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ENERGY



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# ENERGY INSIGHTS

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Energy security is becoming an increasingly important pillar of the energy trilemma

## Oil and gas industry must rebalance energy trilemma

**Covid-19 and the war in Ukraine have brought the importance of energy security sharply back into focus**

Before he was president of the World Petroleum Council (WPC), one of Pedro Miras' first jobs was working on energy efficiency at a refinery unit in Tarragona, Spain. In the intervening years such units have been significantly improved to promote chemical recycling and reduce waste and emissions.

"It is amazing to see how traditional refineries have been converted to run along the lines of a circular economy. Efficiency is something the industry has been working on for a long time," says Miras. "Addressing it is in our DNA."

Current action on methane emissions by a number of WPC member countries is a result of the same attitude.

"It is one of the key developments in the operations of oil and gas companies at the moment. There is lots of investment going into developing new monitoring and reduction technologies," he continues.

That innovative spirit is key to tackling all aspects of the energy transition and is the reason Miras believes the oil and gas industry will be a key enabler to the transition, rather than—as some industry opponents claim—its enemy.

"Oil and gas companies are the only companies that are able to deliver energy to all populations around the world," he says, noting that large swathes of the global population still live in rural communities that are hard to electrify.

"Electricity cannot go everywhere, but we can," he says. "That makes us key players in the transition."

At the same time as reaching the 1bn people who still do not have access to energy, oil and gas firms need to determine how they can decarbonise scope three emissions, as well as scope one and two.

"Not everyone is going to have an electric car," he says. "The industry needs to work out how to provide low-carbon energy to these people as well."

That work is underway, but it will take years to commercialise and bring down costs.



Pedro Miras, president of the World Petroleum Council

"We are working hard to develop the production of sustainable fuels using hydrogen and CCUS technologies, as are companies on the demand side such as auto-manufacturers, maritime and aviation. It is amazing to see how fast progress is happening, but inevitably it will take time," he says.

### Energy security

Meanwhile, energy security is becoming an increasingly important pillar of the much-discussed energy trilemma—the balance between energy security, affordability and decarbonisation.

"My opinion is that, before Ukraine and the Covid-19 pandemic, the three pillars were a little bit unbalanced. Everyone thought that prices were not a problem, and there was not much concern about security of supply."

The current landscape has changed and represents a new challenge for firms.

"Now we are back to facing issues which have always been there, but upon which there is a renewed focus," Miras says.

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**"Oil and gas companies are the only companies that are able to deliver energy to all populations around the world" Miras, WPC**

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Addressing security of supply and high prices in the near term will mean more investment.

Globally, the sector has reduced fossil fuel investment in recent years from just over \$1,000bn in 2015 to \$671bn in 2020, according to data from the IEA.

Many oil and gas firms faced public and government pressure to reduce emissions during this period and also reported increasing difficulties in raising finance for traditional upstream projects.

But that may be starting to change in light of the new priorities, according to Miras.

"Before the war in Ukraine and Covid-19, we saw many funds saying we are not going to finance this sector's traditional business," he says. "But in the end, I think they will provide whatever finance companies need to deliver energy. There is currently no other option, because if they do not prices are going to be very high."

Already investment levels have recovered slightly, to \$834bn in 2022, the IEA's data shows, and further growth is expected this year.

### Importance of ESG

However, Miras was keen to emphasise that this recent increased focus on addressing energy security and affordability does not come at the expense of efforts towards decarbonisation.

"We cannot neglect our ESG ambitions. Companies are still very aware of these, and of course regulatory regimes around the world will not allow them to forget," he insists.

Are those regulatory regimes still structured in the right way to allow companies to balance the demands of the energy trilemma?

"Our opinion at WPC is that it is important to set targets. But nowadays there is some confusion among policymakers. Instead of saying 'every company has to reach this target by a certain date', they try to specify technologies. This is a mistake because companies left to their own devices will find the most efficient way to meet the targets."

This is especially the case in Europe where Repsol, Miras' former employer, has many of its operations.

"The regulation in Europe can be overly specific. It is much better in the US. Companies just want to be able to use their innovative instincts and technologies to reach the targets that have been set," he concludes.

