



ENERGY

MIDSTREAM/LNG

Responding to the
Upstream Boom

ZACHRY

CURRENT OPPORTUNITIES AND CHALLENGES IN MIDSTREAM/LNG

1

GROWTH

- Responding to demand for new and expanded oil and gas processing, transportation and storage following the surge in upstream spending
- Managing capital investment strategy to avoid future overcapacity issues

2

EFFICIENCY

- Managing existing facilities for optimal performance
- Adapting infrastructure to realize LNG export opportunities

3

COSTS

- “War for talent” in securing the best workforce
- Rising costs of complying with stringent environmental and safety standards

4

UNCERTAINTIES

- Serious overcapacity of LNG projects if all announced projects are built
- Securing long-term LNG contracts with financially strong buyers as a precondition for federal permit approval
- Gas market becoming more global, subject to international politics

“The path from growth boom to maturity will transform the midstream sector during the next two decades. The sector that emerges will hold assets that stretch from Canada to the US Gulf Coast and go beyond pipelines to export terminals and marine transportation.”

The rise of the midstream Shale reinvigorates midstream growth
Deloitte Center for Energy Solutions

ZACHRY ADDS VALUE ACROSS THE LIFECYCLE OF MIDSTREAM/LNG FACILITIES



PLAN

We plan with the end in mind – engineering a facility that makes the optimal use of its site, and is designed for maximum efficiency, ease of maintenance and upgradability. We plan this way because we understand the priorities across the full lifecycle of midstream/LNG facilities.



BUILD

The construction phase is where the majority of the project risk resides. That is why Zachry has a self-perform model that allows us to manage project risk more effectively, and to respond to changing customer requirements more swiftly.



RENEW

We work on the assumption that midstream/LNG facilities can operate for 80 years or more - that with strategic maintenance and thoughtful capital investments, our customers should be able to extend the productive lives of these facilities for generations.

DISTINGUISHED SERVICE ON NUMEROUS MIDSTREAM/LNG OPPORTUNITIES

THE SCALE

- ✓ We are well positioned to be a leader in building American's hydrocarbon export capabilities, with more than \$10 billion in projects completed and in progress in this sector.

THE SKILLS

- ✓ We have constructed facilities that extract natural gas liquids and refine them into high-grade petrochemical feedstocks.
- ✓ We've built a natural gas liquids separation facility and later enhanced it with a propylene extraction capability and by adding two brine storage ponds for underground gas storage.
- ✓ Our terminals experience includes design and construction of facilities for crude oil, refined products, liquefied petroleum gas (LPG) and liquefied natural gas (LNG).
- ✓ In 2008, we completed the first grassroots LNG receiving terminal constructed in the United States in more than two decades. A year later, we constructed two additional LNG storage tanks at a second LNG receiving terminal.
- ✓ We are the EPC contractor (along with an engineering partner) for the three-train Freeport LNG liquefaction and export project.

THE SAFETY

- ✓ Our execution planning and direct-hire construction capability ensures on-schedule, safe delivery of projects.

CREATING AND SUSTAINING AMERICA'S MIDSTREAM/LNG CAPACITY



OUR VALUE ADDED DURING THE PLAN PHASE OF MIDSTREAM/LNG FACILITIES

Our capabilities in the '**PLAN**' phase of Midstream/LNG project execution include:

- ✓ Project development and consulting
- ✓ Studies and analysis
- ✓ Front-end engineering design (FEED) program execution
- ✓ Full service design engineering
- ✓ EPC execution planning
- ✓ Project and construction management
- ✓ Professional staffing services
- ✓ Plant start-up and commissioning
- ✓ Plant reliability and maintainability program development



REGASIFICATION SETS THE STAGE FOR TERMINAL'S LARGER OPPORTUNITY



THE CUSTOMER'S CHALLENGE

Recognizing the growing market potential for liquefied natural gas (LNG), Freeport LNG acquired a site on Quintana Island near Freeport, Texas that Cheniere Energy had begun developing in 2000. The location offered advantages including convenient marine access to the Gulf of Mexico, proximity to two large gas hubs and lack of equivalent locations in the area that could be exploited by future competitors. After getting regulatory approval and customer commitments, Freeport LNG proceeded on a regasification complex that included two 160,000 cubic meter LNG storage tanks of full containment design and one piled marine dock capable of handling LNG vessels in excess of 200,000 cubic meters. However, with the advent of abundant domestic energy, primarily from shale oil and gas, it became clear that this prime location had even greater potential for exporting LNG.



REGASIFICATION SETS THE STAGE FOR TERMINAL'S LARGER OPPORTUNITY



THE ZACHRY APPROACH

Zachry and its partners completed construction of the Freeport LNG regasification project in 2008 making it the first grassroots LNG facility built in the US in more than 20 years. With its location just six miles from open water, it includes two LNG storage tanks built to withstand a category five hurricane with winds above 180 mph. Foundations are equally substantial – in the tank perimeter areas the foundation is five feet thick.

