these projects. Our goal is to work safely with no injuries.

### Look to the Future

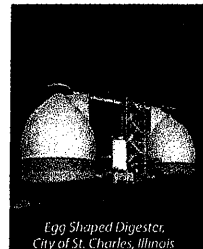
CB&I has won a number of awards for our innovative water solutions. Ultimately, however, it is the people who work on the water projects that make us successful. Staffed with a skilled and dedicated workforce, we have been in the water business for more than 100 years; a tradition the company hopes will continue for years to come.



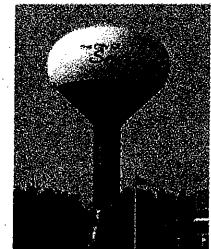
3,000,000 gallon standpipe,  
City of Joliet, Illinois



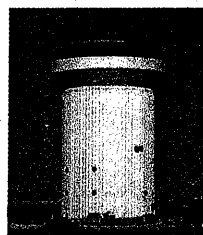
1,500,000 gallon Composite,  
City of Canton, Mississippi



Egg Shaped Digester,  
City of St. Charles, Illinois



1,500,000 gallon Waterspheroid®,  
City of South Bend, Indiana



3,000,000 gallon Hydropillar™,  
Jefferson County Commission

# Technology & Innovations

## Coke Drums Designed for Longer Life

The bulging and eventual cracking of coke drums in the vicinity of their circumferential weld joints creates a maintenance and reliability problem that has plagued refineries for decades. So when CB&I decided to address this challenge, we developed an innovative solution that didn't just reduce bulging and cracking in the circumferential weld seam, it eliminated the seam altogether, leading to the production of vessels with a longer operating life and lower maintenance costs. The solution: Vertical Plate Coke Drums™.

### **The Bulging and Cracking Phenomenon**

Industrial petroleum coke is a solid coal-like substance used primarily as a fuel for the production of anodes, electrodes, graphite or similar carbon-based products. Petroleum coke is produced by delayed coking, a batch process in which heavy residual feedstocks are superheated and introduced into a vertically oriented cylindrical "coke drum," where the vapors are removed for further processing, leaving behind a high-density hydrocarbon residue. This residue, referred to as petroleum coke, is then water quenched to allow for its removal once the vessel has been depressurized, as well as to cool it to a point where it will not self-ignite when exposed to air. This severe operational thermal cycling experienced in the coke drums during the delayed coking process is what tends to be the primary cause of the bulging and cracking that occurs over time. Depending on the operating parameters, type of coke produced, feedstock and other variables, the cycle time of a given unit can last anywhere from 14 to 36 hours. And while it is recognized that a shorter, more severe cycle hastens the onset of bulging and cracking, in order to meet the demand for coke production (which has steadily increased due to the processing of heavier crudes), few refinery owners have the option of increasing cycle times. Instead, they must resort to either shortening their coking cycles, adding more vessels or doing both. Thermal and stress analyses have shown that the bulging and cracking phenomenon is related to the higher-strength weld metal in the circumferential girth seams, which does not yield at the same rate as the base material. The resulting stiffening effect causes a "constrained balloon shape". Because of this restraint, the base materials begin to weaken and ultimately fail due to cracking. The bulging is most severe in the lower cylindrical portion of the coke drum, where the shell is thickest.

### **Developing a Solution**

Over the years, the coking industry has developed or proposed numerous solutions for alleviating the stiffening effect of the circumferential weld seams and increasing vessel life, including: "blend grinding" the weld profile, decreasing the weld metal strength to be within a closer percentage of the base metal yield, specifying higher alloy material, requiring more non-destructive examinations and a stricter acceptance criteria, and maintaining a uniform shell thickness throughout the vessel. While certain approaches have some technical merit, the majority of them typically resulted in cost increases and limited success. To develop a more reliable coke drum design, CB&I focused on eliminating the circumferential weld seam altogether. Previous research had shown that the longitudinal weld seams required to make the shell courses were seemingly unaffected by the thermal cycling, except where those seams intersected the circumferential ones. By incorporating this knowledge, along with our technical expertise and experience from other applications, we created a process for successfully fabricating shell plates that could reach lengths of up to 46 feet without a circumferential weld seam. Depending on plate size limitations, up to five circumferential weld seams can be eliminated, resulting in a more reliable coke drum that can endure the most severe thermal cycles and outlast any traditional vessel currently in operation. The concept is applicable not only to new construction (shop built or field erected) projects, but also to retrofit applications, where the lower cone and top head sections are reused. We have patented our Vertical Plate Coke Drum technology in the United States, and patent coverage

### **Vertical Plate Coke Drum Applications**

Since 2000, CB&I has completed four Vertical Plate Coke Drum retrofit projects, all of which were completed at an equal or lower cost to the customer than traditional methods and were much less expensive than full-vessel replacement. The first successful installation took place at a refinery in the western United States in 2000.

The client had originally planned on replacing two 20-foot-plus sections of distorted and cracked shell on two of its coke drums, which would have left circumferential seams in the section of the drum where the bulging and cracking was most pronounced. However, after reviewing CB&I's vertical plate concept, the client decided to modify its plan and replaced all but the upper nine feet of shell with two vertical plate courses reaching heights of 23.5 feet and 40 feet, respectively.



*The vertical plates are lifted into place at a refinery in the western United States.*

In addition to forming and welding the plates and erecting the vessels concurrently on a turnaround basis, CB&I also replaced a large nozzle in the top head and sections of the skirt support, and performed post-weld heat treating and hydrostatic testing all within a span of 28 days. The vertical plate solution was so successful, the client subsequently contracted CB&I to replace the shells on an additional four coke drums.

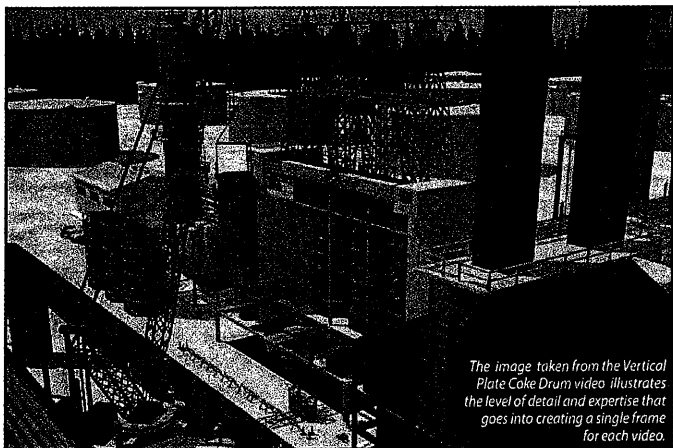
Overall, CB&I has completed a total of 11 Vertical Plate Coke Drums. These projects have included the full circumferential can section replacement of shells ranging from 35 to 73 feet, as well as new lower knuckle and skirt assemblies. Currently, we are pursuing several other coke drum projects, including some that require a full coke drum replacement to add to the refinery's existing coke drum production. Replacing an entire vessel involves removing the derrick on top of the structure with one lift and then removing the damaged coke drum and setting the new one into place.

It is a unique process that requires extensive planning and coordination, but one that we have the expertise to execute. As feedstocks become heavier and the need for increased coking capacity continues to rise, refiners will need more than ever to have coke drums that last longer and come at no greater cost than traditional methods. CB&I has developed what is probably the most cost-effective solution to meet those needs. Whether it is a retrofit application or a full vessel replacement, we believe our Vertical Plate Coke Drums will be able to endure the most severe thermal cycles and outlast any conventionally

# Marketing News

## 3-D Animated Videos

In 2004, CB&I plans to produce five videos on selected technologies. The videos encompass the following subjects: Vertical Plate Coke Drum™ Technology, Strata-Therm® Thermal Energy Storage (TES) Technology, Sulfur Recovery Technology, Hydrogen Technology and Gas Processing Technology. The videos are tools that utilize three-dimensional computer animation to depict our technologies and EPC services. Each video integrates computer-generated animated images, photos and other graphics, along with voice narration and sound effects, to describe the features and benefits of the technology on which it is focused. Each video is available on CD-ROM, runs about 5-6 minutes, is playable on any computer system. We are looking at Arabic, Chinese, Russian, and Spanish as possible languages for translation. In 2005, we plan to produce videos for other areas. For instance, within the production and distribution markets served by CB&I John Brown, videos for our offshore oil and gas production platforms and pipelines are being explored.



## Tradeshows

We will demonstrate our expertise, technology and track-record during a number of forthcoming global tradeshows:

### Remaining 2004

11<sup>th</sup> ADIPEC, 10-13 Oct., Abu Dhabi, UAE

PowerGen, 30 Nov.-2 Dec., Orlando, FL, USA

European Wind Energy (EWEC), 22-25 Nov., London, UK

### 2005

GASTECH2005, 14-17 March, Bilbao, Spain

NPRA Annual Meeting, 13 March, San Francisco, CA, USA

OTC, 2-5 May, Houston, TX, USA

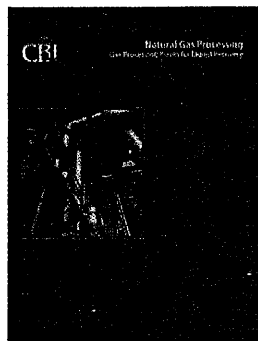
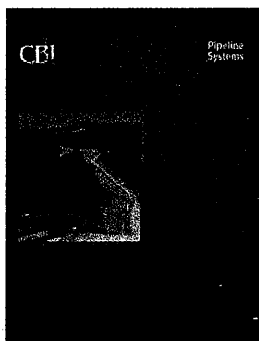
AWWA, 12-16 June, San Francisco, CA, USA

7th World Congress of Chemical Engineering, 10-14 July, Glasgow, UK

WEFTEC, 29 Oct-2 Nov., Washington DC, USA

PowerGen, 6-8 Dec., Las Vegas, NV, USA

## New Brochures



## Hot off the Press....

A number of CB&I employees have written articles that have been accepted in key industry publications and trade journals. So far this year, published articles have portrayed challenging projects, innovative technologies and critical regulatory solutions.