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## Aramco's Nasser says energy security and sustainability can co-exist

But CEO says prematurely discontinuing investments in fossil fuels threatens serious supply shortfalls and may be counterproductive to energy transition

Amin H. Nasser is CEO of Saudi Aramco, a diamond sponsor of the 24th World Petroleum Congress, taking place in Calgary from 17-21 September. Ahead of the Congress, he talks to *Petroleum Economist* about the current landscape in the energy sector and the challenges ahead.

### How do you see the Ukraine crisis and the current energy crisis in Europe affecting the pace of the global transition to a low-carbon economy?

**Nasser:** The situation in Ukraine has exposed the limitations of current energy policies and underscored the critical role energy companies play in providing reliable, affordable and increasingly sustainable energy. Specifically, it has highlighted how geopolitics can impact fragile energy transition plans. However, it is important to recognise that the conflict is not the root cause of the crisis. The oil market was already stretched following years of underinvestment. To ensure an orderly transition, the world needs conventional and new energy to run in parallel for as long as needed. Prematurely discontinuing investments in conventional energy will likely lead to serious supply shortfalls and slow the pace of the global transition towards lower emissions.

### How is the transition to a low-carbon economy affecting oil and gas firms' investment strategies in conventional energy assets?

**Nasser:** Discouraging investment in oil and gas has hindered—rather than helped—the global energy transition. Indeed, this has left economies and consumers more vulnerable to the sort of shocks we have

seen during the past year. We believe that continued investment in conventional energy alongside ongoing efforts to advance renewable technologies is the most effective way to deliver an orderly transition that does not come at the expense of economic prosperity or energy security. Ensuring this security is why we aim to increase our capacity through multiple increments. At the same time, we also intend to increase our natural gas production by more than half by 2030 to help the Kingdom achieve a lower carbon energy mix.

### How well is Aramco placed to address the global transition to a low-carbon firm compared to other competitors?

**Nasser:** As the lowest-cost producer globally, we are uniquely positioned to leverage the emerging technologies needed to support a stable and orderly transition. Additionally, with our track record in technology leadership and upstream low carbon intensity, we have potential for large-scale, sustainable fuel production, including hydrogen.

We are focused on further improving our performance, and we have announced interim targets for 2035 as part of our ambition to achieve net-zero scope one and scope two greenhouse gas emissions across our wholly owned operated assets by 2050.

We are also expanding our portfolio to include solutions such as lower-carbon ammonia, which we believe may have an important role to play in a lower-emission future.

### How is Aramco progressing on its plans to reach net-zero scope one and two emissions by 2050?

**Nasser:** We are making good progress. Last year we presented our roadmap to reach 2050 targets with specific interim targets for 2035, which provide a good indication of our approach and progress. We aim to further reduce our, already low, upstream carbon intensity by at least 15% by 2035 against our 2018 baseline. We also aim to reduce, or mitigate, more than 50m t of CO<sub>2</sub> equivalent (CO<sub>2</sub>e) annually from 2035 onwards, compared to our business-as-usual forecast. Additionally, we aim to capture, utilise or store 11m metric t/yr of CO<sub>2</sub>e by 2035, out of which we intend to capture up to 9m t/yr CO<sub>2</sub> by 2027 through our recently announced CCS Hub. Through our investment in renewables, we also hope to achieve a 14m t/yr CO<sub>2</sub>e reduction from 2035 onwards.

Other plans include:

- Methane and flaring reduction (to achieve 1m t/yr CO<sub>2</sub>e reduction)
- Offsets purchased through voluntary markets and planting of mangroves (to achieve 16m t/yr CO<sub>2</sub>e reduction)
- Our \$1.5bn Sustainability Fund, one of the world's largest sustainability-focused venture capital funds, which aims to invest in technologies with potential to address climate challenges.

### What action is Aramco taking on methane emissions?

**Nasser:** We are proud that we already have one of the lowest upstream carbon footprints in the world, and our methane emissions are also among the lowest in our industry. As you know, methane contains more greenhouse gas warming potential than carbon dioxide, which is why this is such an important focus for us. In fact, methane emissions are responsible for about 30% of global warming to date, so reducing them must be a priority for all stakeholders.

