



PIERIDAE ENERGY NEWSLETTER



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CEO UPDATE—A PATH FORWARD FOR THE COMPANY DRAWS NEAR

As mentioned in my December 20th email, we continue to make progress with the Strategic Review and a further update will be provided early in 2022.

The tentative town hall set for the 22nd of December was cancelled as we did not have any further, pertinent details to share with you. Beyond that, we must follow the rules that apply to a publicly-traded company like Pieridae when it comes to releasing details to staff that have not first been shared externally through a formal news release.

During the November 25th town hall, Darcy, Adam, Michael and I discussed how the Strategic Review has progressed. Since then, we have worked diligently with many within the company on three parallel workstreams:

- Conducted a formal process to sell some or all of Pieridae's assets or the company itself through the guidance and support of Peters & Co.,
- Analyzed a number of recapitalization enquiries from parties interested in refinancing our existing debt, providing new equity or a combination of both. These items are being negotiated by management outside the Peters' process; and
- Held ongoing discussions with our existing lender, Third Eye Capital (TEC), to allow Pieridae to continue improving the business and repairing the balance sheet with their support.

We are happy to say that since the last town hall, each of these workstreams has progressed. We remain confident that a conclusion to this process is taking shape, though it's difficult to say when that will happen as these processes often

take longer than we all might think or hope.

The Review was launched back on July 26th. Since that time, a group of roughly 20 Pieridae team members along with Peters & Co. spent a lot of hours preparing a very detailed information package or 'teaser' to position the company in the best light possible, with the goal of attracting the most interest in the firm in order to ensure we receive the best outcome for both shareholders and employees.

This information package was shared with more than 400 potential investors and buyers as we launched the bid process in mid-October. Presentations were made to about two dozen parties, questions were received and answered, and multiple visits made to our large data room. The bid deadline was November 17th, leading to about 10 parties putting in notices of interest. The list was then narrowed down to three bids and we asked these companies to refresh their bids.

On the refinancing side, we have two organizations that we have spent a lot of time with us over the last four months. It's been very slow and difficult some days, much faster at other times. But I would say with both of these potential solutions, and even if you go back to when we were first focused on the LNG Project, the whole gambit relied on being able to bring in new capital to fill our three gas plants.

If refinancing is successful where we would end up with an interest rate below 10%, this would save Pieridae between \$15 and \$20 million dollars a year which could be invested back into the business.



CEO Alfred Sorensen

Our goal is to have a firm path forward as soon as we are able so that everyone knows where we are headed. At the very least, we have already begun discussions with Third Eye to further postpone the term loan deferred fee payment due on the 4th of January, 2022 and to continue working with them to find the resolution that fits everybody's needs.

Regardless of the outcome, we will see Pieridae continue its operations for the foreseeable future.

Watch for my year-end podcast discussion and companion blog that will be released shortly.

Thanks for your patience during this process. I recognize it has been a stressful time but we are confident we are approaching a conclusion, one we remain hopeful is beneficial to all.



Q3 TOWN HALL SUMMARY

Alfred began the town hall with an overview of the Strategic Review process, details of which are provided off the top of the newsletter in his CEO update.

Beyond the Review, he felt the two most important things that have occurred so far in 2021 are completing two major turnarounds while maintaining relatively stable production at around 38,000 boe/d.

We expect to have a very strong finish to the year, he added, with guidance for net operating income forecast at the higher end of \$85 to \$100 million dollars, a significant improvement from where Pieridae was at the mid part of the year.

The Shell assets transfer issue remains front and centre. Pieridae and Shell decided in late September to ask the Alberta Energy Regulator (AER) for, and did receive, an extension of the adjournment of the licence transfer

process until January 31st, 2022. Both companies felt additional time was needed to allow the Strategic Review to finish.

Alfred added the transfer remains difficult with two primary issues needing to be resolved for the AER to approve it. First, we must financially strengthen Pieridae so the regulator feels we have the ability to manage our business successfully.

“What is really going to be the key part in the AER allowing this transfer to occur is for the regulator to see there's a long term plan for the development of the Foothills assets and that is the principal reason why we continue to look at whether LNG is going to remain part of our long term strategic plan,” said Alfred.

COVID is still putting a strain on us all and the business but the CEO's goal of getting people back in the office as soon as we have the restrictions lifted on mandatory work from home remains.

Chief Operating Officer Darcy Reding began his operations update recognizing our strong health and safety performance, while offering kudos to Jason Billick and team, along with the oversight of Mark Weiss, as 250 individuals worked closely together to successfully complete the Caroline turnaround, with the only ‘injury’ being a bee or wasp sting!

He highlighted a year-over-year low production decline rate of just 2.5%, something he called ‘a fantastic outcome’ where normal decline would be in the range of 7% to 10%. This was directly attributable to the optimization work using a very small amount of dollars to achieve a large, successful conclusion.

Darcy mentioned the great work our geotechnical and engineering teams completed in a very short period of time to pull together a drilling program with 222 net locations. An additional 430 locations were identified, located on land where we would have to purchase mineral rights to then drill. So, an opportunity to grow our assets, fill the gas plants and make our business more efficient.

“I think we're starting to see the fruits of our labours when we look at the process improvements and the techniques that we've changed in the last six months or so,” says Darcy. “We've really nailed down our monthly process. We know exactly where we're going when we do have variances as compared to our expected business results - we know what is driving those variances. And as we gain a better business understanding, we're getting a better handle on what drives value. We are seeing very little surprise in our monthly results now, so those are all fantastic outcomes, which are a culmination of the improvements to the business processes that we've implemented.”

We expect to have a very strong finish to the year, Alfred added, with guidance for net operating income forecast at the higher end of \$85 to \$100 million dollars, a significant improvement from where Pieridae was at the mid part of the year.



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Q3 TOWN HALL SUMMARY — CONTINUED



In his update, HR Director Michael Bartley reminded us all we are dealing with uncertain times and pressures in the business, which some of us may have never experienced in our career. That, ultimately, creates tension and stress.

“Everyone has their own way of dealing with that. How I deal with it is to focus on what I can control - doing my job to the best of my abilities. The things that I can't control or influence – they still may worry me - but I move them over to the side and compartmentalize them so that the tension doesn't take over,” says Michael.

He reinforced that this is the time to be compassionate to our colleagues and be supportive of them. One of the comments Michael said he is hearing is people may have a perception that there is a hiring freeze. That is not the case with many critical roles having been filled.

He adds there is a process when someone departs where the company reviews its business needs and as that happens, the question is asked: can we reallocate some of those responsibilities? Leaders are asked for their feedback and he encourages this to happen in all areas of our business.

That said, Michael acknowledges good opportunities are becoming available in the broader energy sector and beyond, leading to people moving on. A positive sign is that Pieridae has been able to attract quality individuals to backfill these roles.

