

SIEMENS Response
September 17, 2018

After initial review of Siemens' proposal document dated August 17, 2018, and draft Liquefaction Service Agreement (LSA), Interior Alaska Natural Gas Utility (IGU) has the following questions and information requests. Note that this is not intended to represent a comprehensive review and list of questions.

A. Status of Proposal

1. While FEED is completed for the modular units Siemens produces at its plant, the project involves other infrastructure projects, such as a natural gas pipeline to the plant from a production source and railroad sidings. Please list each major infrastructure project necessary for the project to begin delivery of LNG beyond the modular units, and state the status of FEED for each of those infrastructure projects.

Siemens Response 9/17/2018

EPC Engineer.com defines FEED as:

FEED stands for Front End Engineering Design. The FEED is basic engineering which comes after the Conceptual design or Feasibility study. The FEED design focuses the technical requirements as well as rough investment cost for the project. The FEED can be divided into separate packages covering different portions of the project. The FEED package is used as the basis for bidding the Execution Phase Contracts (EPC, EPCI, etc) and is used as the design basis.

For projects such as this, Siemens does not follow the standard design/bid/build set of steps, which often includes a FEED study. Siemens uses a preliminary assessment (PA), followed by an investment grade audit (IGA), and followed by a design/build implementation phase. Technical documents, drawings and scopes of work are developed during the IGA and design build bids solicited based on these documents. When the IGA is presented to the client, it contains: A) a firm fixed price offer from Siemens (which in turn is based on multiple contractor firm price bids), and B) a firm financing package – at this point, the project is ready for implementation as soon as a contract is signed.

In that sense, Siemens does not prepare a FEED study as defined above. Siemens has completed the PA for all aspects of the project, and has estimates for most major components from Alaska contractors. In that sense, that part of a FEED is done for the entire project. However, some aspects, notably the civil work and infrastructure will require further development before Siemens can issue design/build solicitation packages. Siemens has previously stated that once an MOU or other binding document is signed, we can start construction within a specified period – this period is not only meant to finalized finance, it is for Siemens to finalize the design/build packages and solicit bids. So in that sense, we have completed all aspects of a FEED for those elements.

The typical progression of documentation in a design/bid/build scenario is: Schematic Design (SD), Design Development (DD), and Construction Documents (CD). For the LNGo

SIEMENS Response
September 17, 2018

units, we already have CDs, as the questioner notes. For the infrastructure work, we are at the DD stage – we typically continue the design to about 30% of CD before issuing the design/build solicitations. The infrastructure elements which require further development post-MOU are:

- Natural gas pipeline: We have two potential routes and preliminary estimates from Enstar, plus estimates from other contractors using the same routes*
- Electricity: The LNGo units utilize natural gas engines for process power, so the electrical service is for site lighting and building/convenience/controls/life safety only; it is a small 3 phase service, and we have estimates from MEA for this work*
- Road: Miller's Reach Road will need to be paved and perhaps improved up to the edge of the Knik site (about 1 mile), and then the site itself will have extensive road coverage. Siemens has unit cost estimates and take-offs from site layouts*
- Railroad: The existing spur stops at the edge of the Knik property, although the railroad bed itself continues all the way across the site. Siemens will extend the AK RR along that bed to the site, and then construct sidings and load/unload spurs as needed to allow for LNG rail service. Siemens has spent an extensive amount of time with AK RR testing different layouts for efficiency, and AK RR has provided Siemens with estimated costs for the rail, switches, and so on.*
- Foundations: The assumptions made for the civil work needed for equipment foundations will need to be confirmed (or altered, if not). Multiple local contractors concurred that the general geotechnical make-up of that area is quite well known; but this will need to be confirmed.*
- Water is assumed to come from on-site wells*

2. The proposal describes several economic modeling outcomes. Please provide IGU's modeling expert access to the model(s) and inputs used to determine those economic outcomes so they may be reviewed for completeness and accuracy.

Siemens Response 9/17/2018

Siemens has and will continue to provide data to IGU modeling experts so that IGU can be assured that the key variables are consistent with IGU expectations. Siemens will not however release proprietary models used in this analysis. Moreover, Siemens assumes the risk of the economic outcome if our models are not complete and/or accurate. This is not IGU's risk. IGU will be insulated from these risks by way of the Liquefaction Services Agreement (LSA) which guarantees the cost of LNG to IGU.

SIEMENS Response
September 17, 2018

3. The proposal references an agreement between the Knik Tribe and Siemens, which contains a “flow down” of LSA responsibilities. Please provide a copy of the referenced agreement between the Knik Tribe and Siemens.

Siemens Response 9/17/2018

Agreements between Knik Tribe and Siemens are in development. The general premise is, what Knik Tribe commits to IGU, so shall Siemens commit to Knik Tribe. The financier(s) will require a capable and credit worthy entity such as Siemens to backstop the operations of this plant.

4. The proposal anticipates the Knik Tribe obtaining low-cost federal financing to build out the plant and related infrastructure. Please identify the specific loan program and any relevant information relating to the Knik Tribe’s eligibility and qualification for a loan from the program to develop this project. Please comment on the loan process and whether the loan program is currently adequately funded. Please also explain what, if any, steps have been taken to date to determine the likelihood of obtaining the loan within the proposed project schedule.

