

**ALASKA STATE LEGISLATURE
HOUSE RESOURCES STANDING COMMITTEE**

February 16, 2015

1:03 p.m.

MEMBERS PRESENT

Representative David Talerico, Co-Chair
Representative Mike Hawker, Vice Chair
Representative Kurt Olson
Representative Paul Seaton
Representative Andy Josephson
Representative Geran Tarr

MEMBERS ABSENT

Representative Benjamin Nageak, Co-Chair
Representative Bob Herron
Representative Craig Johnson

COMMITTEE CALENDAR

PRESENTATION(S): HOW LNG AFFECTS LOCAL MARKETS AND MARKETING
ALASKA'S GAS

- HEARD

PREVIOUS COMMITTEE ACTION

No previous action to record

WITNESS REGISTER

JANAK MAYER, Partner, Energy Consultant
analytica
Washington, DC

POSITION STATEMENT: As consultant to the Alaska State
Legislature, discussed how liquefied natural gas (LNG) affects
local markets and marketing Alaska's gas.

NIKOS TSAFOS, Partner, Energy Consultant
analytica
Washington, DC

POSITION STATEMENT: As consultant to the Alaska State
Legislature, discussed how liquefied natural gas (LNG) affects
local markets and marketing Alaska's gas.

ACTION NARRATIVE

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CO-CHAIR DAVID TALERICO called the House Resources Standing Committee meeting to order at 1:03 p.m. Representatives Seaton, Josephson, Tarr, Hawker, Olson, and Talerico were present at the call to order.

PRESENTATION(S): How LNG Affects Local Markets and Marketing Alaska's Gas

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CO-CHAIR TALERICO announced that the only order of business is a refresher presentation and question and answer session with the legislature's natural gas project consultant, enalytica.

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JANAK MAYER, Partner, Energy Consultant, enalytica, noted he has advised the committee for the last four years - two years of providing advice and testimony on oil taxation and two years on issues around the gasline and liquefied natural gas (LNG) project. When last before the committee on 1/28/15, he and his partner Nikos Tsafos provided a PowerPoint presentation ["Alaska LNG [AK LNG]: Project Overview and Update"], which is the same presentation he has today. This presentation provided an update on the Alaska LNG Project (AK LNG) regarding what needs to happen this year to keep the project moving forward, addressed the question of how to best manage a domestic gas market given the presence of a large LNG project, and looked at options to consider for how the state disposes of its share of LNG assuming it takes the LNG in-kind. He explained that today he and Mr. Tsafos will focus on the latter two topics.

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NIKOS TSAFOS, Partner, Energy Consultant, enalytica, stated he has spent 10 years as a consultant to the oil and gas industry, the majority of that time in natural gas helping companies buy or sell gas or figure out what is going on in the world. Turning to slide 5, he addressed enalytica's paper ["Marketing Alaska's Gas From AK LNG: Key Issues"], explaining enalytica put the paper together because one prospect envisioned by Senate Bill 138 [28th Alaska State Legislature] was that the State of

Alaska would take control/possession of gas and therefore the state must figure out what to do with that gas. This being a new role for the state, especially in terms of natural gas, enalytica has laid out some ground rules and some ways to think about how the state might dispose of this gas. The four principles listed on slide 5 are a distillation of the lessons that can be drawn upon from other sovereigns that have participated in LNG projects. Those propositions are very, very big picture items - the yardsticks through which legislators can judge information, agreements for ratification, and direction that legislators may wish to convey to the administration in terms of how the administration should be negotiating agreements for the disposition of the state's gas.

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MR. TSAFOS said the first of the four principles, "Focus on performance over time," is a wise investment decision in general but particularly true in the case of LNG because of the long-term nature of the investment. All going well, he said, AK LNG will be on line for possibly 30 years or longer. The temptation over such a long period of time is to check on how the state is doing on a given day. In general this is very counterproductive because lots of things are happening at the same time, and over short periods of time the market sometimes changes a little bit and sometimes dramatically. A good way to think about this is to step back at any given point and look at how the money being made from this gas, and the risk being taken, is performing over a period of time. If one to four years go by and the state feels it has a bad deal, then yes something must be done. He cautioned, however, about the state thinking it has a bad deal and wanting to renegotiate if, for example, it discovers that one country is selling its gas in Japan for \$13 and someone else is selling it for \$14. If that kind of conversation gets started, he warned, it can get really counterproductive very quickly; rather, an eye needs to be kept on the ball in the big picture.

