COMPETITIVENESS, PROJECT STRUCTURE & CASH EXPOSURE

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http://enalytica.info
Before co-founding enalytica, Janak led the Upstream Analytics team at PFC Energy, focusing on fiscal terms analysis and project economic and financial evaluation, data management and data visualization.

Janak has modeled upstream fiscal terms in all of the world’s major hydrocarbon regions, and has built economic and financial models to value prospective acquisition targets and develop strategic portfolio options for a wide range of international and national oil company clients. He has advised Alaska State Legislature for multiple years on reform of oil and gas taxation, providing many hours of expert testimony to Alaska’s Senate and House Finance and Resources Committees.

Prior to his work as an energy consultant, Janak advised major minerals industry clients on a range of controversial environmental and social risk issues, from uranium mining through to human rights and climate change. He has advised bankers at Citigroup and policy-makers at the US Treasury Department on the management and mitigation of environmental and social impacts in major projects around the world, and has undertaken macroeconomic research with senior development economists at the World Bank and the Peterson Institute for International Economics.

Janak holds an MA with distinction in international relations and economics from the Johns Hopkins School of Advanced International Studies (SAIS), and a BA with first-class honors from the University of Adelaide, Australia.
Nikos Tsafos has a diverse background in the private, public and non-profit sectors. He is currently a founding partner at enalytica. In his 7 ½ years with PFC Energy, Nikos advised the world’s largest oil and gas companies on some of their most complex and challenging projects; he also played a pivotal role in turning the firm into one of the top natural gas consultancies in the world, with responsibilities that included product design, business development, consulting oversight and research direction.

Prior to PFC Energy, Nikos was at the Center for Strategic and International Studies (CSIS) in Washington, DC where he covered political, economic, and military issues in the Gulf, focused on oil wealth, regime stability and foreign affairs. Before CSIS, he was in the Greek Air Force, and prior to his military service, Nikos worked on channeling investment from Greek ship-owners to Chinese shipyards.

Nikos has also written extensively on the domestic and international dimensions of the Greek debt crisis. His blog (Greek Default Watch) was listed as one of “Europe’s Top Economic Blogs” by the Social Europe Journal, and his book “Beyond Debt: The Greek Crisis in Context” was published in March 2013.

Nikos holds a BA with distinction in international relations and economics from Boston University and an MA with distinction in international relations from the Johns Hopkins School of Advanced International Studies (SAIS).
AK LNG IS COMPETING IN A WORLD WITH MANY CHOICES

- **OVER 34 TCF IN NORTH SLOPE**
  - BUT UNCERTAIN FISCAL TERMS/PROJECT ECONOMICS

- **AMPLE POSSIBLE SHALE GAS**
  - BUT NEED FOR INFRASTRUCTURE AND COMMERCIAL VIABILITY

- **CHEAP GAS**
  - BUT SLOW PERMITTING PROCESS AND POSSIBLE PRICE VOLATILITY

- **MUCH ASSOCIATED GAS**
  - BUT LOCAL MARKETS TAKE PRIORITY

- **OVER 30 TCF BUT SIGNIFICANT POLITICAL RISKS**

- **QATAR / IRAN**
  - HUGE RESOURCE; LOCAL MARKETS PRIORITY, ECONOMICS, POLITICS

- **LARGE SCALE RESOURCES BUT TECHNICAL RISKS**

- **SIZABLE STRANDED GAS**
  - BUT HIGH COSTS

- **SIZABLE UNDEVELOPED GAS**
  - BUT LOCAL MARKET TAKE PRIORITY

- **SIZABLE REMAINING RESOURCES**
  - BUT EXORBITANT COSTS

- **OVER 100 TCF BUT HIGH COST OF ENTRY, LOW GOVERNMENT CAPACITY, HIGH INFRASTRUCTURE NEEDS**

**AK LNG OUT OF THE MONEY?**

- **IN KIND VS. IN VALUE**
- **MIDSTREAM OPTIONS**
- **CASH EXPOSURE**
- **PROSPECTIVE SUPPLIERS**
- **A LOOK BACK TO THE 2000s OUTLOOK**
But we’ve been here before in the mid/late 2000s!