Finally, many staff wondered if there will be a compensation review next year. Michael confirmed there will, indeed, be

a review as leadership recognizes the job market is beginning to heat up. The overarching goal is to make sure Pieridae remains competitive in attracting and retaining talent in the market.

Over to Pieridae's finances, where Interim Chief Financial Officer Adam Gray commented Q3 2021 was an 'as-expected quarter', which is a good result. He is happy with the company's forecasting processes and the communication of our results on a monthly basis.

Hedging continued to have a negative impact on Pieridae's revenues in the third quarter, with the company receiving 35% less for its natural gas than the market rate. Every company hedges to protect itself but Pieridae was bound for much of the year to a strict covenant by our primary lender to hedge 60% of its production. This covenant has been relaxed somewhat, with our hedge program rolling off at the end of October. Going into the winter months, we're roughly 25 to 30% hedged, and that continues into 2022, so a much better opportunity for Pieridae to take advantage of stronger commodity prices.

In the third and fourth quarter, we're now expecting \$20 million more revenue because of these higher prices, so, a real positive story, says Adam. And that directly impacts Pieridae's ability to pay its vendors which has been a sore spot for a number of months.

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Q3 TOWN HALL SUMMARY — CONTINUED



“Now, through our own cash generating abilities, our own assets are going to allow us to solve this problem over the next few months,” says Adam. “I don’t want to be specific on the number of months it will take, because it’s really dependent on commodity prices. If they start to soften a bit, it might take a couple extra months, but I’m very comfortable that by the spring, we’re going to be in a much different liquidity position.”

Adam points out, as a commodity-based business, we have to pick where we think commodity prices are going to be next year in order to set a budget. The levels Pieridae chose are on the high side, but the company has built a lot of cushion into its budget to manage that. So, if prices come down, Adam feels we’re not going to run into the same problem we ran into last year.

He believes Pieridae will be cashflow positive in Q4 and in every quarter of 2022, which means we’re going to make more money than we spend.

“We will actually make a profit next year, which is the first time I think we have in a long time,” concludes Adam.

“If they (commodity prices) start to soften a bit, it might take a couple extra months, but I’m very comfortable that by the spring, we’re going to be in a much different liquidity position.”

- Interim CFO Adam Gray





CAROLINE TURNAROUND—A BIG SUCCESS!

The majority of us rely on natural gas every day to cook our food, heat and cool our homes and workplaces, and produce electricity so we can surf the internet or watch TV.

At Pieridae, we own and operate three large gas complexes that process and provide this fuel to consumers so the safe, reliable operation of these facilities is vitally important. And as they run 24 hours a day, 365 days a year, they must be maintained. Part of that maintenance includes regularly scheduled plant turnarounds or scheduled shutdowns set by the regulators, repairs that cannot occur while the facilities are operating.

Our company had a successful turnaround last spring at the Jumping Pound facility and it was the Caroline Gas Complex's turn for a turnaround in the fall.

Mark Weiss is the Caroline facility's superintendent. With more than 20 years of industry experience, Mark has participated in and led numerous turnarounds over the years – he thinks in the range of 15 – so he knows what it takes to deliver a successful shutdown based on his track record.

The work to be successful begins 18 months before the turnaround begins. A centralized group led by Jason Billick arrives at the site, analyzes what repairs are needed and starts to pull together a plan.

“We need that turnaround group to do this planning and coordination work because the folks at site are busy dealing with the day-to-day tasks of maintaining and operating a very complex natural gas processing facility. It would be overwhelming for staff at-site to do this work and you would not set yourselves up

for success,” adds Mark.

For the 30 days it takes to complete a turnaround, the number of people needed to do all the work is quite staggering. Normally, you would have 60 to 80 people working at site. During a turnaround, that number balloons by 75% to 250. Layer in everyone switching to either a lengthy day or night shift and you have a scenario Mark best defines as a sacrifice by all involved.

“You have folks generally working five, eight hour days, 40 hours a week to going into a 30 day window where it is a 12 hour shift,” says Mark. “And some of those individuals are going onto night shift. If you're in a coordinator role, you're working a 13 hour shift. And so that's 30 days straight with no days off and 13 hour days. Yes, they are paid well for the overtime but it's long hours away from their families, being involved in work that is extremely dangerous. Anytime you're taking a gas plant apart, there are so many hazards where everyone involved needs to have their mind on the task while looking out for one another. To pull that off over a one month time frame and to do it safely, it's a lot of pressure. There's a lot of expectations and it is very demanding on everybody.”

You must watch fatigue and ensure no one burns themselves out. It's a huge risk. And a big part of that goes into looking for that prior to the turnaround and having the right people in the right roles.



“We need that turnaround group to do this planning and coordination work because the folks at site are busy dealing with the day-to-day tasks of maintaining and operating a very complex natural gas processing facility.”

*- Caroline Facility Superintendent
Mark Weiss*

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CAROLINE TURNAROUND — CONTINUED

"I'm extremely lucky here at this site, in that I have so many folks that are incredibly professional, incredibly diligent, and they are more than willing to step up and do the right thing and put in the hours, put in the effort and work to keep each other safe," adds Mark.

"The overarching point to remember is that everyone is focused on doing a good job. And when folks get tired, you can have conflicts, you can have personality clashes, but I think it's a matter of stepping back and realizing that everybody is trying to do the right thing."

Even with this disciplined approach, Mark says he has seen some high potential near misses many times over the years. Luckily, nothing extremely serious but it can happen in the blink of an eye every time you go into these turnarounds, and that is the number one on your mind, any day you could come in and something could happen and someone could be injured or worse.



During this latest turnaround, the only first aid incident on site was dealing with a bee sting, something Mark says he'll take any day of the week.

"And that's, I think, a fantastic feather in the cap for everybody that was here on site to manage that high risk work and not have anything more significant than that happen," says Mark.

It's also important to point out that Mark managed this shutdown during a time where he's witnessed a significant amount of turnover at site, especially in the operations group. So, the team had to rely heavily on the small minority of folks who had been at Caroline for a number of years to watch over the new operators. Some were new to the industry - hadn't even worked in oil and gas prior to this - and now they're in the middle of a turnaround, in the middle of all the intense activity.

Adding to that intense atmosphere, the team was informed two weeks prior to the work beginning their budget would be reduced by almost \$2 million dollars. This led to a significant amount of review and addressing the project's scope and, obviously, the need to remove some work to meet those requirements.

"So, going into this turnaround, there was a lot of flux, a lot of churn. And when you make those changes, the organization feels it, that people feel it, specifically operations, more so than any other area. They're running these plants 24/7 so they know all these things that they would like to see fixed and should be fixed. But safety was never compromised."