**"Think Tanks" - Hydrocarbon Engineering, September 2004** In October 2003, CB&I completed 28 storage tanks and one butane sphere as part of a project that provided Papua New Guinea with its first oil refinery. The article describes tank designs and the procurement and construction challenges of performing a project this size in a logistically remote area. The project is an excellent model of the advantages of the EPC approach.

**"Leading the way in the Caspian" - Pipeline & Gas Technology, July /August, 2004** A special report that profiles CB&I's pipeline capabilities and the ways CB&I John Brown uses latest technologies and engineering methods for SCP, BTC pipeline projects. An overview of our past and current projects in the region and engineering methods and technologies, such as state-of-the-art Geographic Information Systems (GIS), is included.

**"A Sense of Achievement" - MEED, July 2004** Features a special report that profiles CB&I. Phil Asherman, Executive Vice President and Chief Marketing Officer of CB&I, was interviewed for the article which opens with a discussion of three of the outstanding engineering achievements of 1969, including the Apollo moon project, Boeing's 747 and CB&I's Khazzan offshore storage facility. CB&I's history in the Middle East is noted. Current projects in the region are described.

**"Membrane Separation for Clean Fuels" - PTQ** The article describes how membrane technology can be used to remove sulfur from naphtha streams to reduce the volume of product sent to the hydrotreater. This technology, named S-Brane™, can be integrated into a refinery's overall clean fuels strategy to effectively remove sulfur at a relatively lower capital cost.

**"LNG Storage Tanks: Advancements in Weld Inspections" - Hydrocarbon Processing, July 2004** The article describes a technique developed and patented to use ultrasonic technology instead of radiographic technology for non-destructive examination of weld joints. It explains how CB&I has developed a methodology and apparatus that provides us with the ability to use UT technology for these weld inspections and lists some of the advantages for doing so.

**"Advances in Egg-shaped Digester Design Enhance Life Cycle Benefits" - Water and Wastewater International, June 2004** The article describes how recent enhancements incorporated into the original anaerobic egg-shaped digester (ESD™) design have simplified mechanical systems. These improvements have led to accelerated construction schedules and lower capital costs. Examples from three CB&I ESD projects illustrate this.

**"Beating the Clock" - Hydrogen Engineering, April 2004** The article describes how off-the-shelf design and modular construction can help refineries meet deadlines for clean air and clean fuels regulations. Considerable cost savings can be realized. Proprietary technologies developed by CB&I TPA can be used in designing sulfur recovery units and tail gas treating units that meet regulatory standards. These units can be fabricated offsite while permitting activity is still underway, which can greatly accelerate tight schedule.

**"CB&I - a wide range of services for the Russian Oil & Gas Market" - Oil & Gas (CIS&EE), February 2004** The article, published in Russian, describes CB&I's wide capabilities and services for the Russian oil and gas market.

**"Time For a New Hydrogen Plant?" - Hydrocarbon Engineering, February 2004** The authors discuss alternatives for refinery operators concerned with increasing hydrogen production in their plants and provide technical and economic evaluation methodologies for determining how best to optimize the plant while addressing the need for additional hydrogen.

**"The Dominican Republic LNG Import Terminal: Challenges in Engineering, Procurement and Construction" - LNG Journal, January/February 2004** A profile of an LNG import terminal built by CB&I on a lump-sum, turnkey basis for AES Corporation in the Dominican Republic. This import terminal was completed two months ahead of schedule, despite the remote location and challenging conditions. The terminal, which was commissioned in 2003, provides a new, much-needed fuel source for power generation in the country.

# Safety

## Safety First

At CB&I, we believe that safety starts the minute we scope the project. As an integrated services company, we ensure health and safety in the same way that we achieve quality - by implementing rigorous controls through every phase of our projects. Our ultimate goal is the delivery of our services with zero injuries to our employees and subcontractors while causing no harm to the environment. Our health and safety management program and extensive employee training have resulted in one of the best safety records in the industry. Year after year, our OSHA lost workday cases and recordable cases have been far lower than the industry average as reported by the U.S. Bureau of Labor Statistics. We've executed thousands of projects without a single lost workday or recordable incident. And our projects have garnered numerous safety awards from customers, industry associations, and safety organizations worldwide.

### Safety Benefits the Customer

We make safety our top priority because it is the right thing to do. But we also know that safety benefits our customers. It:

- **Reduces costs** A strong safety record reduces our customers' labor costs and the expenses they incur for supervising their contractor's safety practices.
- **Lessens risk** Safer work practices reduce the chance of an incident occurring at the customer's facility and therefore reduce the customer's liability.
- **Minimizes impacts** Our global Crisis Management Team is trained to respond quickly in the event of a natural disaster, operational upset or unlikely construction event. Their knowledge and preparedness is key to minimizing the impact of an incident.
- **Improves compliance** Our safety focus helps customers comply with applicable regulations and standards.
- **Ensures peace of mind** Our customers can be confident they have a capable, safety-focused contractor with well-trained personnel on the job.

Safety is the responsibility of every employee at CB&I, and zero injuries is our foremost goal. Around the world, our trained personnel work to ensure the safety of themselves, their coworkers, the customer and the public.

## Safety News

### CB&I Howe-Baker receives Excellence in Safety Award

CB&I Howe-Baker was recognized for its exemplary safety record by the Gas Processors Suppliers Association when it was presented with the prestigious Excellence in Safety Award at the annual Gas Processors Association meeting held in March 2004 in New Orleans, La. CB&I Howe-Baker was one of only two contractors to receive this honor, which was presented "in recognition of an outstanding Safety record and ongoing efforts in the development of an exemplary Safety Program in the Gas Processors Suppliers industry".

### CB&I Constructors Crew at El Segundo Refinery Receives Safety Award

CB&I Constructors crew at the Chevron refinery in El Segundo, Calif. recently was recognized for its exemplary safety performance. In March 2004 the El Segundo crew received the 2003 GOLD Safety Award from Chevron for outstanding safety performance during the Annual Contractor Award Ceremony.

### Gold Standard: CB&I John Brown has struck GOLD again

CB&I John Brown was awarded a RoSPA Gold Award for Occupational Safety in 2004, following receipt of this award in 2003 and 2002. RoSPA awards are made to organizations that demonstrate an ongoing commitment to occupational health and safety, and that are able to prove they have implemented the guidance contained in the Health and Safety Executive's (HSE) publication "Successful Health and Safety Management". We are delighted that our commitment to exemplary performance in the field of health and safety has been recognized.

### CB&I Matrix Honored by Texas Safety Association

CB&I Matrix was recently selected as a recipient of the Texas Safety Association's highest honor, the prestigious Chairman's Award for outstanding safety programs and records. The award was presented to CB&I Matrix at the Opening Session of the Texas Safety Association's 2004 Annual Conference in San Antonio. According to Safety Coordinator Jeanie Sistrunk, CB&I Matrix has achieved success by "Designing and Building with Safety First" through the helping hands of qualified and well-trained employees who continuously strive toward their goal of an accident-free workplace. CB&I Matrix has a strong belief that all accidents are preventable; a framework consisting of proper policies, procedures and training methods, and a supportive management team that places "Safety as Top Priority".

### NPRA Recognizes CB&I for Safety Achievements at National Safety Conference

Several CB&I subsidiaries were presented with awards by the National Petrochemical & Refiners Association (NPRA) for their exemplary record of safe operations in 2003. The awards presentation took place during the safety awards banquet held as part of NPRA's National Safety Conference April 27 - 29, 2004, in Austin, Texas. At the safety awards banquet, the NPRA recognized various facilities in the petroleum and petrochemical manufacturing industries, as well as the contractors supporting those industries, that had achieved the highest possible safety standards in their daily operations in 2003. NPRA Chairman of the Board and Chief Operating Officer of Valero Energy Corporation William R. Klesse presented a total of 621 awards to 76 refineries, 94 petrochemical plants and 103 sites with contractor recognition. CB&I was one of 81 companies to receive a Contractor Award for Meritorious Safety Performance at the 103 facilities with contractor recognition. This award is given to contractors that have achieved a total recordable incidence rate of 1.5 or less for the 2003 calendar year at an individual site and have worked a minimum of 20,000 hours at that particular site.