Aramco and other members of the Oil and Gas Climate Initiative (OGCI) have launched the Aiming for Zero Methane Emissions Initiative, which calls for the energy industry to strive to reach near-zero methane



Amin H. Nasser CEO of Saudi Aramco



emissions from operated oil and gas assets by 2030.

For Aramco specifically, our upstream methane intensity remained low in 2022 at 0.05% (equal to 2021) and is already well below the OGCI ambition to achieve at least 0.20% by 2025—and we are working to share best practices to maximise global impact.

### Can you talk about Aramco's plans in low-carbon hydrogen?

**Nasser:** We see huge potential for large-scale, competitive hydrogen production, which is why Aramco intends to be a leading player in the new markets for hydrogen solutions. To support that ambition, we are developing a low-carbon hydrogen programme, which will be one of the world's largest production facilities with the capacity to produce blue ammonia in the range of 11m t/yr by 2030.

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“Discouraging investment in oil and gas has hindered—rather than helped—the global energy transition”

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As a carrier of hydrogen, low-carbon ammonia can help overcome obstacles with the transportation of hydrogen, in addition to being an important commodity in its own right.

Hydrogen is a primary element in the oil and gas value chain, and it offers significant potential as a lower-emission and sustainable energy source that could support significant emissions reductions, especially in sectors that are hard to decarbonise such as heavy transport, heating and industry. This is why we are seeing major industrialised economies such as Korea and Japan rapidly pursuing and incentivising hydrogen solutions to propel their economies forward, while lowering emissions.

We continue to work with potential customers and other stakeholders around the world, making real progress across the blue hydrogen value chain. This includes receiving the world's first independent certification with SABIC Agri-Nutrients for blue ammonia and blue hydrogen production, as well as delivering three shipments of blue ammonia to customers in Asia.

### Do you see any demand for low-carbon hydrogen offtake agreements yet? How will the industry develop?

**Nasser:** Commercial offtake agreements will be a critical cornerstone in the development of a thriving global hydrogen economy. Given the relatively high cost of establishing this energy source and a lack of both the required infrastructure and supportive policies, offtake agreements will be needed to safeguard all stakeholders and encourage investment. We believe that such required support can help blue hydrogen and blue ammonia play a significant role in the energy mix. Policymakers need to provide reliable signals to potential investors in this fuel of the future.

### Does the firm see a big role for CCUS technology in the oil and gas industry of the future?

**Nasser:** CCUS will play a pivotal role in our shared efforts to reduce emissions. This is particularly true given the need for reliable, affordable and more sustainable supplies of energy, particularly considering that alternatives are not yet ready to replace conventional resources.

As mentioned previously, we are targeting the capture of as much as 11m metric t/yr of CO<sub>2</sub>e by 2035 and Aramco is committed to becoming a leader in this field. As part of that ambition, we are establishing one of the largest planned CCS hubs in the world. Located on the east coast of Saudi Arabia in Jubail, it will potentially be able to safely store up to 9m t/yr of CO<sub>2</sub> by 2027.



Kendall Dilling, Pathways Alliance president

## Technology the answer for oil sands' net-zero goals

The six Canadian producers of the Pathways Alliance look to employ technical innovation and energy efficiency to reach scope one and two targets, says group president Kendall Dilling

The Pathways Alliance is a group of six Canadian oil sands producers working together on a multi-stage plan to achieve the goal of net-zero greenhouse gas emissions from operations by 2050. Alliance president Kendall Dilling spoke to *Petroleum Economist* to elaborate on the work of the group.

### Can you outline how Canadian oil sands producers can achieve the goal of net-zero scope one and two emissions from their operations by 2050?

**Dilling:** Clearly, technology is the answer. Pathways' six member companies have assigned hundreds of their brightest minds to work on the alliance's net-zero plan, and a core Pathways Alliance team of more than 30 experts has also recently been established.

