

NBF Research

[LNG Canada; A New Hope](#)

Industry Rating (Energy):
Overweight

(NBF Economics &
Strategy Group)



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It is a period of low gas prices in Canada. E&P and Services companies, reeling from the global energy crisis, have finally won their first victory as activity has crawled back up from the depths of 2016.

As the recovery matured, hopes were dashed as any additional gas offtake was muted, but the supply continued to come on-stream to fill contracted processing and pipeline capacity.

Suddenly, a hero emerges as REBEL SOURCES indicate that LNG CANADA is renewing bids for the shelved ~2 bcf/d offtake facility in Kitimat. Subsequent commentary from LNG CANADA implies that there is the potential for an FID sometime in 2018.

Our feisty band of Canadian companies with exposure to LNG activity – The Services, The E&P's, The Pipes & Utes, and The E&C's – look forward with renewed hope that Canadian natural gas freedom can be restored ...

We are revisiting our original 2014 LNG deep-dive with the potential for the Shell-led consortium of LNG Canada to achieve positive FID in 2018.

■ **A refresher on who LNG Canada is, and where we are today.**

The Shell-led consortium that includes LNG (liquefied natural gas) import powerhouses PetroChina, KOGAS and Mitsubishi has all the major approvals they need for the construction of the up to \$40 bln, 1.7 bcf/d initial capacity, LNG export facility in Kitimat, B.C. After the initial FID (final investment decision) process was put on hold in 2016, increasing news flow suggests it could be back in the cards for 2018. Herein, we quantify the impact and put LNG in Canada in a global context.

■ **Where do we go from here, and what's the impact.**

The key environmental and export licenses have been granted for both the LNG facility as well as the pipeline, and the list of potential EPC groups has been short-listed to two. We are watching for: an EPC award in the near term, followed by clarity for LNG Canada's ability to import complex steel components from China, and following that, a potential FID in late summer or early fall. We see the biggest impact for the OFS sub-sector with up to ~825 wells being drilled by 2026, a material (>30%) lift to camp bed demand and a ~3%-5% lift to overall E&P capex. However, we also see a positive lift for parts of the E&Ps, the pipes and the EPC groups.

■ **Services impact; Horizon North, Black Diamond, Enerflex and the Fracers.**

We see the largest positive impact on the Camps (HNL, BDI) as the demand will go far to sop up spare capacity. The fracers (TCW, STEP, CFW) will benefit as well, owing to the completion-intensive nature of Montney wells and perhaps more importantly, the move of gas from being at risk to having a new outlet. Finally, Enerflex should see a material build in its market size in Canada and we see Australia as an excellent proxy measure.

■ **E&P impact; Advantage, ARC, Tourmaline, Birchcliff, Encana.**

An incremental ~2 bcf/d of takeaway capacity is meaningful in the context of a current supply of ~16 bcf/d, should support the relative supply/demand picture and may also hold implications towards the potential for M&A. While we are cautiously optimistic on LNG as it pertains to E&Ps, we hold it as more of a sentiment trade to the space.

■ **Pipeline/Utility space impact; Pembina, TransCanada, ATCO**

We see three avenues on the pipeline side regarding LNG with Pembina's Jordan Cove, TransCanada's Coastal GasLink and ATCO's potential exposure to mobile accommodation construction.

■ **EPC impact; specific pieces of sub-contracting work could be lucrative**

Many of our firms may have exposure to LNG. Note, however, that large-scale EPC contracts are being done by global peers (and we prefer to avoid lump-sum total envelope CAPEX exposure); specific sub-contracting pieces through site prep / accommodations / electrical / mechanical works can be achieved via SNC, Stuart Olson, Bird, Aecon, NOA, Stantec, Finning.

■ **Main risk? This is not a foregone conclusion.**

In prior notes five years ago we pontificated that the question for LNG in Canada was not if but rather when. In 2018, we may finally be proven correct ... but that is far from a foregone conclusion, especially with a handful of outstanding questions, most notably on the ability of LNG Canada to import steel modules. We remind our readers that there are two outcomes to an FID, and only one is positive to Canadian industry.

Four years on, the Canadian LNG landscape is largely red, but a few projects remain

In recent months the chatter surrounding the potential for a west coast LNG project to reach a positive FID has been reignited. We are dusting off our previous 2014-esq LNG work with a focus on the Shell-led LNG Canada project, and the potential implications for the WCSB regarding this up to \$40 billion project. In the hearty days of 2012-2014, a wide variety of LNG projects were on the horizon, with seemingly billions in investments, up to a dozen bcf/d in aggregate export capacity and a 'new baseline' of activity in the basin. How times (and a massive energy cyclical downturn) can change. Fast forward to today, and we see a single material project in western Canada in the near FID stage, that being the Shell-led LNG Canada. In the recent past, we have seen five projects at various stages of promise hit cancellation (*summarized in Exhibit 1*), most notably Pacific Northwest LNG, BC LNG and Prince Rupert LNG. Beyond these, a few special situations exist for additional potential export capacity. Specifically, Woodfibre LNG and its 0.3 bcf/d export facility has achieved positive FID with construction to begin in 2018, and on the east coast, the more material Goldboro LNG (estimated export capacity of 1.3 bcf/d) is entering into site preparation in H1/18, with an FID goal of late 2018 or early 2019. While both of these projects are somewhat promising, we chose to focus on LNG Canada as the subject matter of this report. Woodfibre is of minimal materiality to the WCSB, and Goldboro, while material at a proposed 1.3 bcf/d, has the uphill battle of a ~\$10 bln capex hurdle versus a \$150 mln market cap, and has not yet defined a resource base to feed the facility.

Exhibit 1 – While a total of six LNG projects remain possible, LNG Canada is the leading contender for a material, near-term WCSB booster shot

Proposed LNG Projects Overview									
Proposed Start ¹	Project	Location	Owners	Initial Capacity (bcf/d) ²	Cost (\$bln) ³	Cost/bcf/d (\$bln)	Export License ⁴	EA ^{5,6}	Status / Next Steps
Later Stage Projects									
2023	LNG Canada	Kilmat	Shell / PetroChina / KOGAS / Mitsubishi	1.7	\$ 40.0	\$ 23.5	✓	✓	Granted 25 year export license: EA awarded June 2015; construction contract awarded May 2014; FID expected later in 2018 with a goal to start construction this year.
2020	Woodfibre LNG	Squamish	Woodfibre LNG Limited	0.3	\$ 1.6	\$ 5.8	✓	✓	Positive FID reached in November 2016, construction to begin in 2018.
2022	Goldboro LNG	Guysborough County, NS	Pieridae Energy	1.3	\$ 9.7	\$ 7.3	✓	✓	Site preparations to occur between February and April 2018, with a FID expected to be made late in 2018 or early in 2019.
TBD	Kilmat LNG	Kilmat	Chevron / Woodside	0.7	\$ 3.5	\$ 5.0	✓	✓	Project advancing towards an FID (completing engineering and design work and establishing competitive fiscal framework with government) but Chevron potentially looking to sell minority stake.
2024	WCC LNG	Prince Rupert	Imperial Oil / Exxon	5.0	\$ 20.0	\$ 4.0	✓	✗	Granted export license by NEB: remains in pre-application stages of the environmental assessment process.
2030	Discovery LNG	Campbell River	Rockyview Resources	TBD	TBD	TBD	✓	✗	Conducting studies and preparing the necessary background materials for inclusion in the environmental assessment. Rockyview is in discussions with potential joint venture partners for the potential construction and operation of the facility.
Cancelled	Pacific Northwest LNG	Prince Rupert	PETRONAS / JAPEX / IndianOil / SINOPEC / Petroleum Brunei	1.6	\$ 12.5	\$ 7.8	✓	✗	Petronas announced it would not proceed with the project owing to a downturn in market conditions in July, 2017.
Cancelled	BC LNG Export Co-Op	Kilmat	LNG Partners / Haisla Nation / Golar LNG	0.1	\$ 1.0	\$ 10.0	✓	✗	The BC LNG Co-Op dissolved in January 2015.
Cancelled	Prince Rupert LNG	Prince Rupert	Shell (formerly BG Group)	1.9	\$ 16.0	\$ 8.4	✓	✗	Shell announced the discontinuation of the project in March of 2017 after a comparison to existing options.
Cancelled	Aurora LNG	Digby Island	CNOOC (Nexen) / Inpex / JGC	1.6	\$ 28.0	\$ 17.5	✓	✗	Nexen and INPEX discontinued work on a feasibility study in September, 2017 stating the macro-economic environment no longer supported the project.
Suspended	Tribon LNG	TBD	AltaGas / Idemitsu	0.3	TBD	TBD	✓	✗	Suspended in May of 2016 owing to weak market conditions.

Notes

¹ Based on latest disclosures or reports.

² We have used initial capacity in our activity forecast; additional LNG "trains" once up and running could expand these figures.

³ Cost estimates based on regulatory project proposals (if available and current) or latest reports.

⁴ Issued by the National Energy Board.

⁵ Environmental Assessment issued by Canadian Environmental Assessment Agency (CEAA).

⁶ For Goldboro LNG, The Canadian Environmental Assessment Agency has determined that no federal environmental assessment is required.

Source; Company reports, NBF estimates

LNG Canada: Current status, key milestones and next checkpoints

LNG Canada has made some noise lately, most notably in selecting a shortlist of EPC finalists. We suspect an FID could be in the offing between now and the fall. A quick summary of who LNG Canada is, where we are today and what needs to happen.

- **Who is LNG Canada?** LNG Canada is the Shell-led (50%) consortium which also includes PetroChina (20%), KOGAS (the Korea Gas Corporation, 15%) and Mitsubishi (15%). Right out of the gate, we like this consortium. It is led by a global leader in LNG, especially since Shell purchased BG Group plc in 2016. PetroChina is China's largest oil and gas producer with three LNG import facilities in China. China itself is the source of the largest growth in LNG import demand in the past four years. KOGAS is the world's largest LNG importing company, and operates four LNG import terminals (and a nation-wide pipeline network) in South Korea. South Korea itself is the third largest importer of LNG behind Japan (#1) and, since 2017, China (#2). Speaking of Japan, Mitsubishi is Japan's largest trading company and handles a third of Japan's LNG imports. This is notable, as Japan itself is the world's largest importer of LNG, consuming a third of the global LNG imports itself. Putting these together (Mitsubishi is a third of Japan, and Japan is a third of global LNG), if Mitsubishi was a country, it would be a top five LNG importer. Overall, we see a consortium led by arguably the global expert in LNG, and incorporating three of the leading consumers of LNG.

Exhibit 2 – Overview of proposed LNG Canada facility as of January 2015



Source: LNG Canada

- **Where are we today?** The consortium identified Canada, and specifically B.C., as the location for their facility for many of the reasons which we know today. Canada has sizeable natural gas reserves, a well-trained and knowledgeable labour pool with experience in hydrocarbon projects, a relatively stable geopolitical climate (although recent issues regarding pipeline permitting have constrained output), and perhaps most importantly, the distance to core consumption markets is materially closer than the U.S. gulf coast, and in fact closer than Australia. In what we will refer to as typical Shell fashion, the company then evaluated over 500 possible locations in B.C., prior to settling on Kitimat. In May 2014 CFSW LNG was selected as the design work company for the FEED (a partnership of Chiyoda, Foster Wheeler, SAIPEM and WorleyParsons), in 2015 the company had its Environmental Assessment completed, also in 2015 the BC Oil and Gas Commission approval was granted, and in 2016 a 40-year export license was granted. While the company initially anticipated achieving an FID in 2016, this decision was delayed and now is likely to occur in mid-

to-late 2018. Also in early 2018 the company short-listed its potential EPC providers (specifically, TechnipFMC PLC/KBR, Inc. and JGC Corporation/Fluor Corporation). Although not potentially headline-makers, we also saw a cooperative local government which removed proposed levels of complexity (an “LNG income tax,” potential electricity tariff, as well as a few other items).

- **What needs to happen next?** Key items we will be looking for, in (likely) chronological order include selecting of the final EPC (potentially in the coming weeks or months) and clarity on LNG Canada’s ability to import large steel modules from China (which Canada lacks the ability to construct domestically). We note that the signing of an EPC contract will likely entail a six- to 12-month fuse during which initial fixed-price bids are valid, and after which a re-submit process would likely be necessary. As a result, the signing of an EPC contract for us would signal a two- to four-quarter timeframe in which we would expect to see an FID. Beyond this we see little in the way of roadblocks between now and an FID. The TransCanada Costal GasLink pipeline (*which we discuss in more detail below*) has received its environmental permits, and while there are some discussion with First Nations along the route, this proposed pipe is likely to be able to be constructed beginning with a positive FID to transport gas from just west of Dawson Creek to Kitimat.

What does a successful FID mean for Canada? While the consortium already has ~1.3 bcf/d of production, we anticipate a positive FID will increase base-level spending by 3-5% ...

We back into incremental work of ~\$460 mln per year (or a 3% lift versus current E&P capex) should phase I of the project be green-lighted later this year ... We outline our expected construction and development timelines to quantify the number of wells to build needed capacity behind pipe, with the LNG Canada facility expected to come on in 2024 actively builds over our forecast period. We highlight several key assumptions or characteristics:

- **The facility should have ~200% of nameplate capacity (or circa 3.4 bcf/d) upon start-up of phase I;** as we detail later in the report, the analogous projects elsewhere globally typically had 2x the initial export capacity available behind-pipe at start-up. This was typically for one or more of three reasons being (a) declines, (b) costs and (c) plant expansion. Declines in that having excess initial capacity available allows the post-start date drilling profile to moderate. Costs in that there is a required drilling program to get up to full capacity, which if compressed into the final drilling season prior to start-up, would materially inflate services costs, hence spreading the pre-drill over several years between FID and start-up, allows a more level-loading for the services space. Finally plant expansion has a typical life cycle as there are material economies of scale. For LNG Canada in particular, phase I encompasses trains 1 & 2 and total offtake of ~1.7 bcf/d; however, *assuming a positive FID on phase I*, we suspect that potentially during the construction (or immediately after first production), a rollout to phase 2 and the associated trains 3 & 4 with another ~1.7 bcf/d of export capacity is likely. By over-supplying the initial phase, this gives a kickstart to the second phase, with the minimal downside risk of simply scaling back the post-start date drilling program if phase 2 does not proceed. We note this is effectively the exact method which Exxon has taken in PNG LNG, as well as several proxy projects in Australia.
- **The syndicate participants already have ~1.3 bcf/d of production with NBF assuming an additional basin-wide oversupply of 0.5 bcf/d by 2019, for total “LNG available” gas production of ~1.8 bcf/d;** as outlined in Exhibit 3 below, we estimate currently available production from the syndicate partners is approximating 1.3 bcf/d. We would assume this would be re-routed towards the LNG facility. Furthermore, as our E&P team details later on in the report, we estimate that there will be 0.5 bcf/d of excess production in the basin by 2019, which could serve to further narrow the supply/demand gap. Together this would represent 1.8 bcf/d of

capacity, to which we would then need to add 1.6 bcf/d to achieve our assumed 2x initial offtake of 3.4 bcf/d by 2024.

