ALASKA STATE LEGISLATURE
HOUSE RESOURCES STANDING COMMITTEE
February 14, 2014
1:05 p.m.

MEMBERS PRESENT

Representative Eric Feige, Co-Chair
Representative Peggy Wilson, Vice Chair
Representative Mike Hawker
Representative Paul Seaton
Representative Scott Kawasaki
Representative Geran Tarr

MEMBERS ABSENT

Representative Dan Saddler, Co-Chair
Representative Craig Johnson
Representative Kurt Olson

OTHER LEGISLATORS PRESENT

Representative Andrew Josephson

COMMITTEE CALENDAR

PRESENTATION(S): GASLINE ISSUES/OPTIONS

- HEARD

PREVIOUS COMMITTEE ACTION

No previous action to record

WITNESS REGISTER

JANAK MAYER, Energy Consultant
enalytica
Washington, DC
POSITION STATEMENT: As consultant to the Alaska State Legislature, provided a PowerPoint presentation in consort with Mr. Tsafos regarding gasline issues and options.

NIKOS TSAFOS, Energy Consultant
enalytica
Washington, DC

POSITION STATEMENT: As consultant to the Alaska State Legislature, provided a PowerPoint presentation in consort with Mr. Mayer regarding gasline issues and options.

ACTION NARRATIVE

1:05:04 PM

CO-CHAIR ERIC FEIGE called the House Resources Standing Committee meeting to order at 1:05 p.m. Representatives Hawker, Kawasaki, Tarr, P. Wilson, Seaton, and Feige were present at the call to order. Representative Josephson was also present.

PRESENTATION(S): GASLINE ISSUES/OPTIONS

1:05:25 PM

CO-CHAIR FEIGE announced that the only order of business is a presentation regarding gasline issues and options by [the Alaska State Legislature's energy consultants] Mr. Janak Mayer and Mr. Nikos Tsafos, partners in the consulting firm "enalytica".

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JANAK MAYER, Energy Consultant, enalytica, consultant to the Alaska State Legislature, began by noting that this is his third year before the legislature testifying on oil and gas issues. Prior to co-founding enalytica, he was with PFC Energy. At PFC Energy he led the analytics team working on fiscal terms analysis, project and portfolio economic modeling, and building financial economic models for large and small transactions for national and international oil companies and private equity firms, as well as a range of analysis of the impact of fiscal terms on government investment.

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NIKOS TSAFOS, Energy Consultant, enalytica, consultant to the Alaska State Legislature, introduced himself saying this is his second year advising the legislature. Prior to co-founding enalytica, he spent seven and a half years with the natural gas practice at PFC Energy. While at PFC he advised some of the world's largest oil and gas companies regarding how to sell gas if the company had gas, where to buy gas if the company wanted to buy gas, and helping companies make sense of local, regional, and national gas markets.

MR. TSAFOS explained that today's presentation is focused on two things. The first focus is on in-kind and in-value, and how the State of Alaska should participate in the proposed Alaska Liquefied Natural Gas (LNG) Project. He said in-kind versus in-value, as well as price/cost exposure, are effectively overall project questions that are in the Heads of Agreement (HOA). The second focus is on midstream options, which is about the role of the Memorandum of Understanding (MOU) with TransCanada Alaska Company, LLC, in the project design.

MR. TSAFOS, addressing slide 4 entitled, "OIL VALUE CHAIN", noted that enalytica wanted to find a way to put the questions faced by the legislature about gas in terms that legislators and the public are more familiar with. He explained the slide is a cut-and-paste from [page 106] of the Department of Revenue's Revenue Sources Book, Fall 2013, and depicts the production tax calculation for [Alaska North Slope (ANS)] oil for fiscal year (FY) 2015, the first year that all oil production is subject to SB 21. The FY 2015 forecast price for oil is $105 [per barrel], he pointed out. The midstream costs are estimated to be about $10 [per barrel], of which some are marine transportation costs, some are Trans-Alaska Pipeline System (TAPS) costs, and some are other costs. Lease expenditures are estimated to be $46 per barrel. The result is [a production tax value] at the North Slope of about $49 per barrel.

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REPRESENTATIVE SEATON observed that slide 4 indicates 35 percent of the production tax value and said this does not include the credits which will be significantly different than what appears on the slide, especially as prices decline. He expressed concern that members are seeing a partial picture.

MR. MAYER replied the purpose is not to talk about oil taxes, but to take one particular section of things and compare how this calculation might work with gas. The credit side was deliberately not looked at because the focus is on the question of where value is in the barrel. The aim of the exercise is not to say how much tax the state collects from oil, but rather how gas compares to oil. The aim is not to get into the question of how much of a future development cost would be attributed to oil versus to gas and what credits would be involved and what credits are actually applied to gas, because at the moment none do. The calculation was held off of the tax before credits because that is what is being concentrated on.

REPRESENTATIVE SEATON said he is confused, then, where different oil prices are used. For example, calculating this at $81 per barrel versus $105 per barrel will result in a very different oil value to the state. He requested that that also be put into context here so legislators and the public can actually get a value comparison.

MR. TSAFOS concurred, but said he will walk members through why those numbers were put there. The thought was to start with a view at the 30,000-foot level before drilling down to finer details to ensure everyone is focused on the things that are the biggest and have the biggest impact for the state. He said he will be happy to answer further questions if they are not answered by the rest of the presentation.

REPRESENTATIVE SEATON pointed out that gas taken in-value by the state is being compared to a non-existent system, given the state's system does not tax 35 percent of the production tax value; rather, the state has a 35 percent less credits variable on the price. He requested that at some point a comparison be made to the system the state has in place.

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MR. TSAFOS resumed his presentation, turning to slide 5 and how the price for Alaska gas will be different than the familiar picture for oil. One difference is that the ANS price for oil is transparent, while the price for gas is highly opaque and does not just come up on the World Wide Web. Another difference is that the price for gas is highly variable. Even within one country there will be a 20, 30, or 40 percent variation between one price and another price. So, while there may be an average price, the reality is that [the State of Alaska] will be earning very variable prices on its gas. Additionally, the gas price for Alaska is likely going to be linked to oil since the state will be looking at Asia. Most of the LNG in Asia is priced against the Japan Customs Cleared (JCC) price, also known as the Japan Crude Cocktail price, which is the average price that Japan pays for oil. He noted that enalytica calculated back to 2004 and found the JCC is basically the same as the ANS. Responding to Representative Hawker, Mr. Tsafos confirmed enalytica's analysis is of the export aspect without any prejudice as to the domestic price and how the domestic price will be set. Continuing his presentation, he said the last difference is that, in general, energy for energy, gas earns less than oil. A $100 barrel of oil is not the same as a $100

barrel of LNG. Some contracts may get pretty close to that, but in general gas trades at a discount to oil. The reason for this, especially in Asia, is that when gas is priced more expensive than oil, consumers go back to using oil.

MR. TSAFOS turned to slide 6 to discuss midstream costs and how these costs differ for oil and gas. Gas is more difficult and more expensive to transport than is oil, he explained, a reason for why gas is often stranded. Rather than a transportation cost of $10 [as seen for oil at the FY 2015 price of $105], the gas value will be higher. The tariff for gas will not be regulated by the Federal Energy Regulatory Commission (FERC) and the tariff will be sensitive to the capital structure. The gas tariff will be governed by how much the infrastructure costs and the allowed rate of return on that infrastructure.