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MR. TSAFOS addressed the second principle listed on slide 5, "Focus on risk not the highest price." The key word is risk, not price, he said, and definitely not the highest price. Every seller likes to get the highest price the same way that a buyer always likes to get the lowest price. However, there are things about the LNG market that make it difficult to know what the highest price is. It is not a very liquid or a very transparent

market. For example, the price of gas in Asia cannot be looked up in the Wall Street Journal in the same way that the price of oil in international markets or the Lower 48 can be looked up. This second principle is important because many times a price may be quoted, but that price is being traded in a completely different market than is another price. An example is a long-term contract versus a spot sale; or, put in different terms, it is the difference between having a five-year renter on a property versus something that can be booked for a weekend. Not only are prices nontransparent and difficult to understand, the highest price today may not be the highest price tomorrow due to the way the pricing system works. This is because the standard practice in LNG is what he calls an S-curve. In a straight-line relationship, the price of gas is linked to oil - if oil goes up, gas goes up. An S-curve, however, has a floor and a ceiling. If the price of oil goes up, the price of gas doesn't always go up at the same rate. So, if [Alaska's] gas is on an S-curve, it may be earning a lower price than someone else, which [the state] may feel is unfair. But if prices go down, [the state] will be earning a higher price than someone who doesn't have a floor and a ceiling, which is why what really matters is risk; and, related to the first principle, performance over time, rather than how [the state] is doing at any given point.

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MR. TSAFOS drew attention to the third principle, "Don't outsource your risk profile." As envisioned by the Heads of Agreement (HOA) and Senate Bill 138, he said, the state has contemplated the option of selling its gas through its partners. The partners would take the state's gas, sell it, and then push back to the state whatever the partners get for their gas. That perfectly legitimate way to sell gas has pros and cons. A pro is that these companies really know what they're doing. A con is that [the state] ultimately would be adopting the risk tolerance of the other companies. As an example he posed a scenario in which he has someone at a hedge fund invest his savings for him. While the hedge fund person knows the market, the hedge fund person is probably willing to take risks that he is not willing to take with his savings. He said his point is not that the state shouldn't sell its gas to its partners, but rather that the state should assess the offer to sell gas based on what it does for the state's risk tolerance. Just because it works for Exxon, BP, or Conoco doesn't mean it works for the state. That doesn't mean that if it works for them it doesn't work for the state, it could work for the state, but that is the

base upon which to evaluate any offers that these companies will make to market the state's gas together with their gas.

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MR. TSAFOS turned to the fourth principle, "Build in-house expertise." To explain this principle he noted the oil market is so deep and liquid the state could be a passive investor and still do okay. Being an active marketer of oil may add 50 cents or a dollar to the state's sales price. So, there is a benefit in having active marketing and knowing how to place the state's gas, but the forgone revenue of not doing so is not that high. For gas on the other hand, the market is fragmented and there is no one price that everyone gets, so it all depends on how the state sells its gas. Something enalytica has seen is that, in general, those sovereigns choosing to take a backseat in selling their gas and just letting the foreign company do it on their behalf many times come back and try to retake control over the marketing. This was seen in Atlantic LNG in Trinidad where the government had some tax-as-gas equivalent and was letting one of the partners sell that gas. A few years into the project Trinidad said it did not think the partner was trying to maximize the gas the same way that Trinidad would like to maximize the gas, so it tried to take that gas back and sell the gas on its own. Qatar invested heavily in building significant gas marketing capabilities within the state-owned enterprise, not because it didn't have good partners, but because Qatar recognized that its risk profile, risk tolerance, and interest may not be the same as its private partners. So, in general, it is hard to think of many countries that are involved in an LNG project as an owner that have taken a backseat to the marketing and felt very happy about it. In general, the trend of the last 10 years is to hear of sovereigns that realize five years later that their gas is being marketed in a way that seems suboptimal and they've tried to change the terms. No one really wants to change terms halfway through the project, so enalytica submits to the committee that the best thing is to think about building that capability up front so that at the moment [the legislature] makes a decision it is known exactly what [the state] is getting into.