THE BUSINESS OUTCOMES

Based largely on the success of the design and construction of the regasification facility, Freeport LNG awarded Zachry and its engineering partner a contract to provide EPC services for a major liquefaction facility at the Quintana Island site. When completed in 2017, it will be capable of exporting 2 billion cubic feet per day of LNG. Pretreatment facilities and a dock expansion are also being developed near the existing regasification unit.

“If one [LNG] terminal can do 30,000 to 40,000 jobs and can reduce the U.S. trade deficit by 1 percent, and instead of one of them, we can get four, five or six of these things up, we’re talking about 150,000 jobs and a 5 or 6 percent reduction in the U.S. trade deficit – something that needs to get done.”

Michael Smith

CEO

Freeport LNG Development LP

OUR VALUE ADDED DURING THE BUILD PHASE OF MIDSTREAM/LNG FACILITIES

Our capabilities in the '**BUILD**' phase of Midstream/LNG project execution include:

- ✓ Integrated, turnkey EPC project delivery
- ✓ Direct hire construction
- ✓ Project management
- ✓ Safety and QA/QC
- ✓ Commissioning and plant/unit startup
- ✓ Small and midsize project experience
- ✓ Large and mega-project experience
- ✓ Firm price, date-certain delivery



ENSURING CO₂ AVAILABILITY TO SUSTAIN ENHANCED OIL RECOVERY



THE CUSTOMER'S CHALLENGE

A limited supply of readily available carbon dioxide (CO₂) for use in enhanced oil recovery (EOR) processes was curbing oil production potential in the Permian Basin of west Texas just a few years ago. A joint venture of SandRidge Energy, Inc. and Occidental Petroleum Corp., addressed this need by developing the SandRidge Energy Century Gas Plant in Fort Stockton. The facility extracts CO₂ from natural gas SandRidge recovers in the West Texas Overthrust. Occidental uses the CO₂ in its EOR operations. For economic reasons, the joint venture elected to have the two trains of the facility built sequentially, beginning in 2009.



ENSURING CO2 AVAILABILITY TO SUSTAIN ENHANCED OIL RECOVERY



THE ZACHRY APPROACH

J.V. Industrial Companies (JVIC), now owned by Zachry, was the general contractor for the Century Gas Plant project, self-performing all the civil, mechanical, electrical and instrumentation activities. During construction, JVIC set, aligned and grouted 135 process and pipe rack modules averaging 140 tons each, 48 compressors totaling 129,900 horsepower, 4 towers (2 @ 500 tons and 2 @ 250 tons) and 263 pieces of equipment.

THE BUSINESS OUTCOMES

The Century Gas Plant increases SandRidge's capability of producing methane from high-CO₂ gas by five times and is anticipated to expand Occidental's production by a minimum of 50,000 barrels of oil per day within the first five years following the 2012 mechanical completion of the facility.

“This project demonstrates the capability to find and develop more gas - SandRidge - and oil reserves – Oxy... It also is a very clear model for next generation energy, whether from coal, petroleum coke, or natural gas.”

Chairman

Annual CO₂ Conference

OUR VALUE ADDED DURING THE RENEW PHASE OF MIDSTREAM/LNG FACILITIES

Our capabilities in the '**RENEW**' phase of Midstream/LNG project execution include:

- ✓ Continuous presence plant operations and maintenance services
- ✓ Reliability engineering, assessments & improvement programs and technologies
- ✓ Maintenance skill development
- ✓ Specialty services
- ✓ Turnarounds/outages
- ✓ In-plant capital projects and upgrades



OUR ABILITY TO ADD VALUE TO YOUR PROJECT IS THE PRODUCT OF OUR DISTINCTIVE APPROACH

Zachry's approach to business is based on four key principles

Focus on Distinctive Value

We're always looking for ways to deliver distinctive value to our customers – through performance on immediate work and through using the freedom that our structure allows to focus on value beyond today's bottom line.

Priority on Customer Success

We recognize customer success is the basis for our success. We work to understand your goals so we can collaborate effectively and identify opportunities to enhance your business outcomes.

Right Team in the Right Place

We've assembled an extraordinary professional workforce. We continue to invest in training and development to keep their skills on the leading edge.

Adaptive Excellence in Execution

We believe every project is unique. Our self-perform model, integrated capabilities, loyal workforce and stable project teams allow us to deliver outstanding execution safely under any conditions.

WHAT WE WANT YOU TO KNOW

The Zachry Group's approach to doing business is purpose-built to help you take advantage of your biggest opportunities and tackle the challenges that you will face along the way.

Like you, we are completely focused on accountability for results. Our entire operating model is designed to deliver that accountability – from our lifecycle mindset to our self-perform execution capabilities.

We recognize that the projects we do represents some of the biggest commitments that our customers make – not just for them, but for the customers, communities and employees that depend on them.

LET'S CONTINUE THE CONVERSATION IN PERSON

We would welcome the chance to learn more about your needs.



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