Siemens Response 9/17/2018

Siemens and Knik Tribe are developing a combination of two financing approaches; 1) tax exempt financing available to federally recognized Tribes and 2) private equity financing. Programs available to Federally recognized Tribes include IRS’s Tribal Economic Development Bonds, USDA Rural Development Loans, as well as Bureau of Indian Affairs’ and Department Of Energy’s Loan Guarantee Programs. Currently the Tribal programs we are pursuing are funded adequately. The program balances available are well within the available private equity participants funding positions.

The objective in seeking these various funding sources is to ensure we are pursuing the lowest cost of capital for the project that will satisfy our needs, and subsequently offer the lowest cost LNG to IGU.

The next step to securing definitive financing (and locking in final costs for delivered LNG) will require IGU to agree to the LSA terms and execute a Memorandum of Understanding (MOU) with Siemens. The MOU would outline and define what a successful project would look like to both parties and express intent to move forward to contracting should Siemens/Knik Tribe be able to deliver contracts (LSA) that meet these criteria. It will also allow Siemens to firm up all pricing for subcontractor work for site development and capital equipment. This MOU is a critical element to the finalizing the business plan and financeable deal structure.

In anticipation of receiving said MOU, Knik Tribe has already retained a Bond Counsel and Finance/Tax Legal experts to advise and guide us in the financing process.

SIEMENS Response
September 17, 2018

In addition to having high credit rating (Moody's A1, S&P A+), for over 170 years Siemens has a strong record of past performance both in the US and globally, as well as a reputation of never abandoning a customer or project. Should problems arise, Siemens can be counted on to make it right. From a financier's perspective Siemens' executed projects are low risk.

Accordingly it's important to note that the off-taker (payer) will also be evaluated for their credit worthiness; and as an emerging business, IGU may require backing from the State. These are key elements that need to be investigated further to determine impact on the cost of capital and bankability of the project. However, these discussions with financiers can't occur until there is a signed MOU in place.

5. In Siemens' presentation of the proposal, it indicated that it would "backstop" and "guarantee" the Knik Tribe's performance obligations to IGU under the LSA. Please provide a copy of the referenced guarantee. If Siemens' comments do not anticipate a backstop or guarantee agreement between Siemens and IGU, please explain in detail how the backstop and guarantee would contractually and commercially work and how IGU could enforce Siemens' backstop or guarantee commitments.

Siemens Response 9/17/2018

As mentioned in previous response (#3), the financier(s) will have specific interest in the success of project and the projects' revenue stream since these factors are essential to repayment of principle and interest. It is only through the financial institution's due diligence process and risk analysis, that this project will be successfully funded.

As such, should both Knik Tribe and Siemens fail in its obligations to IGU, it will be the financier(s) that would ultimately enforce the project commitments to IGU.

It is important to note, however, that Siemens is open to discussing novel legal approaches to demonstrate Siemens' obligation to the project to satisfy IGU's concern.

B. Initial Contract Year

6. In discussions with the IGU Board, we understand the initial Contract Year to be 2020. Please confirm the proposed month and year of the first Contract Year.

Siemens Response 9/10/2018

Assuming Siemens and IGU executes a Memorandum of Understanding (MOU) in October 2018 and are then able to agree on complete LSA terms and execute a contract, we anticipate being able to deliver LNG 12 months from contract date. The precise date of contract depends largely on whether IGU and Knik/Siemens can work in a collaborative manner to

negotiate terms, and how quickly IGU can make decisions and subsequently execute required actions.

C. Firm Supply

7. In Siemens' proposal document dated August 17, 2018, the terms "Firm Supply" and "utility-grade firm" are used several times. Please describe, in further detail, Siemens' expectations relative to redundant or backup LNG production facilities and transportation arrangements. Are these items included in Siemens' projected costs?

Siemens Response 9/17/2018

Both Firm Supply and utility grade imply the highest levels of reliability, but they should be used to refer to different aspects of the natural gas delivery chain; sometimes, especially in speech, they get used interchangeably. The term "Firm" as used in the proposal means that IGU cannot accept a curtailment of their LNG supply for any length of time; they require "Firm" delivery of LNG. The "allowable" duration of a temporary curtailment to IGU is a function of natural gas demand, of storage capacity (at Fairbanks and at the production facility), and LNG transportation capacity. If the output capacity or transportation capacity of the LNG facility(ies) is curtailed for any reason, that lost capacity needs to be made up by other means.

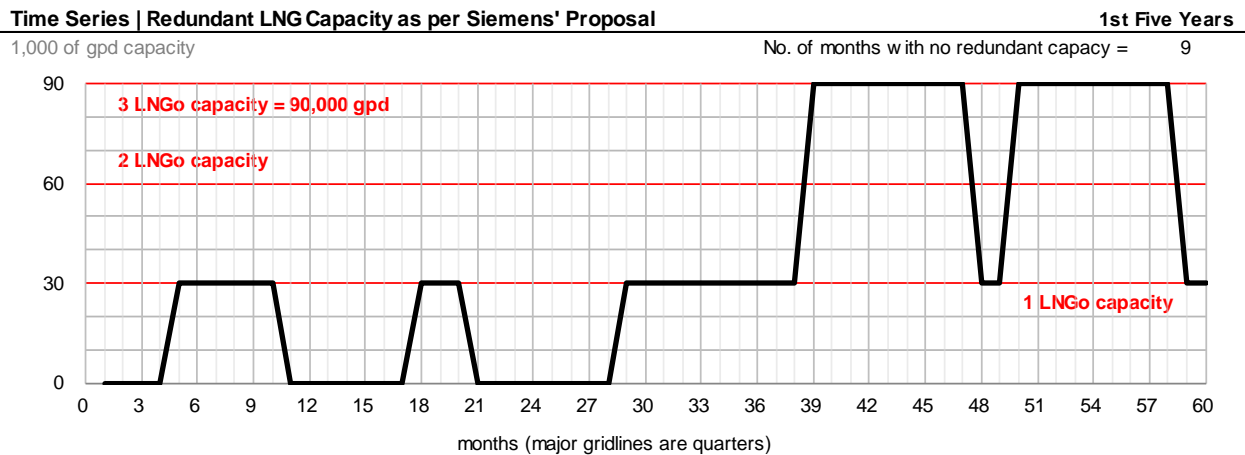
Utility Grade is meant to refer to the reliability of the feedstock, the LNG production facility, the LNG transportation scheme, and thus ultimately the delivery of LNG into the tank in Fairbanks. Using this term implies very high availability and redundancy. Siemens believes the proposed LNG facility provides IGU with the highest level of reliability possible within the financial constraints of the project (the target LNG price).