- **Shtokman Partnership** finalized Qatar moratorium (2006) but Iran had several projects proposed.
- **Australia** moving very slowly after Darwin (2005) online.
- **Myanmar** weighed LNG vs. pipeline development sizable stranded gas but high costs.
- **Several proposals in Nigeria and Equatorial Guinea**.
- **Norway weighing expansion to Snøhvit**.
- **Algeria, Libya, Egypt** all proposed LNG expansions.
- **Three trains proposed in Venezuela; Trinidad had 5th train proposed**.
- **Myanmar weighed LNG vs. pipeline development**.
- **Australia moving very slowly after Darwin (2005) online**.
### AK LNG Out of the Money? In Kind vs. In Value Midstream Options Cash Exposure

**Project Structure Options**
- Upstream is shock absorber
- Cash flow comparison
- Value split

#### System SOA Ownership Percent

<table>
<thead>
<tr>
<th>Value / Kind</th>
<th>Upstream</th>
<th>GTP &amp; Pipe</th>
<th>LNG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status Quo</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>HOA</td>
<td>0%</td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td>MOU Option 1</td>
<td>0%</td>
<td>10% (40% x 25%)</td>
<td>25%</td>
</tr>
<tr>
<td>MOU Option 2</td>
<td>0%</td>
<td>0%</td>
<td>25%</td>
</tr>
</tbody>
</table>

#### System SOA Share of CAPEX & OPEX

<table>
<thead>
<tr>
<th>Value / Kind</th>
<th>Upstream</th>
<th>GTP &amp; Pipe</th>
<th>LNG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status Quo</td>
<td>Indirect (taxes)</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
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</table>

#### System SOA Cash Commitments

<table>
<thead>
<tr>
<th>Value / Kind</th>
<th>Debt</th>
<th>Tariffs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status Quo</td>
<td>No debt</td>
<td>Tariff matters for valuation</td>
</tr>
<tr>
<td>HOA</td>
<td>Principal and interest</td>
<td>Tariff only notional</td>
</tr>
<tr>
<td>MOU Option 1</td>
<td>Principal and interest</td>
<td>Tariff payable to T/C</td>
</tr>
<tr>
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RIV MAKES UPSTREAM THE SOLE PRICE ABSORBER

Fixed nature of tariff in ‘in Value’ alternative amplifies impact of price movement on state returns

AK LNG OUT OF THE MONEY? › IN KIND VS. IN VALUE › MIDSTREAM OPTIONS › CASH EXPOSURE

project structure options › upstream is shock absorber › cash flow comparison › value split

"GUARANTEED" RETURN
IN KIND W/ EQUITY OFFERS MORE DOWNSIDE PROTECTION

In-value structure protects producers, not state, in low price environment because of tariff component.
SOA SHARE OF VALUE HIGHER THAN SHARE (25%) EQUITY

SOA participation in midstream means fixed tariff for producers no longer “guaranteed”

Ability to maintain tax-exempt status is crucial to transfer value from federal government to SOA

PERCENT OF NET PRESENT VALUE OVER PROJECT LIFE

STATE OF ALASKA

IN KIND & 25% SHARE

IN VALUE

PRODUCERS

IN KIND & 25% SHARE

IN VALUE

FED GOVT

IN KIND & 25% SHARE

IN VALUE
AK LNG OUT OF THE MONEY? › IN KIND VS. IN VALUE › MIDSTREAM OPTIONS › CASH EXPOSURE

<table>
<thead>
<tr>
<th>Status Quo</th>
<th>System</th>
<th>SOA ownership percent</th>
<th>SOA share of CAPEX &amp; OPEX</th>
<th>SOA cash commitments</th>
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<tbody>
<tr>
<td></td>
<td>Value / Kind</td>
<td>Upstream GTP &amp; Pipe LNG</td>
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<tr>
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<td></td>
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</table>
FINANCIALLY, TRANS CANADA DEAL IS AKIN TO A LOAN

TransCanada shoulders a share of SOA’s capital commitments and Alaska repays over time with tariff.