Exhibit 3 – We estimate LNG Canada participants currently have 1.3 – 1.4 bcf/d of gas production capacity

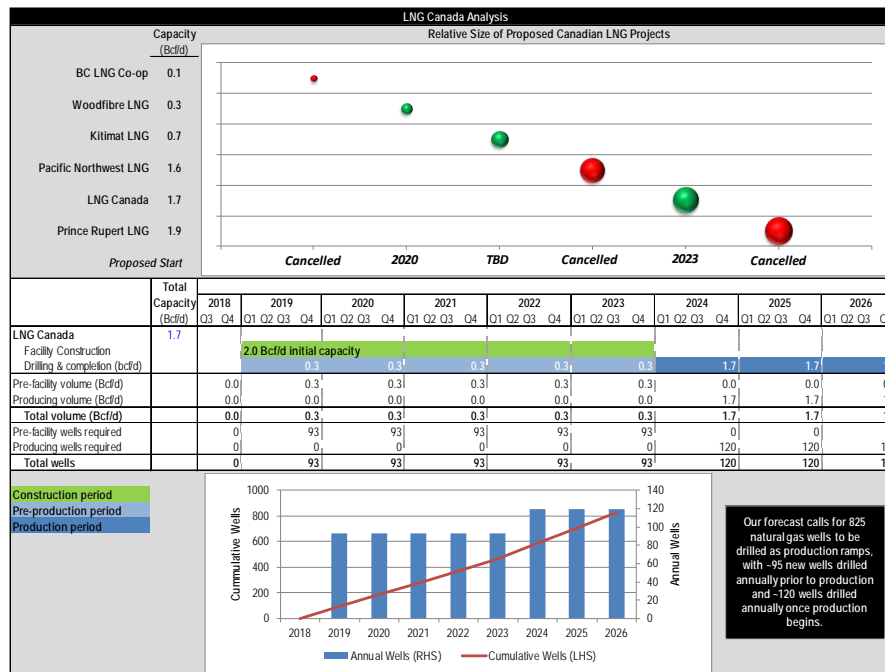
Syndicate Participant	Current Production (mmcf/d)	LNG Canada Share	Production shortfall (surplus) (mmcf/d)		Notes on current production
			@ 2.0 bcf/d total	@ 4.0 bcf/d total	
Shell Canada	859.0	50%	141.0	1,141.0	100% of current Shell production excluding 20% PetroChina Groundbirch
PetroChina	118.0	20%	282.0	682.0	20% WI with Shell Groundbirch (235 mmcf/d), 49.9% WI with ECA Duvernay (132 mmcf/d), 25% WI with other (22 mmcf/d)
Mitsubishi	379.0	15%	-79.0	221.0	40% WI with ECA Cutbank Ridge 2012+ (949 mmcf/d)
KOGAS	9.0	15%	291.0	591.0	50% WI with ECA Horn River (17 mmcf/d)
Total	1,365.0	100%	635.0	2,635.0	

Source: Company reports, NBF analysis

- **This production would likely remain behind-pipe until the facility is active;** we note that pipeline capacity coming out of the key Montney region (which we believe will be the likely source of supply for the LNG Canada facility, given the start and end points of the Costal Gaslink pipe) is capacity-constrained. As a result, if our assumption of 2x nameplate capacity proves valid, the surplus production will likely remain behind-pipe.
- **Any pre-drill is contingent on a positive FID;** we note that the Petronas-lead PacificNorthwest LNG project began a rather aggressive pre-drill program prior to a positive FID, which is partially to blame for the recent over-supply of natural gas in western Canada. It was possible owing to an availability of offtake which is not present today. As a result, we do *not* believe that LNG Canada participants are likely to materially accelerate their pre-drill program ahead of a positive FID, as they won't be able to access any market other than the LNG terminal (via the Costal GasLink pipe).

We estimate up to 93 new wells in 2019, which would represent a 4% lift to the 2,123 wells completed in 2017, taking the annual activity to 2,216. We believe the ultimate impact on services demand could be materially higher than the implied increase in the number of natural gas wells drilled, as the focus feedstock basins regions – specifically, the Montney have higher than basin-average costs for drilling, completing and tying in due to longer times to drill (increased depths, harder reservoir rock), larger required fracs and further distance from supporting infrastructure.

Exhibit 4 – Our core activity forecast is driven off estimated project construction and development timelines



Source: Company reports, NBF estimates

...generating up to \$5 bln in additional upstream E&P capex, which would represent a 4% lift to annual spending by 2024 and help to improve market conditions for services providers. We believe the ultimate impact to energy services is a higher and rising baseline of activity; with up to \$459 mln in additional drilling and completions work in 2019, gradually trending up to as much as \$833 mln per year by the end of 2026. In this scenario, we would expect some E&Ps to step up activity in the Montney and commit significant amounts of capital to build up future production immediately after a positive FID. Our estimates call for \$459 mln in LNG-focused spending in 2019, as we would expect pre-drilling activity to commence to help fill the LNG Canada terminal. The largest winners on a sub-segment basis are the fracers with up to \$1.6 bln in E&P spending over eight years, followed by the drillers which we believe could see ~\$505 mln over that same timeframe. On a relative basis our spending forecast is material for oilfield service companies. Isolating our “LNG impact” and applying it to basin-wide spending estimates suggests a potential 4% uplift from current estimated spending could be seen in 2024 in this scenario.

Exhibit 5 – Our E&P spending forecast ramps with estimated activity

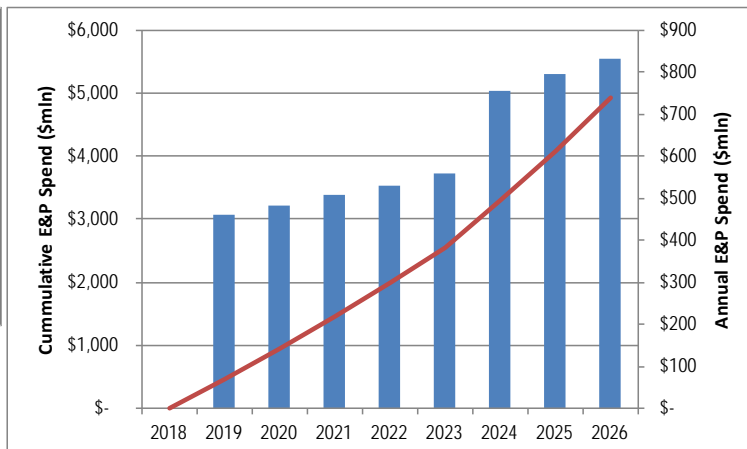
UPSTREAM E&P SPENDING										
	2018	2019	2020	2021	2022	2023	2024	2025	2026	Cumm.
Well count (per above)	-	93	93	93	93	93	120	120	120	825
Cost per well (\$mln) ¹	\$ -	\$ 4.9	\$ 5.2	\$ 5.4	\$ 5.7	\$ 6.0	\$ 6.3	\$ 6.6	\$ 6.9	\$ 5.2
Estimated D&C costs (\$mln) ²	\$ -	\$ 459	\$ 482	\$ 506	\$ 531	\$ 558	\$ 756	\$ 794	\$ 833	\$ 4,919
Drilling rig	10%	-	47	49	52	55	57	78	81	505
Completion and stimulation	33%	-	151	159	166	175	184	249	261	1,618
Other	57%	-	261	274	288	302	317	430	451	2,796

We estimate the ~825 wells will drive ~\$5 bln in upstream capX through 2026.

For context, our estimates for 2018 spending are in the ~\$17 bln range ... our forecast calls for an LNG-related lift from current levels of 3% in 2019 and rising to 5% in 2026

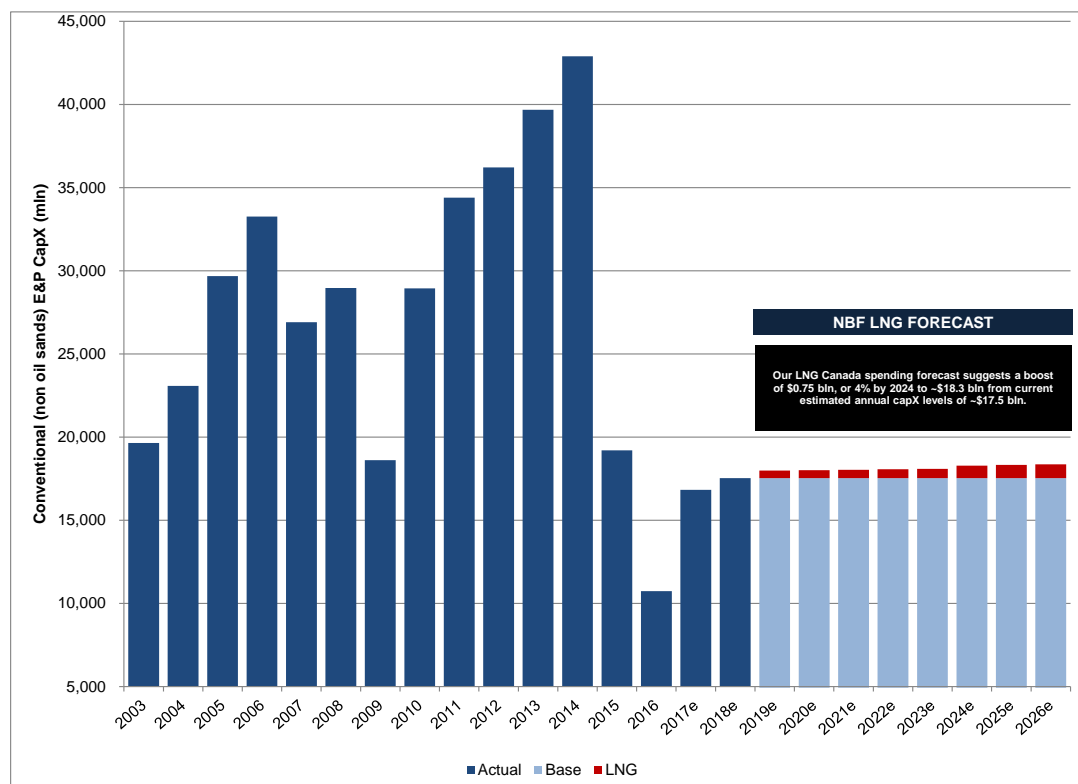
¹See 'Assumptions' chart for well cost assumptions

²Segmented split of drilling and completion based on survey of industry contacts



Source: Company reports, NBF estimates

Exhibit 6 – LNG-related spending alone could drive E&P Capex to ~\$18.3 bln by 2024 assuming all other E&P Capex is unchanged from 2018 Levels



Source: Bloomberg, EIA, CAODC, Baker Hughes, Daily Oil Bulletin, CAPP, BP Annual Review, NBF Estimates, NBF Estimates

We believe this meaningful uptick in upstream drilling and completion activity will help tighten the supply of services in the WCSB, driving higher rates of return for energy service companies. Margins for services companies move unmistakably with the rig count and tend to trough out in cyclical downturns when the rig count bottoms. Currently, as we have long advocated, the market generally does a poor job of forecasting the ultimate impact of operating leverage for the energy services space. While in this analysis we stop short of forecasting actual EBITDA for the energy services sub-sector beyond the coming year, we believe that a lift of 3% rising to 5% of current E&P upstream spend (\$459 mln in 2019 rising to \$833 mln by the end of the 2026) would correspond with margin tailwinds, and earnings surprises to the upside.

We think the total investment dollars of \$40 bln is on the upper end of what is realistic for a full four-train facility, and that the initial phase I of the project may be closer to \$15 bln - \$20 bln. When LNG Canada initially filed their applications in pre-2016, the project envisioned a circa C\$36 bln endeavour, including the pipeline, for a four train, ~3.4 bcf/d facility, quoted in pricing that was circa 2013 – 2015. In the absence of a more recent estimate, we keep with this quote for total FID in Canada, but acknowledge that (a) we suspect the current phase I of the project is likely a two train, 2 bcf/d facility, which would imply roughly half of that initial investment and (b) with the project potentially coming into the market today, at substantially subdued overall industry activity versus 2014, when pricing and inflation was at a local peak, we suspect that even an apples-to-apples facility would be less expensive. **All that said, we have typically seen substantial economies of scale in global LNG projects, which implies that should Phase I reach a successful FID, during construction or upon commissioning, we could see a Phase II announced.**

Supporting the proposed facility is the ~\$4.8 bln Coastal GasLink pipeline development

Much like the Canadian LNG landscape, a lot has changed in the past four years for the potential supportive pipeline projects, but Coastal GasLink is ready to be green lit upon a positive FID for LNG Canada. Since the onset of the industry downturn corresponding with the collapse of commodity prices starting in late 2014, we have seen four of the six major pipeline projects supporting various major would-be LNG projects either shelved or outright cancelled (Exhibit 7). Most importantly for our analysis, the 670 km Coastal GasLink project connecting the Dawson Creek area to the proposed LNG Canada facility in Kitimat, B.C. has patiently waited on the sidelines for a positive FID in order to move forward with construction. Operated by TransCanada, the proposed 48" pipeline would have an initial capacity of 1.7 bcf/d and received Environmental Assessment approval from the British Columbia Environmental Assessment Office (October 2014). Should LNG Canada proceed with a positive FID, TransCanada is ready to build and operate the Coastal GasLink pipeline.

Exhibit 7 – Supporting pipeline projects

Proposed Pipeline Project Overview									Status / Next Steps
Project	Operator	LNG Facility	Distance (km)	Size (in)	Capacity (bcf/d)	Cost (\$bn) ¹	Cost/ km/in (\$)	EA ²	
Coastal GasLink	TransCanada	LNG Canada	670	48	1.7	\$ 4.8	\$ 149	✓	The project still awaits a Final Investment Decision from its partner, LNG Canada before construction of the project can move forward.
Pacific Trail ¹	Chevron / Woodside	Kilmat LNG	462	42	1.0	\$ 2.9	\$ 149	✓	EA Certificate received from BC EA; construction to begin by June of 2018.
Pacific Northern Gas	AltaGas	BC LNG Export Co-Op	525	10	0.1	n/a	n/a	✗	An EA will not be required for the existing pipeline. Pre-application for Looping Project under BC EA. Project shelved by AltaGas.
Merrick Mainline	TransCanada	Kilmat LNG	260	48	1.9	\$ 1.9	\$ 152	✗	Currently on hold owing to market conditions.
Prince Rupert Gas Transmission	TransCanada	Pacific Northwest LNG	900	48	1.9	\$ 5.0	\$ 116	✓	Reviewing options related to the project after July 2017 new that PETRONAS affiliate Pacific NorthWest LNG (PNW LNG) would not be proceeding with their proposed LNG project near Port Edward, British Columbia.
Westcoast Connector Gas Transmission Project	Spectra	Prince Rupert LNG	870	48	2.3	\$ 8.0	\$ 192	✓	The Prince Rupert LNG facility was canceled in March 2016, resulting in the cancellation of the pipeline project.