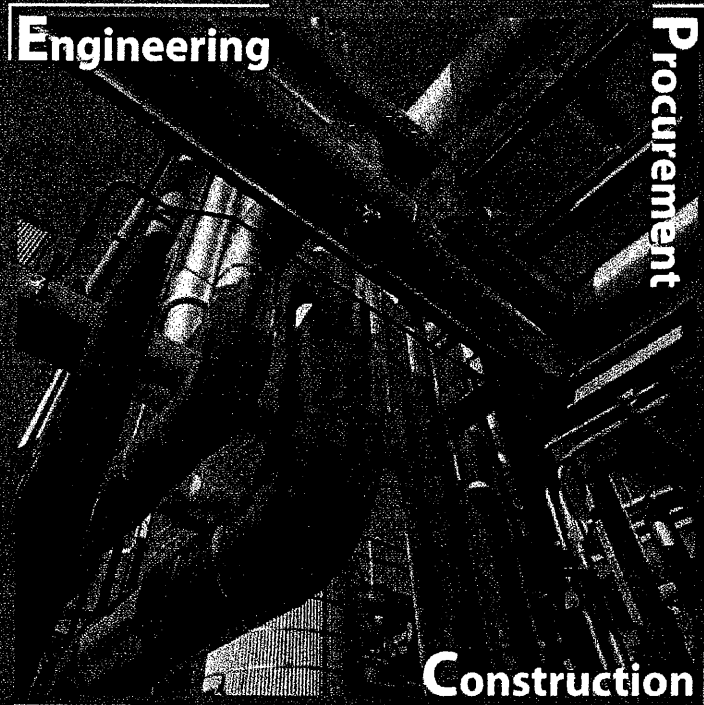
CB&I Services Inc. was presented with a Contractor Award for its work at the CITGO Petroleum Lemont refinery. This facility also received the 2003 Honorable Mention Distinguished Safety Award. Randy Hynek, CB&I Services Manager of Safety, was in attendance to accept the award. A&B Builders Ltd, which is the construction subsidiary of CB&I Matrix, was presented with a Contractor Award for its performance at the Premcor refinery in Memphis, Tenn. Gerald Whatley, Safety Director for A&B Builders, was on hand to accept the award on A&B Builders' behalf.

CB&I Constructors Inc. received two Contractor Awards for its work at the Chevron Refinery in El Segundo, Calif. and the Louisiana Refining Division site of Marathon Ashland Petroleum LLC. Project Managers Mark Meyer and Tim Ford were in attendance to accept the award on behalf of the El Segundo, Calif. refinery crew, and CB&I Constructors Area HSE Manager John Herman accepted the award for CB&I's work at the Marathon Ashland site. Now in its 22nd year, the presentation of the NPRA safety awards is part of a comprehensive safety awards program, which the Association's Fire and Accident Prevention Committee has developed to promote accident prevention in the petroleum refining and petrochemical manufacturing industries and to publicly recognize the excellent record of safety in operations that the industry has compiled.

James R. Rhudy



# A World of EPC Solutions



CB&I is a specialty engineering, procurement and construction company. Since 1889, we have built upon our technical capabilities, our expertise and our financial strength to become one of the world's leading contractors.

Our business strategy is to provide lump-sum turnkey projects to customers that produce, process, store and distribute the world's natural resources. We offer a complete package of integrated engineering, procurement, fabrication and construction services to deliver projects safely, on time and within budget.

We have more than 40 offices located throughout the world. Our global expertise and knowledge of local regulations enable us to reliably deliver projects virtually anywhere.

To learn more, please visit: [www.CBIepc.com](http://www.CBIepc.com)

**Focused • Competitive • Local  
Results Second to None**



[www.CBIepc.com](http://www.CBIepc.com)

production | processing | storage | distribution





**ATTACHMENT B**

**Post-Closing Risk Allocation Agreement (Feb. 7, 2001)**

**Temporarily under seal in accordance with Commission Rule 4.10(g), 16 C.F.R. § 4.10(g).**

ATTACHMENT C

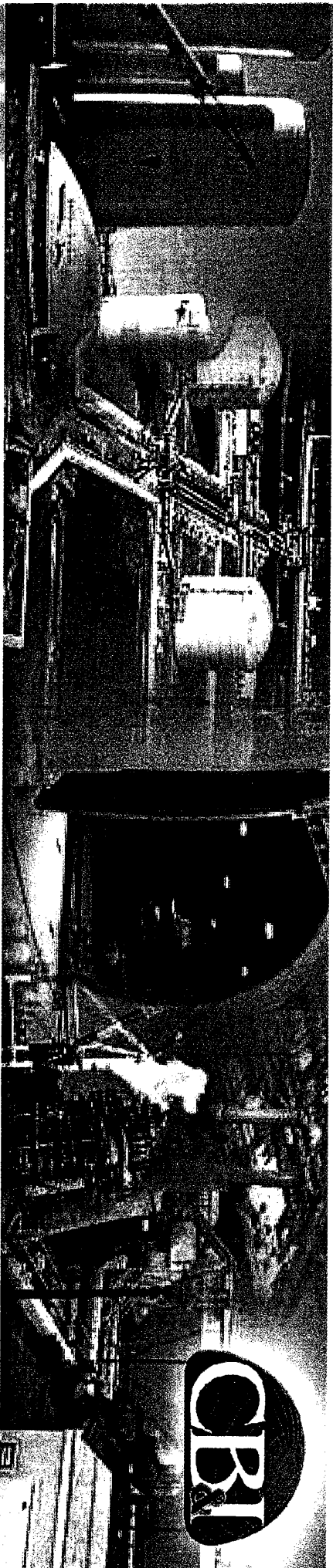
CB&I Investor Presentation

Credit Suisse First Boston, Engineering & Environmental Services Conference

June 2005

Available at <http://www.cbi.com/ir/presentations/documents/CSFBConference-June2005.pdf>

**CB&I**



# **Investor Presentation**

**Credit Suisse First Boston**

**Engineering & Environmental Services Conference**

**June 2005**



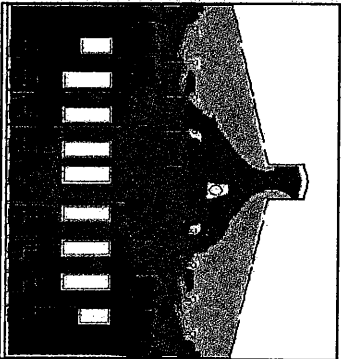
## Forward Looking Statements

*Certain statements made in this presentation constitute forward-looking statements, within the meaning of the Private Securities Litigation Reform Act, regarding the Company's future plans, objectives, and expected performance. Statements that are not historical facts, including statements accompanied by words such as "believe," "expect," "estimate," "intend," or "plan" are intended to identify forward-looking statements and convey the uncertainty of future events or outcomes. The Company cautions that any such forward-looking statements are based on assumptions that the Company believes are reasonable, but are subject to a wide range of risks, and actual results may differ materially.*