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MR. TSAFOS moved to slide 8 of the presentation. Referring to enalytica's paper, "How LNG Affects Local Markets? Lessons for Alaska from Western Australia from Western Australia, he said the point of departure is that when a state or country starts

exporting gas in large quantities there will be an impact on the already existing local market. This is inevitable and has happened in pretty much every jurisdiction where there has been LNG exports. The question is how to think about the impact that this megaproject is going to have on the domestic market in Alaska. In the Lower 48, as well as in Queensland in Eastern Australia, there have been either forecasts or facts of gas prices rising because of or in anticipation of LNG exports. Queensland has had a huge amount of development to export natural gas and gas consumers there complain that they can no longer get gas at the affordable rates of five years ago. As part of the effort in the Lower 48 to approve export projects, the U.S. Department of Energy (DOE) has issued a number of studies examining the impact of exports on gas prices in the U.S. The general consensus is that exports will raise prices. The question and subject of debate is whether exports will raise gas prices by a little or a lot. As a jurisdiction looking to export gas, [the state] will want to know whether some of those lessons from the Lower 48 or Eastern Australia are going to apply to [Alaska].

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MR. TSAFOS specified that in the Lower 48 everything is driven by a model, by what an economics textbook says should happen. In Eastern Australia the fuss about rising prices happened before any exports actually occurred; LNG exports effectively started in December [2014] with startup of the first [of three] projects. Neither of those two cases provided analytica with enough confidence that a case could be studied and a generally complete picture be offered of the dynamic effects that happen with the passage of time. Prices today may be high, but the question is whether over a longer period of time people reinvest and prices come down. Therefore, analytica chose to do a case study on Western Australia, which has many similarities to Alaska. Western Australia has a domestic market and exports that have been running since 1989, which provides a fairly long history for figuring out what really happened in this jurisdiction. Western Australia has a select number of big companies that are gas producers, similar to Alaska. Western Australia also has a specific policy that LNG projects must supply the domestic market by 50 percent of the gas that they have. While Alaska doesn't have that, part of the negotiations for AK LNG effectively include a question about whether to have a version of that - whether to have some kind of obligation for all of the producers to meet local demand.

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MR. TSAFOS discussed the three lessons from Western Australia that, in analytica's opinion, fit Alaska's own experience. The first lesson, he said, is that domestic prices sometimes correlate with exports and sometimes not. This lesson is a major conclusion because it shows the benefit of studying an actual case rather than doing an economic textbook model that tells how they should work. History actually showed there wasn't a given correlation between export and domestic prices - sometimes they moved together and sometimes they did not.

MR. TSAFOS said the aforementioned leads to the second lesson, which is that what really matters is the local market, not the export price. This can be seen in the Cook Inlet where the export and local market prices have correlated for some periods of time and other times not. Right now prices are lower in the Cook Inlet even though prices in Japan have gone up. This is partly because Alaska is exporting much less and at times nothing, partly because Alaska has changed the way it prices the gas, and more importantly because Alaska has a lot more gas. However, none of these things would have been possible without the turnaround in gas supply in the Cook Inlet. That, more than anything else, is what allows Alaska to keep prices lower even though prices in Japan are very high.

MR. TSAFOS addressed the third lesson, noting Western Australia was concerned that if it started exporting LNG everyone would want only to export LNG and no one would care about the local market. However, he said, that didn't happen; instead companies came in that were interested in the local market. The reason for this is that LNG is a very specific type of beast. Not every company likes to do LNG because it exposes the company to a ton of risks that it may or may not want to take, something that is currently being learned in Alaska. In analytica's opinion, he said, this experience in Western Australia also fits the experience of the Cook Inlet where there are companies that are quite happy to find and produce gas for the local market.