Feedstock: In order to assure the greatest reliability of supply, the Siemens plant will have a connection to the Enstar Beluga pipeline that is capable of supplying 100% of the required feedstock. Siemens is also looking to develop natural gas resources both adjacent to and on the proposed LNG plant site, with the goal of lowering the overall cost of LNG to the Interior. However, this source of gas is speculative for now. If and when near-site gas supplies are proven, that gas may provide lower cost feedstock to IGU while the pipeline gas will provide feedstock backup.

LNG production: One the advantages of the LNGo modular concept is speed to implement; but equally or more important is the provision of redundant capacity. Using a larger number of smaller LNG assets means that a failure of any one given LNG asset has less of an impact than relying on one or two large production assets. Ideally, Siemens would be able to provide n+1 redundancy in production over the entire 20 year term. However, Siemens is also trying to keep the unit cost of LNG as low as possible, so as proposed, there are some months in the early years of Siemens proposal in which the LNG plant cannot provide a fully redundant unit. The graph below shows the available redundancy for the first 60 months (5 years), as proposed. As shown, there are only 9 months over the term with no redundant

SIEMENS Response
 September 17, 2018

capacity. (The Titan plant could be used as backup for these 9 months) Redundant capacity as defined herein means an LNG unit that is on-line and available that month, but is not scheduled to produce any LNG over the entire month.



LNG transportation and storage: As noted in the proposal, Siemens has included the capital and operating expenses for ISO container numbers/volumes equal to 2x the production capacity at any given time, plus spares. For each LNGo, for instance, assuming one LNG train every four days, it takes 12 ISO containers to move the produced LNG. Because AK RR will not wait for ISO containers to be loaded (they expect to drop off empties and pick up full ISOs all in one event), Siemens must have 2x, or 24 ISO containers per LNGo unit. Also, because AK RR only plans to deliver once every four days, Siemens must also have four-plus days of stationary LNG storage on site. Having 1x times production in stationary storage plus 2x production storage in ISO container volume means Siemens can store up to 12 days (3x volume times 4 days between trips) of LNG output.

In the event of a rail and road outage during winter, the Siemens plant can continue to produce up to 12 days' worth of LNG before running out of storage. During this time, if roads are open, the ISO containers can be placed on flatbed trucks and trucked to Fairbanks, although this mode of transport could likely not keep up with production, which must remain high to keep the tank in Fairbanks full. However, in an emergency situation (such as a prolonged rail outage), Siemens can work with AK RR in the aftermath of the disruption to get back on the scheduled deliveries. Rather than deliver empties and pick up full ISOs, Siemens can load all the available ISOs and have AK RR deliver them. Then Siemens can accept all the empties, re-fill them all, and have AK RR make a special pick up. In this way, even in peak demand in winter, Siemens can temporarily deliver LNG to Fairbanks via rail at more than 2x the normal rate (including the spare ISOs); this allows Siemens to clear out the site-stored LNG and get back on the normal 4 day schedule after a rail shutdown. In a truck-based transportation scheme, it is highly unlikely that the number of trucks could be doubled or tripled after a road shutdown to get back on schedule.

SIEMENS Response
September 17, 2018

Siemens believes that the proposed production/transportation plan provides the highest level of safety and reliability that IGU can achieve given their target unit price for LNG.

8. If the expectation is for IGU to maintain existing Titan LNG facilities for backup LNG production, does Siemens include this cost in its projected pricing?

Siemens Response 9/17/2018

Siemens has not included capital or operating costs for the Titan LNG facility. This is an IGU asset and IGU needs to determine the disposition of the plant and cost effectiveness of using this plant for redundancy purposes.

See discussion of firm supply above. Assuming the Cardno predictions are true, and the LSA is modified to add additional capacity in year 3 to meet growing demand, there are nine months in the first 5 years where the proposed project will not have n+1 redundancy. IGU needs to decide if it is more cost effective to use its own assets for backup LNG production or have the project invest in redundant assets for those nine months. The latter will likely not be the most cost effective approach to protect LNG production.

9. If the expectation is for IGU to maintain existing LNG trailers for backup transportation, does Siemens include this cost in its projected pricing?

Siemens Response 9/17/2018

Siemens has not included any capital or operating costs in the project pricing for existing IGU owned LNG trailers. IGU will have to make a determination how they chose to use those assets. However, it is important to note that in the remote chance that LNG needs to be trucked to IGU as opposed to railed (with Force Majeure as an exception), then the cost of moving LNG via this transportation method is discussed in the LSA; Seller would be responsible for costs above what normal transportation cost would have been.