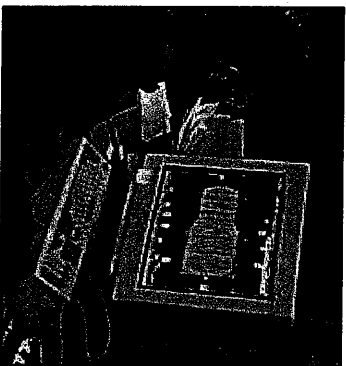


# Fully-Integrated Specialty EPC Contractor

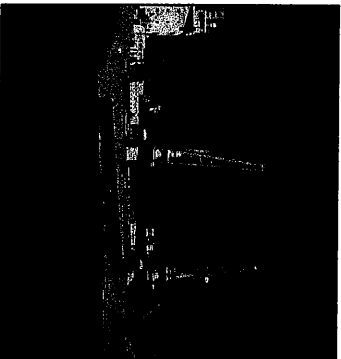
Conceptual Design



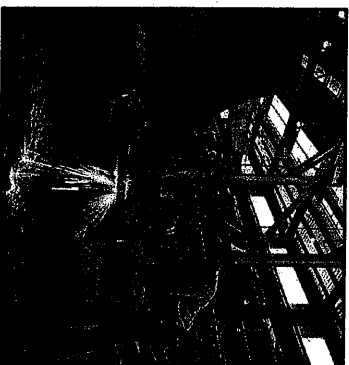
Detail Engineering



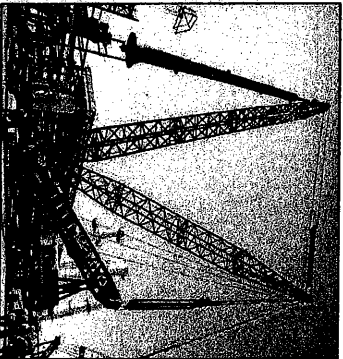
Global Procurement



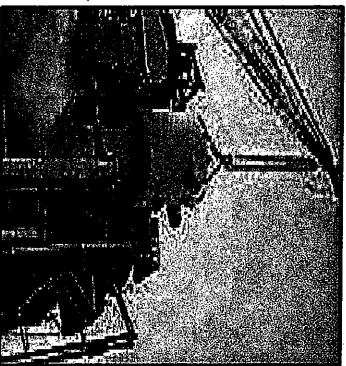
In-house Fabrication



Field Erection



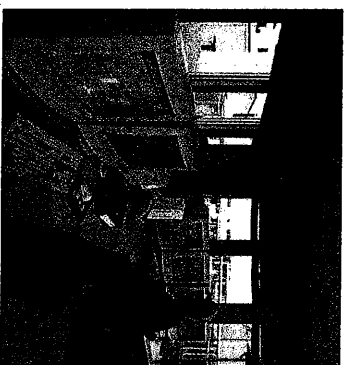
Mechanical Installation



Operator Training

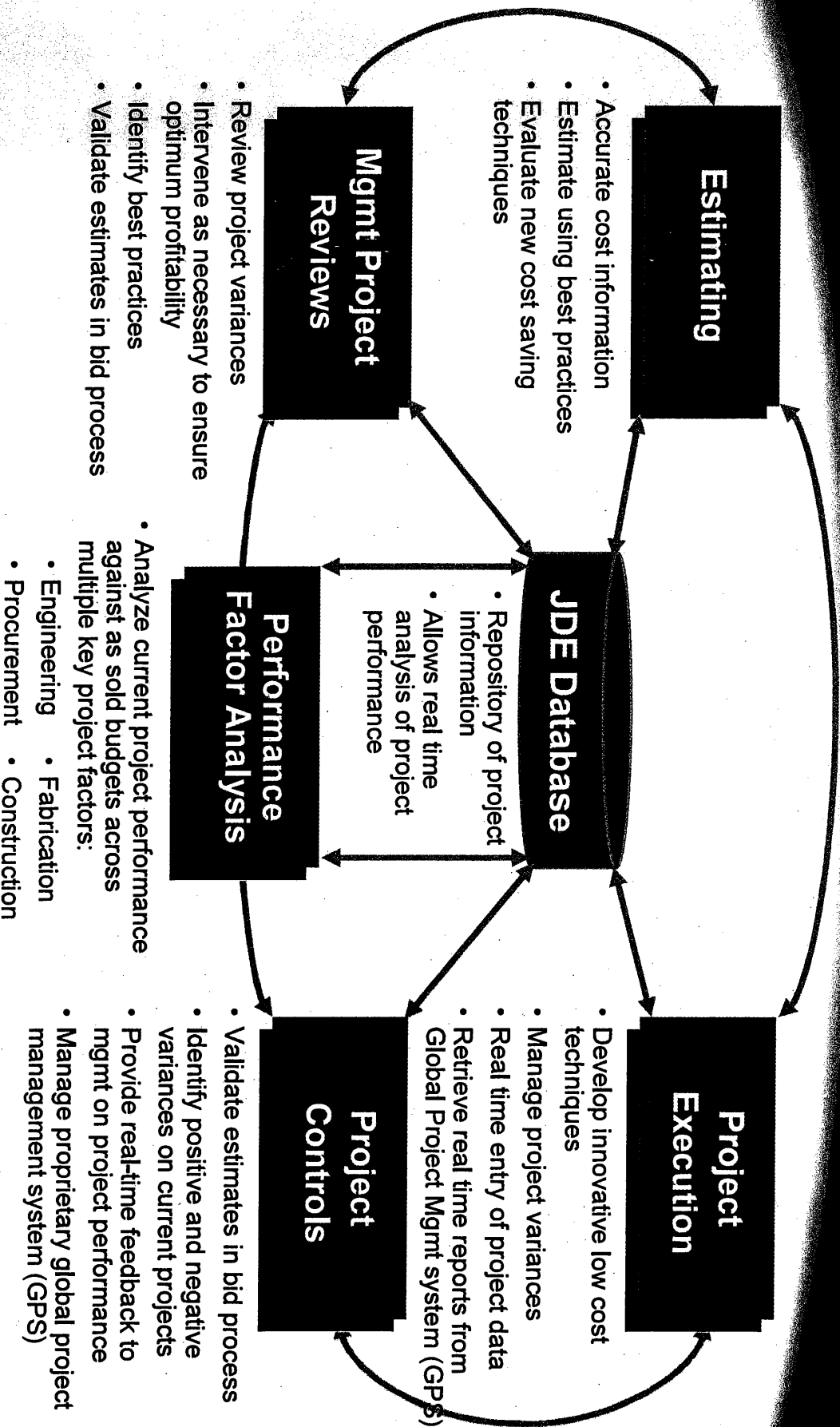


Start-up and Commissioning



CB&I delivers projects from  
“concept to commissioning” on LSTK basis

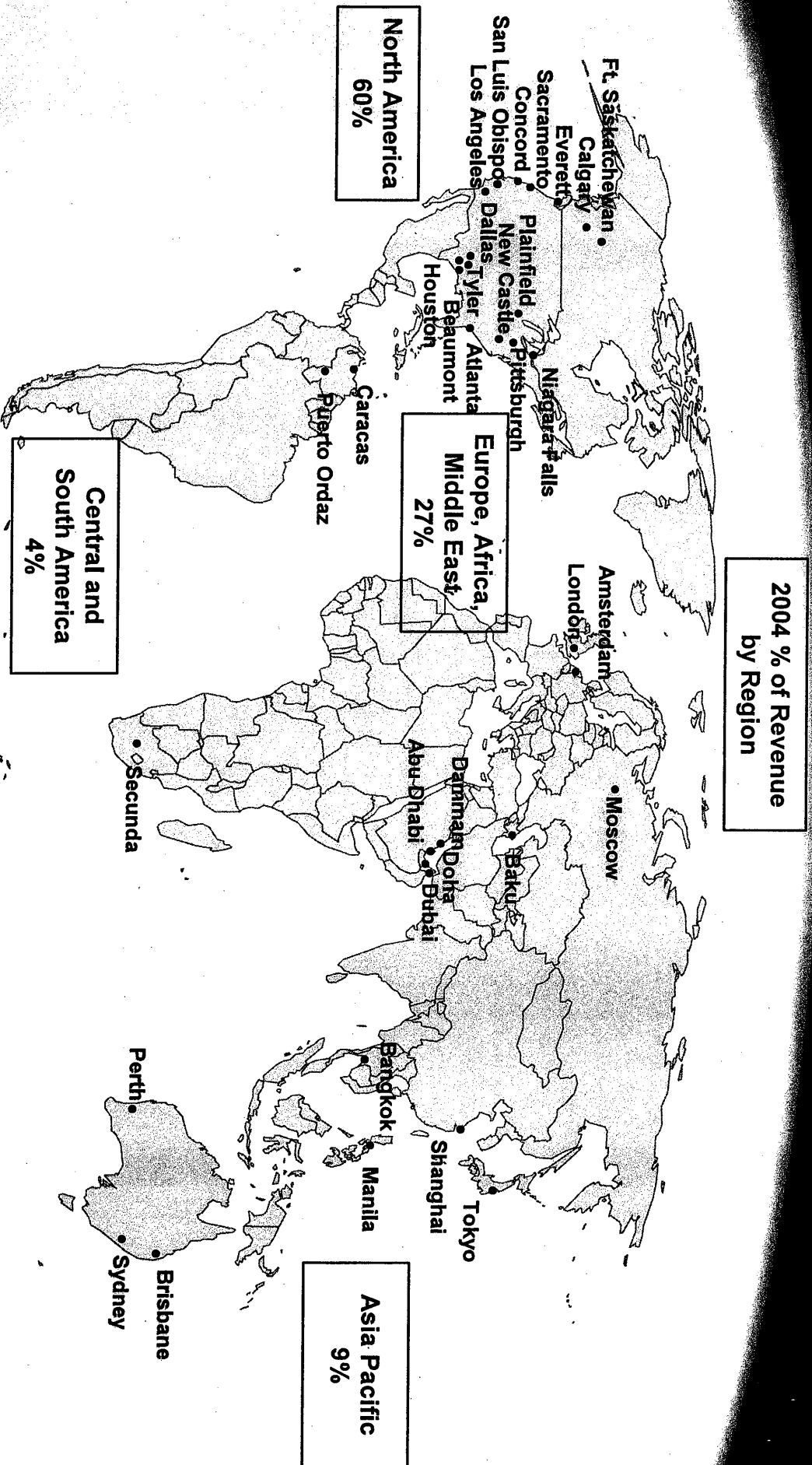
## Focused on Fixed Price Contracting



**Real-time project management procedures provide CB&I a competitive advantage on fixed price projects**



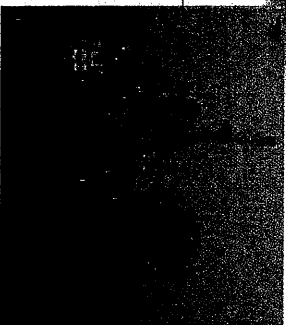
# Executing Projects Around the World



CB&I operates a global network of sixty facilities and has the capability to rapidly mobilize people, materials and equipment virtually anywhere in the world.

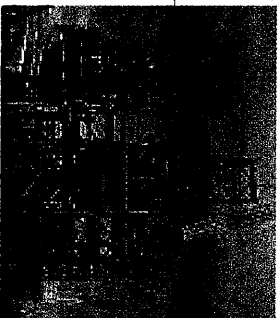


# Serving Multiple Market Segments



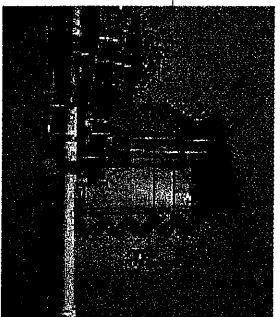
## Production

- Oil & Gas
  - Wellhead design
  - Platform topsides
  - Offshore substructures
- Petrochemical/Chemical
  - Hydrogen plants
  - Synthesis gas plants
- Power
  - Heat recovery steam generators
  - Gas turbines



## Processing

- Oil & Gas
  - Catalytic reformers
  - Hydrosulfurization
  - Turnarounds
- Petrochemical/Chemical
  - Desalting/dehydrating
  - Ammonia plants
  - Process piping
- Water & Wastewater
  - ClarifCone clarifiers
  - Egg-shaped digesters
- Metals & Mining



## Storage

- Oil & Gas
  - LNG/LPG storage
  - Crude and refined product terminals
  - Pressure vessels
- Petrochemical/Chemical
  - Flat bottom tanks
  - Pressure vessels
- Water & Wastewater
  - Elevated tanks
- Power
  - Thermal energy storage
- Metals & Mining