If this challenge wasn't enough, there's more. Mark has become used to operating a gas complex during a pandemic. In the spring of 2020, he and his two other

superintendent colleagues had to come up with plans to operate Pieridae's gas plants when COVID struck in two hours. They did it so one would think managing a turnaround during COVID would be old hat. Let's have Mark answer that.

"Yes and no. We thought we were prepared. We did have protocols in place. All our contractors and vendors were aware. The curve ball that got thrown at us was the upswing in cases in Alberta and restrictions being stepped up by the provincial government the week prior to turnaround getting started. So, we did have to implement some other policies, some other practices to keep folks safe. At the end of the day, we did have three individuals test positive during turnaround, test positive for COVID, none of which we could attribute to transmission at site, which is a huge feather to cap for everybody, for following the protocols and looking after one another and doing what they needed to do to keep everybody safe."

He adds the other outlier was going from 60 to 80 folks at site daily, people you know and trust, to now where more than 100 'strangers' are introduced to the organization that you need to incorporate into your turnaround protocols. And hopefully they respect and follow them, which Mark says they did.

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CAROLINE TURNAROUND — CONTINUED

“We had what we call ‘trailer town’ at turnaround. It's portable trailers where folks go in for their breaks, sits down to eat lunches and have their coffee breaks, have their morning meetings, safety meetings, tailgate meetings, all those types of things with multiple interactions every day of anywhere from 10 to 50 plus people. And the fact we went a month and we're able to navigate COVID safely is just a testament to everybody looking out for one another and doing what they needed to keep safe.”

‘Safety First’ is Pieridae’s motto, something that drives the decisions you make, especially during a pandemic where you must react, bring in new policies to deal with it and adjust when people do become ill so you have the individuals at site to fill the gaps and keep the plant operating safely.

Then, there’s the difficulties and distractions around staff who believe in vaccination and those who don’t.

“That’s starting to percolate up and become somewhat of a distraction, at times,” Mark feels. “And it's certainly something that we need to manage and make sure everyone respects each another and has a right to their own opinion. But at the end of the day, we need to make sure that we're doing, what is needed to keep these places running, not only for the shareholders, but also for the employees here who rely on the work to care for their families.”

More than that, he says he has learned a complex gas plant can be run with a somewhat hybrid model of working at the facility and working off site. His team has demonstrated this model can work. But as many have found, the positive aspects of

working remotely can be offset by the isolation and pressures some are feeling.

“Every day. Every day. It is a significant amount of pressure on all the folks to keep their families safe at home. Ultimately, it’s about respecting one another and understanding that everyone has a right to their own opinion. We must focus on keeping each other safe and learn to work together while having those differences of opinion,” concludes Mark.

Through a pandemic, budget constraints and the pressures of completing a complex task in a timely manner, those differences were respected and a commitment to safety never wavered, ultimately resulting in a job well done by all.





AER LICENSE TRANSFER UPDATE

As we have done in the last few newsletters, a further update now on progress to transfer Shell's Foothills assets licences to Pieridae.

Last May, the Alberta Energy Regulator (AER) sent Pieridae and Shell a letter informing us it has decided to hold a hearing to deal with the re-application for the licences transfer.

In early July, Shell sent a letter to the AER asking for a pause in the process due to Pieridae announcing it was moving the Goldboro LNG Project in a new direction as cost pressures and time constraints due to COVID-19 have made building the current version of the Project impractical.

The AER granted the request to adjourn the hearing on July 20th and the process is adjourned until September 30th, 2021.

In late July, Pieridae announced the Strategic Review process to identify, examine and consider a range of alternatives with a view to enhancing shareholder value. Considering our company's ongoing efforts to examine these strategic alternatives, Pieridae and Shell jointly determined that additional time is required to fully consider how this may affect the current licence transfer application.

A letter was then sent to the AER in early October asking for an extension to the adjournment of the licence transfer process to the end of January 2022. That request has now been granted.

When we purchased Shell's assets, all vital employees came over to Pieridae so we have their skills to operate the assets safely. We also have a strong, internal team with years of experience to support them and many of the practices used at Shell are still being used at Pieridae where safety remains job one.

Our company owns and remains responsible for the continued safe operation of the Foothills assets, Shell remains the licensee of record.





UNIQUE CARBON CAPTURE & POWER PROJECT PUSHES FORWARD



Experts feel we won't achieve net zero GHG emissions by 2050 unless we use technologies such as Carbon Sequestration, Utilization and Storage (CCUS) on a large-scale. CCS is the process of capturing carbon dioxide (CO₂) formed during power generation and industrial processes and storing it so that it is not emitted into the atmosphere.

At Pieridae, we are doing our part by advancing the Caroline Carbon Capture Power Complex. This large-scale CCS and blue power production complex will be located at our Caroline Gas Plant in Alberta.

The Complex will capture and store underground up to three million tonnes of CO₂ annually produced by the gas processing facility, power production at site and third parties. That is the equivalent of taking more than 650,000 cars off the road each year or eliminating

4.4 billion kilowatt-hours of coal-fired power annually.

The underground depleted gas reservoir that will store the carbon has enough capacity to sequester up to 100 million tonnes of CO₂ over three-plus decades.

This initiative positions Pieridae to play a key role in helping to lower overall Canadian greenhouse gas emissions. By capturing and storing carbon on such a large scale, we move further down the strategic path of ensuring our company is net carbon negative.

Business Development Engineer and former Project Lead Hesanka Garusinghe did a lot of the heavy lifting for the project before leaving the company recently. He pointed out to James in a recent podcast what sets Pieridae apart with its CCS project is that the company will reuse and repurpose existing infrastructure at Caroline. But what a lot of people don't know is this project was originally proposed by Shell, where Hesanka used to work.

"It was close to five years ago when Shell started looking at how could they make the Caroline Gas Complex fit for the future and deal with emissions regulations," says Hesanka. "So, they analyzed potential options, including CCS, but at that time, there wasn't enough government policy certainty to pursue that option. But they did do a lot of detailed work on a similar project and had progressed it quite far to where half of the work needed was completed."

Hesanka says Pieridae's initiative is an exciting opportunity and he was grateful to lead it in the development stage.

"We're trying to build up to a gigawatt of power generation, clean power generation, and then up to three million tons of CO₂ stored underground. The project includes a combined cycle, gas fired power generation unit, where its emissions are captured and the resulting clean power is both used at site and also sold to the Alberta grid. You are also capturing the CO₂ produced from the gas processing facilities. So, we're going to start with phase one which is a smaller, 100 megawatt unit power generation unit."

Hesanka reminds us most Albertans get their power from coal fired plants. Once those plants are retired, which the provincial government is commitment to doing by 2023, or even once the coal plants are decommissioned, the majority of the province's power will still come from older natural gas-fired facilities that do not have a CCS component. So, he adds, the entire Alberta grid is essentially not as efficient or cleaner than the power component of Pieridae's initiative - your output is both clean power and green natural gas and liquids coming out of the plant.