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MR. TSAFOS spoke to the path forward for Alaska as outlined on slide 8, explaining that analytica arrived at two takeaways, both a bit counterintuitive, after teasing out the implications of the Western Australia case study. The first takeaway is the temptation to ensure that every single molecule of gas demand in the state is met before the project goes forward, as was done in

Western Australia. During the process of developing its LNG, Western Australia authorized local market development first to meet all demand. This resulted in prices crashing - there was so much gas that no one came to invest because there was no demand to meet. Market conditions matter, however, so this is not to say that if Alaska does the same thing prices are going to crash. But, it is important to consider what happens, the repercussions, if all the gas demand must be met by the AK LNG partners. It means that anyone having smaller amounts of gas on the North Slope has no outlet for their gas because the market has already been taken up. This leads to the second, and most important, takeaway. When starting this paper the initial question that analytica began to answer was, How will LNG impact domestic gas in Alaska and how can the state manage and mitigate those impacts? However, by the end of the paper, analytica discovered that that wasn't the right question. Rather, the right question was, How to ensure a well-functioning market given there is now this big player joining in? In answering that question, a broader toolkit must be thought about. Not everything that is done needs to be done with AK LNG. Other things can be done that will just incentivize more players to come into the market, more transparency, more liquidity. Much of the policy of dealing with AK LNG may have nothing to do with AK LNG; it will have to do with how to set the pieces around AK LNG in a way that ensures that AK LNG doesn't disrupt the market.

MR. TSAFOS concluded his presentation by pointing out that the aforementioned is analytica's attempt to provide a very broad conceptual framework through which [legislators/the state] can process the information to assess proposals and plans. The aforementioned is the question to ask any time somebody comes forth asking whether to do this or do that. Once AK LNG is added to the picture, the question to ask is whether this is a well-functioning market or are distortions being introduced that [the state] may come to regret later on.

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REPRESENTATIVE HAWKER stated that analytica's 1/28/15 PowerPoint presentation was the committee's overview and update of the Alaska LNG Project (AK LNG). He observed that slide 2 revisits the anticipated schedule of the project. Today, he related, the committee's colleagues "across the way" laid out some very specific detailed benchmarks for the project. He requested that analytica comment on the difference between the major benchmarks and the ancillary benchmarks on the way to those. For example,

the major benchmarks are going into pre-front-end engineering and design (Pre-FEED), then front-end engineering and design (FEED), then final investment decision (FID), and ultimately the project being on line. He inquired whether analytica thinks there is room for the ancillary benchmarks to slip without impacting the major benchmark timelines.

MR. MAYER replied the biggest major benchmark coming up is the question of moving from the current Pre-FEED stage to FEED. The timeline laid out last year was that that would happen in 2016. A lot needs to be done to reach that very important milestone. For that to occur, a very broad range of agreements needs to be negotiated between now and then. Much of what those hinge around is getting to the point that the state can say with comfort yes or no to taking tax and royalty in-kind rather than in-value. To get to a point of comfort in making that decision, a very broad range of things needs to be pretty firmly nailed down for gas offtake, how the state will market its LNG, how all these pieces will fit together, and how that works with the partnership with TransCanada and agreements that are signed on that front. In terms of minor milestones, 12/31/15 is the date that's currently in agreements with TransCanada for signing the next round of agreements. All of those things need to come together to get to the point that the project can proceed to FEED, which is a very ambitious schedule for this year. That said, he advised, it's incredibly important that major projects like this not be primarily schedule driven. It is much, much more important to negotiate well and to sign good agreements that serve the state's interest than to say that "because this needs to happen by this date we'll live with it." Be very aware of just how much under this schedule is supposed to happen this year. But more than anything else, he stressed, care about the quality of negotiations and the fact that agreements take the time that they take and good agreements are wanted more than anything else.