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MR. TSAFOS, moving to slide 7, outlined an indicative LNG chain for when oil is priced at $100 per barrel. At this oil price, the estimated price for LNG could be $81 [per barrel of oil equivalent (BOE)], he said. This presentation is not a forecasting exercise; rather, it is to show that LNG is "a very different beast" than oil and must be thought about in a very different way. In the midstream, the transportation cost for LNG would be about $66 as compared to $10 for oil. At an upstream expenditure for LNG [of $6 per BOE], the result is [a production tax value (PTV)] of about $9 per BOE. If the legislature were to focus its attention on how to tax $9, it would be leaving the vast majority of the barrel untouched. The $66 is so big that ignoring it, or saying that the state is a tax levying authority at the wellhead, is leaving most of the pie outside of the state's control. Commencing to slide 8, Mr. Tsafos posed a scenario for the indicative LNG chain in which the oil price is about $90 per barrel [with resultant LNG price of $72.18 per BOE]. At this price, he pointed out, there is no longer any production tax value at the North Slope for LNG because the entire value has been taken up by infrastructure to produce the gas and bring it to market. Turning to slide 9, Mr. Tsafos posed a scenario in which the oil price is $100 per barrel [with resultant LNG price of $81 per BOE], but the costs for LNG are 12 percent higher. In this scenario, he noted, the [production tax value] at the wellhead is also zero. Projects much smaller than the Alaska LNG Project can cost 10 percent more than thought, he advised, so a 12 percent cost escalation is not unreasonable.

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MR. TSAFOS displayed slide 10, entitled "Implications for State of Alaska". When thinking about what drives the value to the state, he said, the state will want to ensure it gets a fair price for the LNG, that the price per BOE is maximized. However, he stressed, it is really about the midstream. The midstream is such a big part of the pie that if the state is nowhere near that $66 [in transportation costs] it is really missing out. Upstream is important, but not as important as midstream. The point being made, he said, is that the wellhead is insufficient to drive the value for the state. At $9 per BOE, multiplied by a production [of 384,000 barrels daily], the state is looking at $372 million. That is not a big amount when put into the context of what the state earns from oil today, even though a production of 384,000 barrels is actually a sizeable production project; while the volume is big, the value is much smaller. Responding to Representative Seaton, he clarified that the oil price used for slide 10 is $100 per barrel, which leads to [an LNG price per BOE] of $81.

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MR. TSAFOS, responding to Representative Seaton, said 384,000 barrels of oil is equivalent to 17.4 million tons per annum, or a little over 2 billion cubic feet (BCF) per day, which is the assumption that has been put forward by the project sponsor in the royalty study for the capacity. The capacity of the project has a range of between 15 and 18 million tons because of the weather - the colder the weather the more gas that can be put through the pipeline. He reiterated that this analysis is about the export, although the pipeline will be bigger because of the in-state gas that is not for export. Responding further, Mr. Tsafos said that 2.5 BCF per day is the initial capacity of the pipeline, of which about 2.0 or 2.1 BCF per day will be exported and the rest will be for the Alaska market. The pipeline, as well as the LNG, has the potential to be expanded in the future, although that is not what this presentation is looking at.

REPRESENTATIVE SEATON asked whether the pipeline being discussed in today's analysis is the Alaska Gasline Development Corporation (AGDC) pipeline or the Alaska LNG Project.

MR. TSAFOS answered it is the pipeline that is proposed in the Heads of Agreement (HOA) and the Memorandum of Understanding (MOU) for bringing North Slope gas to Nikiski for LNG export, including the five in-state outlets.

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MR. MAYER turned to slide 11, entitled "RIV [royalty-in-value] makes Upstream the Sole Price Absorber". He explained the slide expresses the calculations on the previous slides in the form of a bar graph, with both axes depicting a range of prices for LNG in dollars per barrel of oil equivalent (BOE). Under a typical Asian LNG pricing contract, he said, $80 per BOE for LNG could easily be a crude oil price of $100 [per barrel]. For oil, royalty and production tax are the two most substantial components in the state's fiscal system. For gas, however, when royalty and production tax are taken in-value and there is the very high tariff of the entire midstream component, any changes in gas price are enormously amplified in the impact on the state. The state actually bears a huge amount of price risk, the reason being that that is essentially the state's value; the value at the wellhead is the absorber of differences in price.

REPRESENTATIVE HAWKER observed that the chart on slide 11 looks at five price scenarios and how the destination price gets shared along the way back to the wellhead. He inquired whether there is an error with the farthest left column.

MR. MAYER confirmed an error and stated that the BOE price on the X axis should read $110.

REPRESENTATIVE SEATON inquired whether slide 11 is the ANS West Coast price or the "after deduction of the 22 percent" price.

MR. MAYER replied it is an LNG price expressed in barrels of oil equivalent; so, it is after discount based on a pricing formula.

REPRESENTATIVE SEATON surmised that $22 would be added in order to look at a comparative price.

MR. MAYER agreed, saying that $80 BOE relates, roughly speaking, to the $100 per barrel of oil in the previous example.

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MR. MAYER returned to his discussion of slide 11, saying there is enormous variation in what the state would get in royalty or in production tax depending on the oil price. In higher oil price environments, substantial value remains for the state to take in royalty and to take in production tax. But, as the price falls, that value quickly falls away to nothing, and the

value falls away much faster than the price itself is falling. The structure is amplifying the effect of the price fall to the state's revenues. It is amplified because there is a large fixed component -- the tariff that is set on all the other pieces. Whether a real tariff, or a tolling facility, which is the case here, or an integrated project among the producers where it is not looked at as a tariff, the cost of that component must be assessed for regulatory and legal purposes and the process for determining that tariff must be reasonably well established. As a fixed component, the midstream gets its guaranteed rate of return regardless of what the price is; that value is always going to be there. It is the state's share that has to take up the entire burden of a decrease in the price, which is why the overall effect of this structure is to amplify on the state's revenues the effect of a fall in price. Correspondingly, the same thing would be true of an increase in costs.

CO-CHAIR FEIGE interpreted the aforementioned as making a good case for being an owner of the project, because then there would be an ownership of at least a piece of the guaranteed return that is shown on the graph.

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REPRESENTATIVE SEATON posited that, because it is not a tariff, those expenses could be shifted by the individual parties. He requested there be discussion at some point as to how the state would be impacted by someone having higher expenses or taking more expense as tariff versus someone taking lower tariffs.

MR. MAYER responded this is an excellent point. Returning to slide 5, he said there is much less transparency throughout the components that make up the core of the value. There is less transparency because there is not one quoted price out there for gas that everyone can understand; instead, it is subject to contractual negotiations and different volumes. Additionally, it is not a FERC regulated pipeline from a tariff perspective because it is a pipeline for export. But, there is enormous ability, subject to whatever regulatory constraint can be placed on it, to vary that tariff through different capital structures on a whole range of levels. Over the last few decades there have been battles on the Trans-Alaska Pipeline System (TAPS) over a tariff that represents $6 out of $100 per barrel of oil. Thus, a tariff of more than $60 for the entire midstream component, liquefaction back to the wellhead, is a good reason for wanting a better solution to the question of understanding

where is the value in that chain and aligning interests on how value is created across the value chain, rather than fighting over which components accrue the value.

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REPRESENTATIVE TARR inquired whether Mr. Mayer is in agreement with the 75/25 equity-to-debt structure that has been discussed in previous presentations before the committee.

MR. MAYER replied the 75/25 structure is laid out in the MOU and relates specifically to the question of TransCanada and TransCanada's interest in the pipeline and the gas processing facilities. He said enalytica would agree with the administration and its consultant's analysis that the tariff is much more sensitive in almost all circumstances to the relative levels of debt and equity than it is to the specifics of, for instance, the return on equity that is allowed. In that sense, 75/25 is quite an aggressive degree of leverage. Ratios of 70/30 to 60/40 are probably more typical mixes of debt and equity for setting tariffs for regulatory purposes, so 75/25 looks quite attractive. In general, the other components of the deal must be weighed out.