Siemens/Knik Tribe will have in place transportation contingency contracts for ISO containers to be placed directly on flatbed trucks and hauled to IGU for offload.

D. Delivered Cost of LNG

10. In the Delivered Cost of LNG section of the proposal document, Siemens describes improving economies of scale through the addition of industrial LNG load. Please describe, or provide through example, how these economies of scale are achieved, especially in the first two or three years, given the Siemens LNGo system is proposed to be deployed where plant capacity and associated capital costs are closely matched to predicted load.

Siemens Response 9/17/2018

Siemens has included costs for infrastructure and supporting systems for the 20 year IGU predicted loads; railroad siding, rail car movers, natural gas pipeline, road access etc.. As

SIEMENS Response
September 17, 2018

additional liquefaction equipment is added, the necessary supporting infrastructure has already been built and financed. The added costs (incremental) will be primarily the liquefaction equipment. For example, no additional pipeline costs will be carried to add additional liquefaction capacity; economies of scale. As the total Mcf output increases, the fixed costs are spread over more volume thus driving the \$/Mcf down.

Beyond growing the IGU demand, the economies of scale also hold true when adding larger industrial loads. Siemens has plans to assist industrial customers in using natural gas in ways not previously envisioned and showing them the economic advantages it can provide to their operating costs. These customers have already been identified, and our intent will be to drive demand to help achieve these economies of scale at the LNG production site as early in the project as possible. Therefore, as new demand is added so will new LNG production assets. This could either be additional LNGOs or larger plants, depending on customer's needs and project timelines. As a result of greater LNG production volume, all off-takers benefit, as the plant infrastructure is now spread over greater output resulting in lower \$/Mcf.

E. Commercial Structure

11. Please provide more detail about the contractual relationships between the Knik Tribe and Siemens and between Siemens and IGU. It is important for IGU to fully understand contractual responsibilities and protection from performance issues.

Siemens Response 9/17/2018

Please see response to Items 3 and 5.

With regard to Siemens' contractual obligations to the Knik Tribe, will Siemens be responsible (1) to finish construction of the project if the Knik Tribe does not perform, (2) for debt payments should the Knik Tribe fail to make them, and (3) for operating the plant and damages to IGU should the Knik Tribe fail to perform under the LSA.

Siemens Response 9/17/2018

1) Knik Tribe will contract with Siemens to perform Engineering, Procurement and Construction (EPC) of the plant. Siemens will be responsible to build, commission and make the plant operational.

2) The financier(s) will likely have step-in rights if Knik Tribe fails to make debt service payments.

3) The financier(s) will likely have step-in rights if Knik Tribe fails to perform per the LSA. Damages to IGU will be defined in the LSA.

13. With regard to Siemens' contractual obligations to IGU, will Siemens and IGU have a contractual relationship? If so, please describe the contractual relationship. Under the proposal, please confirm whether Siemens would be responsible to IGU for (1) performance

SIEMENS Response
September 17, 2018

of the LSA, (2) the buildout of the project, (3) the delivery of LNG from the plant, (4) having viable contingency backup plans in the event of a failure to provide LNG from the plant, and (5) obtaining and providing backup LNG during the period of a failure to provide LNG from the plant? Under the proposal, please confirm whether Siemens would be responsible to IGU for damages arising from the failure to provide LNG to IGU? Please describe whether Siemens, the Knik Tribe, IGU, or some combination would be responsible for damages arising from the failure to provide LNG to IGU above the limits for such damages set forth in the LSA?

Siemens Response 9/17/2018

At this point and while contemplating tax exempt financing, it is unlikely that Siemens will have direct contractual relationship with IGU. This is due primarily to avoid IRS defined "Private Business Use" that would preclude tax exempt financing under the Tribal Economic Development Bond funding program. Should the project be financed by private investment, then it may be possible for Siemens to have a direct contractual relationship with IGU. Again, Siemens is not opposed to novel legal approaches to satisfy this concern so long as it doesn't interfere with the laws associated with the specific funding programs.

14. Under the proposal, are there any third-party security arrangements to ensure performance and respond to damages without litigation anticipated (i.e. performance bond, letter of credit, insurance, performance reserve, etc.)?

Siemens Response 9/17/2018

There are currently no third-party security arrangements in place at this time. However, once MOU is signed and as part of the financing process, we will discuss with lender the need for such vehicles. Perhaps as a result of the project being supported by Siemens, it may be likely that none are required.

However the lender may have concerns about IGU's financial stability and may require IGU to maintain an escrow account/Letter of Credit in a defined amount for the term of the contract, whereby Knik Tribe is authorized to draw from said account based on terms agreed to in the LSA.