During construction period, SOA outlays are $1.7 bn lower (average $237 mm annually) on 70/30 equity.

During operation period, SOA cash flows are $522 mm lower annually ($430—$660 mm range).

STATE OF ALASKA: CASH FLOWS FOR ALASKA LNG

![Graph showing cash flows for Alaska LNG](image-url)
SOA OUTLAYS: $3.4–4.8 BN IN BASE CASE & 25% EQUITY

Annual outlays could peak at $1.5 bn if SOA took 25% equity and debt-financed 70% of its share

25% equity for SOA without a midstream partner is the scenario with highest outlays

STATE OF ALASKA: NET PROJECT CASH FLOW BEFORE START-UP (70% DEBT, 30% EQUITY)

-2.0  -1.5  -1.0  -0.5  0.0

$ BN

<table>
<thead>
<tr>
<th></th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
</tr>
</thead>
<tbody>
<tr>
<td>IN VALUE / NO EQUITY</td>
<td>0.0</td>
<td>-0.1</td>
<td>-0.2</td>
<td>-0.4</td>
<td>-0.6</td>
<td>-0.6</td>
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<tr>
<td>SOA 25% GTP &amp; PIPE &amp; LNG</td>
<td>-0.1</td>
<td>-0.3</td>
<td>-0.5</td>
<td>-1.2</td>
<td>-1.5</td>
<td>-1.1</td>
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<tr>
<td>TRANSCANADA 60% GTP &amp; PIPE</td>
<td>-0.1</td>
<td>-0.3</td>
<td>-0.4</td>
<td>-1.0</td>
<td>-1.0</td>
<td>-1.2</td>
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<tr>
<td>TRANSCANADA 100% GTP &amp; PIPE</td>
<td>-0.1</td>
<td>-0.2</td>
<td>-0.3</td>
<td>-0.8</td>
<td>-0.9</td>
<td>-1.1</td>
</tr>
</tbody>
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Total: $1.90 bn
Peak: $590 mm

SOA outlays: $3.4–4.8 bn in base case & 25% equity
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25% equity for SOA without a midstream partner is the scenario with highest outlays.

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Total: $1.90 bn
Peak: $590 mm
100% EQUITY FINANCE PUSHES OUTLAYS TO $12.3 BN

Annual outlays would peak at $3.9 bn if SOA took 25% equity and financed its share with equity.

Midstream partnership could reduce outlays by up to ~$5 bn.

### State of Alaska: Net Project Cash Flow Before Start-Up (100% Equity)

<table>
<thead>
<tr>
<th>Year</th>
<th>In Value / No Equity</th>
<th>In Kind / SOA 25% GTP &amp; Pipe &amp; LNG</th>
<th>TransCanada 60% GTP &amp; Pipe</th>
<th>TransCanada 100% GTP &amp; Pipe</th>
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<tbody>
<tr>
<td>2019</td>
<td>-0.1</td>
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<td>-2.7</td>
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</tr>
<tr>
<td>2020</td>
<td>-0.4</td>
<td>-0.6</td>
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<td>-3.9</td>
</tr>
<tr>
<td>2021</td>
<td>-0.6</td>
<td>-1.3</td>
<td>-2.4</td>
<td>-2.1</td>
</tr>
<tr>
<td>2022</td>
<td>-0.6</td>
<td>-1.0</td>
<td>-2.9</td>
<td>-2.3</td>
</tr>
<tr>
<td>2023</td>
<td>-0.3</td>
<td>-0.7</td>
<td>-2.1</td>
<td>-1.8</td>
</tr>
<tr>
<td>2024</td>
<td>-0.2</td>
<td>-0.5</td>
<td>-1.7</td>
<td>-2.3</td>
</tr>
</tbody>
</table>

**Total:** $1.90 bn  
**Peak:** $590 mm

**TransCanada 60% GTP & Pipe:**

- **Total:** $9.25 bn  
- **Peak:** $2.91 bn

**TransCanada 100% GTP & Pipe:**

- **Total:** $7.22 bn  
- **Peak:** $2.72 bn