We have a really healthy pipeline of more than 70 technology development projects to bring to bear on this problem. Some of the most important are in what we call natural gas decarbonisation. Oil sands producers burn natural gas to generate steam, which heats underground reservoirs and the heavy oil inside, enabling it to flow to the surface more easily.

Hydrogen can be used as a low-carbon substitute or blending agent for natural gas without significant equipment changes. In the oil sands, a lot of our sites are large hydrogen producers already because they use it in the upgrading process, so it is just a question of producing more low-carbon hydrogen.

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CCS is a well-known, well-understood technology. The main challenge is that it is expensive

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We are also looking at ways to dramatically reduce the amount of steam we put in the ground, injecting naturally occurring hydrocarbons such as propane instead that chemically mix with heavy oil to make it more mobile and easier to recover. It has a much lower energy footprint than steam and you can strip the propane back out and recycle it. We are also working on longer-term things such as small modular nuclear reactors, which when configured to produce heat are actually a very good technical fit with our operations.

On top of that, you have got the myriad of energy efficiencies going on in the oil sands mining side of the



equation, where big trucks, scoop shovels and other heavy equipment associated with mining operations produce a big chunk of emissions. There is a lot of work going on there with electrifying these vehicles or converting them to run on biofuels instead of diesel.

### Tell us about the Carbon Storage Hub project.

**Dilling:** There are a number of large operating facilities in northeastern Alberta in the oil sands region with highly concentrated carbon point sources. The plan is to build carbon capture on those plants, concentrate the CO<sub>2</sub>, and put it in a pipeline that takes it 400km to the sequestration area. This is a very large area with ideal geology to safely and permanently store carbon. We are in the final stages of evaluating the hub in order to secure an agreement with the government of Alberta to use the space to sequester carbon on behalf of all emitters in that part of the province. It is one of the best geological reservoirs in the world for CO<sub>2</sub> storage because multiple overlying layers of impermeable rock formations act as natural seals in the Western Canadian Sedimentary Basin. We have a gigaton of storage just in our Pathways hub, and while our proposed project would be one of the largest in the world, there are more than 20 that are proposed in Alberta. This is a huge competitive advantage for Alberta because there are heavy emitters out there that will choose to relocate or grow their operations in areas where they will have access to an established CCS network.

There are about 25 indigenous communities along the proposed CO<sub>2</sub> transportation and storage network corridor, and we are in the early stages of formal consultation with them to ensure their needs are understood and incorporated into the design of the project, and to ultimately ensure they are participating in—and benefiting from—this project being developed.

The CEOs from the six Pathways member companies meet every Friday morning for an hour to discuss solutions

We are submitting regulatory applications for the project later this year. It will be at least a year until regulatory approval if all goes well, so we could be looking at FIDs in 2025 or 2026. This would put us on track to being in service by 2030, which

coincides with Canada's commitments under the Paris Agreement.

Overall, CCS is a well-known, well-understood technology. The main challenge is that it is expensive.

### Is the policy regime in Canada helping meet those costs?

**Dilling:** Last spring, Canada rolled out an investment tax credit for CCS, which is a good foundational piece to build a fiscal framework on. Alberta also has a provincial carbon regulatory framework called the Technology Innovation and Emissions Reduction [Tier] that may also provide some support.

As governments and companies work together to do this, there is a real value case in setting yourself up as a leader in a technology that is going to be needed around the world. In the US, they have understood this, and the Inflation Reduction Act [IRA] sets higher levels of support for CCS than the current Canadian policy framework does. The Canadian structure is also going to be more complicated than the IRA support, which is very straightforward. We continue to work with our governments to try and close that gap so we can attract the capital and make that investment happen here rather than south of the border.

### Do you see firms working together in new ways when tackling the challenges of the transition?

**Dilling:** The CEOs at the Pathways member companies realised they had to decarbonise their operations to remain relevant. They knew the world would need oil for some time but saw an increasing demand for low-carbon barrels. But no one can do this alone. So they determined they had to work together. The CEOs from the six Pathways member companies meet every Friday morning for an hour to discuss solutions. If that is not unprecedented collaboration, I do not know what is. I've certainly never seen anything like that previously during my career.