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REPRESENTATIVE JOSEPHSON said it seems fundamental that a contract doesn't need to be adjusted if both parties don't want to adjust it, unless that is laid out in the terms of the contract itself in some way. He recalled that about a decade ago under a previous governor there was the issue of the tax rate being established and the question about whether future legislatures can be bound. In regard to price, he inquired what power the state would have as a sovereign to say that the price is bad and so the state wants to renegotiate.

MR. TSAFOS, in regard to the price question, responded that the state will most likely sign long-term contracts for its gas, and those long-term contracts are likely to include a price formula rather than a price. A price formula is how in a given month the price will be determined. Within that contract is a sales and purchase agreement (SPA) under which there are likely to be two provisions for potentially revisiting the price. One fairly common way is for contracts to have a price review clause. Price review basically happens periodically; for example, every three, four, or five years the parties agree to sit down and re-look at the price. Depending on how the contract is written, this could be a complete free-for-all or it could be very narrowly and tightly written; for example, he knows of LNG contracts with boundaries that say the price review may not allow the price to change by more than 10, 15, or 20 percent. Also within those contracts are provisions for what happens if the parties disagree. Usually arbitration is tried. Europe is now in the golden age of arbitration lawyers because of the changes that have happened in the gas market there. Pretty much every contract is being renegotiated by going to arbitration because the two parties agree that the market has changed but disagree about what needs to happen. So, the aforementioned is the simplest way in which a contract can be revisited: the parties agree about how often and under what conditions and with what boundaries the revisiting of price may happen. Mr. Tsafos said a second provision that may or may not be included in a sales and purchase agreement is a once-in-a-contract review out of the cycle. In this provision, each party has the opportunity once in the life of the contract to revisit the contract. Both of these two provisions might be in a contract, or only one of them, or a combination of them. These two provisions are pre-established ways for the two parties to come together. When signing a 20-year contract, he advised, it is impossible that both parties will be happy with this contract every single day for 20 years. However, the point is performance over time - Does it broadly work?

MR. TSAFOS continued his answer, noting that analytica has seen contracts that don't have the aforementioned kind of provisions, particularly with sovereigns. In these cases the option is pretty simple. Either the sovereign says, "hey tough luck, we're just gonna have to live with it" or the sovereign pounds the table until someone pays attention and negotiates. In general, when sovereigns have serious issues with things happening in their jurisdiction, private companies pay attention. Of course the companies can also hold the sovereign

to account, saying it is liable and responsible, if there are signed contracts. In general, there are enough normal legal avenues for the state to revisit the price that it worked in the beginning of the contract, and, if something extraordinary happens that is not provided by the contract, there is still a possibility to sit down and find a new agreement.

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REPRESENTATIVE SEATON noted that 20-25 percent of the Alaska LNG Project cost is on a gas treatment plant to remove the CO₂ from the natural gas going down the pipeline to be liquefied, while gas out of Cook Inlet may be more pipeline ready. He inquired whether there is enough of a difference in the quality of Cook Inlet gas versus North Slope gas to create a price sensitivity between those two supplies in both the local and export markets.

MR. TSAFOS answered he is unsure, but that he knows the Cook Inlet gas that is exported as LNG is very lean, meaning it has very few impurities. He said he doesn't know what specification the Alaska LNG Project's gas will be. However, Asian markets generally prefer "hot" gas, which is methane with other things in it like ethane, propane, or butane. He said he is unclear whether AK LNG will try to create a gas quality that meets a specification of the buyers or whether the project has even settled on this yet.

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CO-CHAIR TALERICO offered his appreciation for analytica's advice, especially regarding the fluctuation of the markets. He asked whether, historically, gas prices have risen or fallen faster than have oil prices.