The CCS Project will capture and store underground up to three million tonnes of CO₂ annually produced by the gas processing facility, power production at site and third parties. That is the equivalent of taking more than 650,000 cars off the road each year.

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UNIQUE CARBON CAPTURE & POWER PROJECT PUSHES FORWARD

With the Canadian Government recently committing at COP26 in Glasgow, Scotland to stronger emissions restrictions for the country's oil and gas sector, your ability to limit or eliminate emissions across the value chain becomes paramount.

Hesanka has done his research, analyzing other projects such as the Alberta Carbon Trunk Line, Saskatchewan's Boundary Dam CC Project, and Shell's Quest initiative. All have provided helpful insight and data through the Alberta and Canadian Governments used to progress Pieridae's venture.

"You're able to calibrate some of your cost side and some of the concepts on the capture side, transportation and storage to be able to create a more credible project. That's where, for example, Shell's Quest project gave some indications on dollars per time, and then you were able

to compare and calibrate to make sure you're within similar numbers so it all makes sense. And then the Boundary Dam project in Saskatchewan, where it was using some of the same capture chemicals we would use, which gives a good performance analysis of an actual operational project," explains Hesanka.

He adds the next important step is an updated feasibility study to gain a good understanding of project costs and how to best achieve the CO₂ capture and sequestration that you want to do. The good news here is that money to complete this study is part of Pieridae's 2022 budget.

Hesanka continues to cheer on the Caroline Carbon Power Complex initiative and the opportunities it would provide.

"There is the opportunity to produce a gigawatt of clean power where most of it

could be added back to the Alberta's grid and clean that up," says Hesanka. "I know the Alberta Government is looking at potentially 2035 to have a clean electricity grid, right? So, I think that would definitely help in the short term to get there faster and as a reliable base load source of power to support renewables.

"Pieridae already has a great transmission and distribution infrastructure at the Caroline plant that would be advantageous to upgrade rather than looking at other sites where you'd have to do a lot of upgrades. And our project location itself is very central to Alberta. So, that's where, we could help other industrial facilities and other power generation facilities sequester their CO₂. That gives a lot of capacity to build that grid or a hub that can help others be able to lower their emissions and become clean operations as well."





LNG UPDATE: ANALYSIS OF POTENTIAL FLOATING LNG OPTION CONTINUES



project at Pieridae continues.

In our last newsletter, LNG SVP Andy Mukherjee talked about different technologies available to build a floating facility. Since then, he has done a lot of research to see if such a project makes sense off the coast of Nova Scotia where Pieridae owns land on the shores of the Atlantic ocean.

As our CEO said during the recent town hall, LNG remains an important part of the world's energy mix and finding a way to be able to participate in that with a much smaller project than was contemplated before, one that is a lot more feasible and less financially burdensome to the company.

When you look at it from a gas production perspective, somewhere between 200 and 400 million cubic feet a day of production would go to the new LNG facility. That would support a project 75-85% smaller than the original Goldboro LNG – something in the range of 1.4-2.8 million metric tonnes per annum.

All this said, CEO Alfred Sorensen says one fundamental caveat to any development applies:

“We will not restart this LNG project unless we find a partner,” affirms Alfred.

“Certainly, when you look at natural gas prices worldwide, they remain very high. If you were to look at our original project back over the last 10 years that we've been working on it, a price of around \$7 per MMBtu was our break even number

with roughly a 20% rate of return. The market view is that natural gas will continue to play a very large role in the energy transition and, as such, there's a significant shortage of natural gas worldwide. That's why we continue to see such high pricing. So, this is the primary reason why we continue to have interest in the fact that there is still a significant financial opportunity on the LNG side. It's really about determining how we can continue to participate given the size of our company.”

Alfred says he and a couple others are working quite hard at finding a partner for the Project. A more recent global development, he adds, is the fact that the European governments are now looking at how they could help build a project in Europe and or here in North America. If Uniper, our German LNG customer, had given us \$100 million five years ago, the Goldboro LNG project, he feels, would almost be fully built today.

He concludes that lack of financial support from our European partner was one of the reasons why the project never really got anywhere.

LNG prices have hit \$34 per million British thermal units in recent weeks compared to just under \$2 MMBtu in May 2020, while European gas prices have catapulted 300% higher this year.

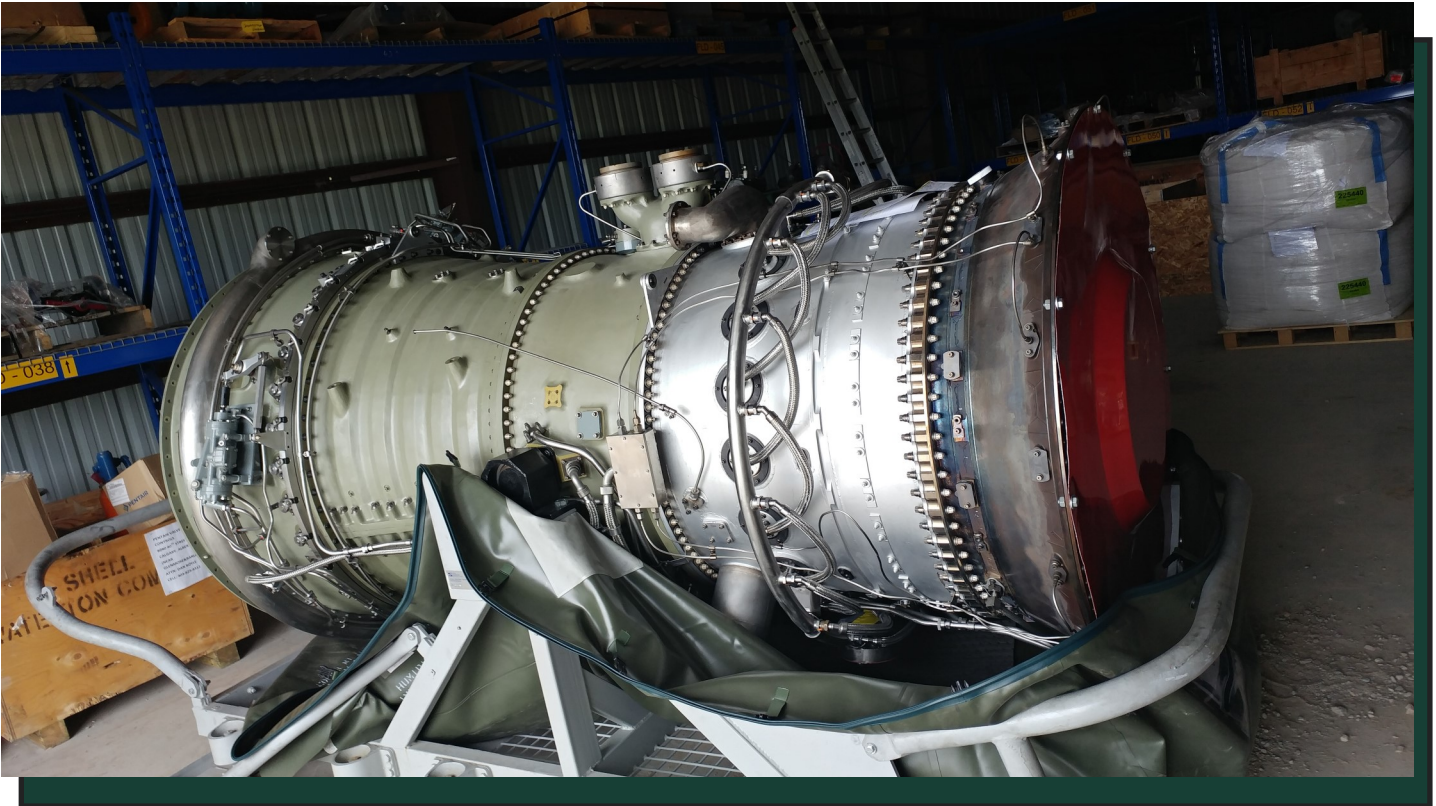
In less than a year and a half, liquefied natural gas prices have gone from record lows to record highs. The market dealt with COVID's impact and that then changed to figuring out how to keep up with the current unquenchable global thirst for LNG as countries scramble to secure reliable sources of energy.