In lots of other parts of the business they remain fierce competitors, but when it comes to environmental technology, why would they compete? When you look at something like CCS, it just does not make sense to go it alone. If you get the whole sector together to share the cost of the infrastructure it becomes a much better economic proposition. You see that happening elsewhere in the world, with industrial clusters in the UK as well.

### What is the alliance hoping to achieve in land reclamation?

**Dilling:** From the inception of the industry, reclamation has been foundational. All our operations are in the northern boreal forest, which is a really important ecosystem globally. We work with universities, government and research institutes, industry and the wider public to bring together world-class expertise to find solutions for land conservation and management issues within these regions. Operators are required to submit detailed land reclamation plans as part of their request for approval of a project. Some mines operate for decades, so reclamation occurs in phases throughout a mine's lifetime.





## Cenovus sees major role in reducing emissions

Canadian firm and its oil sands peers are targeting net zero by 2050 and are perfectly positioned to address the challenges of the low-carbon transition, says CEO Jon McKenzie

Cenovus is an integrated oil and gas company headquartered in Canada, and a diamond sponsor of the 24th World Petroleum Congress, taking place in Calgary between 17 and 21 September. Former COO Jon McKenzie took over as president and CEO in April this year. Here he talks to *Carbon Economist* about the future of the energy sector.

**The theme of this year's Congress is 'transition'. Can you talk about what Cenovus is doing on this front, in terms of scope one and scope two emissions?**

**McKenzie:** We have a target to reduce our absolute scope one and two emissions across our operations by 35% by year-end 2035, on a net equity basis, as we build toward our long-term ambition for net-zero emissions by 2050. And this year we announced a methane milestone to reduce absolute methane emissions in upstream operations by 80% by year-end 2028, from a 2019 baseline. This will help us make additional meaningful reductions in the near term as we also apply and advance technologies to enable future decarbonisation of our operations. We expect to spend about \$1b in our five-year business plan on GHG emissions reduction opportunities. This includes CCS we are progressing at our Minnedosa ethanol plant, Elmworth gas plant, Lloydminster upgrader and Christina Lake oil sands asset. On the methane front, we are prioritising a significant inventory of abatement projects across our upstream operations, as well as using technology that helps us identify leaks faster so we can prioritise and address the largest ones first. Our innovation team is also continually looking at new technologies that could potentially be applied to our operations to reduce emissions.

**How important are individual and collective reduction targets for oil and gas producers as they approach the transition?**

**McKenzie:** We believe targets are extremely important. All credible analysis indicates oil and natural gas will continue to be a part of the energy mix for decades to come. That means our industry must play a major role in reducing emissions. By setting our own target, as well as working with our oil sands peers in the Pathways



The steam generating facility at the Cenovus Foster Creek SAGD oil sands operations near Cold Lake, Alberta

Alliance, we can demonstrate the actions we are taking. It is also important for the public and our investors to be able to chart the progress we are making. Targets are another way to be transparent about efforts to decarbonise industry's operations.

**Do you see firms working together in new ways when tackling the challenges of the transition?**

**McKenzie:** The Pathways Alliance is an example. We co-founded Pathways with five of our largest oil sands peers with the goal of achieving net-zero emissions from our oil sands production by 2050. Together we represent 95% of Canada's oil sands production. We are fierce competitors, yet we realised that to tackle this huge challenge, and find solutions faster, we needed to work together. We have hundreds of employees from all six companies working together across multiple teams. And the direction to ensure this work

progresses with urgency comes from the top, with executives from each of our companies meeting several times a week.

**How is the current renewed global focus on energy security changing the strategic thinking of firms involved in energy supply?**

**McKenzie:** The recent turmoil has made clear the critical role oil and gas plays in helping ensure an affordable, abundant and reliable supply of energy. And the renewed focus on energy security has, I think, highlighted for many the importance of where energy comes from. Cenovus continues to believe our industry is a valuable source of energy and that, if we decarbonise the Canadian barrel of oil, it should be the preferred global barrel. Studies by independent researchers and analysts show the Canadian energy sector is ranked best in the world when it comes to ESG—human rights, strong governance, transparent disclosure and sustainable land and water use. Our area of challenge has been emissions, and we are working to address these.