MR. MAYER, responding to Representative P. Wilson, confirmed he is saying that the ratio of 75/25 looks good for the state.

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MR. MAYER resumed his presentation, turning to slide 12, entitled "In Kind W/ Equity Offers More Downside Protection". The graphs, he explained, are preliminary findings from enalytica's model and over the next few weeks the assumptions used in the model will be further refined. As these assumptions are refined there may be a shifting of the precise points depicted on the graphs or a shifting of precisely where the lines on the graphs cross over, but the basic directional findings extrapolated on the charts will not change. The directional findings on the graphs depict the value of the state's ownership if it takes the royalty and production tax in-kind as a gas share as well as a corresponding share of equity in the entire midstream component. By taking value in-kind and an equity share of the midstream, essentially being a partner in this project rather than a taxing and regulating authority, the state has greater downside protection than it does if it takes in-value. This is because instead of having a big fixed component that is someone else's guaranteed return, a value is

distributed across an entire investment. If prices go down the state may make less than an optimal return, but it is not a case where value suddenly goes to zero with a very small movement in price. The HOA posits a 20-25 percent share of gas for the state. At a 25 percent share of gas, and a corresponding 25 percent equity stake in the entire integrated project, the value to the state at low prices is higher than it is in-value and it also has the shallowest slope; the state is better protected on the downside but actually gives up some of the upside of high prices.

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MR. MAYER, responding to Representative P. Wilson, explained the graph on the left side of slide 12 looks at things from the state's perspective, the middle graph is from the producers' perspective, and the right graph is from the federal government's perspective. In further response, he explained the red line on the graphs represents the option of taking the royalty and production tax in-kind as barrels and having a corresponding equity ownership in the pipeline and liquefaction. The green line essentially represents the status quo of tax and royalty netted back at the wellhead in-value. The slope of the red line is shallower than the slope of the green line, meaning the in-kind world gives the state less price upside when prices are high but less downside when prices are low. The state is better protected against price risk in the in-kind world than the status quo in-value world, which is a counter-intuitive finding that enalytica thinks people should understand.

MR. TSAFOS interjected that what is being done on slide 12 is adding up all the money generated by the project and seeing how that money gets distributed amongst the state, producers, and federal government. Distribution of the money can occur in two different ways of structuring the project: the state can levy the royalty and production tax in-value, or the state can take gas for itself and invest in the infrastructure and become a partner in the project. The green line is the status quo and the red line is if enabling legislation is passed to play out the scenario envisioned by the HOA. Basically, the HOA would switch the state from the green line to the red line.

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REPRESENTATIVE SEATON posited that when the state takes debt in the midstream most of the value will go out to pay for expenses, so most of that value will not be retained as profit above

expenses. He inquired whether the lines on the graphs in slide 12 represent the actual money retained, in other words the revenue that is usable to the state and not committed to repayment of the midstream equity.

MR. MAYER replied the graphs are preliminary results from enalytica's model that look at cash flows, not revenues, for the project life. They factor in all of the initial upfront capital cost or the operating cost of maintaining that plant and depict the ultimate cash flow to each of these three parties after debts are paid. Included in the model is a 70/30 percent capital structure. Payments of both principle and interest are based on the idea that 70 percent of the capital is coming from debt and has already been taken out of these cash flows and these are levered after-tax cash flows.

REPRESENTATIVE SEATON observed on slide 12 that the in-value figure for producers is $70 at a low price, which is more than depicted for the total value on slide 11 at a BOE price of $70.

MR. MAYER answered slide 11 is a stylized way of looking at a single barrel of value, whereas slide 12 is looking at results at a scale of billions of dollars from the entire 17-million-ton-per-year LNG project over decades. In further response, he confirmed that the Y axis on slide 12 is the cash flow in billions of dollars.

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REPRESENTATIVE P. WILSON understood that as far as cash flow, if the state were to take its share of the gas as gas the state would not have as much at the top end or as much at the bottom end. But, if the state took its share of the gas as in-value, it would have more at the top end and more at the bottom end.

MR. MAYER responded correct, the state would have more exposure at both the top and the bottom; so, more upside at the top and more downside at the bottom.

REPRESENTATIVE P. WILSON inquired whether, for the producers, slide 12 is depicting what the producers get or what the state pays the producers.

MR. MAYER replied it is what the producer gets in total cash flow from this project.

REPRESENTATIVE P. WILSON understood that in-value is not as good for producers as it would be if the state took its share as gas.

MR. MAYER answered that, in absolute terms, that may vary and that may vary depending on a range of assumptions. But, in terms of exposure on the upside and downside, in the in-value world the producer has less upside but is more protected on the downside and in the in-kind world the producer has more upside but is more exposed to downside risk.

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MR. MAYER, resuming his discussion of slide 12, noted the far right graph shows that in lower price environments the federal government's share drops substantially in an in-kind world. The main reason for this is that in low price environments the state's share of overall project value is relatively higher. The state is not a federal taxpayer and so the project, overall, pays relatively less and less federal taxes in low price environments than in high price environments. To the extent that there is a transfer of value through the in-kind structure, a big part of that transfer of value is away from the federal government and to the state government and the producers.

REPRESENTATIVE SEATON observed on slide 12 that in a low price environment, with all the criteria that is in the agreement, the minimum value for the producers is going to be $45 billion if it is in-kind and $65 billion if it is in-value. He asked whether enalytica's analysis is saying that under all scenarios of low, mid, and high price this is a great project in which everybody makes lots of money.

MR. MAYER responded these are very preliminary results intended to indicate directional relationships of variables. He said enalytica will do a much broader range of scenario analyses as it works before the committees, looking at a much broader range of assumptions and showing the different risks the state could bear in different scenarios. The aim of this exercise is not to say that it is all great all the time, it is simply to look at one structure versus another and see which structure protects the state better.

MR. TSAFOS interjected, drawing attention to the low ends of the in-kind and in-value lines on the producer chart on slide 12. He pointed out that spending $45-$50 billion for a return of $60 billion in 30 years is not a very good deal as there is also a

time value of money. In further response, he confirmed that the graph depicts netback value.

MR. TSAFOS, responding to Co-Chair Feige, agreed that that is still a significantly less return than at the other end.

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MR. MAYER returned to his presentation, moving to slide 13 and noting that rather than looking at the undiscounted cash flow time, slide 13 looks at the overall net present value of the project across that same period. Additionally, rather than looking in absolute terms, slide 13 looks at the share that each participant in that overall net present value is receiving. In a 20-25 percent gas share and a corresponding 20-25 percent equity stake, it would intuitively seem that the state would be getting about a 25 percent share of the total value of the resource. As the resource owner, the question is whether that represents a good or bad deal for the State of Alaska. In fact, however, the state in most circumstances has substantially more than 25 percent of the overall economic value produced by the project. Further, the state's share of the pie of total value produced is relatively higher in low price environments than it is in high price environments. One reason for this is that while the state is a 25 percent participant on an equity basis throughout the entire midstream component, it does not have to pay for any of the upstream costs like the producers do. Also, for most purposes, the State of Alaska is not a state or federal taxpaying entity, which means that, relatively speaking, it gets to take a much bigger share of the value. However, he said, the model assumes property taxes are a state liability, so issue could be taken with that because 2 percent of a $60 billion investment is a significant amount that would have to go to municipalities.

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REPRESENTATIVE HAWKER observed that on slide 13 the in-kind line in a low price environment is at 58 percent for the State of Alaska, 50 percent for producers, and 15 percent for the federal government; aggregated, those figures are more than 100 percent of the pie. He inquired whether he is misreading how the graphs are supposed to be constructed.