F. LNGo Facilities

15. Please provide additional information about LNGo facilities currently in operation including:
- a. Location of facilities,
 - b. Installed cost, capacity, and comparative operating costs, and
 - c. Owner/operator reference(s) and contact information.
-

SIEMENS Response
September 17, 2018

Siemens Response 9/17/2018

It's important to note, that the LNGo system is comprised of quality, well proven legacy products from Dresser-Rand and Siemens including an MOS™ reciprocating compressor (MOS™ is the trade name for medium speed reciprocating compressor), a Siemens Gas Generator set, and controls, monitoring, and safety systems to offer a new liquefaction process that can be installed and operating within months. None of these technologies are new and they have a long history of performance. However, what is new is the novel approach to providing them packaged together in a configuration that allows for quick deployment and operation. That said, below is the additional information requested:

a. Siemens has reference for 3 LNGo sites totaling an installed base of 4 LNGo systems, with 3 additional LNGo systems under contract. Two sites are LNGo-Low Pressure units located in New Jersey and Pennsylvania. The third site is an LNGo-High Pressure (30,000 gpd) site in British Columbia Canada which has been in operation for over a year in more harsh weather conditions than the proposed Houston site. The LNGo installation in Canada is the same equipment as being proposed for the IGU project.

b. Installed costs varied with respect to Siemens' scope of work. Operationally, costs also vary as Siemens is not the primary operator of the installed plants. The clients are gas sector companies who have their own operations staffing, and were trained to operate these systems. As a result, Siemens maintains our role of providing ongoing technical consultation to each of these projects as required.

c. New Jersey – SJL; Pennsylvania – A&G Energy; BC Canada, AltaGas. Due to our Non-Disclosure Agreement with our customers, we are not at liberty to provide specific names of employees without written approval. We are working at getting this approval and will keep IGU updated of this progress. As discussed previously, the AltaGas installation in BC Canada is the LNGo-HP system and is the configuration we are offering for this project. Again, we welcome and encourage the IGU Board and GM to witness firsthand the unit in operation. The AltaGas team can also answer specific questions about performance and operation. We stand by ready to coordinate your visit with the plant operators.

16. Please provide a description of all permitting, safety code, and construction code compliance (federal, state, local, other) required before proposed LNGo facilities can be operational in Alaska and estimated time to obtain. Include current status of permitting and known code compliance.

Siemens Response 9/17/2018

The cost estimate makes allowances for construction permits, based on information from local contractors. Siemens has met with ADEC, and as a result of those meetings, have every expectation that by utilizing emissions mitigation equipment on the gas engines, only a Minor Permit or no air permit will be required. Siemens is working to confirm that with ADEC. Our Construction Manager has years of experience managing construction in Alaska;

SIEMENS Response
September 17, 2018

he is working with the Mat-Su Borough and City of Houston to ensure that the project will be fully permitted by all Authorities having jurisdiction.

LNGo is a product which is modified for code compliance around the world. Current country configurations include US, Canada, EU, South Africa, Australia, Russia and others. The 2 US referenced projects above have met US CFR requirements.

17. Are all costs associated with permitting and code compliance included in Siemens' pricing?

Siemens Response 9/17/2018

Yes, the cost estimate includes allowances for all permitting, inspections, etc. that are known to Siemens at this time. It also includes both capital and operational expenses for the emissions equipment required to mitigate the need for even a Minor Source air permit.

G. Term of Agreement

18. The LSA currently contemplates a 20-year Term. Does IGU have any right to extend the term beyond the proposed 20-year term?

Siemens Response 9/17/2018

Siemens and Knik Tribe are committed to a long term LNG solution for IGU. It is in the best interest of the asset owner to maintain the facility in a manner that extends its life beyond the finance term. The useful life of the plant may well exceed the initial contracted terms, and leading up to this time, the LSA would require adjustment, typically in 5 year extensions.

19. Does Siemens anticipate having any commitment to the project past the 20 year Term? If so, please describe the nature of its ongoing commitments.

Siemens Response 9/17/2018

Please see response to Item 18

20. If the parties agree to a term extension, does Siemens envision a reduced Monthly Baseload Service Fee or other adjustment in recognition of capital recovery over the initial contract term?

Siemens Response 9/17/2018

Given that debt service payments are the lion's share of the Monthly Baseload Service Fee, and the financing would be paid off after year 20; yes we would expect that the Monthly Baseload Service Fee would be adjusted downward. Note that there may be some capital

investment required at that time that would need to be financed and added however these costs would be minimal as compared to the initial financed costs.

H. Termination

21. The LSA states that Seller has the right to terminate in the event of Force Majeure, which cannot be overcome or remedied after 180 days. What are the Seller's obligations to recover from Force Majeure?

Siemens Response 9/17/2018

Seller will make all commercially reasonable efforts to recover from a Force Majeure up to commercial impracticability. Conversely, we would likewise expect that IGU obligates to recover from a Force Majeure in a commercially reasonable time frame.

22. Please provide additional information and explanation relating to the Seller's right to Terminate for Convenience.

Siemens Response 9/17/2018

Circumstances that may invoke Seller's right to Terminate for Convenience may include, but are not limited to, Customer repeatedly fails to meet obligations, Customer's default or insolvency, Customer's repeated operational failure, Customer's failure to make timely payments. Typically a series of notices are required prior to initiating Seller's Termination for Convenience proceedings. Termination for Convenience terms and conditions will be detailed and agreed to in the LSA.

23. Please provide proposed formulas for determining final values in the event of Customer's Termination for Convenience or Seller's Termination for Convenience.

Siemens Response 9/17/2018

These costs and schedules will be provided by the financier(s) during financing negotiations. Typically, termination costs include remaining principal balance, financier(s) fees to terminate and costs to unwind ongoing service contracts to name a few. The Termination for Convenience schedules will be shared with IGU as they become available.

I. Step-in Rights

24. Does the Customer have any step-in rights should Seller fail to perform?

Siemens Response 9/17/2018

The project financier(s) will have the first step-in rights. If the Seller is failing to perform, revenue stream and resulting principal and interest payments to the financier(s) are in jeopardy. The financier(s) has considerable interest in correcting the failure and restoring revenue stream and payments.