1: Cost estimates based on regulatory project proposals (if available and current) or latest reports; for Pacific Trail original estimate was \$1.2 bn (2006), we estimate based on comparative \$/km/in to Coastal GasLink.

2: Environmental Assessment Certificate issued by B.C. Environmental Assessment Office.
Source: Company reports, Bloomberg, Northwest Institute for Bioregional research, NBF Estimates.

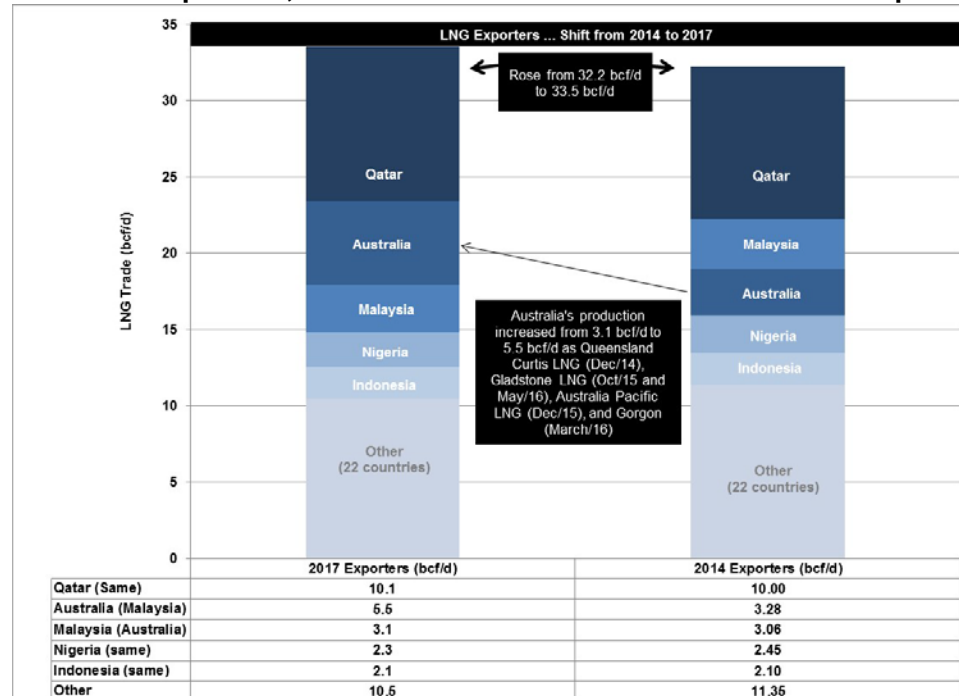
Canada in context: The global LNG market

The global LNG environment, while undergoing same or similar pressures in the recent energy downturn, is positioned for a period of substantial growth in the coming years. Global LNG prices, in many cases linked to Oil benchmarks (most notably Brent), took a turn for the worse in recent years as energy prices everywhere retreated. However, the underlying thesis which we explored in 2012-2015 still holds; namely, that planned capacity additions are likely to be outstripped by demand growth, creating an opportunity for additional projects to be pushed across the FID line in a positive fashion, assuming the local economics are agreeable. Canada in particular is reasonably well positioned with a large resource base, transportation costs to key consumption markets (Asia) that are competitive, and a deep, experienced hydrocarbon labour pool. Clouding the clarity of an LNG decision in Canada is the continued challenges of 'local' politics (municipal, provincial and federal); however, the current push towards a LNG-friendly resolution is promising.

The global LNG market has continued to grow during the downturn, most notably with Australian projects coming on stream, and quickly absorbed by demand growth in China

It's steady as she goes for global players in LNG trade, but with exporter Australia and importer China stepping up in prominence. Since our last update in 2014, we see the global LNG trade having grown modestly to 33.5 bcf/d from 32.2 bcf/d. The export volume continues to be dominated by Qatar, which remains at 30% of global LNG volumes at over 10 bcf/d, dominated by the massive Qatargas LNG projects, boasting 14 trains, and fed by the even more massive South Pars/North Dome field, with estimated 1,800 tcf of gas in place (likely more than the rest of the world's gas combined). Of more interest is the rising prominence of Australian LNG, which has moved up in the rankings to #2 from #3 as its projects continue to come on stream. Australia is now estimated to have 5.5 bcf/d of LNG exports, up from the 3.3 bcf/d in 2014. Notable projects that contributed to this increase include Queensland Curtis LNG (which is Shell-operated), Gladstone LNG (Santos-led), Australia Pacific LNG (Origin and ConocoPhillips led) and the Gorgon project (Chevron). On the demand side, Japan continues to be the major consumer, importing a third of the global LNG trade, albeit down slightly from 2014 levels. When combined with South Korea, the number two importer, these two countries comprise over 40% of LNG import volumes. China's LNG import continues to be the major increase, rising 75% or 0.7 bcf/d. Overall, East Asia continues to be the major import hub for LNG imports, and transportation costs to this region remain critical for successful LNG economics.

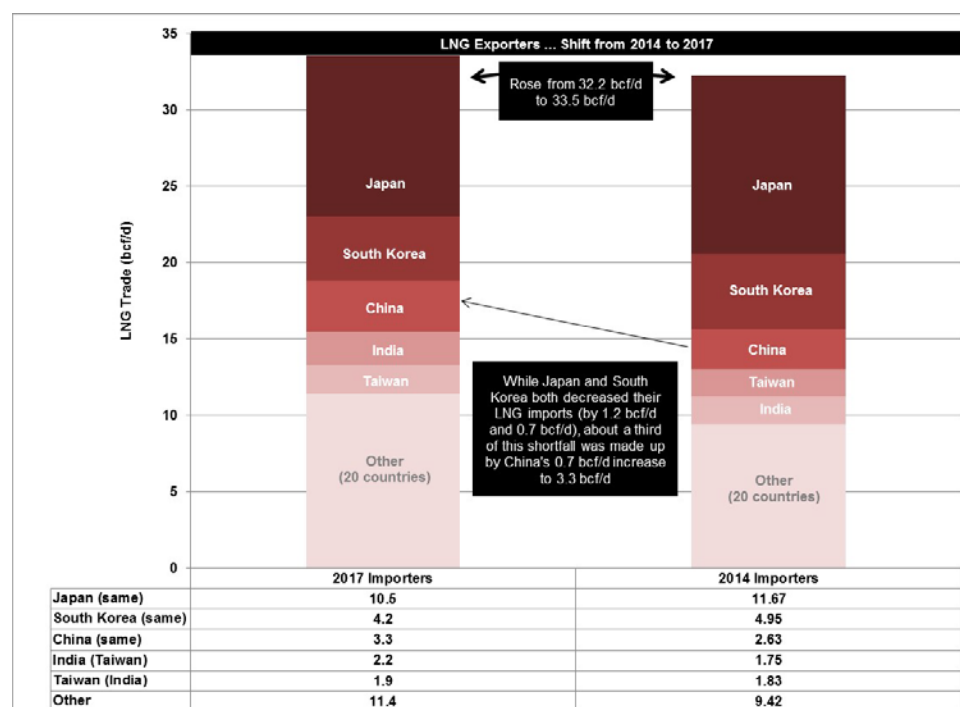
Exhibit 8 – Global LNG exporters; market continues to grow, with Qatar maintaining its dominant position, but Australia now a clear standout as the #2 exporter



Source: BP, GIIGNL, Poten, Waterborne, NBF Estimates

Recent developments also reinforce the rising prominence of these LNG hubs, with China ramping import capacity and Australian firms the subject of takeover bids. Further reinforcing the trend of China's import and Australia's export growth are recent developments specifically regarding Sinopec and Santos. In China, Sinopec Group (the Chinese state-owned enterprise which is Asia's largest refining and petrochemical company, and parent to the publically-listed Sinopec Limited) plans to almost triple its import capacity up from the current 1.2 bcf/d (or 35% of China's total import capacity) to 3.4 bcf/d by 2023. This is consistent with its stated goal to have "clean fuel" production as half of its total energy supply by 2023. Meanwhile in Australia, LNG participant Santos (which has interest in Darwin LNG, Gladstone LNG and PNG LNG in Papua New Guinea) received its fourth takeover offer since August 2017, this time by U.S.-based Harbour Energy, Ltd. and at a 28% premium to the pre-announcement close. The continued consolidation in the Asia-Pacific LNG sphere comes about 12-18 months after the bidding war for emerging LNG player InterOil Corp., in which Oil Search Ltd. and ExxonMobil went head-to-head for the predominantly Papua New Guinea explorer, with Exxon ultimately winning the contest. We view the global consolidation interest in this sphere – which has some of the lowest shipping costs to key Asian customers – as supportive of our positive macro bias.

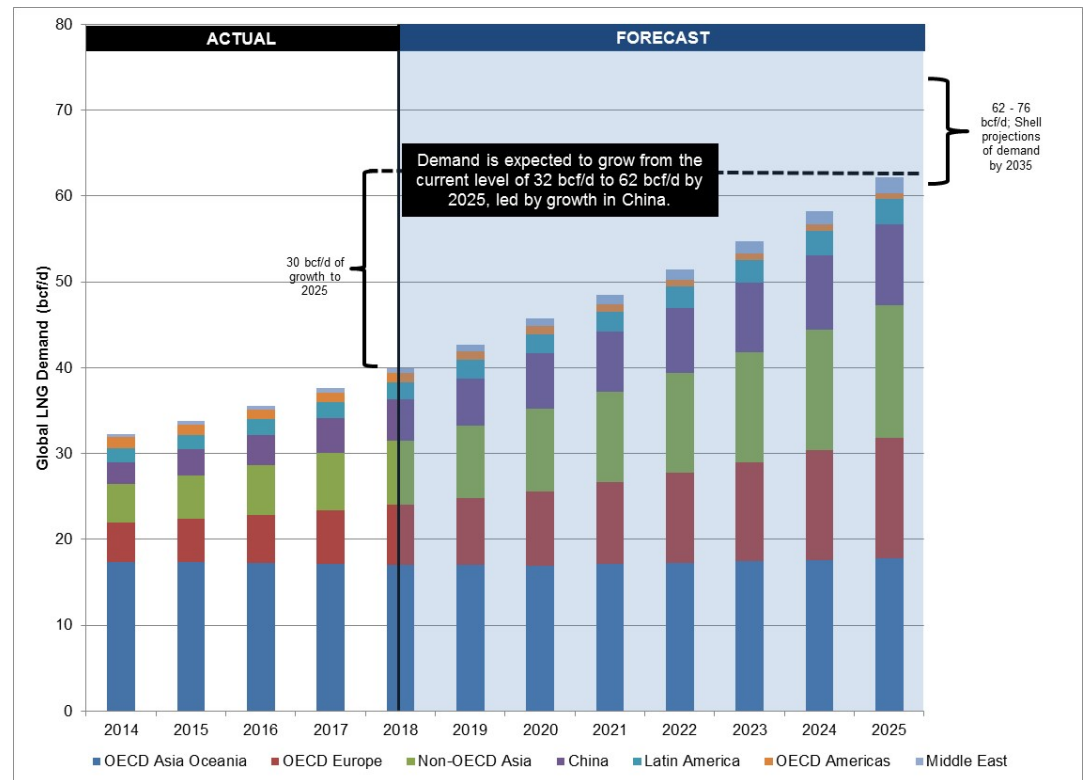
Exhibit 9 – The increased global supply of LNG has been absorbed quickly by key consumers, with Japan and South Korea’s modest decline in imports partially offset by China’s 0.7 bcf/d increase in consumption



Source: BP, GIIGNL, Poten, Waterborne, NBF Estimates

Global demand continues to tick up ... As noted above, total demand growth has continued to march higher, with projections for further growth through to 2030. Our detailed demand growth (Exhibit 10) suggests global LNG demand of in excess of 60 bcf/d by 2025. We note this is roughly in line with Shell’s recent LNG outlook (*Shell LNG Outlook 2018*) calling for ~425 MTPA (or ~56 bcf/d) of demand in 2025. Shell looks out further and projects a range of 62 bcf/d – 76 bcf/d by 2035. Not surprisingly, the demand growth is led by China and other Asian countries. China in particular has been the leading demand growth in LNG imports in the past three years.

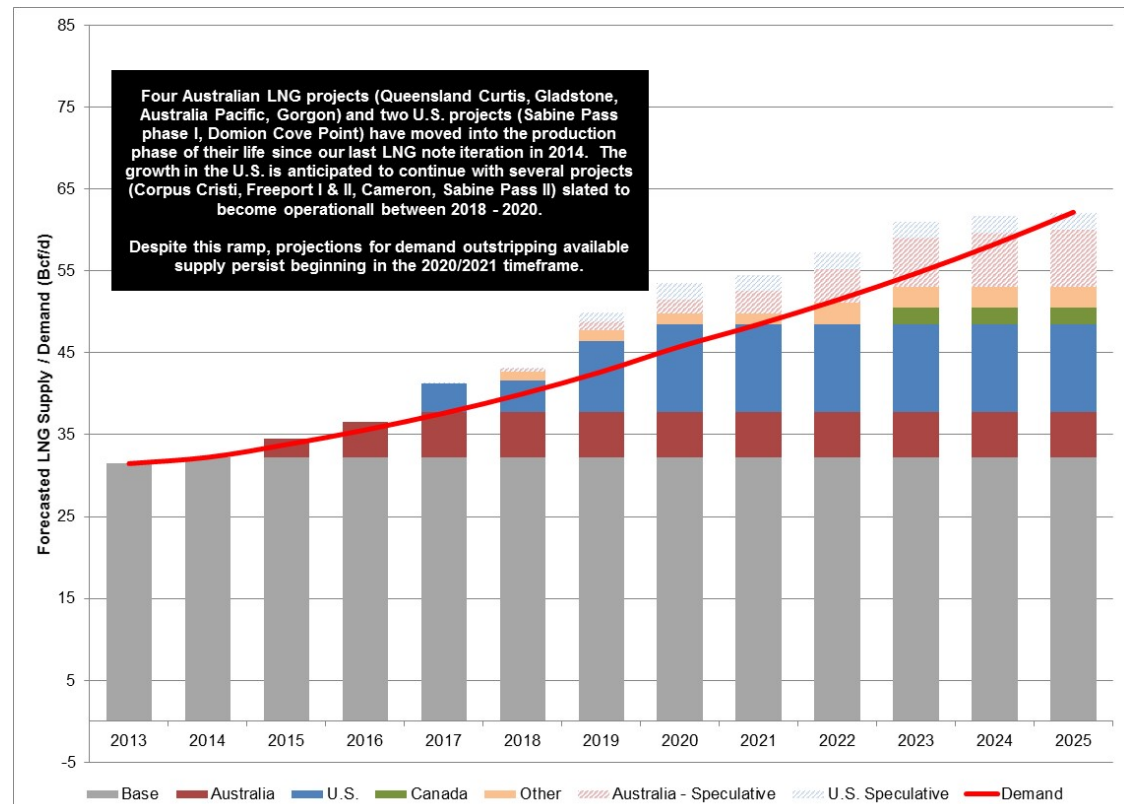
Exhibit 10 – Forecasted Global LNG Demand Growth



Source: BP, CERI, IEA, NBF Estimates

... with a wedge of unmet demand in the early 2020s. Consistent with our prior analysis, based on announced and constructed projects, and forecast demand growth, there appears to be a wedge of unmet demand emerging in 2021, and stretching out beyond. We note that there are well in excess of two dozen “speculative” projects clustered in Australia, the United States and to a lesser extent Canada, which could satisfy this demand wedge. However, most of these are at very early stages or are stalled, with minimal resources (either natural resources or financial resources) and requiring sizeable regulatory approvals to advance towards an FID stage. In the higher-probability realm, there are several projects in late construction stage in the United States including Corpus Christi which is under construction, Dominion Cove which should be on stream in 2018, Sabine Pass phase II (with trains 5 and perhaps 6), Freeport trains 1 (phase I) and 2-3 (phase II), just to name a few.