## Distribution

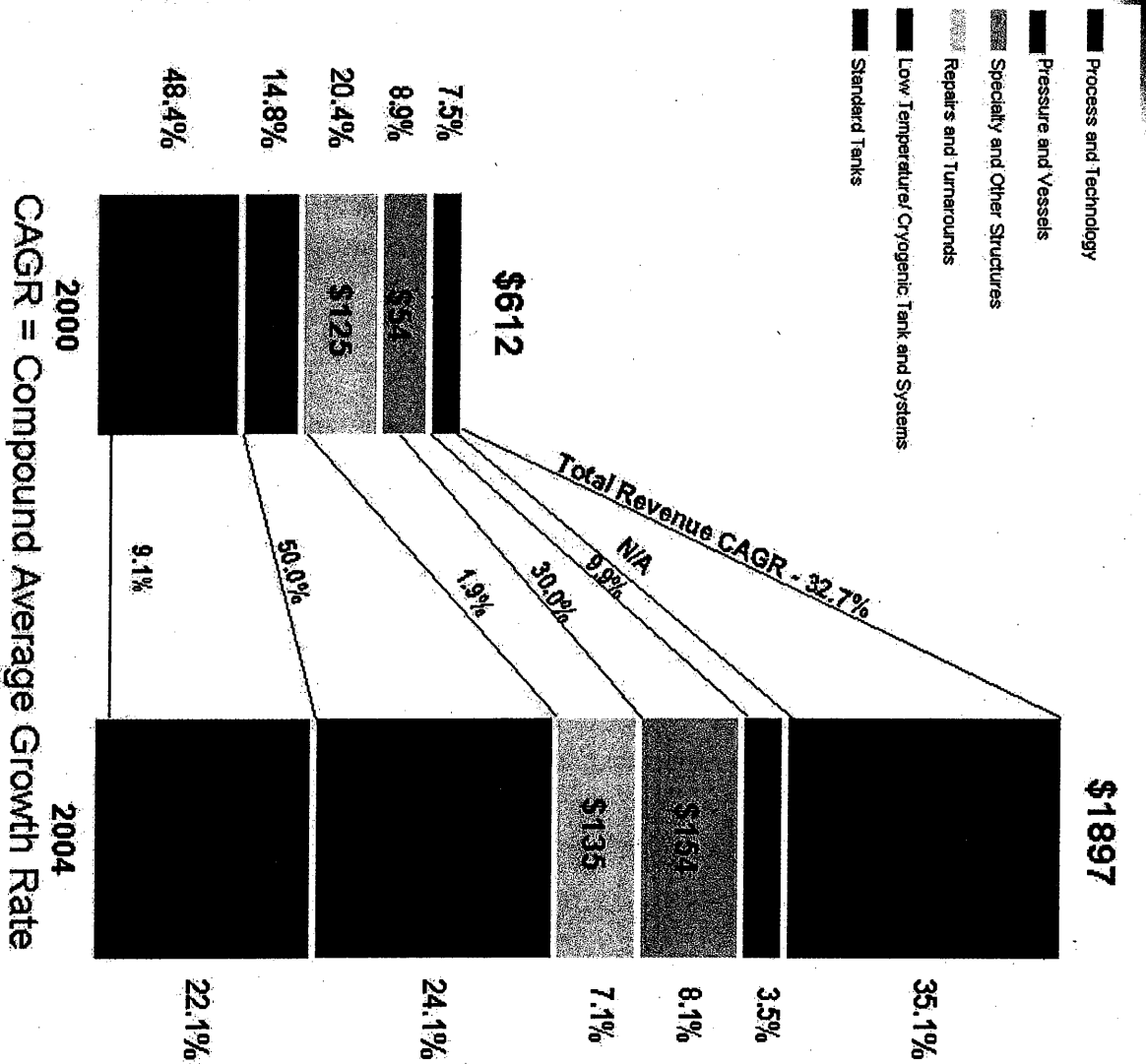
- Oil & Gas
  - LNG/LPG terminals
  - Crude and refined product terminals
  - Pipelines
  - Process piping
  - Compressor stations
- Petrochemical/Chemical
  - Import/Export terminals
  - Pipelines
- Process piping
- Compressor stations

Greater than 80% of CB&I's business is energy based

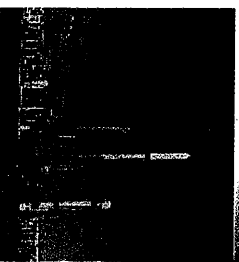
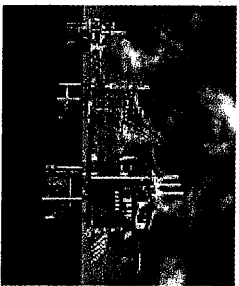




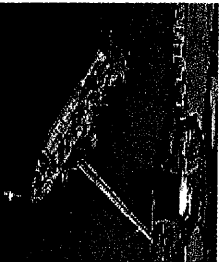
# Strong Organic and Acquisition Growth



CAGR = Compound Average Growth Rate

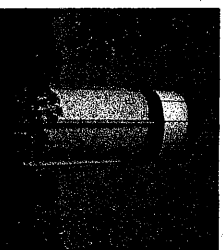
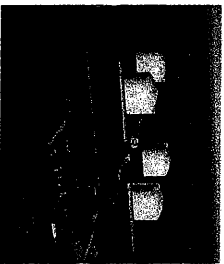


Process and Technology

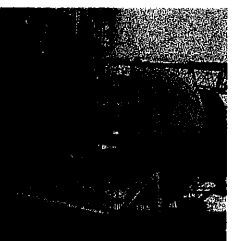
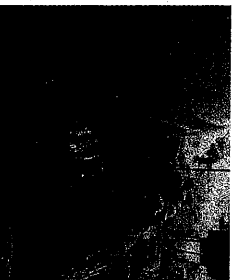


Specialty and Other Structures

Low Temperature Cryogenic Tanks



Standard Tanks

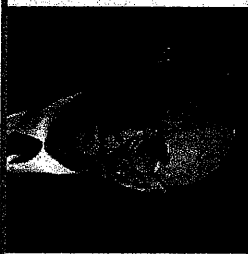
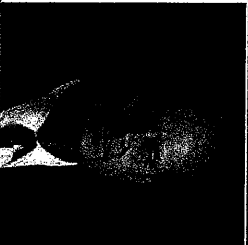
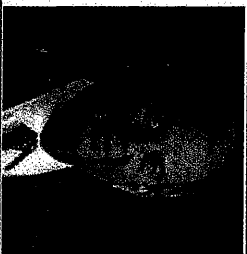
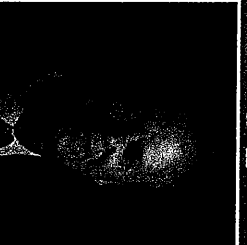

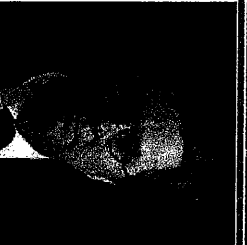
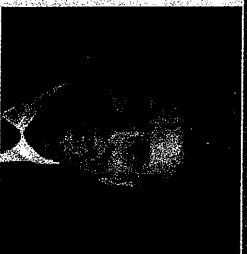


Pressure Vessels

Repairs and Turnarounds



# Experienced Management Team

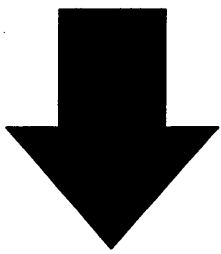
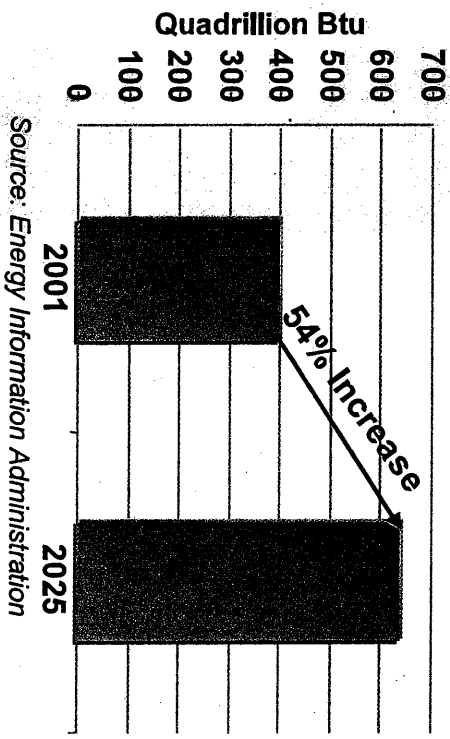
	<p><b>Gerald Glenn</b> Chairman, President &amp; CEO 40 Years</p>		<p><b>Robert Jordan</b> EVP &amp; COO 35 Years</p>
	<p><b>Richard Goodrich</b> EVP &amp; CFO 28 Years</p>		<p><b>Phillip Asherman</b> EVP &amp; Chief Marketing Officer 27 Years</p>
	<p><b>Stephen Crain</b> President, Operations Western Hemisphere 27 Years</p>		<p><b>Walter Browning</b> VP, General Counsel and Secretary 29 Years</p>
	<p><b>David Bordages</b> VP, Human Resources 32 Years</p>		

**Senior management average EPC  
industry experience: 31 years**

# **Opportunities For Growth**

# CB&I Energy Demand Drives Long-Term Infrastructure Spending Cycle

Global Energy Consumption



Energy Investment (\$ Billions)

	2000	2001-2010	2011-2020	2021-2030
Oil	87	916	1,045	1,136
Gas	80	948	1,041	1,157
Coal	11	125	129	144
Electricity	235	2,562	3,396	3,883
<b>Total</b>	<b>413</b>	<b>4,551</b>	<b>5,611</b>	<b>6,320</b>
<b>Annual Avg</b>	<b>413</b>	<b>455</b>	<b>561</b>	<b>632</b>