J. Customer Services and Obligations/Gas Receipt Point

25. LSA states that Customer is responsible for certain items to be identified in a Customer's scope of supply and for facilities upstream of the Gas Receipt Point. Please provide, by example, items to be included in the Customer's scope of supply, potential upstream facilities, and Customer's responsibilities for upstream facilities.

Siemens Response 9/10/2018

IGU would not be responsible for any upstream feedstock facilities or requirements if the project provides feedstock. However, if IGU owns and provides feedstock, we want to be clear as to the delineation of feedstock responsibilities; the project receives feedstock at the agreed to Gas Receipt Point. We cannot predict what upstream responsibilities IGU may be obligated to with IGU's feedstock provider, moreover under this arrangement, the project does not assume any of these responsibilities.

26. Please provide additional definition as to the location of the Gas Receipt Point.

Siemens Response 9/17/2018

Generally, the Gas Receipt Point will be at the Fairbanks storage tank. This point of connection is not well defined at this point, but Siemens has an allowance for this work. It is anticipated that a tee would be installed in the fill line to the Fairbanks storage tank, with one or more isolation valves in the stem of the tee. Siemens would tie new cryogenic pipe into that flange. Siemens does not have detailed piping / control plans for the Fairbanks site, so this is not well defined at this time.

K. Transportation

27. Please provide all assumptions, including supporting basis, for rail transportation pricing and associated contractual arrangements between parties.

Siemens Response 9/10/2018

Alaska Railroad has provided a quote to transport LNG for Siemens in accordance with their agreement with the Federal Railroad Administration. The quote was provided both verbally and

SIEMENS Response
September 17, 2018

via email (see below). The quoted rate is \$977 per ISO container round trip, plus the current energy surcharge at the time of transport. At the time this was quoted, the surcharge was ~ 12%. Alaska Railroad indicated that this surcharge varies between about 10 and 15%. The Model uses a conservative 14.5% for the energy surcharge. The percent surcharge itself is not escalated, but because the underlying cost of transport (the "per ISO charge") is assumed to escalate at 2.0% per year, the dollar value of the surcharge also increase year on year and has been factored into our cost model.

Siemens received the following quote from Mr. Tim Williams, director Freight Sales and Marketing, Alaska Railroad;

I have included below the rates to transport the 40' containers of LNG from Houston, AK to Fairbanks, AK:

Origin: Houston, AK
Destination: Fairbanks, AK
Rate: \$977 Per Container

Notes:

- 1 - Rate based on Shipper owned or leased ISO containers.
- 2 – Shipper responsible for loading ISO containers to railcar in Houston.
- 3 – Rate includes use of Alaska Railroad owned or leased railcars. If railroad is required to lease or purchase additional railcars to meet customer needs, customer will be required to provide a 3 to 5 year commitment at an agreed upon annual volume.
- 4 – The rate is based on transporting a minimum of 10 containers per train. Rate is also based on the train dropping off empty containers at origin location and subsequently picking up loaded containers to transport to Fairbanks.
- 5 – Rate is subject to fuel surcharge in effect at time of movement (14.5% for January 2018, fluctuates monthly).
- 6 – Rate does not include a switch crew to assist in loading and unloading operations.
- 7 – Rate is subject to annual adjustments.

As included in the notes, I would like to reiterate that the above rates are subject to a fuel surcharge, therefore, please factor it in when determining the total transportation costs. The fuel surcharge changes monthly.

I would also like to point out that we previously had different rates for various minimums, however, in an effort to influence the use of rail to move the LNG to Fairbanks, we decided to honor the rate for transporting 60 containers per train for the lower volumes. To support this operation, we will stop the southbound Fairbanks freight train in Houston to pick-up loaded containers of LNG and drop off empty containers. This rate structure is predicated on volumes increasing to unit train volumes in the not so distant future.

SIEMENS Response
September 17, 2018

28. What are Siemens' projected all-in cost of transporting LNG from the output of LNG production facilities to the input of the storage tank in Fairbanks?

Siemens Response 9/10/2018

Sufficient quantities of ISOs, and ISO spares are included the projects capital costs. Most of the loading at the production end will be done by the staff on duty, so it is not reasonable to break out their "loading" hours/costs from their overall duties/costs. As volumes increase, Siemens does carry an overtime allowance for additional loading labor. For the first three years, Alaska Rail Road costs, and Fairbanks unloading labor is projected as:

All-in LNG transportation costs, Houston to Fairbanks (first three years)			
	AK RR	FB unload	total
Y 1	\$1,865,582	\$31,466	\$1,897,048
Y 2	\$1,927,886	\$32,609	\$1,960,495
Y 3	\$2,449,654	\$41,132	\$2,490,786

Note that it may be more cost effective for IGU to unload ISOs at the Fairbanks facility given that presumably there will be IGU staff on site. We should discuss further if IGU has interest in assuming the unloading responsibility and the LSA cost adjusted accordingly.

29. Please provide estimated capital costs for railroad work, unloading systems, and other delivery/unloading infrastructure required at the Fairbanks storage facility. Are these costs included in Siemens' proposed pricing?

Siemens Response 9/17/2018

The estimated capital costs for the Fairbanks siding, switches, rail improvements, and unloading station are \$1,356,000. These costs are included in Siemens pricing. It is anticipated that AK RR will need to perform a further \$600,000-plus worth of upgrades to their line, but they have verbally committed to paying for that work because it is on the main line, not part of a siding.

L. Service Unavailability

30. What constitutes timely substitute volumes for Service Unavailability?

Siemens Response 9/17/2018

Restoring service before Fairbanks tank minimum is reached.