To put things into perspective, LNG prices have hit \$34 per million British thermal units (MMBtu) in recent weeks compared to just under \$2 MMBtu in May 2020, while European gas prices have catapulted 300% higher this year.

This scenario isn't expected to end any time soon and provides the backdrop as the analysis of a potential floating LNG



JET ENGINE POWER USED TO PRODUCE NATURAL GAS AT WATERTON



When you think of jet engines, you probably visualize large airplanes and all the power they use to get off the ground and fly. How about jet engines used to produce natural gas? It seems a little far fetched but these engines are crucial to produce this fuel many of us rely on every day.

At our Waterton Gas Complex, you'll find an engine similar to the ones you see on jet airplanes and it is incredibly important to operations at the facility. This engine is nearly the exact same as a Rolls Royce jet engine, with 26,000 horsepower, that's more horsepower than 80 Ford F-150 trucks combined! It's used to keep all the pressure in check in the pipelines at the Waterton facility to make sure gas gets to market. Large swings in pressure up or down could lead to inferior products being processed and produced, or, even worse, safety issues from fires to explosions.

The engine is so critical to the Waterton plant that if it isn't up and running, the plant would be down for the count. This would lead to not only large impacts on the company but to our customers relying on our products. The plant produces around 2500 E3M3/D (thousand cubic metres of gas a day, the equivalent of 2,500,000,000 litres) that flows into TC Energy's pipelines, which is then transported across Alberta and, mainly, into Montana. The plant being shut down for a long period of time would leave many consumers without the gas they need.

There are around 500 gas processing complexes in Alberta alone, and out of all of them, Waterton is the only one with this type of jet engine turbine installed, making the Waterton plant unique in using power from the skies in a 'grounded' approach to safely producing natural gas and other products for businesses and consumers. Now when you are ready for takeoff, you know the interesting connection a jet engine has with processing natural gas.



SOARING NATURAL GAS PRICES—WHAT DOES IT MEAN?

Energy markets have been in chaos. Some are calling it a world-wide energy crisis.

It has been a perfect storm: surging oil, coal and natural gas prices; long waiting lines at the pump in the UK; labour shortages; Russia's continued geopolitical muscle-flexing and, of course, the fear that the world is warming way too rapidly.

Then, layer in energy-price inflation that hurts then poorest the most, and scares up images of the 1970s where rising prices are combined with anemic growth – potentially causing the unthinkable of having to choose between heating your home or buying food.

There are those who feel this crisis is likely to make China and India more reluctant to commit to phasing out coal-fired power plants in the near-term. The current crisis demonstrates they need all the energy they can get, whatever the source. Which underscores the challenge of this generation: We must live, work and produce hydrocarbons the way the world functions today, while at the same time preparing for - and investing in - a much lower-carbon future.

Pieridae's Senior Vice-President of Marketing and Business Development Thom Dawson started in the energy business in the early 1990s and was an energy trader up to about 2002. During that entire time, he says he has never experienced anything like what we've experienced in the last three years: a pandemic and oil going to -\$30 dollars a barrel. What used to take a decade is being compressed into months right now.

Thom feels natural gas prices are going to be at the highest levels Europe has ever seen on a sustained basis. It comes down to a couple of things: COVID has really affected the supply situation over the last two years due to the fact the global energy business is a conveyor belt. You must keep spending capital and finding new resources to produce to cover off the declines that every company experiences with their production. And that did not happen for the last two years.

But the other side of the coin, which Thom feels is not politically correct to say, is that as we've started to reach for these green economies, one of the side effects has been that we've made the energy system we all rely on much more fragile.

“When we get large price increases, five years ago, countries would have just turned up all the coal-fired plants. Many just don't exist anymore. So, we may get through all of this to a much greener future in 2050. But in the meantime, we're making the energy systems much more fragile. That means we'll be less immune to shocks to the system.”

As mentioned earlier, these issues tend to compound on one another. Higher energy prices mean higher high food prices, less money in our pockets and more pressure on lower income families. Thom sees these impacts rippling through economies all around the world.

Will this crisis have an impact on politicians, and the policies that they put

in place as countries move rapidly toward renewables and away from fossil fuels? Thom believes when people's income levels and standard of living starts to decline because of the cost of energy, then you'll start to see changes at the ballot box.

We haven't seen much discussion in Canada about all of this. But as our country firmly embraces the goal of net zero emissions by 2050, what is occurring globally right now may lead to a pause as officials analyze the best way to navigate the pathway to carbon neutrality.

The proposed timeline likely is not feasible.



Story continued on next page...



SOARING NATURAL GAS PRICES—WHAT DOES IT MEAN? - CONTINUED



We sit on 100 years' worth of energy infrastructure in Canada that was built at a time when you could still build energy infrastructure. To think we will replace that infrastructure in 20 years in today's regulatory environment just is not realistic.

And yet, we have a scenario in Canada where we can't seem to get our energy to market. Other countries such as Saudi Arabia and Qatar are more than happy to pick up the slack. Despite having the world's third-largest oil reserves, Canada imports oil from foreign suppliers.

Currently, more than half the oil used in Quebec and Atlantic Canada is imported from foreign sources including the U.S., Saudi Arabia, Russian Federation, United Kingdom, Azerbaijan, Nigeria and Ivory Coast. Between 1988 and 2019, Canada spent \$477 billion on foreign oil imports; Quebec is by far the largest importer of foreign oil into Canada, with \$225 billion in foreign oil imports since 1988.