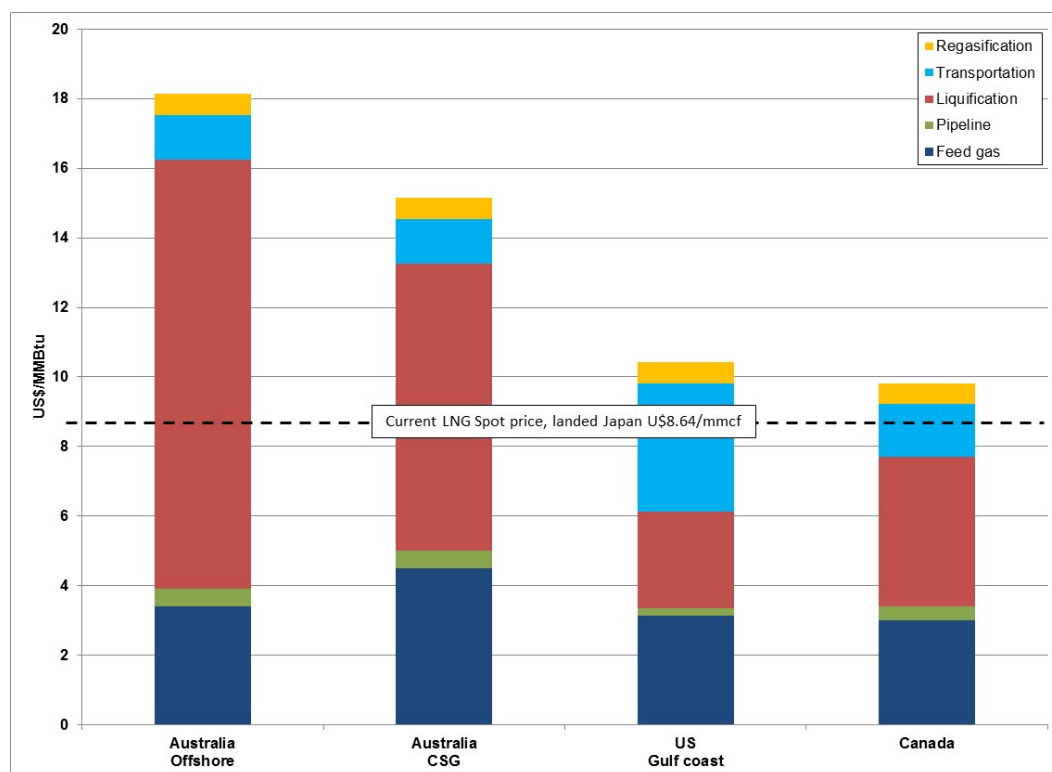
Exhibit 11 – Forecasted Global LNG Demand Growth



Source: BP, CERI, IEA, NBF Estimates

Our initial argument in 2012-2014 that Canada remains globally competitive from a cost perspective remains valid, most notably on the transportation costs. The significant cost inflation on infrastructure and development costs in Australia severely impacted the economics of current projects under construction as we estimate a US\$18 /MMBtu delivered LNG price to Japanese markets from offshore sources. Canadian coastal BC and U.S. Gulf Coast projects appear to be more cost competitive at US\$11.32 / MMBtu and US\$11.17 / MMBtu, respectively. Though the Canadian projects are more expensive from a liquefaction standpoint owing to U.S. projects being either brownfield, or closer to infrastructure, or both, transport distances to Japanese markets are 60% shorter even with the widened Panama canal (Kitimat to Japan is circa 4,000 nautical miles, versus circa 9,200 nautical miles for Houston to Japan). Our full cycle cost comparison is based on CERI estimates of relative feedstock gas in each region, transportation and regasification. We applied our current facility capital cost estimates to determine relative liquefaction costs assuming a 12% required return, 25-year project life, 90% utilization, 4% annual maintenance cost and 25% tax rate. We believe we are reasonably close to true costs, as a PFC Energy global LNG research report (May 2013) noted average all-in project costs of US\$11.88 / MMBtu versus our US\$11.31/MMBtu estimate.

Exhibit 12 – All-in Cost Comparison to Supply Japan

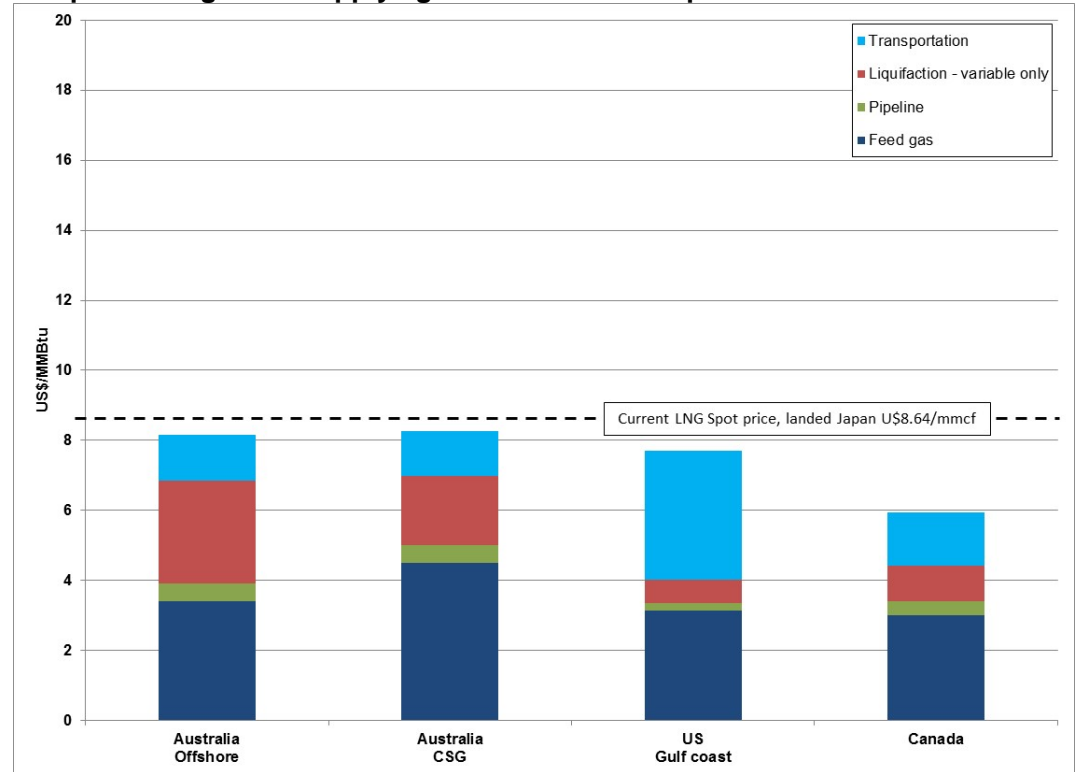


Source: CERI, Company reports, NBF estimates

These costs – including the material non-cash facility amortization charge – are above current Japan LNG prices, but we note the facilities aren't being built to supply into today's spot market. Since 2010, the landed cost of LNG in Japan averaged \$14.52/MMBtu, materially higher than the estimated cost of production (including investment return) for both Canadian and U.S. participants. In the downturn, this was cut down to below \$6/MMBtu, as the contracts link to Brent prices were maintained, and the underlying oil price pulled back materially. Since the depth of the downturn, prices rebounded by about 50% to north of \$8/MMBtu. This is still below what we estimate is the all-in cost per MMBtu for all LNG projects, but as per our earlier discussion on future supply/demand dynamics, we suspect capacity buildout is necessary to feed a market of rising LNG demand.

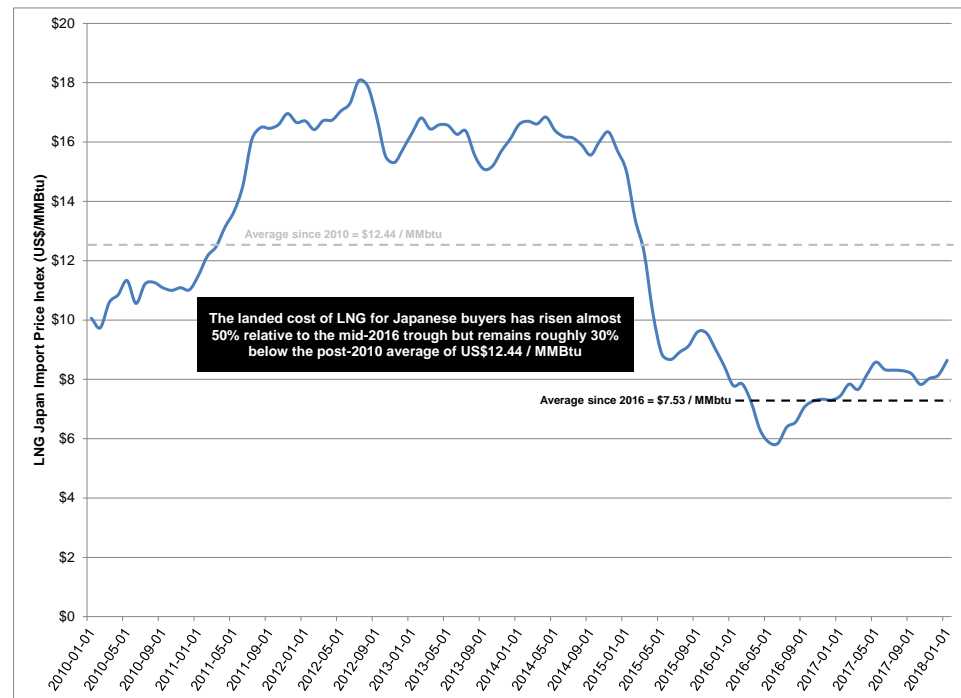
If we look post-construction only at variable costs, Canada still screens quite well, and implies positive returns even at today's LNG price. The majority of the total cost per mmbtu is the amortized facility costs which we charge back to the company with a required return of 12%. If we exclude that cost and instead only account for transportation, liquefaction cash costs, pipeline costs and feed gas, we see Canadian costs sitting below \$6/mmbtu delivered to Japan. This reflects an attractive proposition in being the low-cost provider on a variable costs basis.

Exhibit 13 – Given return on capital is the largest cost component of LNG, we here show variable costs, which imply on an ongoing basis Canada would be the cost-competitive region for supplying the Asian demand sphere



Source: CERI, Company reports, NBF estimates

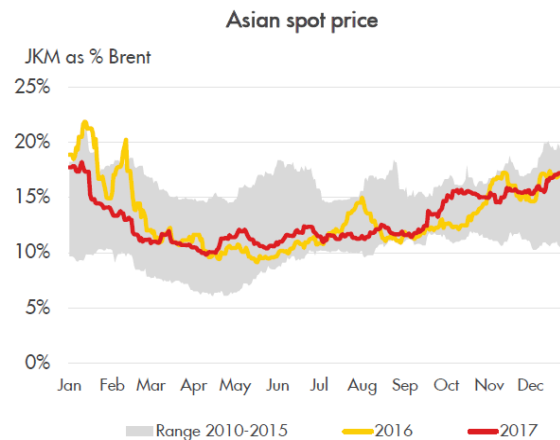
Exhibit 14 – Historical Japanese LNG Prices



Source: Bloomberg, NBF estimates

A brief word on pricing trends, as we continue to see good reflection in the Brent-linked pricing, implying relative stability in the supply/demand balance. While above in Exhibit 14 we show the absolute LNG price on an mmbtu basis in Japan, below in Exhibit 15 we see the relationship with Brent, which is far more stable. Over a seasonal basis, the past decade of pricing (including 2016 and 2017) has remained relatively predictable with a mid-year dip from March to July, and rising into the winter heating season. Shell suggests – and we would tend to agree – that this stability in price relative to the underlying contract link (of Brent) implies a relatively balanced market, even though the raw dollar value per mmbtu may suggest that there is demand weakness. One of the reasons we suspect for predictions of demand weakness may be the relatively unbalanced timing of supply projects (typically well telegraphed four to six years ahead of coming on stream) and demand projects (increased utilization or capacity of an import terminal may not be announced, and may be effective within a six- to 12-month period). This implies that the increase in the supply side of LNG is ‘headline grabbing’ while the increase in demand of LNG is more covert.

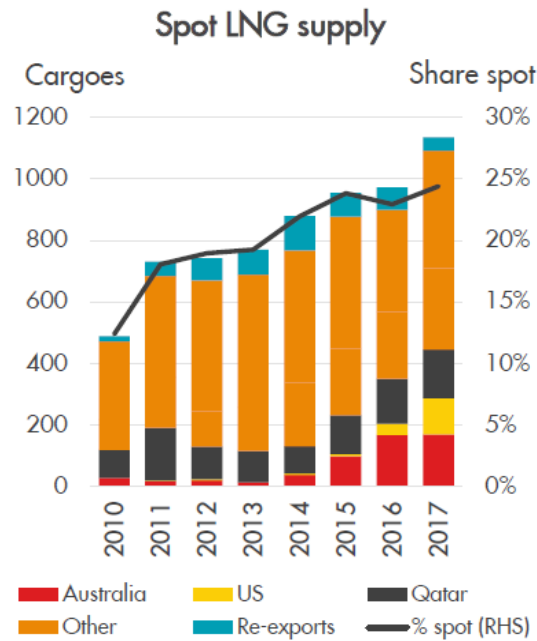
Exhibit 15 – The seasonal pricing relative to oil has remained relatively consistent



Source: Royal Dutch Shell

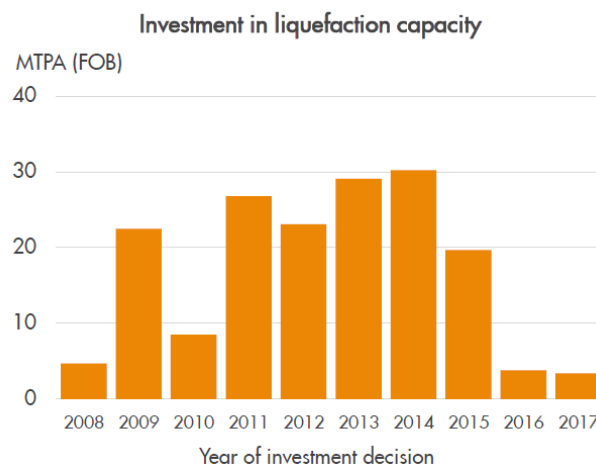
We continue to see spot pricing as an overall trend grow, as customers and supplier try to balance off risk/reward. As a percentage of overall volumes, we see spot volumes now creeping up on 30% in 2017, with U.S. and Other (*per below*) suppliers increasing spot volumes, while Qatar and Australia remain largely consistent. With added supply in the global market, especially with the recent U.S. terminals and (in 2015-2016) the Australian supply coming on, we suspect customers had more flexibility of supply options, while balancing their own demand picture, which typically is not long-term contracted. Thus, while the market remains dominated (>70%) by contracted supply, we are not surprised to see the spot LNG market creep up in prominence. We suspect a balance needs to be met though, as contracted offtake agreements are in many cases necessary in order to achieve a positive FID, and/or obtain necessary project funding. As can be seen below in Exhibit 16, in the last two years while spot LNG volumes have continued climbing, we have seen a radical decrease in positive LNG FIDs. While 2016/2017 had many other contributing factors that we suspect caused this dearth of new supply announcements, and in fact, from 2011 to 2015 LNG FIDs remained robust even as spot LNG volumes *also* increased, we think it is unlikely that sizeable investments will be made in the future if suppliers are unable to partially de-risk their capital in the form of contracted offtake volumes.