SIEMENS Response
September 17, 2018

31. If Seller does not make timely substitute volumes available, is Customer responsible for transportation of substitute volumes?

Siemens Response 9/17/2018

The Customer is only responsible for the transportation costs it would have paid as though it were being delivered normally. The additional costs for alternate methods to transport or produce LNG are born by Seller and are part of the guarantee provided in the LSA.

32. If Seller does not make timely substitute volumes available, it appears as though Customer's remedies for Service Unavailability is simply to purchase from a yet to be commercial supplier and receive a credit for the difference in cost. Is this correct?

Siemens Response 9/17/2018

Seller and Customer will likely have the same remedies for service unavailability. Terms need to be agreed to in the LSA, but as currently contemplated; Customer will be responsible for the cost of delivered LNG as though it were delivered from Knik Tribe/Siemens. Costs above and beyond will be borne by Knik Tribe/Siemens. As stated elsewhere, IGU owns the Titan plant and should consider the use of this plant as contingent source of LNG.

M. Payments and Fees

33. Please provide the proposed Monthly Baseload Service Fee, Monthly Liquefaction Volumes Fee, and Ramp-up Volumes Fee for the two studied scenarios

- a. Base Case Volumes with \$7.72 per MCF NG feedstock or Feed Gas, and
 - b. Lower Gas Cost Volumes with \$5.35 MCF NG feedstock or Feed Gas (Siemens' \$5.00 per MCF scenario is acceptable for evaluation purposes)
-

Siemens Response 9/17/2018

Please see the table below for data requested. We have included the Monthly Baseload Service Fee and Liquefaction Production Fee data for the scenarios presented in the proposal. Note that the Liquefaction Production Fee includes the cost of feedstock regardless of which party is providing.

SIEMENS Response
September 17, 2018

IGU Year 1 Fixed and Variable Costs

configuration	Feed stock Price \$/Mcf	yr	Output LNG Mcf	Total Unit Cost \$/Mcf	Monthly Base Load Service Fee \$/month	Liquefaction Production Fee \$/Mcf
IGU Only	\$7.72	1	1,379,572	\$18.17	\$804,550	\$11.17
IGU Only	\$5.00	1	1,379,572	\$15.28	\$804,550	\$8.28
IGU Only	\$4.00	1	1,379,572	\$14.21	\$804,550	\$7.21
IGU + Ind off-taker ¹	\$5.00	1	3,091,098	\$11.30	\$720,538	\$8.11
IGU + Ind off-taker ¹	\$4.00	1	3,091,098	\$10.27	\$720,538	\$7.08

(1) Base Load Service fee = IGU's finance costs plus one-half of plant fixed operating costs

Ramp-up Volume Fee only applies to LNG produced during commissioning of the LNGOs. If the project is providing feedstock, we would want to be reimbursed for the feedstock only. If IGU is providing feedstock, there would be no Ramp-Up Volume Fee provided we can deliver the ramp-up volumes to IGU. We expect the ramp-up volume to be relatively small.

***As a result of recent developments since our proposal presentation, the project is strongly contemplating providing only a firm price of delivered LNG plus transportation. Given the unique arrangement and structure for the gas supply contract currently under negotiation, it will likely make the most sense for the project to include this as part of an all in price.*

We can state with confidence that based on our negotiations to date our rate of feedstock will be substantially less than \$7.72/Mcf. Moreover the unique structure of this long term feedstock contract is fixed price per Mcf over the term eliminating escalation factors resulting in hundreds of millions of dollars savings over the term of the LSA. Once the MOU is signed, the delivered LNG price will be refined prior to contract execution.

Additionally, it is important to note that pricing can continue to benefit from economies of scale as the project matures resulting in lower price of delivered Mcf. These LSA modifications can be discussed when volume for IGU increases and/or when other industrial uses subscribe to the plant.

34. Are all Payments and Fees subject to escalation factors (currently proposed at 2 percent)? IGU initially understood that the escalation factors only applied to the Monthly Liquefaction Volumes Fee.

Siemens Response 9/10/2018

The finance portion of the fixed monthly fee is fixed at the time of Closing. The other aspects that factor into the fixed monthly fee will escalate with time. Thus the fixed

monthly fee will change year on year; however, the increase will be at a rate less than general escalation.

35. Is the monthly Liquefaction Production Fee based on produced volumes or delivered volumes?

Siemens Response 9/10/2018

The amount charged each month will be equal to the liquefaction fee rate for that month times the delivered volume of LNG. Note that we anticipate leveraging economies of scale and reducing the Monthly Liquefaction Production Fee (and likely the Monthly Service Fee) via LSA modification as additional loads are added.

36. The LSA states that the Customer is responsible for any costs due to changes in taxes, tariffs, laws, codes, standards, court rulings, regulations, or decisions made by public authorities after the Effective date of the Agreement. Has Siemens attempted to calculate or otherwise quantify this cost risk?

Siemens Response 9/17/2018

It is impossible for Siemens to know what costs if any could be involved here. If the project were to take this responsibility, we would have to assume a worst case scenario and include those costs in the \$/Mcf. This would be like IGU purchasing an insurance policy for something that may or may not happen. We think it is economically more prudent for IGU to assume this risk and pay for what actually happens versus what might happen.

N. Feed Gas

37. What are the requirements or specifications for Feed Gas?

SIEMENS Response
September 17, 2018

Siemens Response 9/17/2018

LNGo is capable of liquefying a range of Feed Gas. The following table lists typically allowed limits. When contents fall outside these ranges, further evaluation is required.