Will the energy crisis gripping the UK, parts of Europe and elsewhere globally come to Canada? Thom's experience tells him oil prices will remain high, and that means increased inflation including here in Canada. Because Canada sits on a lot of energy, we'll have the option to be less affected, but we'll certainly be affected significantly. It's coming. It's just a matter of when, not if.

There's no point in looking at Canada as a closed system. If we're truly solving a global problem, you need to deal with it on a global basis. Having Canada optimize itself when it produces less than two per

cent of the world's emissions really doesn't do anything.

Canada can play a much bigger role in greening up the energy that's available to the world rather than trying to reduce its own emissions internally because we're not even a rounding error here.

That, of course, inevitably leads to the argument Canada must do its part. We can't abdicate responsibility, it's our responsibility to use our influence and hopefully convince countries like China and India to lower their emissions.

Thom's answer would be: "If you can get them to agree then it's going to work. If we look at India, who's just announced they currently import five billion cubic feet of natural gas a day, they have now publicly stated, they plan to take that to 50 billion cubic feet a day by 2035. They are simply going to create 50 Canadas in the next 15 years in terms of emissions. So, it's great to be a country trying to set an example. But if you can't be realistic, there's no chance in solving the problem."

We have a scenario in Canada where we can't seem to get our energy to market. Other countries such as Saudi Arabia and Qatar are more than happy to pick up the slack. Despite having the world's third-largest oil reserves, Canada imports oil from foreign suppliers.



HEDGING 101– PIERIDAE’S APPROACH

Here’s the challenge: you’ve got 30 seconds travelling down the elevator to explain to someone what energy hedging is. How do you do it? The simplest answer is: it’s a way to fix a price because everything we sell is a commodity of some type and has a lot of price volatility. Hedging is really a way to set that price and fix a company’s cash flows. This allows for more certainty to run the business.

There are several different ways to do it. But that’s the basic underlying premise. A company can’t completely control what its cash flows are going to be within a market pricing environment, but it can get rid of the volatility to better plan the business.

Earlier in the newsletter, our SVP of Marketing and Business Development Thom Dawson talked about the current volatility of oil and gas prices and the impacts of this global crisis. Hedging is one way to lessen that volatility. To understand hedging, Thom takes us back to the early 1990s when Canada’s energy industry was deregulated. Prior to that, in the 1980s when the National Energy Program was at play, everything was strictly regulated. Prices were set by government not the marketplace.

That all started to open up when deregulation happened. In Canada, provincial governments sold off their government-owned production companies and they invited in new capital through privately-owned firms to begin developing resources. This set off a huge boom and, without exaggeration, changed Western Canada, especially Alberta.

Thom just happened to be coming out of university at the right time

and got involved in the boom in the early 90’s. Most of that time was spent as a trader across several different companies. He traded everything from oil, natural gas, derivative products and currencies for the next 12 years.

As he moved up the corporate ladder, Thom became a Risk Manager for a couple of Canadian utilities, helping them put together hedging programs. And then in the early 2000’s, there was the stock market shock and the Enron collapse which really shut down the energy trading industry for about a decade. It’s just slowly creeping back now.

Once his trading days ended, Thom and Pieridae CEO Alfred Sorensen felt the LNG business was about to go through a similar deregulation scenario. At that time, it was an oligopoly where four or five supermajors and a couple of state oil companies controlled everything. The duo predicted LNG would start to open up similar to what had happened in Canada and United States on the gas side. So, they got involved.

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HEDGING 101– PIERIDAE’S APPROACH — CONTINUED

First, it was the Kitimat LNG Project in the early 2000’s, then onto the Goldboro LNG initiative in 2011. To supply the facility with natural gas, a series of acquisitions occurred in 2018 and 2019, leading to our upstream business today producing about 220 million cubic feet of gas a day.

That gas is sold every day and the price we can get for the gas varies daily and even at various points during the day. Hedging helps smooth out that daily volatility.

Here’s an example: Thom can call up a counterparty such as Capital Power, who produces a lot of power and burns a lot of gas. Both parties will agree on a particular price for a certain time period - whether it's one month, one year - and a certain volume of gas.

“There's always a double-edged sword to hedging activity. Let's just say today, we hedged at \$3, and a month from now, the price is \$4. Of course, we're saying we've got a \$1 opportunity cost we weren't able to capture,” says Thom. “If, however, the price went to \$2, you're then saying: ‘Thank God, we still did at \$3!’.” And that happens across your entire production portfolio all the time. So, whether it's gas, or our crude oil, or our sulfur, or our propane or butanes, every day, you've got to sell those commodities, and hopefully sell closer to the top of the market rather than the bottom.

“But as you sell, one of the most difficult parts is you'll start to create credit risk and counterparty risk. If I wanted to do a deal with a bank, say, like TD Bank who's pretty

big in that commodity trading space in Alberta, they will track their credit exposure to me,” adds Thom. “If they buy gas from me at \$3, and the price goes to \$6, now they get worried whether I'm going to deliver my \$3 gas to them. Because if I don't, they have to go replace it with \$6 gas. So, they will keep track of the differences between what the market's doing, and whatever agreements they have with us to buy or sell gas.”

That varied credit exposure gets calculated all the time with movement in the markets. What can often happen to producers in Alberta is if you get too far off-side on your deals, your counterparties will ask for a margin, basically, for you to provide them credit to make sure that if you do go under, they're hurt less when that happens.

“And that's usually what forces companies into bankruptcy,” says Thom. “Contracts normally include a clause that outlines if the price differential between the agreed upon price and the current market price is too wide, the supplier has to supply the counterparty with credit to get them within a certain risk range. And many firms don't have the balance sheet to cover those costs.”

The headline in a late October news story read: ‘Britain faces 'massacre' of 20 more bust energy suppliers, Scottish Power says’. In the article, it states Britain's energy market faces an absolute massacre that could force at least 20 suppliers into bankruptcy within a month unless the government reviews the energy price



cap there.

Natural gas prices have spiked this year as economies reopened from COVID-19 lockdowns and high demand for liquefied natural gas in Asia pushed down supplies to Europe, sending shockwaves through industries reliant on power

Around 13 British suppliers have collapsed in recent months, forcing more than two million customers so far to switch providers. Before the crisis, there were more than 50 small- and mid-sized independent energy suppliers in Britain with around a 30% share of the market. That may shrink to the market being controlled by five or six larger companies.

Story continued on next page...



HEDGING 101– PIERIDAE’S APPROACH — CONTINUED

Thankfully Thom and Pieridae won’t agree to putting in a margin cover clause in the contracts we sign to prevent this type of scenario.

