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# Venture Global LNG: August 2020 Update

## Satellite Image Review (ICA & Fluor) & More Engineering Changes

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## Calcasieu Pass August 2020 Update - Key Takeaways

### ○ Calcasieu Pass Revises Key Engineering Documents (Again)

- Over the past two weeks Calcasieu Pass (CPLNG) submitted engineering updates to FERC, most of which are marked as confidential. While the substance of the updates and revisions are unknown, the **types of documents** that were filed indicate possible changes to *structural steel design & calculations, equipment flow rates, and the project's mechanical equipment list.* (Page 4)
- It's atypical for changes of that nature to get submitted and implemented at this stage of construction, and as we've previously noted, such changes can have a significant and adverse impact on timelines and budgets.

### ○ Q2 Progress: Pre-Treatment Unit Module Fabrication

- As previously noted, we believe ICA Fluor is fabricating the CPLNG Pre-Treatment Unit (PTU) Modules in their Tampico, Mexico fab yard.
- Satellite images show fabrication progress and a piece of equipment (likely a fin-fan) was installed on module #1. Fin-Fans are typically one of the last pieces of equipment installed on a module. (Page 7-9)
- Until FERC approves the PTU engineering and safety design, CPLNG is likely fabricating modules at their own risk.

### ○ Pre-FID Feedstock Specs Appear To Have Changed

- As previously noted, CPLNG added equipment to the PTU (i.e. thermal oxidizer) which suggests the actual inlet natural gas specifications are different than the FERC/Pre-FID engineering.
- If that's the case, FERC authorization for PTU system construction could take longer than expected (additional review), particularly if engineering changes were significant.
- **"Where There Is Chaos, There Is Money."**
- While Venture Global press releases certainly imply unimpeded progress (much of which is true), the flurry of activity beneath the surface with regards to engineering changes would suggest that change orders are likely on the way, which could potentially translate to cost overruns and/or delays. As always with VG, we'll have to wait and see. However, if we were stakeholders watching the project approach this critical nexus, this is what we'd be asking:
  - What are the specific items and values on all change order logs?
  - Provide the list of actual vs. planned material quantities.
  - Request a copy of the fully integrated project schedules w/assumptions and supplier's liquidated damages and contracts details.



# Engineering Changes



## Engineering Changes

### Summary

- What's Changed:** We analyzed CPLNG's engineering changes/clarifications issued on July 30<sup>th</sup> and August 3<sup>rd</sup>, 2020.
  - July 30<sup>th</sup> – Supplemental information was submitted to FERC on the PTU structural steel design & calculations.
  - Aug 3<sup>rd</sup> – CPLNG provided FERC updated Process Flow Diagrams (PFDs), a Change Log, and a Mechanical Equipment List.
- Why Does That Matter:** Engineering changes during module fabrication, equipment purchase requisitions, and on-going construction is a bit like trying to hit a moving target... it can be done, but it is usually much harder and likely impacts cost and schedule.
- What's The Impact:** Change orders and supplier delays are coming. The question is from who and how much?
- Key Thoughts & Takeaways:** PFD's shows process equipment utilizing the equipment specs, flow rates, and/or sizes. Evidence continues to mount CPLNG's engineering was preliminary before FID.

### Why Change Orders Are Coming

- What's Changed:** Delays with Owner Furnished Equipment (OFE) likely provide Kiewit undisputed change order rights.
- Why Does That Matter:** Kiewit's EPC cost/schedule guarantees should include a laundry list of requirements from CPLNG, which includes delivering the OFE on-time (i.e. the PTU modules).
  - EPC contractors (Kiewit) develop their Construction Execution Plan (CEP) (i.e. sequencing, cost, and logic tied schedule) in the most efficient manner possible. Any delays with OFE that impact their CEP likely increase costs and paid for by CPLNG.
- What's The Impact:** Given the engineering changes and PTU fabrication status, it is likely at least one of CPLNG's contractors are impacted, or CPLNG pays to accelerate the fabrication progress.
- Key Thoughts & Takeaways:** VGLNG should absolutely hold the EPC contract for Plaquemines Parish LNG over Kiewit's head to minimize change order impacts and keep CPLNG costs lower... will Kiewit oblige?