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Studies by independent researchers and analysts show the Canadian energy sector is ranked best in the world when it comes to ESG

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**In relation to producers in other parts of the world, how well placed are Canadian firms to address the global transition to a low-carbon economy?**

**McKenzie:** Canada is perfectly positioned. We have abundant reserves to deliver a reliable supply of energy the world needs—and is going to continue needing. The majority of that oil resource is in the oil sands,



where costs to sustain production are very low. At the same time, Cenovus and our largest oil sands peers are committed to reducing our emissions and working together—and with governments—on an ambitious plan to help meet the national 2050 net-zero goal.



Jon McKenzie, Cenovus president and CEO

### How important are technologies such as CCS and hydrogen in the oil and gas industry of the future?

**McKenzie:** All technologies are going to be needed to get us where we need to go to achieve our targets and net-zero ambition. CCS is one where we see great opportunities, and the ability for Alberta and Canada to be a global leader. The Pathways Alliance foundational project is a carbon capture, transportation and sequestration network that would be among the largest in the world once operating. Much of the preliminary work is underway, including the upfront evaluation, regulatory, legal and engineering work needed for megaprojects like this. We are also working closely with governments to ensure a financial and regulatory model that supports decarbonisation efforts to achieve net-zero emissions by 2050.

And, of course, Cenovus has a number of its own carbon-capture projects underway, in addition to two already operating. We have been capturing CO<sub>2</sub> from our Lloydminster ethanol plant since 2012 and using it for enhanced oil recovery. And a pilot project at our Pikes Peak South thermal project is helping us test technology developed by Vancouver-based clean tech company Svante.

### Is the policy regime in Canada providing adequate incentives for producers to reduce their emissions and invest in new technologies, or can more be done?

**McKenzie:** It is imperative the right policies are in place to ensure the competitiveness of our industry, and it is something we continue to work on with our provincial and federal governments. Without the right policy and incentive mix, capital is going to flee to other jurisdictions.

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Cenovus and our largest oil sands peers are committed to reducing our emissions and working together—and with governments—on an ambitious plan to help meet the national 2050 net-zero goal

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### Are there any technologies not yet commercialised (other than CCS and hydrogen) that could be a game changer for producers?

**McKenzie:** As I mentioned, our innovation team is always looking at new and emerging technologies and their potential for our business. One area we are taking a close look at is using small modular nuclear reactors (SMRs). A lot of our oil is produced via a process called steam-assisted gravity drainage, and we use natural gas to create the steam. That is the major source of emissions from those assets. If we could replace that energy source with something like SMRs, which have almost zero emissions, we could decarbonise those barrels. However, our discussions in this area are at a very early stage and a lot more work needs to be done.

## Repsol takes integrated approach to net-zero goal

The Spanish firm is taking a technology-neutral approach to its 2050 target, recognising the importance of a diversified energy supply



Repsol CEO Josu Jon Imaz

Repsol is a platinum sponsor of the 24th World Petroleum Congress, set to take place from 17–21 September 2023 in Calgary, Canada. Here, Repsol CEO Josu Jon Imaz talks to *Petroleum Economist* about the issues facing energy firms as they approach the congress.

### Repsol has set itself the goal of becoming a net-zero emitter of greenhouse gases by 2050. What is the company doing to achieve that goal?

**Imaz:** An orderly energy transition requires access to diversified sources of energy—including hydrocarbons—and adequate supply to meet present and future demand at affordable prices. At Repsol, we are deploying an integrated model of decarbonisation technologies to achieve this goal—focused on efficiency, renewable generation, renewable fuels, new customer solutions, the circular economy and breakthrough projects to reduce the industry's carbon footprint. We believe technological neutrality is crucial to achieving a just energy transition that benefits everyone. The key is to find the routes that can get us to net zero in the fastest and most cost-effective way. Our goal must be energy transition rather than energy disruption.