Our company’s initial hedging program started when we acquired the Shell assets in October of 2019. As part of that transaction, we borrowed money to help purchase them. And in protecting its investment, the debt provider required that we hedge 60% of our production to ensure we can meet their monthly interest and mortgage payments.



“We did that initially and it worked out extremely well as we hedged before COVID hit and prices just crashed,” says Thom. “We managed to have much higher prices than what the market was at. And then as things started to settle down, we lifted some of those hedges.

“But as we’ve gone into this rising price environment, we’ve had to keep hedging our production to stay with the 60% commitment. So, when you get sustained rising prices like we’ve seen, which are generally good for the business, it does cause a lot of hedging losses.

“Our current calculation is the hedging requirement and that debt has probably cost us about \$80 million in foregone revenue that we would have otherwise received if we hadn’t have had to hedge so much of our production.”

Thom believes hedging 30-35% of your production is optimal, giving you the optionality of trading on the spot market for shorter time frames which should help your overall cash flow.

In the near term, if you’re highly hedged, you don’t have the ability to do additional transactions until the hedges some off your books. For example, if Pieridae had hedged all its October production at \$2 and the October price was \$4, that \$2 difference, counterparties will look at that as a potential loss if we don’t deliver the gas.

“If we came to them and said, ‘Now we’d like to sell some winter gas,’ they’d probably say, ‘We have too much risk with you right now on this \$2 to do any more transactions with you until October goes away. Once October goes away, that loss has not been realized, you sold us the gas, now we have capacity to trade with you again. And we can buy some fixed winter gas from you.’ So, we don’t have the ability to do the trades we would want to.”

Thom points out we lost a lot of our hedging activity at the end of October so we’ve kept a lot of winter open. But even the amount that we had to hedge is so far out of the money now that we won’t be able to initially get back any capacity with our counterparties.

That said, he is optimistic about what lies ahead.

Thom expects prices to continue to climb as the company is now better positioned with shorter-term hedges to take advantage.

“We’ve had to keep hedging our production to stay with the 60% commitment. So, when you get sustained rising prices like we’ve seen, which are generally good for the business, it does cause a lot of hedging losses. “

- SVP of Marketing and Business Development Thom Dawson



SPREADING AWARENESS OF A DARK PERIOD IN OUR HISTORY

On September 30th, Canada observed the first National Day for Truth and Reconciliation. This day is meant to raise awareness about the residential school system in Canada, bringing people together in the spirit of reconciliation and honouring the experiences of Indigenous peoples. The practice of wearing orange shirts on this day came from Phyllis Webstad of the Stswecem'c Xgat'tem First Nation.

She lived with her grandmother who took her shopping for a new outfit to wear on her first day of school in 1973. Webstad carefully picked out an orange shirt that was both bright and exciting, reflecting her feelings on going to a new school.

But when she arrived at St. Joseph's Mission Residential School, just outside Williams Lake, B.C., her emotions quickly went from excitement to terror when her shirt was taken away from her. The shirt represented a piece of home, a piece of her heart and life as she knew it. This would be the first of many atrocities and traumas she would experience during her year away from her home. Her story has inspired a movement to wear orange shirts on the 30th of September each year to spread awareness of this dark period in Canada's history.

Indigenous leaders called upon Canadians to continue to reflect and listen to the truth. This is something Algonquin Elder Claudette Commanda pleaded, "Take this beautiful gift we are offering you; learn, listen and we will walk together to turn this country into a beautiful country for all our children." Governor General Mary May Simon also commented on moving forward with truth and reconciliation, "As we strive to acknowledge the horrors of

the past, the suffering inflicted on Indigenous peoples, let us all stand side-by-side with grace and humility, and work together to build a better future for all."

As part of our commitment to strengthening relationships with Indigenous communities, we were proud to participate in the first National Day for Truth and Reconciliation several weeks ago. Many of our employees wore their orange shirts in solidarity and to show support for this day. The shirts were purchased from Redman Customs, an Indigenous local business operated by Chance Bellegarde. We were happy to support his venture in recognition of this day.

"I'm very proud of all the Pieridae employees who really took time to reflect, ask questions and demonstrate their support by wearing an orange shirt or taking part in an activity dedicated to the National Day for Truth and Reconciliation," said Indigenous Relations Manager Colin Anton. "This shows that not only does the Pieridae family care to do the right things, but that they also are starting a reconciliation journey that is based on compassion and empathy."

It's important to continue reconciliation past Orange Shirt Day. The company also sent out a helpful resource package to give employees a starting point for reconciliation and means to continue the conversation. This included book suggestions from Indigenous authors, reviewing the 94 calls to action, getting involved with Indigenous organizations and more.

Colin suggested if someone chose to read a book, some good choices include: 'Indian Horse', the story of a talented



hockey player who was taken from his family and placed in a residential school; Jonny Appleseed, a story about a two-spirited individual who must confront their past after the passing of their stepfather; or Indigenomics, a book on how businesses can better incorporate Indigenous points of view in their organizations, as a starting point in Indigenous literature.

Colin also suggested businesses take note of call to action 92 going forward. "This calls upon the corporate sector of Canada to build meaningful consultation and relationships with Indigenous communities," added Colin. "Include them in the economic development process and create equitable access for Indigenous training and opportunities."

Pieridae thanks all staff who participated in Orange Shirt Day and who continue along their own personal reconciliation journey.



Q3 NEWSLETTER

ORANGE SHIRT DAY

Thanks to everyone who participated on Orange Shirt Day!

Enjoy this collage of the people of Pieridae wearing their orange shirts in solidarity:





STUDENTS REFLECT ON TIME WITH PIERIDAE

As 2021 draws to a close, we tend to reflect on the accomplishments that we had throughout the year. For many departments at Pieridae, they saw success in mentoring summer students, giving them a taste of what their career may look like. We reached out to all students both in the field and in the office before they went back to school. Here is what we heard back:

Daniel Theal

Daniel was hired on as a Finance and Accounting summer student. This was his first chance to work in his field and had a bit of a learning curve to start, “I mostly dealt with spreadsheets and account reclamations,” said Daniel, “I didn’t really know how to use Excel very well when I first got here, but now I feel like I’m pretty good with it and have a much better understanding.” He credits an unusual source for his rapid learning of the program, “The great thing about Excel is that it’s very easy to Google what you need to know and become an expert,” added Daniel jokingly.

“I think getting exposure to a real job and getting that experience in my field is something I really appreciate about my time with Pieridae. Learning how the real-world works made me realize that I shouldn’t take my classes as how things are exactly done in business. Making that adjustment is something I will do going forward.”

Daniel is going into his third year of studies at Western in London, Ontario.



Daniel Theal



Cali Weasel Fat

Cali Weasel Fat

Cali spent her summer at Pieridae as an Indigenous Relations intern, helping Indigenous Relations Manager Colin Anton develop and implement the overall strategy.