MR. TSAFOS replied the broadest principle to remember for gas is that there is no such thing as a global gas price. The most important answer to the question is that it depends on where [State of Alaska] wants to look. Each place being looked at may have specific trends or relationships between gas and other fuels that can be identified. For example, there may be a place where gas has been 50 cents for the last 15 years and another place where gas prices have tumbled up and down. In addition to the broad principle, there are a few things that generally happen. One is that on energy equivalency, how much energy is needed from oil and gas to get the same outcome, gas trades at a discount to oil. For one-to-one energy, gas is cheaper than oil and this has generally held true across many geographies and

many different periods of time. The reason for this is because if it doesn't, people switch back to oil, which creates a sort of cap on natural gas. Secondly, in many places of the world, certainly in Asia and parts of Europe, the price of gas is contractually linked to oil. So, in a place like Japan, oil and gas prices generally move together. There are exceptions from time to time, such as when the Japanese are buying a lot of spot LNG. Also, the volatility is much greater in oil than in gas and that is purely contractual. The way it works is the price today is based on an average of three, four, or six months beforehand and because of that average some of the volatility is smoothed out.

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MR. TSAFOS, continuing his answer, noted that a definitive statement cannot be said for markets where the price of gas is set by supply and demand, like the Lower 48 or Northwest Europe. Before the 2008 crisis, gas prices in the U.S. had gone up to \$12 per million British thermal units (mmBtu). Multiplying \$12 mmBtu by 6 equals \$72 per barrel of oil equivalent. In the summer of 2008 oil had gone up to \$146 or \$147 and gas topped out in the Lower 48 at \$72, showing that gas never quite fetches as much. However, gas is a lot more expensive to transport and is priced lower, which is why most companies like to find oil rather than gas. Especially after 2009, there is no systematic correlation between oil and gas in the Lower 48. So, the answer is that it really depends on how price is set and where in the world it is being looked at. The broad implication of this for the State of Alaska is that at any given time there are dozens and dozens of wildly varying prices of gas. For example, in just the one country of Japan in 2013 the most expensive gas stream was twice as expensive as the cheapest gas stream. The price at which "Kenai" sold gas in Japan was much different than the price at which Oman sold gas in Japan. At times that price was 2:1, so Alaska was selling gas into Japan for twice the price that Oman was. This was because of renegotiation and before that it was not that, which is why these things are very dynamic. So there isn't really a very clear answer and that is why even speaking of averages or the Asian price or the Japanese price can be very misleading because those averages conceal a huge amount of variations. Another example is China, in which the cheapest gas is an old contract signed in the early 2000s that comes in from Australia for \$3.15. But in a Qatari contract that China signed in 2008 when oil was at \$110, the gas comes in at about \$18. The supplier that gets \$3 was really

happy when it signed the contract because there was no other buyer in the early 2000s. It all depends on the circumstances.

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MR. TSAFOS, responding to Co-Chair Talerico, said analytica will be providing an informational overview tonight about where the Alaska LNG Project is at and why the state decided to become an investor in the project and why the state brought in TransCanada. Referring to slide 2, he said that if all goes well the state will have gas in another eight or nine years. So, it will be a long process and a lot of things are going to change in there interim.

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REPRESENTATIVE TARR inquired whether domestic gas means comparing North Slope gas versus Cook Inlet gas, or Alaska gas compared to Lower 48 gas, or both.

MR. TSAFOS replied the simple answer is to think just of Alaska. But, he qualified, there is a regime connection to the Lower 48. If Alaska decided to price its gas in Anchorage based on Henry Hub, then by definition Alaska is connected to the Lower 48, but Alaska's ability to sustain that price depends on supply and demand conditions in Alaska. Overwhelmingly the price will be determined by supply and demand conditions in Alaska, but there may be periods of time where the way Alaska sets prices could link it to the Lower 48 or could link it to Asia. For example, Alaska could have a system that says the price of gas in Place X is linked to the price of gas in Asia minus \$5, \$10, or some other amount. He said he thinks of Alaska as connected to the Lower 48 mostly because of a regulatory and commercial decision to be tied to the Lower 48, not because there is any physical linkage that affects the market in Alaska.

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REPRESENTATIVE SEATON observed the last sentence on slide 5 states, "The LNG market is highly fragmented, and expertise makes a difference; an autopilot approach will not serve the state's interests over the long term." He asked how that works when talking about a sales agreement with a price formula and S-curve and re-openers. He expressed his concern over how the state would fluctuate and the changes that could take place if the state doesn't have a robust, self-correcting autopilot system. He requested Mr. Tsafos to explain why analytica thinks

an autopilot approach with self-correcting mechanisms is not best for the state.