Exhibit 16 – Spot pricing continues to take a larger portion of the market, in 2017 approaching a third of total share



Source: Royal Dutch Shell

Exhibit 17 – LNG FIDs have all but dried up in the past two years, implying a dearth of new capacity coming on stream in the early 2020s. We note that this decrease in positive FIDs corresponded with the increase in spot volumes, and we suspect it is a contributing factor.



Source: Royal Dutch Shell

Uptick in upstream drilling and completion activity from LNG Canada would help tighten the supply of services in the WCSB, but some sub-segments will see a bigger impact than others

Services impact: we see the biggest lift for the camps, followed by Enerflex and finally the Fracers. We see the largest positive impact on the Camps (HNL, BDI) as the demand will go far to sop up spare capacity. The fracers (TCW, STEP, CFW) should benefit as well, owing to the completion-intensive nature of Montney wells being the likely primary supply source. Finally, Enerflex should see a material build in its total addressable market in Canada and we see Australia as an excellent proxy measure.

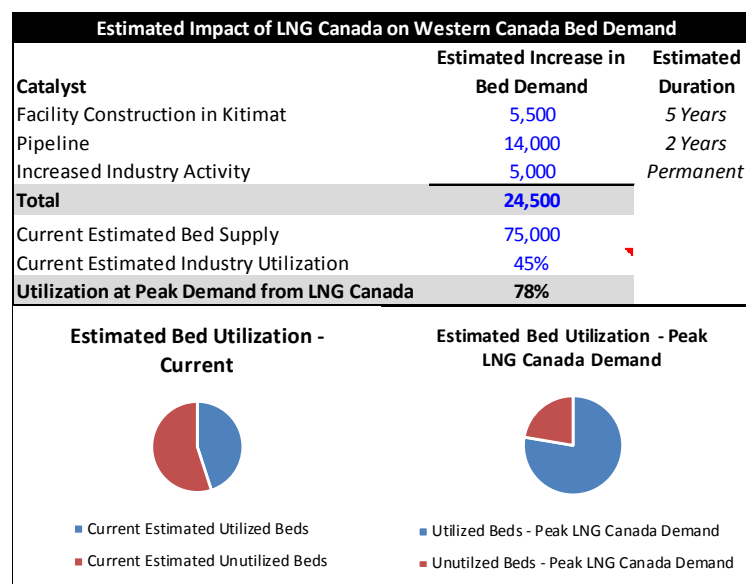
The Camps –

Black Diamond Group (BDI; \$3.20 target, Sector Perform)

Horizon North Logistics (HNL; \$2.40 target, Outperform)

We believe a positive FID for LNG Canada would result in a peak demand increase of roughly 25,000 beds in 2022 and 2023 versus a total market today of ~75,000 beds, of which we believe ~40,000 are utilized. We believe construction of the LNG facility in Kitimat would result in additional demand for 5,500 beds, directly beneficial for HNL which owns one of two camps-permitted plots of land in Kitimat, B.C. (the proposed location for the LNG Canada facility) where flat, developable land is incredibly scarce. We note that likely 4,500 of these beds will be ‘behind the fence’ (i.e., bought and owned by LNG Canada) under the already awarded Bird Construction/Civeo contract, but an incremental 1,000 or so should be ‘outside the fence’ (i.e., rented by LNG Canada, and up for grabs still). We believe the pipeline construction would bolster total industry demand by an estimated 14,000 beds in the two years leading up to production (2022 and 2023), and we estimate the increased industry activity levels in the field (drilling) resulting from the megaproject would increase demand by 5,000 beds more or less permanently. We believe that both BDI and HNL would receive a fair share of the increase in demand, benefitting from both higher utilization and rental rates. As illustrated below, at peak demand we believe the project could increase industry utilization to a little over 75% (from our current estimate of 45%). We believe Horizon North stands to benefit the most (with exposure to both the general increase in industry activity levels as well as its land location in Kitimat) and at peak demand, we believe HNL's annual EBITDA could increase by over \$15 mln owing to LNG Canada.

Exhibit 18 - We continue to believe the LNG Canada megaproject could increase total bed demand in Western Canada by ~25K during peak construction years



Source: Company reports, NBF estimates

Exhibit 19 – BDI and HNL are trading at 7.1x and 6.3x 2019e EBITDA, just above their respective post-2009 averages of 6.7x and 5.6x

Camps																		
		Last Price	Yield	Target Price	Rating	Shares o/s	Market Cap (mm)	Net Debt (mm)	EV (mm)	Net Tangible Book Value per Share	P/NTBV	EBITDA (mm)			EV/EBITDA			Post-09 Average
												2017e	2018e	2019e	2017e	2018e	2019e	
ATCO ¹	ACOX.TO	\$41.11	3.6%	\$48.00	Sector Perform	101.3	\$ 4,165.9	\$ 9,489.0	\$ 17,288.9	\$ 25.60	1.61x	\$ 1,975.8	\$ 2,136.0	\$ 2,202.0	8.8x	8.1x	7.9x	7.3x
Black Diamond	BDLT.TO	\$ 2.37	0.0%	\$3.20	Sector Perform	55.0	\$ 130.5	\$ 116.4	\$ 248.9	\$ 3.78	0.63x	\$ 25.3	\$ 33.0	\$ 35.1	9.9x	7.5x	7.1x	6.7x
Cleco Corp	CVEO.N	\$ 3.77	0.0%	n/a	n/a	133.7	US\$ 503.9	US\$ 261.9	US\$ 765.8	US\$ 3.43	1.10x	US\$ 64.5	US\$ 69.6	US\$ 86.8	11.9x	11.0x	8.8x	7.6x
Clean Harbors	CLHN	\$48.59	0.0%	n/a	n/a	56.5	US\$2,745.7	US\$ 1,291.7	US\$4,037.4	US\$ 4.26	11.41x	US\$424.8	US\$461.5	US\$ 497.8	9.5x	8.7x	8.1x	8.0x
Horizon North	HNL.TO	\$ 2.20	3.8%	\$2.40	Outperform	144.7	\$ 318.3	\$ 78.0	\$ 396.2	\$ 1.94	1.14x	\$ 30.0	\$ 46.7	\$ 62.8	13.2x	8.5x	6.3x	5.6x
WesternOne	WEQ.TO	\$ 1.35	0.0%	n/a	n/a	39.3	\$ 53.0	\$ 55.4	\$ 108.4	n/a	n/a	\$ 7.1	\$ 12.1	\$ 16.9	15.3x	9.0x	6.4x	6.7x
All Cdn\$ unless noted											1.12x				11.5x	9.1x	8.1x	
Footnote: 1 Covered by our colleague Patrick Kenney																		
Source: Company reports, Bloomberg, RBC estimates																		

¹ Covered by our colleague Patrick Kenney

Source: Company reports, Bloomberg, NBF estimates

Enerflex: LNG-related infrastructure build represents 9% forecast EBITDA upside

If this project goes forward, we suspect it could represent a \$170 mln opportunity for compression and processing, or \$26 mln EBITDA, or an incremental \$1.85/sh using a 6.5x multiple. The development of LNG-export capacity in Australia is useful as a benchmark for estimating the opportunity for Enerflex, given the company participated in the initial buildout that took Australia's LNG export capacity to 3.2 Bcf/d in 2013. Enerflex received orders in excess of \$235 mln over roughly two years for compressor and process systems associated with connecting gas from the wellhead to the Santos GLNG and Curtis Island LNG facilities. These orders are probably best classified as "integrated solutions", despite generating business primarily for the Engineered Systems product line. For Curtis LNG specifically, the customer placed a \$179 mln order to build, install and commission 71 compression packages (\$2.5 mln per unit), as well as signing a \$70 mln long-term service agreement for Enerflex to provide ongoing maintenance. The company delivered all 71 modules with zero lost-time injuries, on time in early 2015. The LNG export capacity of Curtis Island alone is estimated at 1.13 Bcf/d with compression needs determined thusly: 71 units, each flowing 20mmf/d suggesting compression demand of 1.42 Bcf/d. We mapped the Australian proxy project over top of the assumed LNG Canada sizes (Exhibit 20) to arrive at an approximation for the Canadian opportunity. While similar, we do note several variations between the two countries: 1) unlike Canada, LNG supply in Australia is derived from coalbed methane, and 2) given basin proximity to the coast, the projects in Australia required shorter pipelines when compared with the proposed Coastal Link. These considerations are factored into our equation. Coalbed methane is relatively low pressure in comparison with Canadian gas wells, and thus requires greater compression intensity. However, we suspect this is partially offset by the fact that the Coastal Link pipeline is 25% to 60% longer than the pipeline used in the comparable projects referenced below. **Putting it all together, we believe the HP required to compress the gas needs for LNG Canada is ~450,000 HP across 100 packages, which at \$2.0 mln per unit implies a \$170 mln order. At a 15% EBITDA margin, we peg the EBITDA contribution at \$25.5 mln, or 9% upside to our forecast 2019 EBITDA of \$291 mln. Using a 6.5x multiple, and assuming Enerflex gets the entire project, this would be an incremental \$1.86 in per-share value.**

Exhibit 20: Looking to Australia as a guide for the LNG opportunity for Enerflex

LNG PROJECTS GAS COMPRESSION REQUIREMENTS					
	Precedent Transactions		Model	Notes	
Project	Curtis LNG	Santos LNG	LNG Canada		
Customer	QCG PTY	Santos	Shell		
Geography	Australia	Australia	Canada		
Export Pipeline	540km	420km	670km	Company reports	
LNG Export Capacity (Bcf/d)	1.13	0.39	1.70	Company reports	
Enerflex Project Scope	Integration of upstream with LNG facility			Gas gathering infrastructure + upstream/midstream compression	
Compressor Packages Ordered	71	17	85	Rotary screw field compressors	
Horsepower per Package	4,500	4,500	4,500	This would be considered a large unit (range 10HP to 10,000HP)	
Total Horsepower Commissioned	319,500	76,500	382,500		
Throughput per Package (mmcf/d)	20	20	20		
Total Throughput Delivered (Bcf/d)	1.42	0.34	1.70		
Cost per Package (CAD mln's)	2.52	3.29	2.00	Expect unit savings realized on a bulk order	
Enerflex Order (CAD mln's)	179	56	170		
Engineered System EBITDA Margin	13%	13%	15%	Premium for LNG Canada margins owing to gas stream complexity	
EBITDA (CAD mln's)	\$23.3	\$7.3	\$25.5		

¹ Equal to the ratio of the nameplate LNG export capacity by project, divided by the implied horsepower required to fulfill exports

Source: company reports, NBF

The fracers: a trading positive, creating additional demand for over 60,000 HP, but not transformative

LNG-related development could be a conduit toward higher completions activity over the long term, creating additional offtake opportunity for a dry gas sector that is starved of export options. The one-year outperformance of Calfrac over Trican is 80% (CFW +48%, TCW -32%), highlighting the perceived significance of the gas market to completions activity in Canada. In additions to liquids-rich activity, we believe that LNG-related development represents an opportunity for the Canadian pressure pumping industry in the Montney and Duvernay over the next several years. As previously noted, we anticipate there will be some level of incremental LNG related drilling; we see potential for 825 additional wells between 2019 and 2026. In Exhibit 21, we attempt to quantify this from a completions perspective. We start with a well count, from which we derive horsepower requirements and, ultimately, EBITDA generation. We should note that the model is most sensitive to 1) the number of fracs per day, 2) average fleet size and 3) fracturing revenue per avg. HHP. What we find is that over a one-year horizon, LNG Canada creates additional pressure pumping demand for ~63,000 HP, which at a 20% margin would add ~\$13 mln to the industry-EBITDA pool. From a longer-range perspective, on flat assumptions (except well count), we find that the opportunity rises to ~\$111 mln of EBITDA. We're not calling it a renaissance, but we believe the presence of additional offtake opportunity could have a broad positive effect on producer confidence and drive improved gas activity. **Should LNG Canada proceed, and the odds seem to be increasing, we expect shares in the fracers with the most exposure to Canada, namely Trican, to trade favourably in the near term, with a positive long-term fundamental underpinning given LNG-related development could generate additional frac demand over 60,000 HHP per year.**

Exhibit 21: Pegging the LNG Canada frac activity boost at ~63,000 HHP per year

FRAC DEMAND BUMP FROM LNG CANADA			
	Expected Scenario		
<i>in \$mln's unless noted</i>	2019	2019-2026	Notes
Incremental Wells Drilled	93	825	NBF estimates
Assumed Frac Stages Per Well	35	35	2017 average of Montney and Duvernay wells
Total Fracs	3,255	28,875	
Frac Per Day Per Fleet	7	7	NBF estimate based on channel checks, per 24-hour day
Implied Frac Operating Days	465	4,125	
Available Work Days Per Year	312	312	assume 26 work days a month
Implied Fleet Requirement	1	13	
Average Fleet Size	42,000	42,000	Average Montney and Duvernay spreads
Implied Horsepower Demand	62,596	555,288	
Fracturing Revenue Per Avg. HHP (\$'s)	\$1,000	\$1,000	Estimate of mid-cycle pricing
Revenue	62.6	555.3	
Implied Price Per Stage (\$'s)	19,231	19,231	
EBITDA Margin (%)	20%	20%	
EBITDA	12.5	111.1	