MR. MAYER responded he does not think Representative Hawker is misreading the graphs, but he will need to get back to the committee with an answer. Responding further, he confirmed that

[the lines adding up to 100 percent] is the concept of how the graph is supposed to be read.

REPRESENTATIVE HAWKER further observed the graphs on slide 13 appear to be working in regard to the in-value lines, but not the in-kind lines.

MR. MAYER replied the intent of slide 13 is to illustrate that, in all price environments, the value to the State of Alaska is more than the nominals of 25 percent gas share and corresponding equity, and that value comes from not paying upstream costs and not being a taxpayer, among other things. This is particularly the case in low price environments where things like property tax would otherwise take a progressively larger share of the total pie if the state were a taxpayer like the other gas owners and equity holders.

REPRESENTATIVE HAWKER stressed that the technical point he drew attention to does not at all contradict or cause him any concern with his aforementioned conclusion.

MR. MAYER offered his thanks.

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MR. MAYER added that also seen on slide 13, particularly in mid to low prices, is a transfer of value to the producers and to the State of Alaska from the presence of the federal government, a non-federal taxpaying entity in this project. He further noted that in this particular case, slide 13 shows value to the producers in the in-kind world as being lower than in the in-value world. He cautioned, however, that that can vary entirely based on particular assumptions of the model, both in terms of the overall percentage stake and a range of inputs around costs and other things, which enalytica will show in future presentations. He urged members to not think that in-kind is inherently less desirable from a producer's perspective because this example is just one way of cutting things.

REPRESENTATIVE HAWKER asked whether the state's portion shown on slide 13 is reflective of everything that would go to the state's treasury or reflective of what the state's agent, TransCanada, would take.

MR. MAYER answered slide 13 looks solely at the in-value versus in-kind question and is therefore reflective of the HOA without considering the MOU. In the next few days enalytica will

specifically analyze the MOU and what it will mean to provide some of that portion of value to TransCanada. A fixed tariff creates greater price volatility and price risk for the state. There are many reasons, some of them compelling, for why the state entering into the MOU with TransCanada is desirable. One point to consider is that inherently having a fixed tariff in the system adds back some degree of price volatility that the in-kind arrangements in general are taking away.

REPRESENTATIVE HAWKER pointed out that what is shown on slide 13 for the State of Alaska is actually an amount that would be split between the state and TransCanada and the question is whether that is a fair deal for the state.

MR. MAYER concurred.

2:02:53 PM

REPRESENTATIVE SEATON, observing that the previous calculations are all based on all of the state's 25 percent being tax exempt, questioned whether that is necessarily going to be the case.

MR. MAYER qualified he is not a tax attorney and cannot give detailed advice on exactly how the state needs to structure this to ensure tax exempt status. But, he added, the state obviously has the ability to do that because it has successfully kept the permanent fund from being a taxed entity. What is being shown is that a key part of the overall value to the State of Alaska and to the producers comes from the in-kind world, partly through value to the state from decreased downside exposure and partly through a transfer of value from no tax liability from the federal government to the state and to the producers. To that extent, ensuring that things are structured in a way that the state does not incur a federal tax liability seems absolutely crucial to this endeavor. He understood that the AGDC subsidiary is set up in a particular way in the enabling legislation to ensure that a federal tax liability is not incurred, but he said he cannot comment on this with expertise because it is not his specialty.

2:05:23 PM

MR. TSAFOS, resuming the presentation, advised that the price of the gas and the cost of the infrastructure are the two things that matter the most for how much money an investor will end up with. In that way, the state is fairly similar to how an oil company will look at this. The state will start off by saying

it wants the maximum value for the commodity and it wants to produce the commodity at the lowest cost possible. The two questions that then come up are: what is the price going to be and what is the risk to that price, and what is the cost going to be and what is the risk of that cost. Slides 14-16 begin the conversation about how to think about these two questions. Addressing slide 14, entitled "Price Exposure Defined at Contract Signing", Mr. Tsafos pointed out that when thinking about the price of gas, one must forget what one knows about the price of oil. The price of oil can be found in a journal - if the price is down, less money will be made; if the price is up, more money will be made - but gas does not work that way. Gas is usually traded in long-term contracts and usually the price is linked to oil. However, just because a contract is linked to oil does not mean it will earn the same value as another contract that is linked to oil. For example, Taiwan buys gas from three main long-term suppliers - Indonesia, Malaysia, and Qatar. While it buys gas from those three suppliers in contracts that are linked to oil, it can be seen on the graph that these contracts do not rise and fall together. The contract with Indonesia has one of the strongest links to oil, such that the more oil goes up the more gas goes up by a similar amount. The contract with Qatar has a very different relationship; when oil is $100 per barrel, the gas price with Qatar is [$6 or $7 per million British Thermal Units (MMBTU)] while the gas price with Indonesia is $20 [per MMBTU]. When Malaysia first signed a contract, it had a gas price similar to Qatar. At some point, Malaysia renegotiated its contract to move its gas prices up. [The dates shown] on slide 14 are the key point - what really matters is the timing, when the price is set, and whether it is set at the top of the market or the bottom of the market, because that is the price that will be the guide throughout the process. Except, if it gets really out of sync with reality, contracts have an ability to revisit. For instance, Kenai has been exporting to Japan since 1969 and there is no way a contract can ever be written that would withstand 40 years of oil price where the contract is just as good and just as reflective of reality every single day for 40 years. But, for the most part, that initial signing sets the price, sets the relationship to oil, and also sets the conditions under which there can be a review. Mr. Tsafos counseled that new contracts are sort of irrelevant. If the State of Alaska has a contract with Tokyo Gas in Japan and then Australia signs a contract with Tokyo Gas in Japan for half the price, Alaska's price does not get affected, just like Indonesia's higher price does not do much for Qatar. However, if Qatar wants to sell more gas to Taiwan, it could bargain by pointing out the price Indonesia

receives. Deals around the world are useful for understanding what is happening in the market, but they will not affect the State of Alaska in the same way the state would be affected for oil, because all that matters is the relationship that is codified in the contract.

2:12:26 PM

REPRESENTATIVE HAWKER posited that the graph on slide 14 illustrates that the most critical thing is the ability to negotiate long-term LNG shipping contracts with price floors and price ceilings. He asked whether slide 14 is illustrating an argument against a royalty-in-kind situation where the state has to go into the market and develop its own sales contracts. In such a case, he said, the state might be at a profound disadvantage against the producers that have a major international marketing system.

MR. TSAFOS responded that the answer is yes and no. Yes in the sense that it is absolutely critical the state get a good deal; it is absolutely critical that at the time the state signs this it gets good value for its gas. No in the sense that a big driver of what the state gets is the market reality at the time the contract is signed. What the state gets depends on what leverage it has. If the state is one of twenty or thirty suppliers it probably would not have much leverage, but if the state is one of three suppliers it would have a lot more leverage. It is correct that the ability to negotiate matters, but the market can sometimes matter even more. Continuing, Mr. Tsafos said that in the world of LNG marketing he would not necessarily conclude that a bigger oil company always gets a better deal. In looking at gas pricing around the world, there are many times that companies, even big companies, have signed deals that five or ten years later they wish they could have done something different, but at the time that was the best they could get. He advised there are multiple ways for the state to market its gas to defend itself against that. One option is for the state to hire a marketing team. Another is for the state to announce that it has 25 percent of 17 million tons and is looking for someone to market it and ask prospective marketers what they will give the state for that. Thus, there are different ways for the state to protect itself against the aforementioned asymmetry.