Source: IEA and CSFB estimates

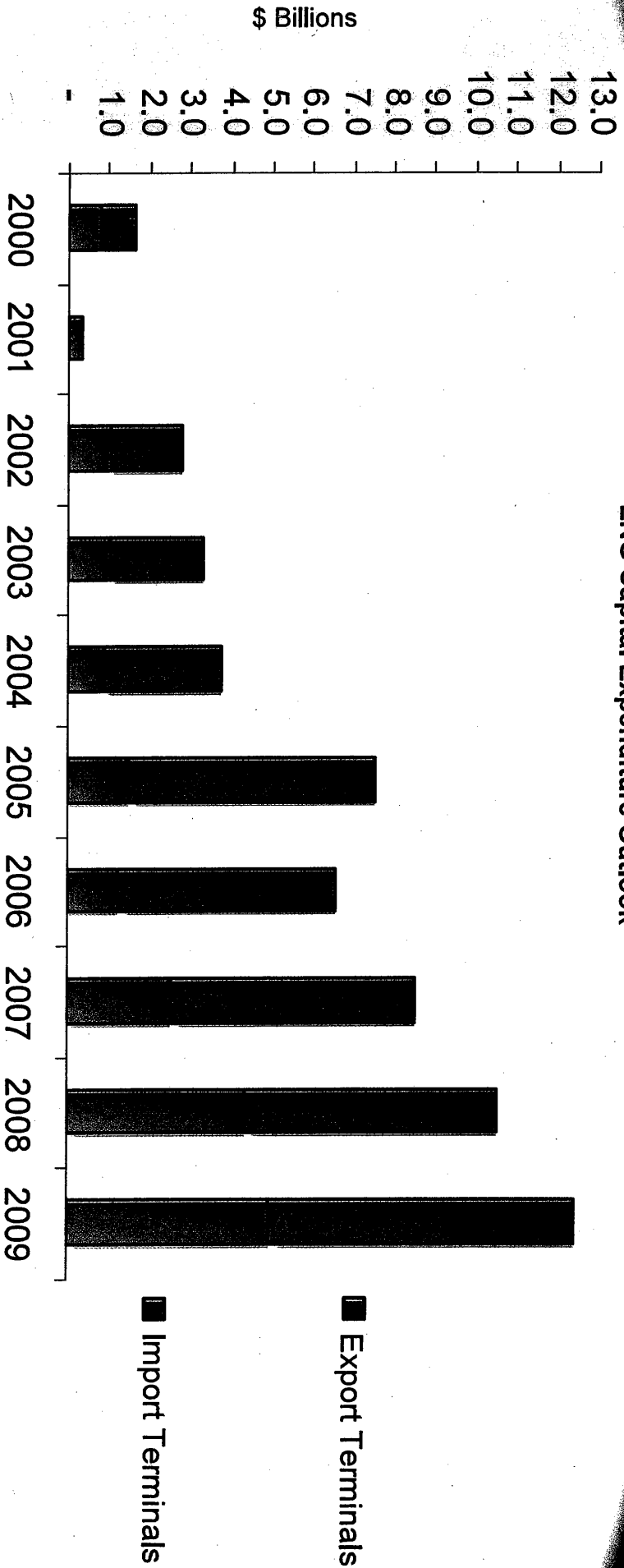
- Growing global energy consumption is driving infrastructure investment
- CB&I has strong capabilities in several key areas
  - LNG
  - Clean Fuels
  - Heavy Crude Conversion
  - Alternative Energies
- CB&I is well positioned to leverage its strengths to enter new markets as opportunities develop





# Global LNG Construction Forecast

LNG Capital Expenditure Outlook



Source: Douglas-Westwood LTD

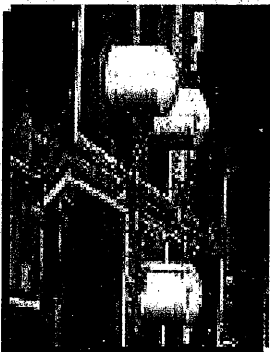
	2000-2004	2005-2009
Import Terminals	4.0	14.5
Export Terminals	7.8	31.1
Total	11.8	45.6

# CB&I

## CB&I's LNG Opportunity

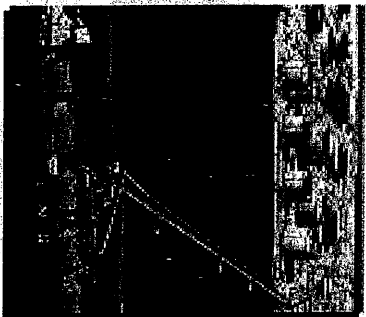
### Global Leader in LNG

- Strong capability across the entire LNG spectrum: Import Terminals, Export Terminals, Offshore Terminals and Peak Shaving Plants
- Engineered and erected more than 40 LNG terminals and peak shaving plants
- Engineered and erected more than 1,100 low temp/cryogenic tanks
- Designed and erected first peak shaving plant



### CB&I is Poised to Capitalize on these Trends

- Currently working on 10 LNG projects with total revenue of approximately \$2.5 billion
- Tracking 40 to 50 LNG opportunities worldwide with potential revenue totaling \$5 billion to \$10 billion.



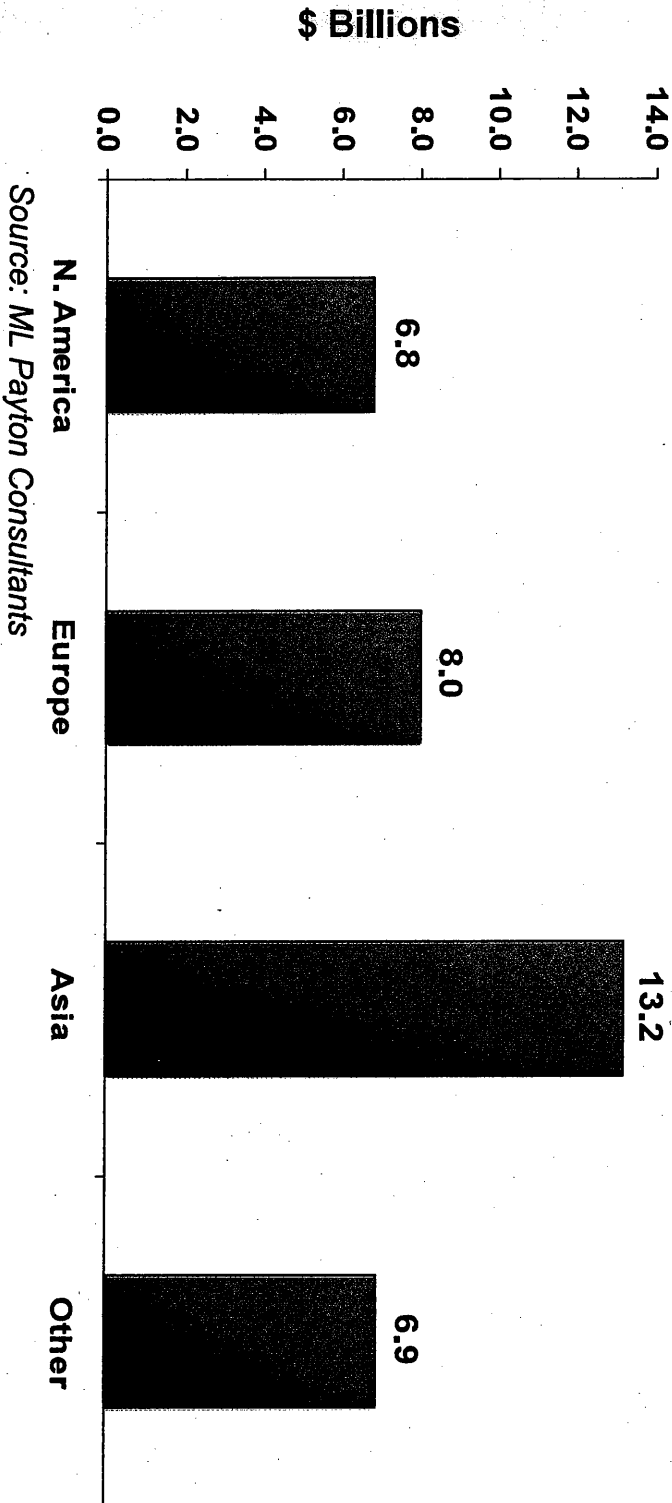
"Access to world natural gas supplies will require a major expansion of LNG terminal import capacity. As the technology for LNG liquefaction and shipping has improved, and as safety considerations have lessened, a major expansion of U.S. import capability appears to be under way."