Source: Company reports, NBF

Exhibit 22: Fracers comps table

Frackers																
All Cdn\$ unless noted																
						Net Debt		EBITDA			EVEBITDA					
Last Price	Target Price	Rating	Shares o/s (mm)	Market Cap (mm)	amount	EV (mm)	2017	2018E	2019E	2017	2018E	2019E	HP	EV/HP		
Canadian Peers - Fracturing																
Calfrac Well Services	CFW.TO	\$ 5.60	7.00	Sector Perform	140.9	\$ 788.8	\$ 909.2	\$ 1,683.6	\$ 180.1	\$ 260.1	n/a	9.3x	6.5x	n/a	1,395,000	\$
STEP Energy Services Ltd.	STEP.TO	\$ 10.24	17.00	Outperform	67.2	\$ 687.7	\$ 262.4	\$ 951.6	\$ 123.6	\$ 242.9	\$ 260.4	7.7x	3.9x	3.6x	490,000	\$
Excluding full-year Tucker impact (2018)																
Trican Well Services	TCW.TO	\$ 2.75	5.50	Outperform	346.3	\$ 952	\$ 91.0	\$ 1,043	\$ 203.4	\$ 226.3	n/a	5.1x	4.6x	n/a	680,000	\$
(+) NBF estimated value of Keane shares																
Trican remaining EV						\$ 143.4						4.4x	4.0x	3.6x		\$
						\$ 900.0										\$
US Peers - Fracturing																
RPC, Inc.	RES.N	\$ 17.21	n/a	n/a	216.8	✓ US\$3,732	(US\$91)	US\$3,641	US\$441.4	US\$618.5	US\$718.1	8.2x	5.9x	5.1x	930,000	US\$
Keane Group	FRACK	\$ 14.97	n/a	n/a	112.2	✓ US\$1,680	US\$1787	US\$1,987	US\$199.4	US\$443.1	US\$501.0	9.4x	4.2x	3.7x	1,189,250	US\$
Martine Energy Services	TUSCO	\$ 33.53	n/a	n/a	44.6	✓ US\$1,495	US\$1,589	US\$1,721	US\$397.3	US\$261.1	US\$261.1	13.1x	4.0x	6.1x	291,750	US\$
Basic Energy Services	BAS	\$ 13.68	n/a	n/a	26.4	✓ US\$361	US\$277	US\$938	US\$63.0	US\$146.1	US\$191.0	10.1x	4.4x	3.3x	444,000	US\$
Superior Energy Services	SPN	\$ 8.45	n/a	n/a	154.2	✓ US\$1,303	US\$1,108	US\$2,411	US\$173.1	US\$378.1	US\$475.8	13.9x	6.4x	5.1x	750,000	US\$
Average Canadian (NBF estimates)																
Average US (Consensus Bloomberg)																
												6.4x	4.6x	4.5x	\$	1,490
												11.0x	5.0x	4.7x	\$	3,117

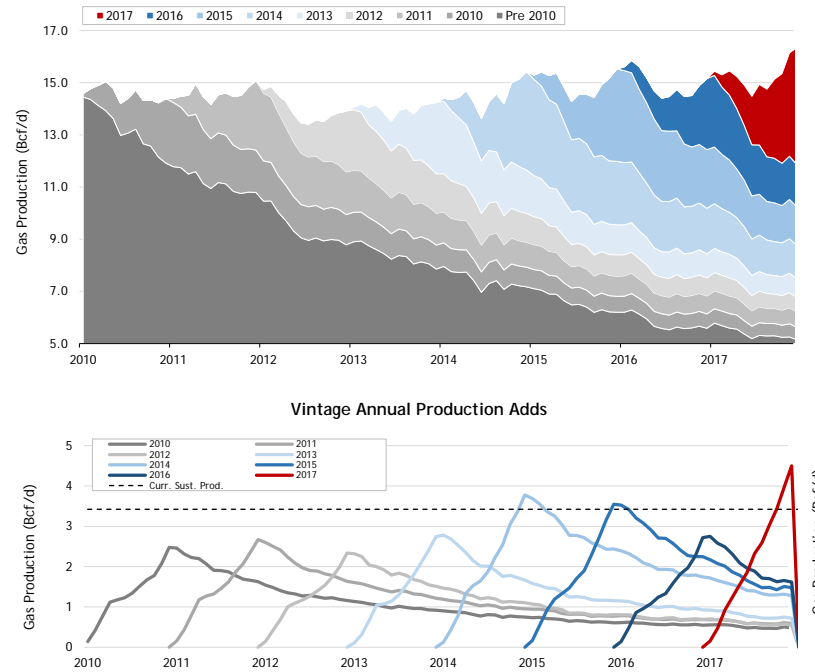
1: For comparable purposes, we are using a full-year contribution from Canyon for Trican's 2017 EBITDA

E&P LNG Framework

On balance we see the emergence of LNG as an export option for Canadian gas as a positive for the E&P space, but largely a sentiment trade, and highlight Advantage, Arc, Tourmaline, Birchcliff and Encana as methods to gain exposure from an E&P perspective. There exists increasing optimism towards the FID of a major LNG export terminal in Canada, which provides multiple points of thematic support to the exploration & production (E&P) universe through the medium and long term, as detailed below. We believe that the advancement of Canadian LNG export is a logical step for the country and industry, given the size of the gas resources, especially with the Montney at an estimated ~450 Tcf recoverable reserves, and the economics of development with \$1.50-\$2.00/mcf breakeven. Overall, there is a meaningful prize to be captured in Canada. We believe this theme will impact our producer universe by (1) an improvement to supply/demand picture with incremental export capacity and (2) the potential for consolidation, as LNG Canada participants potentially look to increase their reserves ahead of first export. We believe that in the E&P space, LNG largely remains a sentiment trade, where the advancement of a major infrastructure project would ultimately be a positive driver of the group.

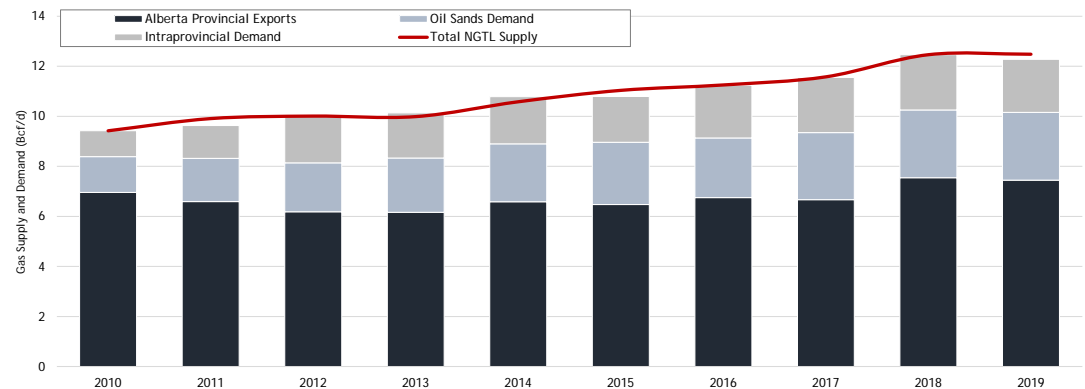
An incremental ~1.7 bcf/d of export capacity by 2024 should improve the supply/demand balance in Canada, as it is meaningful in the context of a current gas supply of ~16 bcf/d; however, we remain uncertain that the lift would in and of itself return gas producers to an environment with attractive full-cycle returns. First and foremost, LNG export should provide an outlet for an otherwise oversupplied WCSB gas complex, improving the overall supply/demand balance for the commodity and its associated pricing environment. In association with visibility to expanding egress from the province with the Mainline & Alliance pipelines, the potential for ~1.7 Bcf/d of off-take by 2024 should serve to backfill risk of falling U.S. imports, while supporting visibility towards a resumption of growth for producers which are best positioned. This comes in addition to increased forecast electric demand in the form of coal to gas, and industrial demand from the oilsands and petrochemical complex. For context, and as recently published ([Can Western Canadian Gas Prices Be Saved?](#)), we forecast an oversupply of ~0.5 Bcf/d in 2019, without considering LNG export, which is partially responsible for AECO strip pricing through 2020 sitting at an average of \$1.65/mcf that we generally do not believe is supportive of positive full-cycle producer returns. LNG as an outlet from an otherwise closed system should be a constructive driver of Canadian gas pricing and therefore the associated returns of the producers. We believe the key risk for producers on this theme is: given the prolific nature of Canadian supply, will the additional export capacity not just return pricing back towards its economic breakeven?

Exhibit 23: WCSB Gas Production Growth



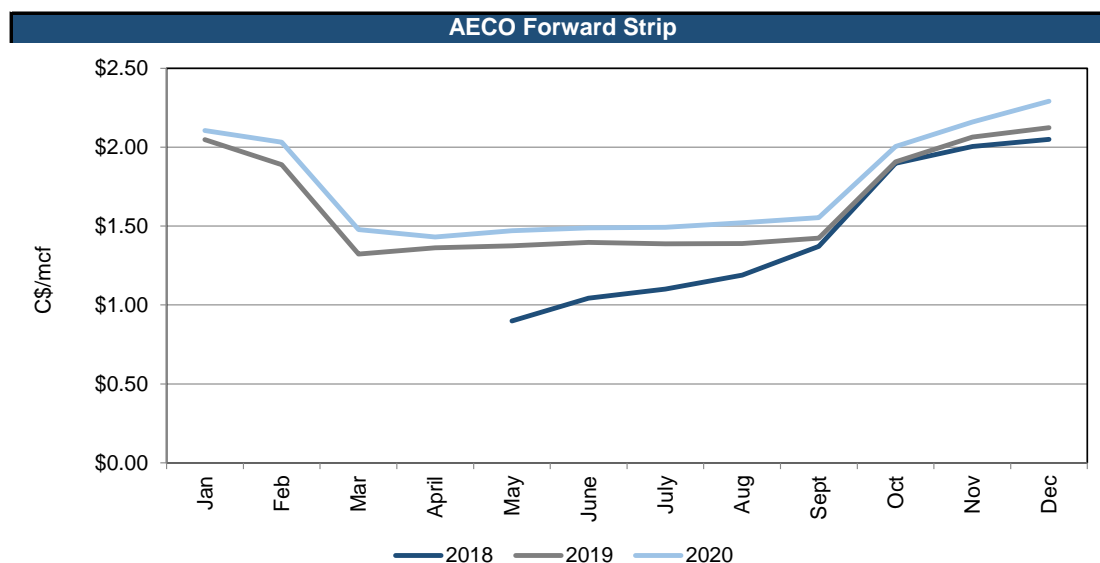
Source: NBF, geoSCOUT

Exhibit 24: Market Supply and Demand Balance (NGTL)



Source: TransCanada, NBF; Excludes volumes removed from the basin on the Alliance pipeline and Westcoast systems, reflecting only volumes into the AECO market

Exhibit 25: AECO Forward Strip

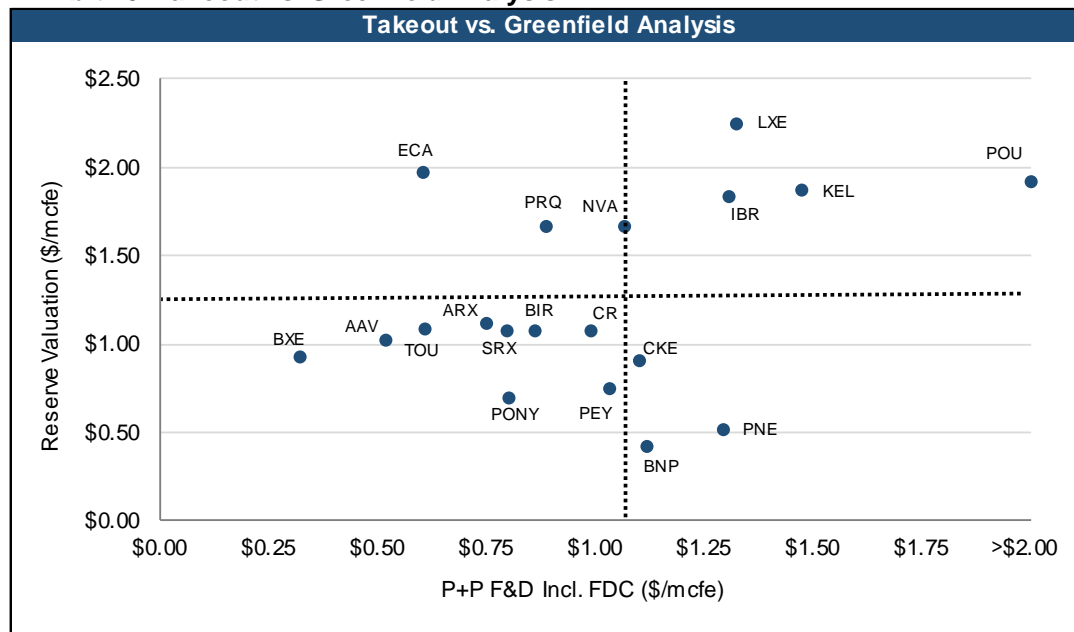


Source: Bloomberg, NBF

Secondly, M&A of existing reserves/production is an option for the LNG Canada syndicate partners to secure supply and we see Advantage, ARC and Tourmaline as best sources for low-cost resource. Consolidation is a relevant talking point in the coming years ahead of first export, as each of the participants seeks to secure resource, or as existing producers seek to establish best economies of scale to compete in the prevailing price environment. We expect that each of the participants in the noted LNG Canada project will be responsible for bringing their proportional contributions (supply and off-take) to the table. Securing supply could take the form of direct ownership of resource in the ground, as is the case in Australia, or plans to purchase from the market, as is the case in the United States.

Given Shell's leadership role in the project, and its history of typically being vertically integrated in its LNG projects, we suspect direct ownership of the molecules is a more likely outcome, and in that case ~3.5 Tcf of reserves need to be accumulated by the LNG Canada partnership group. In the direct ownership case, we believe approximately two-thirds of the supply required to underpin relevant 20-year supply contracts is already secured, and estimate that about 3.5 Tcf of incremental reserves will be required to be aggregated, which could be either through organic development of existing lands, or acquisition. In the event incremental reserves are consolidated through acquisition, this could occur through those already capitalized (targets with attractive booked reserves) or through resource that can be capitalized independently through less developed assets (targets with attractive, but as yet undeveloped, land). The question is, will it be cheaper to buy capitalized assets than to develop greenfield to aggregate the required supply? Below we establish the value of reserves in the ground (Trading P+P ~\$1.40/boe incl. FDC) relative to that of assets' historical capital efficiencies (F&D P+P ~\$1.10/boe incl. FDC) to establish the average potential cost of capturing a resource of the required scale (the latter of these metrics will ultimately set the floor price for the value of supply). We estimate an average cost of supply at \$1.35/mcf (based on the weighted-average cost of reserves in the ground and future required adds), and would suggest those best positioned for value are **Advantage, Arc and Tourmaline** as it relates to the lowest aggregate cost of supply (in the ground and future potential).