REPRESENTATIVE HAWKER said the HOA provides that the state might avail itself of those producers it is contemplating going into

partnership with who have these global organizations, which gets to his point that this is a very intricate and linked concept.

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REPRESENTATIVE KAWASAKI understood that the specific time when a rate is set is most important, but asked how the volume and the time term of contract would impact the pricing.

MR. TSAFOS replied that the term or length for new LNG contracts is usually long, 15 or 20 years and is what the state should probably expect. There are exceptions to that rule, but, for the most part, to underpin that investment [a buyer] is looking for a long term contract and that usually means 15-20 million tons. Regarding volume, there is really no answer. There are projects that might sell the entire volume to one player; however, the Alaska LNG Project, as a whole, has probably too much gas for that because there probably is not anyone out there willing to take 17.4 million tons. Plus, the state's partners probably would not sell it to them because it would be too concentrated of a risk. If the state has 4-5 million tons of LNG, it would not be surprising if the state found only one buyer, but most likely it would be 3 or 4 buyers with each taking 1-3 million tons.

REPRESENTATIVE P. WILSON surmised a buyer would be better off having several [suppliers] because that would help the buyer get gas at a lower price.

MR. TSAFOS confirmed that a buyer's interest is to have as many suppliers as possible. At the same time, he added, a buyer cannot create suppliers, unless, perhaps, it is willing to pay an exorbitant price.

2:19:57 PM

MR. MAYER returned to Representative Hawker's question, saying that the deal the seller negotiates, when it is negotiated, and the market terms are crucial. However, once that is done, it is done and it is set. So, if in the future the Henry Hub or other of the more volatile price structures become the norm, or if Lower 48 gas prices go through the floor, the key is that inherent to the entire LNG structure and process is the setting in place of these long-term contracts, and it is known what the deal is and, by and large, that deal is done before the final investment decision. When the actual time comes to put down the

real money, the state will know what that deal looks like and what its exposure is.

2:21:07 PM

MR. TSAFOS, resuming the presentation, moved to slide 15, entitled "Expensive Projects can Hedge against Volatility". There are ways, he advised, in which the state can protect itself against volatility. The typical way that this happens is called an S-curve. He drew attention to the far left graph on slide 15, entitled "NO S-CURVE", saying it illustrates what happens when the price of gas and price of oil rise and fall together. He said the middle graph, entitled "S-CURVE", illustrates the same concept, but does not go all the way - in this case, a little bit of the upside is given away in return for a little bit of protection on the downside. The far right graph, entitled "FLOOR/CEILING", goes to the extreme of where a floor and a ceiling are put in place. For example, if a project requires $12 to break even and the seller cannot go below $12, the seller could protect itself by saying it is willing, even if the price relationship were to go to $20, to take only $16. The prevalence of S-curves depends on who has bargaining power, the market fundamentals, and are a perfectly legitimate means for companies and governments to protect themselves from volatility. Thus, there are a number of contractual ways that the state can reduce its exposure to pricing.

2:22:58 PM

REPRESENTATIVE TARR understood the MOU gives the responsibility of marketing the state's gas to TransCanada. She inquired how the state can be involved in the aforementioned type of participation through that relationship.

MR. TSAFOS answered the MOU sets up a relationship of investment in the treatment plant and the pipeline, the midstream portion. Nothing in the MOU says TransCanada will be responsible for obtaining a price for the state. TransCanada is only an investor and a shipper of the gas through the pipeline. TransCanada does not take ownership of the gas; it is the state's gas throughout, even though the state may be paying TransCanada a fee to use the facility. The aforementioned is completely independent of TransCanada because it does not deal with the MOU.

2:24:15 PM

REPRESENTATIVE HAWKER asked what the implication is of the word "expensive" in the title on slide 15.

MR. TSAFOS responded that in the last few years the chief reason why companies have tried to use S-curves is because costs for LNG projects have become very high. Drawing attention to slide 16, he explained that this slide shows cost escalation and that the announced cost structure for the Alaska LNG Project would fall in the category of the more expensive LNG projects that are out there.

REPRESENTATIVE HAWKER surmised that any project would desire to hedge against volatility.

MR. TSAFOS answered not necessarily. For example, when Equatorial Guinea was built, the operator, Marathon, said it was able to deliver the gas through the upstream and the pipeline and the liquefaction for under $1. So, if a seller can deliver gas for under $1, why would it want protection on the downside?

REPRESENTATIVE HAWKER interjected that that is immaterial.

MR. TSAFOS, continuing his answer, said that if a seller has very cheap gas and does not think the market is ever going to be against it, why give up the upside to be protected on the downside and that is where the whole idea of expensive comes in.

2:26:16 PM

MR. TSAFOS resumed the presentation. Addressing slide 16, he urged members to look at the big picture and remember that what drives value in this project is price and cost - the state wants the best price and the lowest cost. A question the state is going to be asking is how much the project will cost. Right now the answer is $45-$65 billion for the whole thing, which is a pretty big range. Another part of the question is how it is known that this will be the cost. Slide 16, he explained, serves as a reference regarding the type of delay and type of cost overrun that LNG projects have faced over the last 10 years. If the state is going to be on the hook for 25 percent of this investment, it is legitimate for the state to ask how high the cost could really go and how delayed could the project be. Slide 16 tries to provide an answer by looking across the universe and seeing what the delays and overruns have been.

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REPRESENTATIVE HAWKER, in response to an earlier request by Co-Chair Feige to hold questions until after the presentation, interjected that he wants to be on record as stating that one of the things legislators have picked up along the way is that the assured failure of a mega-project is to be schedule driven rather than being driven by the project and an understanding of the project and its development. The inability of members to drill down on these slides in public is becoming schedule driven, he asserted, and members are not being given the opportunity they need in public to hold these dialogues.

2:28:22 PM

MR. MAYER returned to the presentation. Displaying slide 17, he said its purpose is to conceptually address the different ways that the state could approach [structuring the midstream and the path of the MOU]. The midstream is the gas treatment plant and the pipeline, not the liquefaction facility. Of many permutations for how the state could structure the midstream, one obvious structure worth thinking about is an in-value proposition, a purely producer project where the producers have all the gas and each producer has a share of the pipeline, gas treatment pipeline, and liquefaction. Another obvious structure is one in which the state takes an in-kind share in each of these things; this could be a structure with the producers plus the State of Alaska or a structure with the producers, the State of Alaska, plus some sort of third party. If there is a third party, then the question becomes whether to leverage the state's history with the third party in the Alaska Gasline Inducement Act (AGIA) by continuing with that party [TransCanada] or whether to terminate AGIA and launch a bidding process for a new partner. The path of MOU is that of producers, State of Alaska, and the third party involved with AGIA.

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MR. MAYER turned to slide 18 to address the core drivers for the State of Alaska in terms of fundamental interests and things the state wants to maximize. One core driver, he said, is to ensure there is as much alignment as possible between the producers and the State of Alaska. The previous slides showed graphically and numerically just how important that question of alignment is because of the possibility of disputes over value and where value accrues. The question of what the capital structure is, and whether there is a tariff and what that tariff is, can become very contentious if this is a producer-only project. From the producers' perspective there is actually no tariff, it

is simply an investment they make in infrastructure that takes gas from the North Slope and sees it ending up for sale in Asian markets. But from a legal and regulatory perspective, a tariff is inferred and that tariff can be subject to all sorts of changes based on capital structure and allowed rate of return. There are all types of possibilities for disputes about what that tariff actually is and therefore what value should be netted back to the wellhead. Minimizing those disputes is crucial. Also crucial to the State of Alaska is third-party expansion. At the moment there is about 35 trillion cubic feet of proved gas on the North Slope, with estimates of over 200 [trillion] cubic feet of yet-to-find resource. A big part of the aim should be building infrastructure for the future to bring some of that resource to market. Different players have different incentives in this. Some players are in this to monetize the gas that they have at the moment and may not be in this to monetize the gas of future resource holders in quite the same way. How that plays out is critical to the state's overall interest. A third core driver is that the state needs to ensure that in-state deliveries are enabled and that in-state customers have the lowest possible tariff. A fourth driver is the state's interest in ensuring the greatest possible execution capability that the pipeline can be done on time and for the lowest possible cost. A fifth driver is the substantial interest in ensuring continuity and momentum in terms of the work done to date and in terms that something real now seems to be happening after many decades of talk about monetizing North Slope gas via different measures. Producers are moving this project from their production arms to their development arms. There is a value to continuity and momentum and if a decision is made that sets back the process, there is the question of what the cost of that would be and how to weigh and evaluate that.