-Alan Greenspan's testimony before the Committee on Energy and Commerce U.S. House of Representatives on June 10, 2003



# Global Clean Fuels Market Forecast

Desulfurization Project Awards Expected in 2005-2010



- \$35 billion in global desulfurization projects remain to be completed under existing environmental standards
- The potential for new standards in the future may drive additional spending



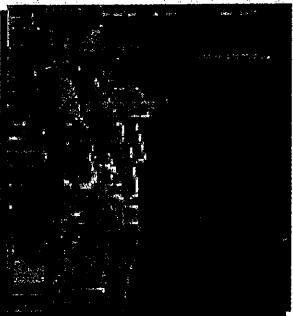


# CB&I Clean Fuels Opportunity

## Clean Fuels Spending Driven by Regulatory Mandate



- U.S., Europe, Australia, Japan and India all have existing legislation to lower sulfur content in gasoline and diesel fuels
- These regulations not only affect refineries in these countries, but all refineries that import to these markets
- U.S. standards need to be achieved by 2007 (gasoline) and 2010 (diesel)
- Rest of world has varying standards and timelines for clean fuels implementation that will continue to drive spending thru 2010



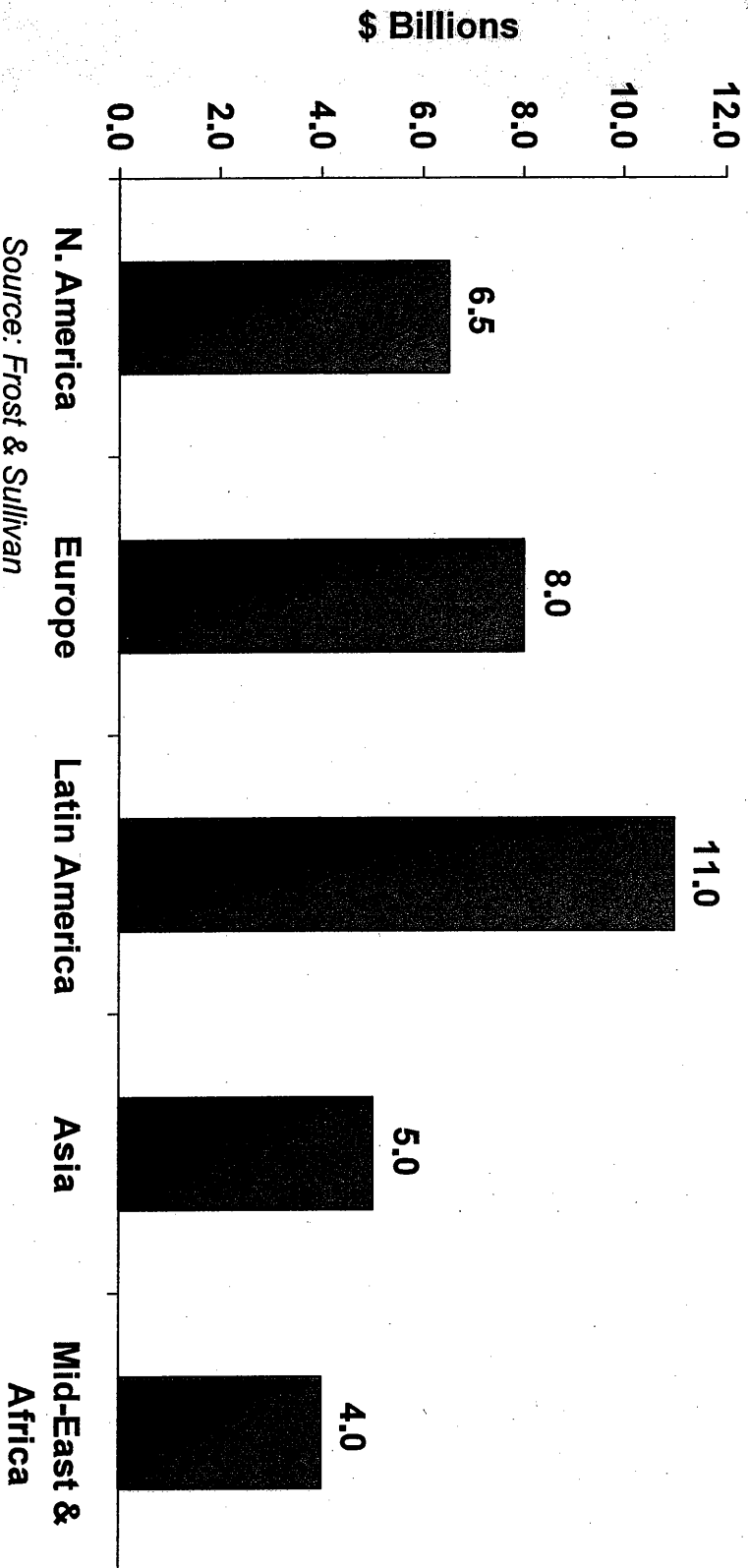
## CB&I Continues to Win Clean Fuels Projects

- Recognized leader in hydrogen plants and desulfurization units
- Constructed 9 of last 11 CCR units built in US
- Currently working on 19 clean fuels projects with total revenue of more than \$900 million



# Forecast for Heavy Crude Upgrades

Heavy Crude Upgrade Awards Expected in 2004-2008



- Investment decisions driven by spread between light and heavy crude prices
- Market forces will determine the level and timing of upgrades
- CB&I's global execution capabilities enable us to participate in all key markets



## CB&I Heavy Crude Opportunity

- **Global mix of crude supply is changing**
  - Decreasing production of light crude in fields of the U.S., North Sea and Saudi Arabia
  - New sources of crude in Venezuela, FSU, Tar Sands and Saudi Arabia are heavier than the sources they are replacing.
  - Changing mix is driving premiums for light crude in excess of \$10/barrel
- **Significant refinery investment is needed to yield equivalent high-quality fuels from heavier crude**
  - Hydrocrackers
  - Residual Fluid Catalytic Cracking Units
  - Continuous Catalytic Reforming
  - Cokers
  - Increased desulfurization capacity
- **CB&I has many years of experience constructing these units for our customers and is well positioned in this market**

"Refiners, already working flat out to meet rising world fuel demand, face a major challenge from a significant shift of world crude-oil output toward (heavy) grades that are more expensive and difficult to process... High-quality fuels can be produced from such grades, but the world's refiners will have to put up hundreds of millions of dollars to reconfigure their plants first. The shift to lower quality crudes also will force them to invest more to meet increasingly stringent environmental fuel specifications."

*Karen Matusic, September 1, 2004 in The Wall Street Journal*

# **CRI** Growing Need for Energy Diversity

- **Short-term Supply Concerns and Rising Oil Prices**
  - Strong demand growth in China and India
  - OPEC's production capacity is already near full capacity
  - Political turmoil in Venezuela, Nigeria and Middle East threaten supply
  - Russian government's policy toward Yukos is slowing investment in FSU

## **=> Oil futures hitting \$50+ per barrel**

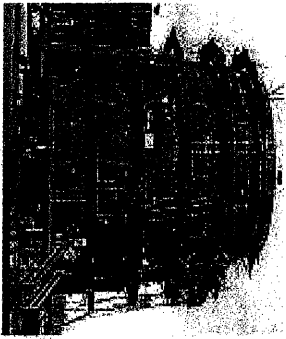
- **Long-term Supply Concerns, "Hubbert's Peak"**
  - Major Oil Fields around the world are aging
  - New exploration is required to replace depleting reserves
  - New fields are more capital intensive and harder to find

## **=> Alternative fuels are becoming economic**

"In 1956, M. King Hubbert predicted that the U.S. oil production would peak in the early 1970s. Almost everyone, inside and outside the oil industry, rejected Hubbert's analysis. The controversy raged until 1970, when the U.S. production of crude oil started to fall. Hubbert was right. Around 1995, several analysts began applying Hubbert's method to world production, and most of them estimate that the peak year for world oil will be between 2004 and 2008."

Kenneth S. Deffeyes,  
Hubbert's Peak: The Impending World Oil Crisis  
Princeton University Press

# CB&I Opportunities in Alternative Energies



## ● Tar Sands

- CB&I performs extensive work with Syncrude on their Fort McMurray project and constructed the world's largest coker reactor

## ● Hydrogen Generation

- CB&I has engineered and constructed over 170 hydrogen plants

## ● Fuel Cell

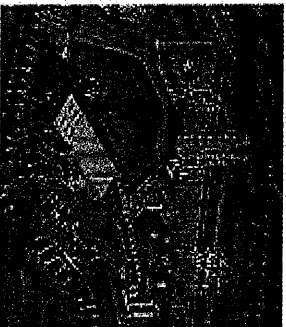
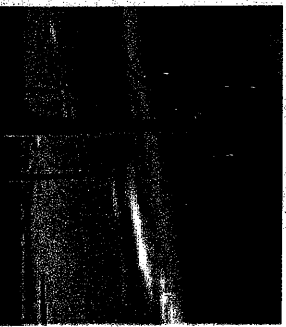
- CB&I has a JV with a subsidiary of United Technologies to design and build Fuel Cells for residential and industrial use

## ● Gas to Liquids

- CB&I is part of ConocoPhillips' proprietary design team and developed and built their pilot facility in Ponca City, Oklahoma

## ● Wind Energy

- CB&I is working with industry leading partners to leverage our strength in steel structures to this fast growing market



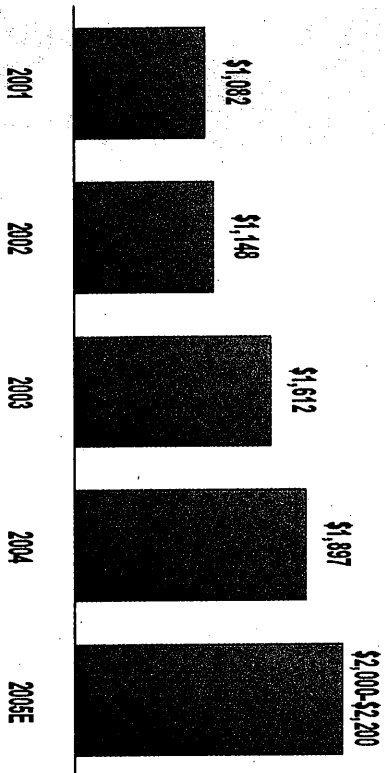
- On January 6, 2005 the FTC Commission issued their Opinion and Order regarding an administrative complaint filed by the FTC in October 2001
- This FTC complaint challenged CB&I's February 2001 acquisition of certain assets of Pitt-Des Moines' Engineering Construction Division.
- The Opinion requires CB&I to:
  - Divide its industrial division into two separate operating divisions
  - Divest one of these divisions within 180 days of the Order becoming final to a purchaser approved by the FTC
- CB&I believes the ruling is inconsistent with the law and facts presented at trial
- CB&I filed a notice of appeal with the US Court of Appeals for the Fifth Circuit in March 2005
- CB&I would not expect a decision until 2006 or beyond
- CB&I is not required to divest any assets until we have exhausted all appeal processes available to us including the United States Supreme Court