Exhibit 26: Takeout vs. Greenfield Analysis



Source: Company Reports, NBF

While historic precedent transactions would imply valuation in the order of ~\$3,700/acre, we believe the current market valuations for our coverage space implies any takeout expectations should be moderated versus that historic average. Historical precedents of approximately \$3,700/acre would imply massive premiums across our peer group, and are more likely applicable to a specific resource type, that being underdeveloped liquids, than the group as a whole. Given the prevailing tone in the market, we believe valuation expectations should be more oriented towards lowest cost of capture in a potential LNG consolidation environment.

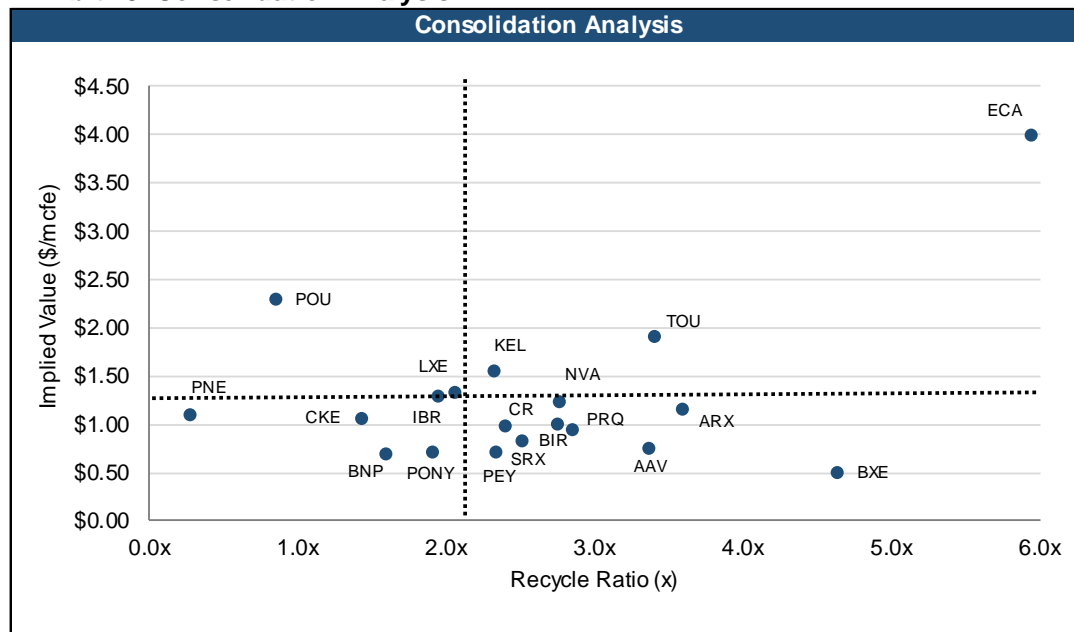
Exhibit 27: Historical Montney Land Transactions

Trailing 5-Year Historical Montney Transactions								
	Total Value	Production	Gas	Montney Land	P+P Reserves	Flowing Valuation	Reserve Valuation	Land Value
	\$mIn	boe/d	%	Net Sections	mIn boe	\$/boed	\$/boe	\$/acre
Average	\$16,905	241,288	67%	4,771	2,753	\$109,751	\$9.03	\$3,679

Source: Company Reports, NBF

Even in the absence of a roll-up by LNG Canada participants, it still makes sense for existing producers to initiate consolidation to gain economies of scale to compete for returns in a post-LNG environment. With economies of scale in mind, this likely occurs in the form of aggregation between regional peers with synergies, or diversification between more disparate peers. In our view, those with the highest potential recycle ratio are our most favoured entities, whether through organic operations or for consolidation. Here we identify best positioned producers as **Advantage, ARX and Birchcliff**.

Exhibit 28: Consolidation Analysis



Source: Company Reports, NBF

Overall, we continue to believe that asset characteristics are critical, where those best positioned to participate in either LNG consolidation theme will be large, well-capitalized entities that are proximal to export with the lowest costs, specifically **Tourmaline, Encana and ARC**. Perhaps not coincidentally, ECA has direct asset exposure through JVs with multiple participants in LNG Canada. In sum, we are of the view that some degree of consolidation, whether for off-take or economies of scale, is a likely outcome associated with LNG; however, at this time, we feel that it is unlikely that it spurs a broad consolidation cycle at significant premiums to current trading values. Ultimately, the initiation of export from the Canadian market will be a constructive element for the basin and its players, perhaps through consolidation and M&A, but certainly through an improved supply/demand picture to support its long-term economics and returns. We maintain a view towards positioning in best-in-class, well capitalized producers, which should ultimately benefit through either outcome.

Exhibit 29: Gas Producer Scorecard Summary

		Production	Reserves	RLI	Reserve Valuation	3yr Ave. P+P F&D (Incl. FDC)	Implied Value	2019e Operating Netback	Recycle Ratio	Net Land	D/CF	EV/DACF
Rank		(mmcf/d)	(Tcf)	(yrs)	(\$/mcf)	(\$/mcf)	(\$/mcf)	(\$/mcf)	(x)	(Sections)	(x)	(x)
1	TOU	1,320	10.7	22.2	\$1.10	\$0.61	\$1.92	\$2.05	3.4x	3393	1.2x	5.2x
2	ECA	1,220	6.2	14.0	\$1.98	\$0.60	\$4.01	\$3.57	5.9x	2688	1.3x	4.5x
3	ARX	558	3.8	18.6	\$1.13	\$0.75	\$1.18	\$2.68	3.6x	3249	1.2x	7.1x
4	BIR	370	5.0	36.7	\$1.08	\$0.86	\$1.03	\$2.35	2.7x	605	1.4x	4.4x
5	PEY	539	3.5	18.0	\$0.76	\$1.03	\$0.73	\$2.40	2.3x	751	2.5x	6.0x
6	SRX	98	0.6	17.9	\$1.08	\$0.80	\$0.85	\$1.99	2.5x	657	1.0x	4.3x
7	AAV	249	2.3	25.3	\$1.03	\$0.52	\$0.78	\$1.74	3.4x	311	1.3x	5.2x
8	BNP	293	1.9	17.6	\$0.43	\$1.12	\$0.71	\$1.77	1.6x	2627	4.3x	5.0x
9	BXE	154	1.0	17.9	\$0.93	\$0.32	\$0.51	\$1.47	4.6x	611	5.0x	4.5x
10	POU	360	2.2	16.5	\$1.93	\$3.34	\$2.31	\$2.81	0.8x	4531	1.7x	4.4x
11	PONY	335	6.5	52.8	\$0.71	\$0.80	\$0.74	\$1.53	1.9x	522	5.3x	5.1x
12	NVA	146	1.4	25.9	\$1.68	\$1.07	\$1.25	\$2.93	2.7x	820	1.3x	5.6x
13	CR	112	1.7	41.3	\$1.08	\$0.99	\$1.01	\$2.35	2.4x	775	3.5x	5.2x
14	CKE	26	0.2	18.7	\$0.91	\$1.10	\$1.09	\$1.55	1.4x	304	0.8x	3.9x
15	KEL	91	0.8	24.1	\$1.87	\$1.47	\$1.55	\$3.42	2.3x	2195	1.1x	6.5x
16	PRQ	44	0.2	12.4	\$1.68	\$0.89	\$0.96	\$2.52	2.8x	266	3.4x	3.9x
17	PNE	115	0.4	9.0	\$0.53	\$1.29	\$1.11	\$0.34	0.3x	2819	12.6x	19.1x
18	LXE	17	0.2	28.3	\$2.26	\$1.32	\$1.35	\$2.71	2.0x	328	-0.2x	16.0x
19	IBR	10	0.1	27.4	\$1.84	\$1.30	\$1.32	\$2.52	1.9x	109	1.0x	7.3x
	AVE	319	2.6	22.0	\$1.26	\$1.06	\$1.28	\$2.25	2.1x	1451	2.6x	6.5x

Source: Company Reports, NBF

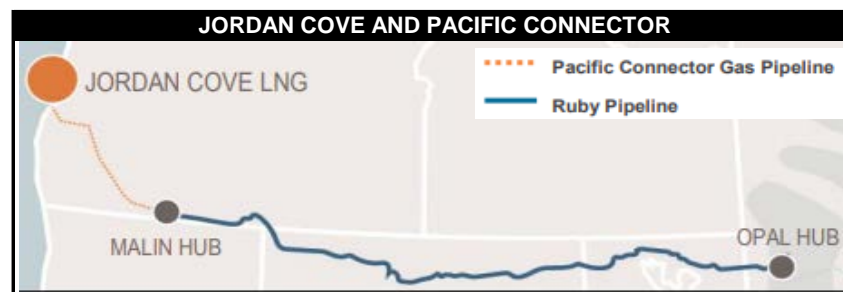
Three ways to play LNG in Canada from our midstream coverage team

Although for any specific issuer the reasoning behind our bullish stance will vary, we herein discuss three names (Pembina, TransCanada and ATCO) which are likely to experience lift if the LNG thesis gets underway.

Pembina (PPL; \$55.00 target, Outperform)

Jordan Cove LNG - Following the acquisition of Veresen in 2017, Pembina continues to pursue development of the ~\$6.5 bln (net), ~1.3 bcf/d Jordan Cove LNG Terminal in Coos Bay, Oregon and corresponding Pacific Connector Pipeline that would connect the terminal to the Malin, Oregon hub and ultimately western Canadian and U.S. Rockies gas supplies via the 2.9 bcf/d GTN and 2.0 bcf/d Ruby pipeline systems. Key milestones include receiving a FERC decision in late 2018, finalizing agreements with existing offtakers for ~0.4 bcf/d (JERA & ITOCHU), securing offtake agreements for the remaining ~0.9 bcf/d capacity and securing project financing. Subject to a positive final investment decision in 2019, the project is expected in-service in 2024. Based on a net capex assumption to PPL of \$6.5 bln and an assumed 7.5x EBITDA build multiple, we calculate ~\$6.00/sh upside (~10%) to our current valuation.

Exhibit 30: Jordan Cove and Pacific Connector overview

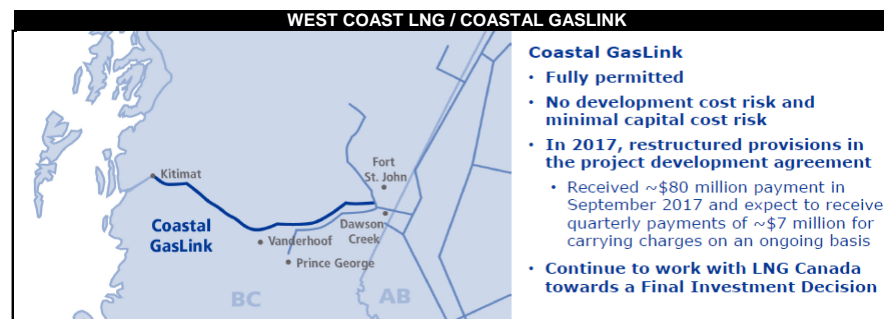


Source: Company Reports

TransCanada (TRP; \$65.00 target; Sector Perform)

\$5 bln Coastal GasLink - Recall, in mid-2012, TransCanada was selected by Shell Canada Ltd. and its LNG Canada partners to design, build, own and operate the proposed ~\$5 bln, 1.7 bcf/d Coastal GasLink project – transporting natural gas from the Montney region near Dawson Creek, B.C. to LNG Canada's liquefaction facility near Kitimat, B.C. With a final decision on the post-FEED project expected in the second half of 2018, we highlight that the fully permitted ~\$5 bln project would add ~2% upside to current valuations based on NGTL economics (i.e., 6-7% unlevered AT-IRR).

Exhibit 31: Coastal GasLink overview



Source: Company Reports

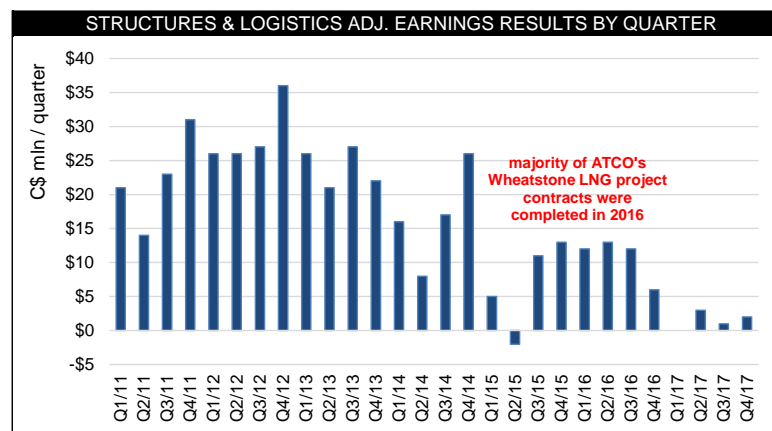
In addition to potential upside associated with the LNG Canada and the Coastal GasLink project, if Kitimat LNG eventually goes ahead, TransCanada agreed in 2014 with Chevron and Apache (Woodside Energy is the new partner) to build the Merrick Pipeline that would connect to the Pacific Trail Pipeline and move gas supplies to the west coast LNG facility. At the time of the agreement, the initial cost estimate was \$1.9 bln (representing ~1% valuation upside) to build the 161 mile, 48" pipeline with a capacity of 1.9 bcf/d. In early March, several news outlets reported that Chevron wants to sell a minority stake in the project, which has prompted some doubt if the project will move forward.

ATCO (ACO.X; \$48.00 target; Sector Perform)

In recent years, ATCO's Structures and Logistics (S&L) business received contracts for several large projects including the Wheatstone LNG (contract 2013 to 2016) and the Queensland LNG (contract 2011 to 2013) projects. As the Wheatstone project wound down though 2016, the S&L results diminished significantly from what was a \$15-30 mln per quarter run rate to sub-\$5 mln per quarter in 2017 and beyond – translating to \$0.13-0.26/share or 3-7% accretion to 2018e AFFO/share.

Both project contracts required ATCO to provide workforce housing for several thousand employees to build the LNG terminals, which is similar to the LNG Canada terminal that will employ 4,500-7,500 construction workers plus 300-450 full-time employees. Although details around LNG contracting are unclear at this point, if the LNG project goes ahead and if ATCO wins the contract, these historical results suggest that there could be significant upside to our sub-\$5 mln per quarter run rate.