MR. TSAFOS responded that "passive approach" would have been a better term to have used than "autopilot" because what enalytica was meaning by autopilot is that the state cannot make an agreement in 2017 and then step back saying that it isn't going to look at this again for another 20 years. The reason for enalytica not liking that approach is because things are going to change. Prices will change. Customers may come and say they cannot take all of the gas they signed up for and they need to renegotiate. Or, a customer that agreed to take anywhere from "five to ten" now only wants to take five, leaving an extra five that the state must try to dispose of. He said he understands Representative Seaton's concern that the state could have a team that on any given day fluctuates wildly in terms of what it wants to do. However, he submitted, that is not building in-house expertise because by definition an expert is someone who is able to separate the signal from the noise and is able to understand in what conditions the state needs to change its approach. The overarching principle is the need to have a core group of people working for the state who can be trusted and who know what they are doing so that [legislators] can feel comfortable that Alaska's gas is being marketed in the best way possible, comfortable with the amount of risk being taken, and comfortable that any changes in the market are being responded to in the proper way. It would be unacceptable, for example, if the moment comes that someone says "oh, the price is X and we're selling it for Y and at that point your answer is, 'well, ExxonMobil says it's okay.'" If Alaska has a team of people with expertise that know this market, it's all about trusting them rather than trusting someone whose risk profile may be different than the state's.

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REPRESENTATIVE SEATON said he sees autopilot as being that [the state's] gas is marketed by the producers rather than a robust autopilot in which there is a built-in framework of a price formula with review clauses and such. Because legislators are elected every two years he wants to ensure suggestions are made for building in robust changes that can be considered at one time instead of coming back and reanalyzing every so often. He requested further elaboration from enalytica.

MR. MAYER reminded members that enalytica has also discussed focusing on risk rather than price and not outsourcing the

state's risk profile. The best way to think about this is the different components of risk, such as price risk, country risk, what the markets are that the state is selling into, whether it is only one market or many markets, or future things that happen in a market. Counter-party risk is particularly relevant and important to everything being talked about here. The state could sign a deal and say, "because the state isn't well equipped to handle these things it should sign one contract that it's happy with and have, let's say, a major producer, whether one involved in the project or outside, handle all of its LNG sales." Such a contract might look good on day one. The time at which a contract is signed is probably the time that the state has maximum negotiating leverage to get good terms. But if the state has no capability itself as an alternative in the future, then as market conditions change over time and as that counter-party decides its priorities are different, the state has progressively less leverage to say that this isn't a great deal because what is the state going to do as an alternative. The way that the state best manages counter-party risk is by having other options in terms of counter-parties. If one follows that logic, it leads one to say that the best way to manage many of the state's risks is to have the best in-house team possible, the best capability possible, because then the state always has other options.

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REPRESENTATIVE SEATON said he understands developing a system with checks and balances and reopeners. But, he continued, he doesn't see how the state having in-house expertise will provide stability because that sounds like the state will be going to spot sales so it can make changes on all these different factors and will have short-term contracts to be able to make changes with counter-parties. He asked for an explanation of what is being proposed, what autopilot means or doesn't mean, and what a self-correcting robust system means.

MR. TSAFOS answered by relating the term "autopilot" to flying a plane. While autopilot is great, he said, there still needs to be someone who knows when to take it out of autopilot and fly the plane. Even if all of the state's gas is sold in long-term contracts with one re-opener every four years, [the state] won't know what to do with that re-opener unless it has people who are monitoring the market, who know whether that re-opener makes sense, and how to negotiate that re-opening. Having in-house expertise, having people who know what they are doing, doesn't mean [the state] will be changing things all of the time. Many