2:35:14 PM

MR. MAYER moved to slide 19, entitled "Producer Only: Alignment/Expansion Weak Points". The questions of alignment and expansion are key weak points of a producer only structure, he said. [In regard to alignment], significant potential exists for disputes over the allocation of value and the question of what an optimal tariff is and optimal for whom. If the state gets its economic value from the project from taxing value at the wellhead there is a strong incentive to ensure that the tariff is as high as possible, creating a lot of avenues of potential dispute. Regarding third-party expansion, the overwhelming focus of the producers by themselves, with no one else involved in the mix, is commercializing their resource.

The way producers make money is by taking that resource to market and that does not necessarily give them a compelling interest in finding other resource holders and shipping the gas of other resource holders through the pipeline. [In regard to in-state deliveries], the potential for disputes over allocation of value, in terms of the tariff, has an impact on the overall monetary value to the state as well as the tariff that is paid by in-state customers. [As far as execution], the producers have a strong and proven ability to execute. However, the midstream is becoming less of a focus for the major producers. As far as continuity and momentum, all of these options, other than the MOU path, have some degree of uncertainty around arbitration, litigation, and what is involved in getting out of the AGIA process, and whether the work done to date can be maintained.

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MR. MAYER displayed slide 20, entitled "SOA Equity: More Expansion Bias but Burden on SOA". He explained that a structure involving [State of Alaska (SOA)] and producer equity participation is envisioned through the HOA. With only the producers involved, the state would take 20-25 percent of the gas as well as a 20-25 percent equity stake in the liquefaction, pipeline, and gas treatment plant and would run and manage that stake itself. There is some strength to this structure, but some questions around the state's ability to manage it. This solution would create strong alignment between the producers and the State of Alaska and would get rid of the question about what the tariff is and where the value is allocated. It would mean that all of the participants are taking value fundamentally in the same way through the project. The State of Alaska has a compelling interest in third-party expansion, but the question is whether the burden of expansion should fall onto the state, whether the state is well placed to be a strong pro-expansion pipeline operator, and whether the state has that capability. The state would be the only participant in this project whose core interest is served by aggressively seeking new customers for the pipeline and aggressively seeking to expand the pipeline, so the question is the state's capacity in that front. Such a solution would mean that the state's equity-entitled capacity can be used to carry gas to local markets and, potentially, at low cost of capital and low tariff for that gas. Regarding execution, there is strong ability by the producers to execute for the initial phase of the project to the existing proposed liquefaction trains at Nikiski. But any expansion would either be by the state by itself or by the state and any

new partners that are brought in for that expansion. Thus, the question of execution becomes more of one about future expansion than it does about the initial phase. Regarding continuity and momentum, the same questions remain as were discussed earlier.

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MR. MAYER turned to slide 21, entitled "MOU: Expansion Bias & Momentum; But Best Deal?" The structure under the MOU would have the same benefits of alignment between the producers and the state as would the previously mentioned structure, he noted. However, the question becomes whether this is the best deal for the state given that a third party would also be involved. Would this particular deal with TransCanada be better than, or as good as, any other that could be had? The capital structure for rate setting, specifically the tariff, certainly seems competitive with other FERC regulated pipelines across the U.S., but how is that actually known if there is no open bidding process? The state never will know, but if an open bidding process is held there is no guarantee that a better deal will be found or that the state will even get the same deal. There are many uncertainties, and much judgment is needed in evaluating what the best option is. A key benefit of a third party is having a company involved in the entire process that makes its living not from shipping molecules to market, but just from shipping molecules. This means that the third party's fundamental interest is in expansion of the pipeline and in finding new gas to ship to make more money out of the project. If there are any questions about the State of Alaska's ability to play that role, then the idea of a capable third party with a proven ability to execute has attractions, regardless of who that third party is. The gas treatment facility and the pipeline are different from liquefaction, Mr. Mayer pointed out. Expansion of the liquefaction can occur if there is enough gas for a new liquefaction train. A new liquefaction train can be built and can have a completely different ownership structure than the previous trains, something that is frequently the case. The molecules, however, are still going to be moving through the same pipeline. Thus, the question of expansion becomes more critical for the pipeline than for the liquefaction project, and this appears to be the administration's rational in the MOU given that the focus is on the pipeline rather than on the liquefaction. Regarding in-state deliveries, the MOU structure is similar to the previously mentioned structure. Regarding execution, TransCanada clearly has a proven and serious ability to execute major pipeline projects. There could be concern that because a pipeline company simply makes a fixed rate of return

on whatever it spends on the pipeline, it has no incentive for cost control. However, the three producers are going to care very much about the price of this pipeline because that determines all of their economics. Therefore, this counter weight of different parties and different interests could potentially serve the State of Alaska and its interests very well. As far as continuity and momentum, the MOU structure clearly is an option that maintains the progress made to date and continues to accelerate investment.

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MR. MAYER brought attention to slide 22, entitled "Bid: Will Reward Compensate for Cost in Time and $?" A final option, he noted, is to look into whether a better deal could be had with a third party other than TransCanada. While the arrangement with TransCanada seems competitive, the state does not really know unless it goes to a competitive process. However, the downside to this is the question of whether the state will necessarily get a better offer or even as good of an offer through a competitive process. To help answer this question, one can look back at the entire AGIA process and how many bidders were involved, and ask whether that was representative or whether there could be a stronger, more competitive process if it was done again. The other core difference of this option is the question of continuity and momentum and whether the possibility, but not the certainty, of a better deal is worth the time and momentum in terms of the work done to date, the cost, and the arbitration around the AGIA process.

MR. MAYER moved to slide 23, entitled "SOA Needs to Carefully Weigh Key Questions". He advised that the State of Alaska needs to carefully weigh the following key questions: What compensation might the state have to pay to get out of AGIA if it is not by mutual agreement [and what intellectual property will the Alaska LNG Project retain]? How will the HOA with the producers be affected if the midstream is tied up in arbitration or litigation? What are the odds of getting better terms than those involved in the MOU? To what extent was the level of competition seen in the AGIA process, which was not very high, representative of interest and to what extent could there be a more competitive process today? And, if the state could get a better deal than is currently on the table, would that compensate for the absence of an experienced, pro-expansion player from being at the table over the next 12 months as core commercial agreements are negotiated.

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REPRESENTATIVE P. WILSON returned to slide 21, inquiring how it is that the producers reinforce cost discipline given that they would not care if the tariff is high.

MR. MAYER responded the producers "care absolutely what the cost of the pipeline is."

REPRESENTATIVE P. WILSON countered that the producers can write off that cost.