Component	Unit	Min Value	Max Value
Nitrogen	mol %	0	1
CO ₂	mol %	0	2
H ₂ O	lbs/mmscf	0	7
Oxygen	ppm mol	0	10
Hydrogen	ppm mol	0	1
H ₂ S	grains/100 scf	0	None
Mercaptans	grains/100 scf	0	trace
Total Sulfur	grains/100 scf	0	0.5
Mercury	Nanograms/Sm ³	0	10 to 50
Methane	mol %	80	100
Ethane	mol %	0	3
Propane	mol %	0	1
i-Butane	mol %	0	0.1
n-Butane	mol %	0	0.1
i-Pentane	mol %	0	0.1
n-Pentane	mol %	0	0.1
C ₅ +	mol %	0	0.09
n-Hexane	ppm mol	0	100
n-Heptane	ppm mol	0	50
n-Octane	ppm mol	0	2
Benzene	ppm mol	0	3
Toluene	ppm mol	0	20
Xylenes	ppm mol	0	5
Glycol	ppm mol	0	trace
Methanol	ppm mol	0	trace
Helium	ppm mol	0	trace
Radon		0	trace
Lube oils		0	trace
Dust		0	trace

SIEMENS Response
September 17, 2018

38. To date, gas supply counterparties and contractual arrangements have been protected by non-disclosure agreements. Does Siemens plan to release this information, either publicly or confidentially, to IGU? If so, when?

Siemens Response 9/17/2018

Given Siemens is a stable multi-billion-dollar company with significant presence in the oil and gas industry, Siemens is in exclusive gas supply contract negotiations with terms and conditions likely unavailable to any other party in Alaska. Once the MOU is signed, Siemens can then execute the supply contract with this current supplier. At that time, Siemens will make the gas supplier's name available publically. However the exclusive terms will continue to remain confidential.

39. If gas supply is to be derived from coal bed methane, does Siemens or the developer have necessary permits? If so, please provide a list of permits in hand. If not, please provide a list of permits required and estimated time of acquisition.

Siemens Response 9/17/2018

Gas supply (aka feedstock) for this project will be via Enstar pipeline and therefore is not contingent on resource development or developer permits.

However, a separate effort is underway to pursue the natural gas potential on site. Should on site gas become available, the LSA agreement may be modified to reflect the lower cost feedstock.

40. Please provide pricing assumptions for Feed Gas delivered to proposed LNG facilities including gas commodity pricing and allowance for pipeline transportation.

Siemens Response 9/17/2018

Commodity: Siemens is in negotiations now with several current gas suppliers; however the front runner has offered a unique arrangement. Once the MOU is executed, gas supply contracts can be finalized. If the contract is executed with the front runner, the project will own the supply and provide a firm price of all-inclusive delivered LNG rather than disclose feedstock pricing separately. This is at the request of the gas producer and will remain an exclusive arrangement.

Pipeline transportation: In a meeting on 21 March 2018 at Enstar's office, Vincent Robinson of Enstar indicated that Siemens would be charged a monthly service charge of \$9,700 per month, and a unit charge of \$0.173 per Mcf. Depending on source and location of feedstock, there is a possibility that the gas may pass through pipe controlled by entities other than Enstar. We will include applicable tariffs in our pricing once the pipeline route is confirmed.

O. LNG and Byproducts

41. What is the LNG delivery temperature and pressure? The LSA references a pressure of “not less than 29 psia”. Can Siemens provide an explanation of this requirement?

Siemens Response 9/17/2018

Some pressure is required to satisfy first stage suction on the feed flash compressor module and keep horsepower requirements low. IGU should comment if they require a lower saturation pressure. In general, LNG at a saturation pressure of 29psia provides sufficient storage time for the customer’s operation, although adjustments can be made as needed.

42. Buyer’s responsibilities relating to Byproducts are mentioned several times in the LSA. Please clarify whether or not Byproducts are contemplated for the proposed LNG project.

Siemens Response 9/17/2018

This is most likely not applicable to this project as the feedstock is quite clean (~98mol% CH₄) so the remaining mol% will be in the LNG which will meet pipeline natural gas specifications.

P. Efficiency Obligations/Guarantees

43. What is the guaranteed efficiency of the LNG plant?

Siemens Response 9/17/2018

No guaranteed efficiency of the plant will be required or offered here. Knik Tribe/Siemens assumes the risk for plant power input, backup power, and periodic and routine maintenance, as well as equipment replacement as it relates to LNG volume produced. These factors are accounted for in the guaranteed \$/Mcf of delivered LNG.

SIEMENS Response
September 17, 2018

Proposal Review and Comments from May 2018

Subsequent to Siemens' May 15, 2018, proposal presented to IGU, Mark Gardiner prepared a brief analysis for AIDEA's and IGU's consideration. For reference we have attached Siemens' May 15 proposal document and Mark Gardiner's analysis (see attached *IGU and Knik / Siemens, A strategic alliance for success* and *Draft PFM Siemens Analysis 2018-05-22 v2* documents). IGU is providing the Draft PFM Siemens Analysis to Siemens for review and invites Siemens to provide comments for items it feels needs clarification or needs additional/refined information.

Siemens Response 9/17/2018

We affirm that we have addressed all the questions raised in the referenced document through information provided in both the Siemens' proposal dated August 17, 2018 and these responses to IGU's comments. If you have identified something that has not been address, please make us aware and we will provide a prompt response.