**CPLNG continues engineering changes/clarifications, which could expose the company to change orders.**



# **Satellite Image Analysis – ICA Fluor**

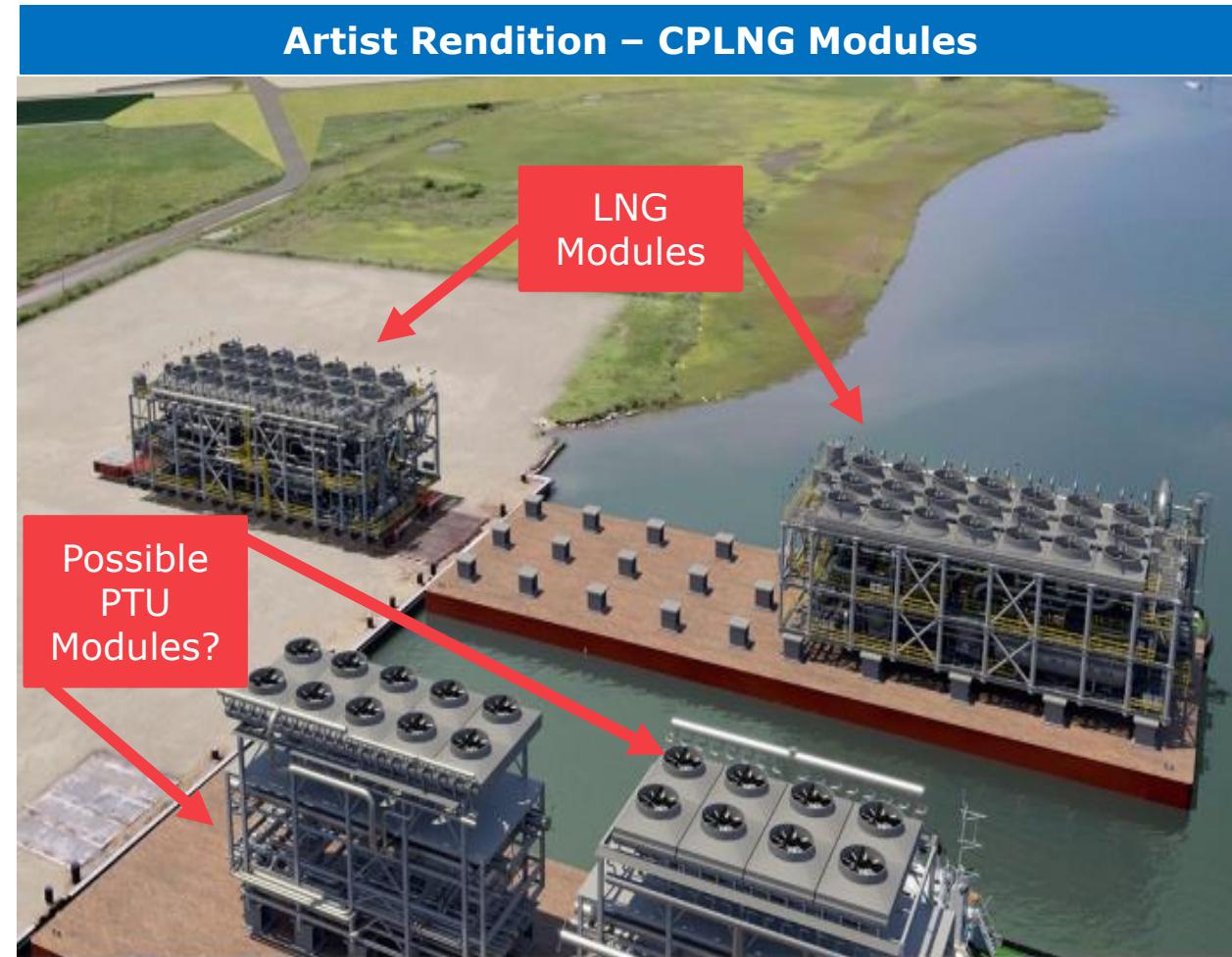


## Pre-Treatment Unit Module Overview

### PTU Analysis

- What's Changed:** We compared a satellite image on Mar 26<sup>th</sup> and Jul 14<sup>th</sup>, 2020 to analyze CPLNG PTU module fabrication progress in the ICA Fluor module yard. (*Pages 7-9*)
- Why Does That Matter:** Meeting the PTU fabrication cost/schedule benchmarks is just as important to CPLNG's success as the cost/schedule benchmarks for on-site construction, Baker Hughes liquefaction modules, and commissioning and start-up activities, ***especially without an EPC lump sum contract wrap.***
- What's The Impact:** If PTU module delivery is delayed and Kiewit issues a change order for a 1-month schedule extension, it could be ~\$23MM in labor costs alone (as a simple example).
  - 1,300 people x \$89 per hour x 200 hrs. a month
- Key Thoughts & Takeaways:** All engineering drawings CPLNG is clarifying/changing should have been finalized before module fabrication & procurement activities started to reduce risks.