Exhibit 32: ATCO Structures & Logistics division has lagged as of late



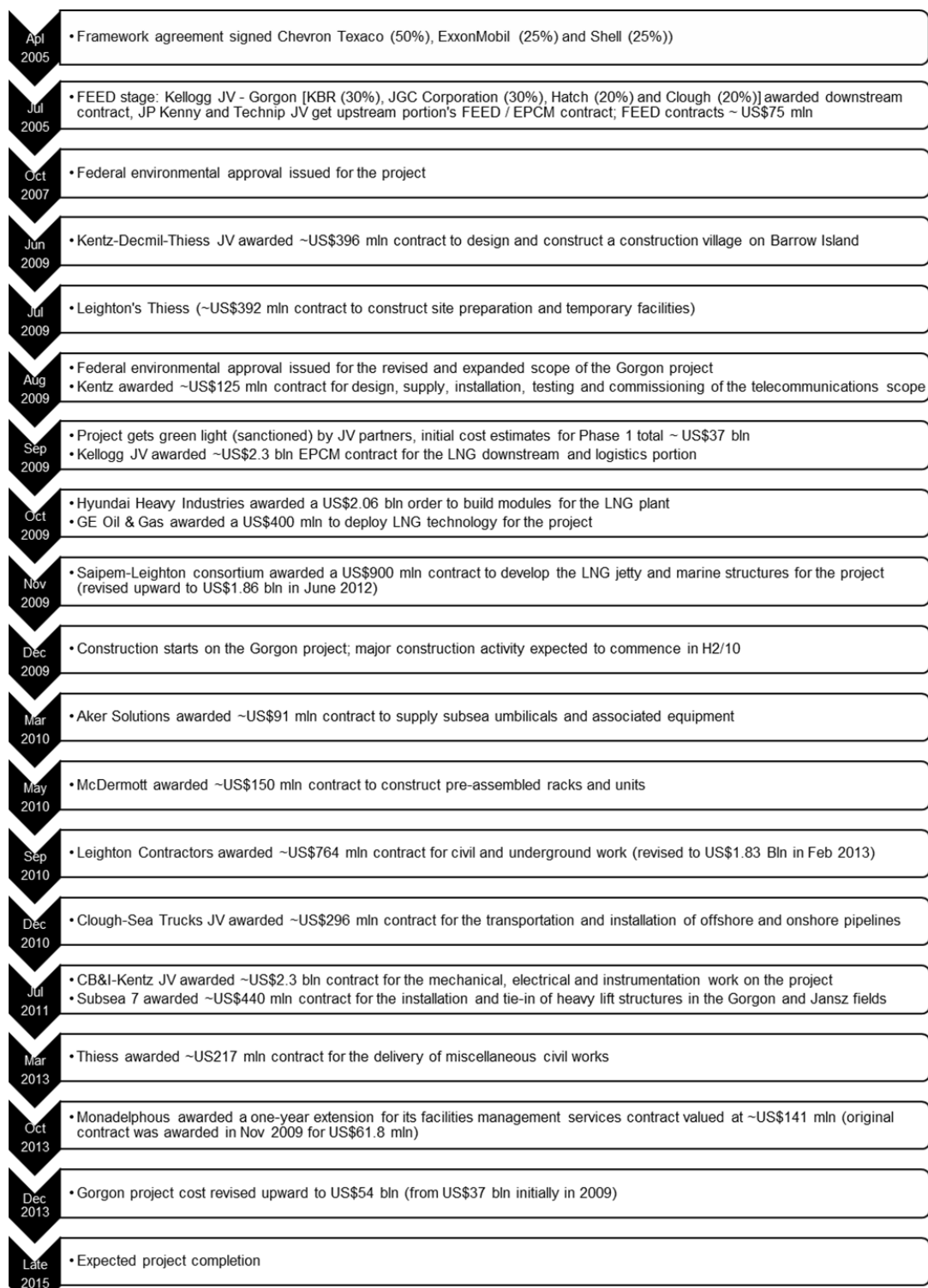
Source: NBF, Company Sources

The EPC LNG impact is not as large (due to contractors' international scope); Precedents from other LNG projects also suggest over-runs

There is always a precedent and LNG Canada is no exception. In order to help investors visualize the sequencing of contract newsflow, we've captured ALL of the publicly-released contracts on Gorgon (Exhibit 33), a 2.6bcf/d facility in Australia that has been operational since 2016 (construction started in 2009); the fame (shame?) to claim is the US\$57 bln capex tag that ballooned from US\$37 bln in 2009 due to harsh environment, supply cost escalations and labour constraints (thankfully there are no competing projects for LNG Canada in the adjacent territory).

Therefore, as a word of caution, **we would prefer to stay clear of any companies that will be undertaking fixed-price execution risk on the overall envelope of the project (recall that TechnipFMC / KBR and the partnership of JGC / Fluor are now vying for the main EPC contract (being subcontractor is where the money will be, in our view).**

Exhibit 33 – Project sequencing of Gorgon (in Australia) as the blueprint



Source: NBF Estimates, company reports

Exhibit 34 presents the Engineering / Industrial / Equipment firms that could have material exposure to LNG activity. On the instrumentation / electrical side, SNC-Lavalin (through its Kentz vertical) has the most experience / technical ability across the LNG value chain in our coverage universe, with global exposure and major work done on Ichthys, Gorgon, Queensland and Pluto LNG plays in Australia. Note that Kentz previously partnered on major LNG work with the shortlisted contractors for LNG Canada; specifically KBR/JGC on the Ichthys LNG project. Stuart Olson also provides electrical / instrumentation work capabilities (via Laird Electric, predominantly). On the construction side, Aecon (ARE), Bird Construction (BDT) and North American Energy Partners (NOA) could participate. ARE has a full suite of capabilities related to LNG, including site / in-plant and pipeline construction, while in 2016, BDT was selected as the design-build contractor for LNG Canada's 4,500 workforce accommodation facility (design portion of the contract had already been added to backlog but construction has yet to be added as FID has not been competed; based on our understanding the contract had not been rebid). NOA has site clearing / preparation capabilities with material exposure and high bidding success rates in Western Canada (early earthworks would be directly in company's wheelhouse). Stantec (STN) previously provided front-end engineering, environment and geotechnical services to LNG projects in Canada and Australia; more specifically, the company also carried out supporting environmental work for the LNG Canada facility and the connecting pipeline. Because these type of contracts take place in the beginning of the contemplated capex cycle, revenue generation on going-forward basis will be of lesser quantum.

We also get questions regarding steel supply on the project. Stelco (STLC) under coverage is an integrated steel producer based in Hamilton, Ontario. First, we believe that module production will be done offshore; second, the company does not have large diameter steel pipe capabilities needed for natural gas pipelines (hence no positive spillover impact for STLC in case of LNG Canada FID).

In general we also want to be mindful around timing; site preparation is obviously at the front end of the project. Electrical / instrumentation work is really a two-year out event post construction commencement (and in line with the Gorgon timeline presented in Exhibit 33).

Exhibit 34 – NBF infrastructure & industrials coverage universe — firms with exposure to LNG

Company	Ticker	Rating	Price Target	Market Cap (\$mm)	LNG Capabilities
Instrumentation / installation / electrical					
SNC-Lavalin - Kentz	SNC	Outperform	\$73.50	C\$9,813	Full service EPC across LNG value chain, including mechanical, electrical, instrumentation and telecommunications; experience in LNG facilities in Australia (Ichthys, Gorgon, Queensland, Pluto) and Russia (Sakhalin 2)
Stuart Olson	SOX	Sector Perform	\$7.00	C\$197	Electrical / instrumentation service capabilities through Laird Electric arm; exposure to Western Canada
Construction					
Bird Construction	BDT	Outperform	\$11.00	C\$368	Selected as contractor for design and construction of significant 4,500 person workforce accommodation centre (Bird - Civeo JV) in 2016 for LNG Canada facility
Aecon	ARE	Tender	\$20.37	C\$1,095	Site / in-plant construction, off-site module assembly, pipe fabrication / distribution and earthworks capabilities
North American Energy Partners	NOA	Outperform	\$12.00	C\$171	Site clearing / preparation capabilities; opportunity to bid on early earthworks contracts
Engineering					
Stantec	STN	Sector Perform	\$37.00	C\$3,597	Engineering, environmental and related services (no construction) to LNG market; previously provided geotechnical / engineering analysis for Kitimat LNG export terminal in BC, design services for water treatment facilities in Australia Pacific LNG, civil inspection at Canaport LNG in NB, environmental assessment at Pacific NorthWest LNG
Equipment					
Finning	FTT	Outperform	\$39.00	C\$5,141	World's largest Caterpillar dealer with Canadian operations (~50% of total topline) entirely in Western Canada

Source: NBF Estimates, company reports

Until a positive FID is made and the first shovel hits the ground, we stress that LNG Canada is not a foregone conclusion

We have had our collective hopes for an LNG megaproject in Canada dashed before, and while we're "ready to love again", we temper our expectations until a positive FID is made official. There are two outcomes to an FID and only one is positive. There are still risks that could derail a positive decision, including regulatory/policy hurdles and an inability to import the necessary steel modules from China. In addition to risks surrounding an FID, as discussed above, demand/supply imbalances for both long-term LNG markets and in Western Canada represent risk to both our long-term forecasts and project viability, as well as our pre-production estimates. Lastly, it is also paramount for the builders of an LNG facility to sign up customer off-take agreements that will create a higher degree of certainty on ultimate investment return. For some of the LNG projects, the operator of the facility is not concerned with the price paid for the product, instead earning its return for the terminalling of the product and connecting buyers and sellers. Despite this presumed price agnosticism, the long-term take-or-pay contracts would need to be in place to guarantee a volume of throughput. Traditionally, the pricing mechanism which has been agreed upon for existing LNG contracts has been oil-linked (Brent) pricing arrangements; however, more recent developments have set gas-linked precedents. For the producers, due to the depressed prices for North American natural gas, oil-linked contracts are currently more favourable. With the increase in potential supply, Asian buyers are looking to pay prices closer to the North American gas prices from where the fuel is produced. A large long-term risk for the ultimate development of Canada as an LNG export hub is likely an extended standoff between potential sellers and buyers of the gas resources, allowing other nations to continue to advance their LNG export projects ahead of the proposed LNG Canada terminal, thus leaving Canadian gas producers in a buyer's market, with the global LNG trade already saturated.

APPENDIX – DRILLING ACTIVITY ASSUMPTIONS

To arrive at our well activity and spending forecast a large number of key assumptions are required. We outline the key assumptions made in our LNG forecast in Exhibit 35 and further discussion below.

Exhibit 35 – Key Assumptions

ASSUMPTIONS						
<u>Development Ramp Up</u>						
Pre-production D&C (% of throughput)	1	200%				
Pre-production D&C (# years)	2	4 to 5				
Production D&C (% of throughput)	3	100%				
Transport loss/consumption	4	12%				
Required wellhead production	5	114%				
<u>Well Production</u>		YR 1	YR 2	YR 3	YR 4	YR 5
Montney well (mcf/d)	6	3,961	1784	1111	790	605
Annual production decline			-55%	-38%	-29%	-23%
						-20%
<u>Development Mix</u>		2019	2020	2021	2022	2023-26
% Montney	7	100%	100%	100%	100%	100%
<u>Well Cost</u>						
Montney well (\$mln)	8	\$4.7				
Cost inflation (2019-2026)	9	5%				
<u>Notes</u>						
¹ Required production in place before LNG facility is operational, i.e. a 1 bcf/d facility would need 2.0 bcf/d of feedstock available at start up.						
² Timeline of predrilling activity, i.e. number of years prior to start-up that E&P activities commence. We use five years for larger projects (>1.0 bcf/d)						
³ We assume a 100% replacement ratio for the volumes sent to the facility over our time horizon						
⁴ Based on Canadian LNG project proposals, ~8% of feedstock gas will be used as fuel in the conversion to LNG as well as further transmission loss to get to facility. Various company reports and CERl estimates put the total loss between 10% - 15%						
⁵ Resultant wellhead production based on 12% transport loss/consumption: = 1 / (1 - 12%)						
⁶ NBF estimates based on Groundbirch production; includes 10% gas shrinkage						
⁷ We assume all of the production for LNG Canada will be sourced from the Montney						
⁸ NBF estimate based company reports from 9 major E&P's active in the Montney						
⁹ We assume services costs rise 5% per year from 2019 to 2026						

Source: Company reports (including BIR, KEL, NVA, VII, POU), CERl, NBF analysis

We assume 200% of required output capacity will be drilled and completed by the time a plant becomes operational over a period of four to five years prior to first gas. This is perhaps the most significant assumption in our analysis as it determines the magnitude of work for energy service providers ahead of LNG facility commissioning, and the timeline for which the impact will be felt. As a proxy measure, we looked to onshore LNG projects in Australia which are much further along in the process to gauge the level of “pre-operations” activity that actually occurred. For the Australian on-shore projects the source gas is coal-seam gas (CSG, similar to Canadian coal-bed methane, or CBM) which differs considerably¹ from LNG-targeted unconventional gas reservoirs in NE BC / NW AB. As such, we recognize the comparison is imperfect, but likely directionally correct. Based on our review of Australian CSG projects, we saw that development activities commenced in the range of four to five years before expected completion of the infrastructure. As specific comparables we considered Curtis Island LNG and Australian Pacific LNG and further assessed the appropriateness of our pre-operation drilling assumption with Canadian industry participants.

¹ Production from a typical CSG well increases over an initial period as water is pumped out and then declines on a shallower curve than shale gas in BC

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Aecon Group Inc. is a client, or was a client, of National Bank Financial Inc. or an affiliate within the past 12 months.

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National Bank Financial Inc. or an affiliate has received compensation for investment banking services from Black Diamond Group Ltd. within the past 12 months.

Black Diamond Group Ltd. is a client, or was a client, of National Bank Financial Inc. or an affiliate within the past 12 months.

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National Bank Financial Inc. or an affiliate has a non-investment banking services related relationship with Birchcliff Energy Ltd. during the past 12 months.

Birchcliff Energy Ltd. is a client, or was a client, of National Bank Financial Inc. or an affiliate within the past 12 months.

National Bank Financial acted as financial advisors to Birchcliff Energy Ltd with respect to the Acquisition of Encana Corporation interests in the Gordondale area.

National Bank Financial Inc. has acted as an underwriter with respect to Black Diamond Group Ltd., Birchcliff Energy Ltd., Bellatrix Exploration Ltd., Encana Corporation, Enerflex Ltd., Iron Bridge Resources Inc., Leucrotta Exploration Inc., North American Energy Partners Inc., Pembina Pipeline Corp., SNC-Lavalin Group Inc., STEP Energy Services Ltd., Stelco Holdings Inc., Tourmaline Oil Corp. and TransCanada Corporation within the past 12 months.

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National Bank Financial Inc. or an affiliate has managed or co-managed a public offering of securities with respect to Bellatrix Exploration Ltd. within the past 12 months.

National Bank Financial Inc. or an affiliate has received compensation for investment banking services from Bellatrix Exploration Ltd. within the past 12 months.

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National Bank Financial Inc. makes a market in the securities of Encana Corporation, at the time of this report publication.

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Additional Company related disclosures for Horizon North Logistics Inc.

The analyst attended site visit to Kamloops, B.C. on October 25, 2017. No portion of the analyst's travel expenses were paid for by the issuer.

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Additional Company related disclosures for North American Energy Partners Inc.

National Bank Financial Inc. has provided investment banking services for North American Energy Partners Inc. within the past 12 months.

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Additional Company related disclosures for Stelco Holdings Inc.

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Stelco Holdings Inc. is a client, or was a client, of National Bank Financial Inc. or an affiliate within the past 12 months.

The analyst attended a site visit to Hamilton Work facilities & Lake Erie facilities on October 5, 2017. A portion of the analyst's travel expenses were paid for by the issuer.

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