times the answer will be to not do anything. He submitted that [legislators] will find it incredibly difficult to understand whether the [state's] system of sales is working if [the state] doesn't have people in-house who understand it and can explain it to [legislators]. For example, if [legislators] decide they want 80 percent of [the state's] gas to be at really predictable prices and 20 percent at spot sale, then [the state] needs to have people who can carry out that directive. If [legislators] decide there is too much volatility and they want less volatility, there needs to be someone who can implement that. What analytica is getting at here is that this is all about contrasting with oil. In oil, not much more needs to be done than reading the price on the cover of a journal and every six months the Department of Revenue does a long-term forecast. No more than that needs to be done because at the end of the day nothing can be done about it - the oil market is going to be what it is going to be and [legislators] will accept whatever price is set in global markets. However, that is not going to be the case in natural gas. Knowing how to set the autopilot requires expertise. Understanding the boundaries, the clauses, and the state's risk tolerance requires expertise. A sales and purchase agreement, one of many documents the state will have to enter into, will have a hundred pages. Understanding exactly the risk that [the state] is taking is huge.

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MR. TSAFOS, continuing his answer, noted that another big risk [the state] will take is counter-party risk, which is volume risk. Contracts typically have a plus or minus to them, he explained. So, if the state is in a contract for 4 million tons with a 20 percent flexibility, the buyer will be obligated to buy, say, 3.2 million tons rather than 4. If, for example, [the purchaser] has a regime change, the state could find itself - without any violation of contract terms - with an extra 800,000 tons of LNG that it needs to sell. Who is going to do that for [the state]? Those kinds of things come up all the time, things change. [The state] needs to protect its interest, and analytica is putting that up front because [the state] can prepare itself over time. It is not being suggested that a skyscraper of LNG staff be built, but rather a team of 5-10 people who manage an LNG portfolio - [the state] needs people who know what they are doing.

REPRESENTATIVE HAWKER surmised Mr. Tsafos is saying that a hands-off approach will not serve [the state's] interest best over time.

MR. TSAFOS thanked Representative Hawker.

2:07:02 PM

REPRESENTATIVE TARR offered her belief that the state is following enalytica's suggestion given the experienced staff being brought in for the Alaska Gasline Development Corporation (AGDC). She asked whether enalytica thinks this is sufficient for building the suggested expertise or whether the state should be putting together another team since AGDC is a corporation separate from the state.

MR. MAYER replied that the people brought on at AGDC are largely under contract to the Department of Natural Resources rather than specifically within AGDC. He said this is an excellent first start in what enalytica is talking about for bringing on serious in-house expertise. If it gets to the point of where the state says yes to taking tax and royalty in-kind, it is enalytica's view that there needs to be a team of people, not just one expert, charged with marketing the state's LNG.

2:09:31 PM

REPRESENTATIVE HAWKER commented that Representative Tarr's question seems to be drawing a distinction between AGDC and the state. He pointed out that AGDC is the State of Alaska and that AGDC was created to be an entity of the State of Alaska to represent the interests of the people of Alaska in this process. He said he is wondering whether Representative Tarr's question is really about the difference between the regulatory agencies of the Department of Natural Resources and the Department of Revenue versus the actual state gasline entity which is AGDC.

REPRESENTATIVE TARR responded that her question was to tease out that difference. At a fall [2014] meeting, she related, legislative members were introduced to several people that had been brought on and it was her mistake in recalling that those individuals had been hired by AGDC if they are contract individuals with the state. She said she is wondering more broadly whether enalytica has been following those type of people given enalytica had recommended to the committee last year that the state start to staff up. She asked whether enalytica thinks the state is heading in the right direction in this regard.

MR. TSAFOS responded yes, [the state] is definitely heading in the right direction. These are the kind of people [the state] wants, he said, and will want more of them. In terms of drawing lines between where these people sit and what the governance relationship is between state agencies and state corporations is another conversation to have. He clarified that enalytica is advising to build in-house expertise, not necessarily where to put that expertise. The type of people the state wants are people who know the market on both the technical and commercial sides. If the state decides to take possession of the gas, he sees that team growing over time.

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REPRESENTATIVE HAWKER announced that at 5:00 p.m. this evening in the Senate finance chambers, enalytica will be presenting an educational/refresher seminar for the entire legislature.

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ADJOURNMENT

There being no further business before the committee, the House Resources Standing Committee meeting was adjourned at 2:13 p.m.