### Artist Rendition – CPLNG Modules



**Completing the PTU Modules on schedule is just as important to CPLNG's success as other activities.**

Source: Company & Regulatory Filings, W|EPC Analysis

## March vs. July 2020 – ICA Fluor Satellite Image Comparison

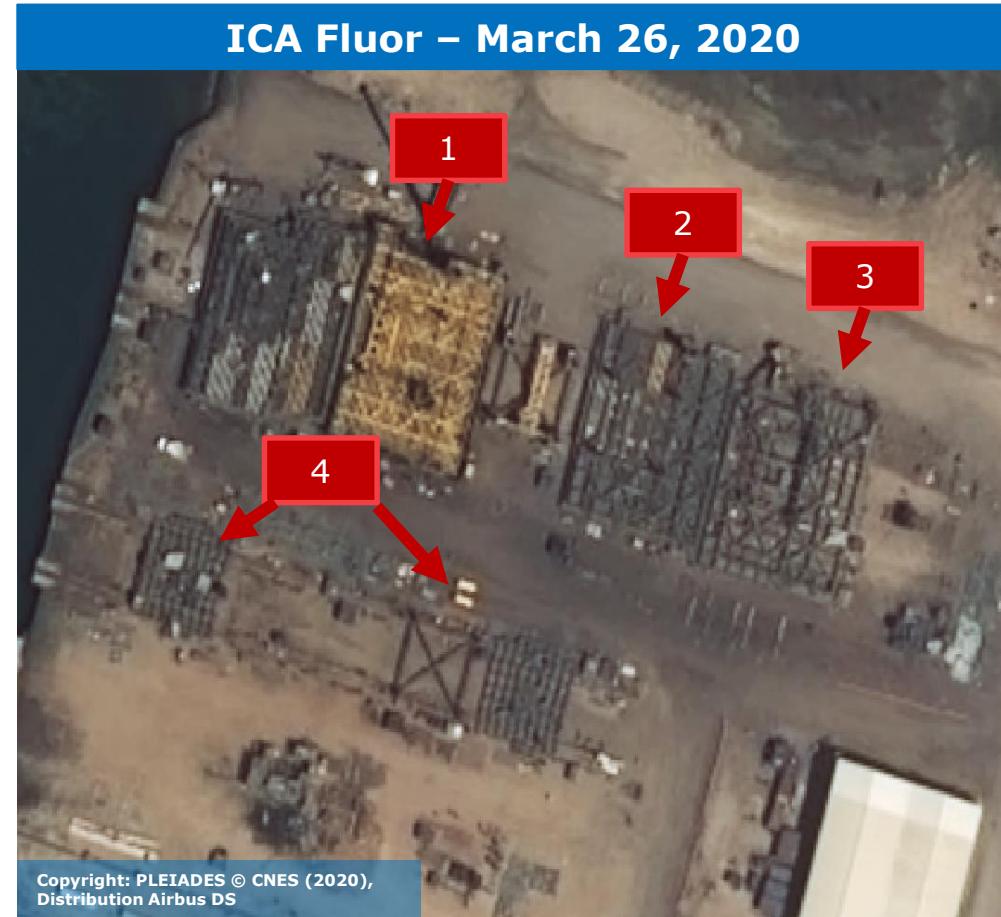


Source: W|EPC Analysis

## Closer Look – March 2020

### Analysis

- **What's Changed:** Taking a closer look at the March 2020 ICA Fluor image shows (3) modules in fabrication.
  1. Module #1 appears to be more advanced than modules #2/#3.
  2. PTU Module
  3. PTU Module
  4. Item #4 appears to be a "pancake," a layer of steel stacked on top of each other to create the module structure.
- **Why Does That Matter:** The PTU removes the natural gas feedstock containments for all 10 MTPA; delays on modules 2/3 may not impact first LNG forecasts if module #1 is completed on-time.
- **What's The Impact:** The March 2020 image is our starting point for tracking the PTU fabrication progress.
- **Key Thoughts & Takeaways:** It is likely CPLNG ordered the structural steel for the PTU modules around FID (Aug 2019) and likely before final issued for fabrication drawings were released.