# **Financial Results**

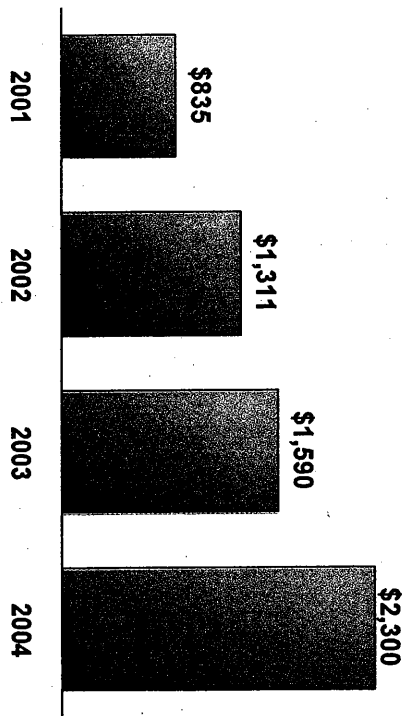


# Strong Income Statement Fundamentals

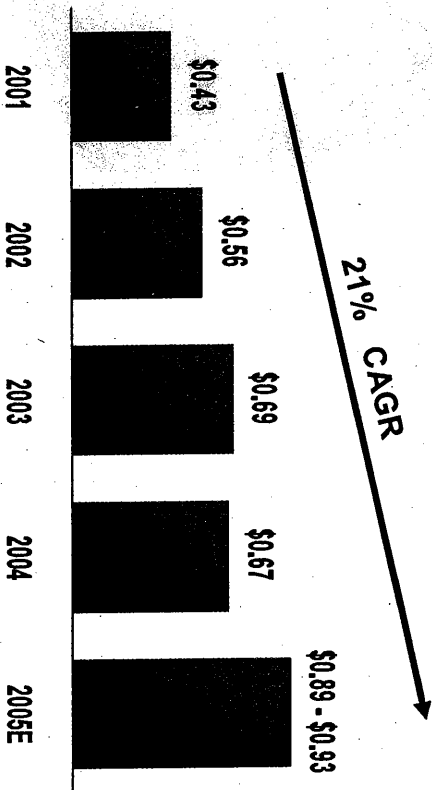
Revenue (\$ in millions)



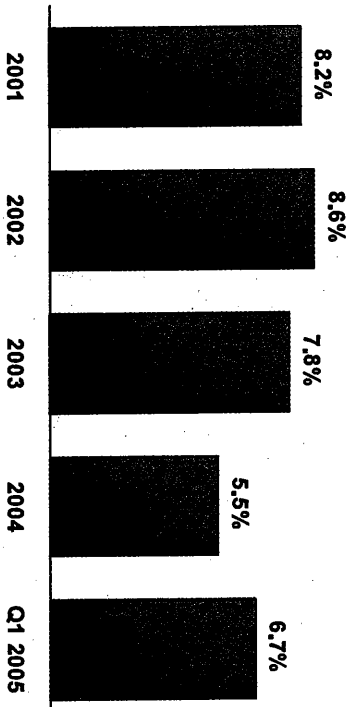
Backlog (\$ in millions)



Earnings Per Share



EBITDA (Percent of Revenue)

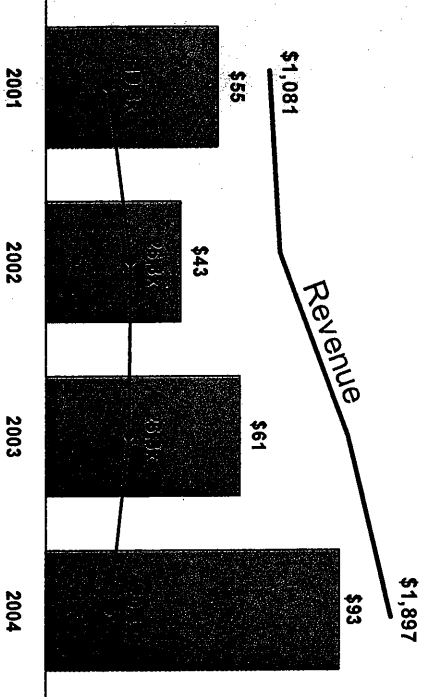






# Strong Balance Sheet Fundamentals

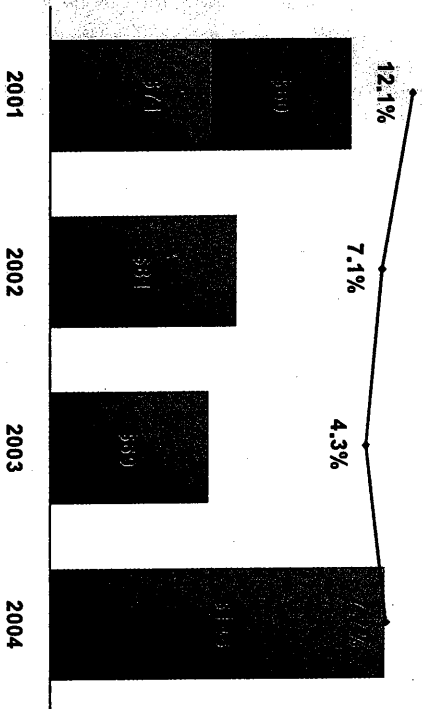
Contract Capital (\$ in millions)



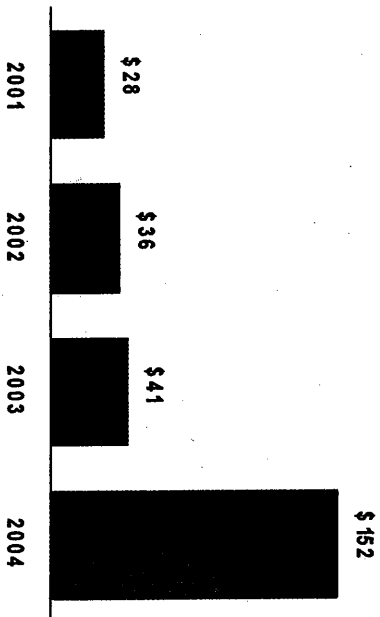
ROIC (\$ in millions)



Free Cash Flow (\$ in millions)



Cash in Excess of Debt (\$ in millions)



ATTACHMENT D

CB&I Supports Offshore LNG Terminal Development

Available at <http://www.cbiepc.com/ir/release.aspx?releaseid=138676>



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### CB&I Supports Offshore LNG Terminal Development

THE WOODLANDS, Texas -- July 12, 2004 -- Leveraging its decades of experience and leading technologies in liquefied natural gas (LNG) storage and offshore structures, CB&I (NYSE:CBI) now offers a variety of solutions for the design and construction of offshore LNG import terminals.

One such solution combines conventional cylindrical LNG storage tanks with a concrete gravity based structure (GBS). Ideal for shallow water environments such as the Gulf of Mexico, CB&I's GasPORT<sup>®</sup> concept offers significant advantages in terms of shorter schedule, lower cost and flexible design using proven technology.

CB&I's GasPORT incorporates a concrete GBS as the primary component acting as the foundation and support structure for the facility. The terminal is equipped with integrated facilities for mooring and berthing of the LNG carrier; berthing of supply vessels; LNG unloading, storage and regasification; utilities; natural gas transport to shore; and crew accommodations. LNG storage is provided in a series of conventional cylindrical tanks that are anchored to the GBS.

GasPORT is designed to withstand the adverse environmental conditions typically found in offshore locations. Design loadings have been factored into CB&I's terminal concept to achieve maximum reliability and safe operation. CB&I's engineers have evaluated wind, wave states, scour and anchorage of the GBS on the ocean floor, as well as graving dock, towing and mooring requirements in their design considerations.

"Drawing upon more than 65 years of combined experience in the LNG and offshore industries, we believe our GasPORT LNG terminal concept offers a cost-effective and reliable solution to help meet the growing U.S. demand for natural gas," said Gerald M. Glenn, CB&I's Chairman, President and CEO. "We're pleased to offer this new development, based on proven technology and our unparalleled experience, as well as a number of other offshore terminal concepts to companies seeking to tap the burgeoning LNG import market."

CB&I is in a unique position to offer full engineering, procurement and construction (EPC) services for offshore LNG facilities. A pioneer and technology leader in the LNG industry, CB&I has designed and constructed more than 40 LNG terminals and peak shaving plants and more than 200 LNG storage tanks around the world. Furthermore, with the broad offshore experience and capabilities of its CB&I John Brown unit, CB&I's integrated approach to offshore LNG import terminals leverages extensive worldwide offshore project background and technology. CB&I John Brown has been responsible for engineering and project management of more than 100 jacket

structures, over 15% of the world's offshore semi-submersible/tension leg platforms, and numerous subsea flow lines, trunk lines and production/riser systems.

In addition to gravity based structure designs, CB&I has the technical capabilities and experience to develop offshore LNG terminals based on more traditional jacket substructures and topsides for the regasification equipment.

CB&I is one of the world's leading EPC companies, specializing in lump-sum turnkey projects for customers that produce, process, store and distribute the world's natural resources. With more than 60 locations and approximately 10,000 employees throughout the world, CB&I capitalizes on its global expertise and local knowledge to safely and reliably deliver projects virtually anywhere. Information about CB&I is available at [www.CBIepc.com](http://www.CBIepc.com).

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Media: Bruce Steimle (832) 513-1111

Analysts: Marty Spake (832) 513-1245

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