“I looked into western views of Indigenous Relations and incorporated that knowledge into policies, so Pieridae can build a sustainable relationship with those communities,” said Cali. “There is lots of divide between the communities who do or don’t want these projects. There is a disconnect between them and some just don’t understand what exactly is happening, and it should be clarified.”

For Cali, this was a summer of growth.

“I really appreciate Colin and Thalia’s mentorship. They helped me a lot with my role here as well as furthering my understanding of myself and life,” she said. “I have worked in the industry for three years in a different role and I always felt like the humanity is sometimes lost in corporate culture. Thanks to both Colin and Thalia I will make a point to bring that humanity as my career continues.”

Cali is taking a pause on her studies and is set to start a year-long internship in Vancouver in a similar role.

Story continued on next page...



SUMMER STUDENTS REFLECT ON TIME WITH PIERIDAE — CONTINUED

Nathan Crow



Nathan Crow

Nathan’s summer at Pieridae saw him fill the Consultation and Regulatory intern role, as well as support the Indigenous Relations team.

“It was a lot of sitting through meetings with various technical teams and finding out if there were any needs for consultation and/or regulatory work,” said Nathan. “I was able to do so much learning in my time here. I knew next to nothing about this industry and how corporate jobs really work. I feel like I’m more setup for success now with all the work I did, the programs I used, and roles I was put into.

“Coming to Pieridae helped me make sure I was in the right program and gave me belief that I can succeed in my field,” added Nathan.

He highlights how great he feels the culture is at Pieridae. “The people here really made me feel welcomed, especially the drilling and completions team. The little things go a long way, like including me in their meetings and even just saying hi and chatting.”

Nathan will be going into his second year of studies at the University of Lethbridge in the Indigenous Governance and Business Management program .

Lacen Kabour

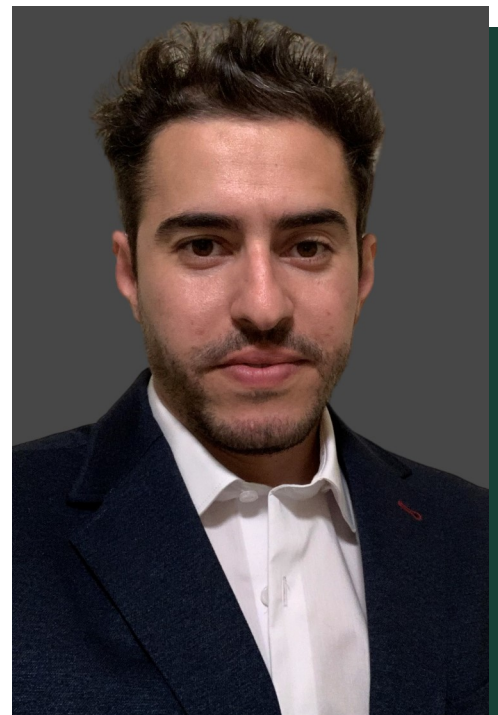
Lacen’s role over the summer was as a Production Technologist Intern. Brought on to help with the well summaries of the legacy assets, Lacen was pleased with what he was able to learn.

“This is the first time I had ever been exposed to oil and gas wells. I got good experience with daily production monitoring of the wells, and the regulatory aspects of the industry. I was even able to create databases for the company, like PCT and artificial lift databases. It was a good and busy summer for myself here,” he said.

“I appreciated everyday being with the company. I got to be exposed to a lot of challenges that fueled my passion for the tech side of the industry. Everything I learned here is helping me set up my career after school. It will all help guide me with my future aspirations.”

Lacen appreciated how helpful the people at Pieridae were. “The people I got to work with were great as well, everyone was so willing to jump in and help out. I just really enjoyed being around the people here.”

Lacen will be finishing up his Master’s in Petroleum Engineering at the University of Aberdeen all the way over in Scotland.



Lacen Kabour

Good luck to all of the students who supported Pieridae this past summer and much success in achieving all of their goals!



HR UPDATE

HUMAN RESOURCES & FACILITIES SHAREPOINT SITE

Our SharePoint site is the “Go To” location for all information related to human resources, payroll, benefits and facilities.

You will find the most updated documentation and forms, organizational charts, company policies, payroll calendars and links to benefit and payroll sites to name a few.

Please use the newest versions of forms posted on this site and delete any old forms that you may have saved previously.

HEALTH CARE SPENDING ACCOUNT DEADLINE

Your 2021 Health Care Spending entitlement will expire on December 31st,

2021 and the new entitlements will be added for 2022 in early January.

All 2021 claims on your health care spending account **MUST** be submitted by January 31st, 2022.

2021 VACATION CARRY FORWARD RE- PORTING

As per the company policy you may carry forward up to 40 hours of unused vacation to the following year. The new 2021 Vacation Carry Forward forms are now available under “Forms and Documents” on our SharePoint site.

Managers: Please have the employees in your group complete the new 2021 Vacation Carry Forward forms and email the completed forms to: hr@pieridaeenergy.com

All forms must be submitted by December 31st, 2021.

To visit our SharePoint site with all the important info you need, click [HERE](#)

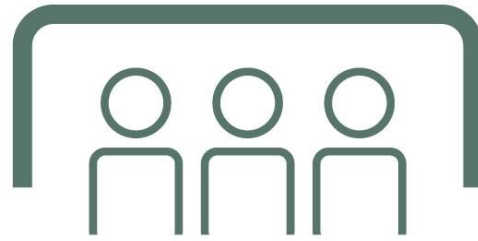




HR UPDATE - CONTINUED

ORGANIZATIONAL CHANGES

We would like to welcome all newcomers to our Pieridae family and thank those who have moved on for their contributions to Pieridae and wish them success in their future endeavours.



NEW TEAM MEMBERS

(September, October, November)

THOSE WHO HAVE DEPARTED

Name	Title
Vanesa Veres	Production Engineer
Shauna Norman	Joint Venture Accountant
Eric Travis	Production Engineer
Ken Doyle	Interim Lead, Production Engineering
Nancy Chau	Financial Accountant
John Emery	Operations Manager
Rhonda Johnson	Application Support Analyst
Andrew Richards	JP Maintenance Team
Kufre Edet	Sr. Scada/Network Analyst

Name	Title
Louis Catellier	Reliability Engineer
Airra Manalo	Junior Accountant
Alex Morash	Central Well Surveillance
Jamie Tokarchuk	HSE & R Coordinator
Trudy Nguyen	FDC Analyst
Mitch Wickenheiser	WAT Well Surveillance
Carolyn Normand	VP, Engineering
Hesanka Garusinghe	Development Engineer
Abraham Ojo	Sr. Scada/Network Analyst
Lumuno Mutungu	JP Operator
Leighanne Mohr	HSE Regulatory Manager
Carter Evans	Sr. Treasury Analyst

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