**The Mar 2020 satellite image is our baseline for monitoring PTU fabrication progress.**

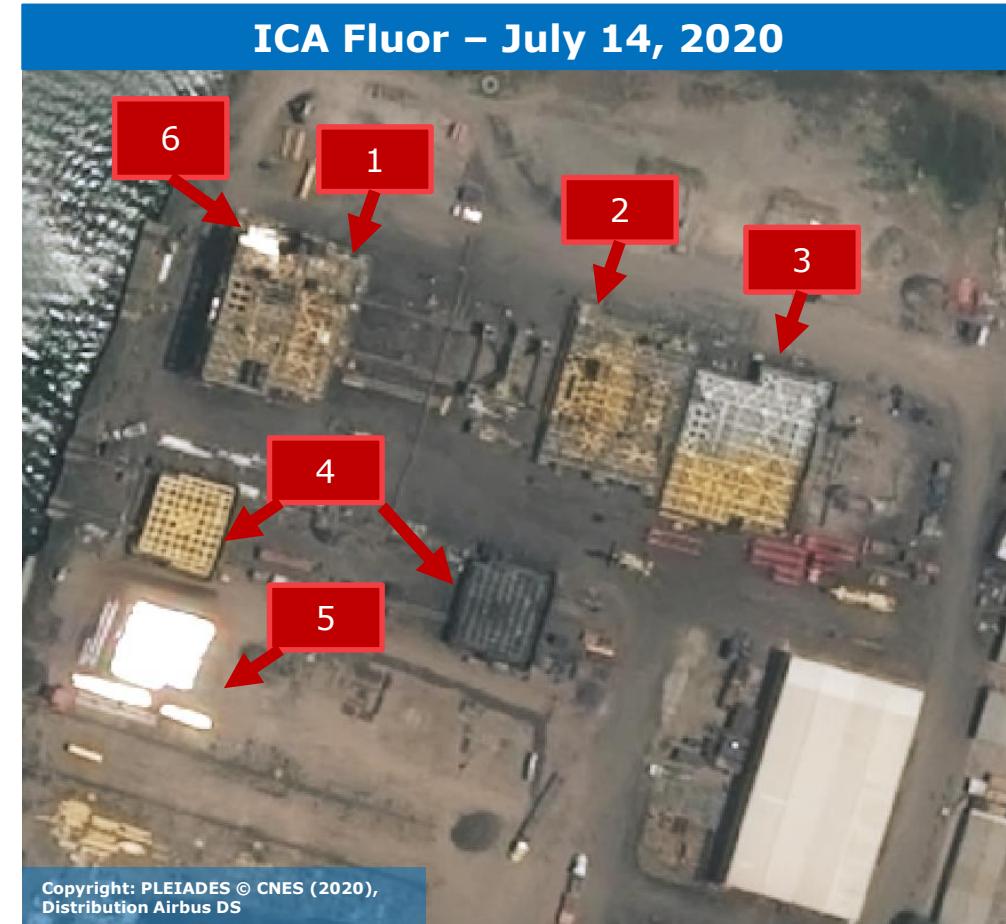
Source: Company & Regulatory Filings, W|EPC Analysis

## Closer Look – July 2020

### Analysis

- **What's Changed:** Taking a closer look at the July 2020 satellite image indicates "pancakes" (#4) have likely been installed on the modules (#1, #2, & #3).
  - 1. Module #1 appears to be more advanced than modules #2 & #3.
  - 2 & 3. PTU Modules
  - 4. Pancakes
  - 5. Possible fin fan air coolers. (#5).
  - 6. Possible fin fan air cooler/piece of equipment (#6) installed
- **Why Does That Matter:** On July 30, 2020, CPLNG issued information to FERC on the PTU structural design.
- **What's The Impact:** We are watching FERC's response & module yard progress to gauge impacts.
- **Key Thoughts & Takeaways:** PTU Fabrication progress appears behind; additional engineering changes could increase the delay.

### ICA Fluor – July 14, 2020



**In July 2020, PTU fabrication appears to be picking up while engineering clarifications continue.**

Source: Company & Regulatory Filings, W|EPC Analysis

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