MR. MAYER replied that depends to some extent. For instance, if the state takes gas value in-kind rather than through production tax, from the producers' perspective there really is no such thing as a tariff on the pipeline anymore because the state has its share of the gas and its share of the capacity and does what it will with its LNG. The producers have their share of the gas, their share of the pipeline, and their liquefaction project, and they do with it what they will. For all intents and purposes these could be two completely separate projects. They share physical infrastructure, but the producers' share of the gas going from the gas treatment plant, through the pipeline, and on down to the liquefaction project is just one big capital investment from their perspective that enables them to take gas from the North Slope and sell it in Asia. The more expensive that is, the poorer the producers' economics. They care very, very strongly about what the cost of the pipeline is.

CO-CHAIR FEIGE added that while TransCanada will administer the state's share in the project, the three producers will have approximately a three-quarter share. Therefore, he said, the producers are also going to have a significant interest in keeping cost down and making this the most efficient project for their own selfish purposes.

MR. MAYER concurred.

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REPRESENTATIVE SEATON, referring to slide 11, related his understanding that the State of Alaska would have a 75/25 equity agreement with TransCanada and each producer would determine the amount of equity it wants to have in its share, which will give the producers a profit margin at a different phase than wellhead value delivered to the customer. Regarding return on equity, he inquired how members are to balance and understand the

difference between a producer in full control of the assumed tariff and taking the value as a difference in wellhead value and market price versus taking it as return on investment in the midstream, which enalytica is saying is the largest portion of the producers' capital return on the whole project.

MR. MAYER responded the answer depends on whether it is an in-kind or in-value situation.

REPRESENTATIVE SEATON said he understands the in-value and about reducing it to avoid taxes, royalties, and so forth. He clarified he is asking what the other considerations are and how they would impact the state if there is more value taken in the midstream than at the wellhead, especially if the state is counting on the producers to be the sellers of the state's gas.

MR. MAYER replied if the state has gas because it is taking in-kind gas and is participating, the question of how different producers choose to structure their investments really becomes a question for the producers alone and is of no particular relevance to the State of Alaska in the same way as it is if the state is taxing at the wellhead. This is because from the producers' perspective it really is not a tariff. Maybe the producers come up with a tariff for some sort of internal transaction pricing purposes, maybe they do not. But, overall, this becomes one project that is simply a big capital investment to take gas from the North Slope and sell it into Asia. The state has its share and will choose how to structure its share of capacity in the project. If the decision is made to go down that pathway, it really is the sharing of actual physical infrastructure, but two completely separate projects within that same infrastructure.

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REPRESENTATIVE SEATON anticipated the state will be using the producers' expertise in marketing the state's gas that will be on the same tanker. Producers might structure their project so their gas has a higher or lower wellhead value than does the state's gas, but the producers will likely be selling Alaska's gas at the same price as theirs. He asked how it could be structured to protect the state's value chain from being at a disadvantage during price negotiating.

MR. MAYER answered that once the state is taking a gas share in-kind and participating in the project, that question becomes what the state's ability is to negotiate a deal. That deal may

be with end buyers in Tokyo, or with the three producers to market the LNG on the state's behalf, or with other major LNG marketers that are bidding competitively to market gas on the state's behalf. The value is not driven in any way by the capital structure through the rest of the value chain; it is about the deal the state negotiates for its LNG as it leaves the liquefaction plant. A marketer may not give the state what it can potentially receive for the LNG in Tokyo; the marketer receives a premium for its risk in marketing the state's gas and the state must analyze whether that premium is or is not a good deal.

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REPRESENTATIVE SEATON posed a scenario of three LNG trains along with tankers, and posited that combined shipments of LNG would be the most economic as compared to storing LNG and waiting for a separate tanker. He understood Mr. Mayer to be saying that in that scenario, a different wellhead value for the projects would have no relationship because it is just the state's leverage for making a deal and the producers' leverage for making a deal and sales to overseas markets.

MR. MAYER responded that in an in-kind world, wellhead value is not the driver for anything because everyone has LNG. An exercise of deciding how that is netted back to the wellhead could be done, but how that is netted back to the wellhead does not really determine anything because no one is taking their value at wellhead. In a scenario where gas is taken in-kind and then immediately sold at the wellhead, there maybe is a question of whether the price received at the wellhead is similar to what would be received through a tariff calculation or is a negotiated price that is independent of that. But, assuming that the state remains invested in the entire value chain and has LNG to sell, the value of that LNG is determined by what the end market will eventually pay for it, and whether the state can market its LNG itself, and, if not, what premium the marketer would charge for marketing on the state's behalf. It is not driven by the wellhead economics.

2:59:09 PM

REPRESENTATIVE TARR asked whether the cost overrun information on slide 16 can be used by members for making comparison to this project. For example, whether there are similar or dissimilar components that might give an indication as to whether the state is potentially going down the road of where it would see those

same kinds of cost overruns. She further asked whether any projects have been sanctioned between now and January 2012 when the [Australian] project was sanctioned.

MR. TSAFOS replied he does not want to convey that slide 16 is an exhaustive list of every single project proposed or built over the last decade because there are other projects. Regarding what the information means for Alaska, he said a number of things can drive cost overruns and these can be simplified to country specific, project specific, or global. A global factor is the cost of steel because a lot of steel will be used in this project. If the cost of steel rises between the time it is decided to make this investment and the time the steel is purchased, it will result in having to pay more for the steel. Many commodities today, including oil, are at or near historical highs and, in that sense, the state is more likely to face an expensive project rather than a project with cost overruns because the state knows that it is expensive. An example of a country specific factor is the boom that happened in Australia, resulting in a huge call on labor and so more had to be paid for that labor than was anticipated. An example of a project specific factor is Australia's Pluto project which had a fire at one of its facilities as well as labor strikes. Another example of a project specific factor is Australia's Gorgon project which had delays because it is a very environmentally sensitive area; things can just go wrong as a project is built.

MR. TSAFOS said that it also comes down to project management and having people who really know how to do this, and the companies involved in Alaska are very experienced players. However, an experienced player is not foolproof protection against cost overruns as the projects on slide 16 involved very experienced players, but it is usually better to have an experienced partner than an inexperienced one. As things get closer to making a final decision on the Alaska LNG Project, there should be a shrinking of the current range of price estimate because an oil company will want that range to be smaller. However, there must be an appreciation that things do go wrong sometimes and end up costing more. Another thing to keep in mind is that, because of the way these projects work, what cost overruns usually do is reduce the rate of return. Once the project is built it will not cost a lot of money to keep it running. Over time, money will still be made, but it just may not seem as smart of an investment in retrospect. Generally, over the course of a project, money is not lost each year in the sense of a negative cash flow; prices would have to go really low for that point to be reached. Usually what

happens when costs go through the roof is that instead of making an anticipated return of, say, 15 percent, the return is 10 or 8 percent.

3:05:05 PM

REPRESENTATIVE TARR related that when talking with TransCanada, the company says it will be a good partner because it is a pipeline builder as well as a pipeline operator. In looking at the last slides of the presentation regarding the risk/reward analysis and the things that need to align, virtually all the items are aligned under the scenario in which AGIA would be terminated and the state goes to the bidding process. She inquired what that scenario would mean as far as the potential for one partner building the pipeline and another partner operating the pipeline and how that would compare to what is currently being considered.

MR. MAYER answered that if, for instance, the tariff is of paramount importance, then the state needs to carefully weigh what the realistic chance is that there is a better deal on that front versus what the state thinks the cost will be for either arbitration or an ever messier exit to the AGIA process, plus delay. The other question is the MOU and the number of off-ramps anticipated within the MOU. If the Precedent Agreement and the Firm Transportation Services Agreement outlined in the MOU are put into place, TransCanada will bear the state's share of costs in undertaking the Pre-Front End and Engineering Design (Pre-FEED) study. At any point during that time, within 60 days he believed, or possibly 90 days, the state can turn around and say it wants to go alone or go with a different partner and reimburse TransCanada its costs plus a 7.1 percent interest rate. At the Final Investment Decision (FID), the state has the ability, for any reason, to terminate the arrangement. When all those things are factored in, that question of whether the state is definitely getting the best deal and whether the state is certain of that right now, in some ways becomes even less pressing.

3:08:08 PM

CO-CHAIR FEIGE observed that a number of projects on slide 16 were either early or on time and on budget. He asked who built those projects.

MR. TSAFOS responded he will get back to the committee with that information. The key thing here, he added, is to distinguish

that the oil companies are the project sponsors and that they hire and oversee an engineering, procurement, and construction (EPC) contractor to build the project. In the case of Egyptian LNG, "BG" is the largest project sponsor and he believes BG hired Bechtel to execute that project, but he will get back to the committee to confirm this. He said he has worked in the past with some of these producers, as well as EPC contractors, and several have tried to link themselves with this chart. However, he said, he has not found that being on time or on budget is strongly linked to the EPC contractor. There are only about 7-10 EPC contractors that build these facilities.

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REPRESENTATIVE HAWKER asked whether the four options discussed today are definitely and exclusively the state's only options.

MR. TSAFOS replied no, there are other ways to structure this, such as a third party only of TransCanada, which is what AGIA is, as well as other ways. When enalytica tried to list out the 15-16 permutations things go lost, so these four options were chosen for simplicity. He offered to look at a particular option in more detail if the committee so desires. Continuing, he said there could be a structure with different players being the gas treatment plant and different players being the pipeline and different players being the liquefaction. Another option is that the whole midstream does not have to be the exact same ownership.

MR. TSAFOS, responding to Co-Chair Feige, agreed to provide a list of options in writing to the committee.

REPRESENTATIVE HAWKER, continuing his previous question, said teasing out an entire list of options was not where he was going with his questions. He asked whether these four options are the only options that Mr. Mayer and Mr. Tsafos think the committee should be concerning itself with.

MR. TSAFOS answered he and Mr. Mayer went from the 15-16 options to these 4 because they certainly seem the most reasonable options. He and Mr. Mayer thought having the producers involved was essential to bring cohesion to the project and once that is taken as a given, the question is whether it should be just the producers or should someone else be added. In the MOU the State of Alaska has an option, but not an obligation, to acquire equity, so it is possible to end up with the producers plus TransCanada and no State of Alaska. Thus, when next before the

committee, he and Mr. Mayer will work through the economic calculations of the MOU to show an option where the state does not exercise its right to acquire up to 40 percent equity.

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REPRESENTATIVE HAWKER said his takeaway is that the "field of four" identified by enalytica are the places where the committee should be focusing its attention, although he may not necessarily agree with enalytica on that. He drew attention to slide 23, noting the option in the far right column of producers plus State of Alaska plus third party is the terminating of AGIA and the launching of a separate bid to find a new partner. He inquired how that would work "in the context of the MOU provision that grants TransCanada, basically, a five-year right to participate in any similar project on terms and conditions consistent with those in the deal in front of us."

MR. MAYER responded there are two routes that could take. One route, if the MOU is disliked, is to undertake something quite different. The other is to go with the MOU and at one of the off-ramps the state gets off and does something different.

REPRESENTATIVE HAWKER said "internal to that choice ... is an inherent assumption that the ... MOU itself is materially modified."

MR. MAYER replied the first option would be that the MOU does not come into effect because the conditions that would bring it into effect - the enabling legislation and its enactment with a Precedent Agreement and a Firm Transportation Services Agreement - do not happen. The other option is that those things do happen and the exit ramps entailed in the term sheet are taken instead.

REPRESENTATIVE HAWKER concluded that the aforementioned would be not exactly approving the MOU but tentatively pursuing an HOA process without the MOU relationship.

MR. MAYER answered that would be one option, but another would be going through the MOU and at a future point taking the exit ramps that are within the MOU.

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REPRESENTATIVE HAWKER opined that the dialog has all been on alignment. Today's presentation only addresses the midstream,

but many of the questions and issues raised about the midstream are relevant throughout the entirety of the project. As far as the state's participation and the various players that might be involved, he inquired whether in the parts of the project above and below midstream the committee is to presume that the presentation as presented really has no options. He then withdrew his question, stating that enalytica's questions depicted on slide 23 are good ones and that they go to the question of whether the proposal in front of the committee really and truly represents alignment from the very beginning of a project to the very end of a project.

MR. TSAFOS turned to slide 7 to respond, replying that of the $66 in total midstream transportation cost, only $24 is for the pipeline and gas treatment plant (GTP) that TransCanada plays into. Thus, there is a bigger midstream pie than just what TransCanada is involved in. Regarding alignment in the other parts of the project, it seems there would be alignment in the liquefaction facility because every partner wants the lowest possible cost. If the state is a 25 percent equity owner in the liquefaction it will have a similar interest with the 75 percent owners and no disputes with those owners. However, there is some potential misalignment in the marketing of gas because, at a volume of 17 million tons, the state will probably be knocking on the same doors, and this is true of any project where the oil companies compete with the world in the gas marketing and compete amongst themselves in the project. That is more a fact of life than a result of the specific project structure, he added. One way to get around that, Mr. Tsafos advised, would be to have all the gas go into a pot called "Alaska LNG" and Alaska LNG sells this gas to the world. Other projects do this, one such project being Angola LNG. However, he understood, this is not the current thinking of the partners, but it is an option for addressing some of the potential misalignments on the marketing of gas. On the upstream, he said he would suspect that both the state and the producers have a similar interest in maximizing the ultimate recovery of the resource and the reliable produce-ability of that resource. Thus, when thinking about the entire chain, the biggest source of misalignment would be under marketing.

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REPRESENTATIVE HAWKER pointed out that Mr. Tsafos is talking specifically to alignment within segments of a project - alignment in the upstream oil fields, alignment in the gas treatment plant, alignment in the pipe, alignment in the LNG

facility. However, what he is getting at is the totality - alignment within the entire value chain and that a value chain is only as strong as its weakest link. He is therefore asking how the aforementioned misalignment points and their consequence on the entire value chain should be considered by legislators.

MR. TSAFOS responded that if the entire project is studied for the weakest link, he would say there are probably many more weak links under the status quo than under the current proposal before the committee. The current proposal does not eliminate all the weak links, he said, and there absolutely are different ways that this project could be structured. However, there are so many different ways to structure this that it could get chaotic, so perhaps the best way forward is to zoom in on some specific types of misalignment and scenarios and enalytica would then be willing to provide its thoughts on those.

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REPRESENTATIVE SEATON said a question he has long had is how many royalty scenarios around the world have structured in-kind purchase and whether the state's alignment in this process is similar to the percentage of government take in those other world projects. He requested an answer be provided outside of today's meeting since time is short. He then expressed his concern about alignment to get a project going and agreed with Representative Hawker that the legislature's consultants are providing a take on the project that is being looked at, but that there may be other solutions the committee should be looking at and to see whether there is a better deal. He observed that the scenario on slide 23 with the most checkmarks describes AGIA, except maybe the part on alignment. The only reason it is known that alignment may not be there is because there was not a response to open season [under AGIA], although there has not been a response to open season on this one either. He said he would like to see an analysis on whether there are ways to do something that will improve the position of the State of Alaska in a gasline instead of just these four options.

REPRESENTATIVE TARR requested that when putting together the additional scenarios for the committee, enalytica looks at the five offtakes and where misalignment opportunities exist for access for in-state gas.

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ADJOURNMENT

There being no further business before the committee, the House Resources Standing Committee meeting was adjourned at 3:27 p.m.