### How important are interim targets in the achievement of this goal?

**Imaz:** Repsol has set a path to net zero based on ambitious short- and long-term targets, while at the same time ensuring the continued supply of accessible, competitive and sustainable energy that supports social and economic development. Setting interim targets is necessary and important to map our performance and stay on track to reach this goal. Since we announced our first net-zero plan in 2019, we have already upgraded our targets twice to accelerate our progress, which underscores our ambition and demonstrates the solid progress the company is making towards becoming carbon neutral by 2050.

### Are you still optimistic that the goal can be achieved, especially in light of the increasing global focus on energy security over the past two years?

**Imaz:** In the current geopolitical context, the need to incentivise all technological solutions is especially clear to continue driving the energy transition in a fair and just manner. We need to be ambitious about lowering our carbon footprint, but we must also prioritise security of supply for our citizens and industry. These objectives are not contradictory. Repsol is fully committed to achieving carbon neutrality by 2050 and to delivering a just energy transition that guarantees security of supply and affordability built on technology and industrial development in a low-carbon future.

### Some oil and gas firms are moving to decarbonise their portfolios faster than others. Is it an advantage or a disadvantage to be a first mover?

**Imaz:** Repsol was the first company in our sector to set a target for net-zero emissions by 2050, which we announced in 2019. We are decarbonising Repsol first of all because we have a moral commitment and we want to reduce the CO<sub>2</sub> footprint of our activities. But we are also decarbonising because we want to make money. We want to have a competitive Repsol in 2030, 2040 and 2050 in a world that is going to be ever more decarbonised.

### What is the firm's strategy for hydrogen?

**Imaz:** Renewable hydrogen is one of the key pillars of our transformation strategy to become a net-zero emissions company. As the leading consumer of hydrogen in Spain, we are making significant investments in the hydrogen



value chain to promote the growth of this industry. This includes promoting hydrogen hubs through collaborations such as the Shyne project, installing electrolyzers for hydrogen production and developing transportation capacity to supply our industrial complexes and support mobility. With these investments, we aim to have 550MW of installed hydrogen capacity by 2025 and 1.9GW by 2030.

**What is your position on windfall taxes on the oil and gas sector?**

“An orderly energy transition requires access to diversified sources of energy”

**Imaz:** We fully respect our commitment to society and are aware of the difficulties caused by the energy crisis. At the same time, the need to guarantee security and affordability of supply is more evident than ever. The European proposal for a solidarity contribution would create conditions of inequality and place a discriminatory burden on companies in the refining sector, jeopardising their ability to supply the market and compete internationally. With this proposal and others, we must also consider the potential impacts on investments that are needed to decarbonise the economy and continue progressing the energy transition. We must incentivise energy investments and ensure the competitiveness of energy companies that are playing a key role in providing secure and affordable energy, not punish them.

**Are the policy regimes Repsol is contending with in Europe well designed? If not, how could they be improved?**

**Imaz:** I cannot stress enough the importance that regulation will play in delivering a just energy transition. The EU has built up a complex system of rules and regulations that does not facilitate rapid progress in the energy transition. In many cases, regulations overlap and are often accompanied by restrictions and even prohibitions of technologies and solutions that could help us reduce emissions faster. We need policies that create clear incentives for investment by promoting all decarbonisation solutions on a level playing field. What we are seeing in the US with the Inflation Reduction Act is better. The American framework is predictable, it is simple, it is clear and it supports all technologies. We have to improve this view in Europe and rethink our approach on the basis of technological neutrality.

**What role will oil and gas play in a low-carbon future, if any, and how is Repsol adapting its upstream business for this reality?**

**Imaz:** In a world that is going to be carbon neutral, we are still going to need oil and natural gas to meet the growing global demand for energy that is secure, affordable and sustainable. Targeted investment in upstream will be crucial to tackle this energy trilemma, to drive leadership in decarbonisation and to retain the technical talent needed for the energy transition. In Repsol this year, 47pc of our capex

“The need to incentivise all technological solutions is especially clear to continue driving the energy transition in a fair and just manner”

is going to our upstream business, where we are decarbonising our operations with a target to reduce the carbon intensity by 75pc in 2025 compared with 2016 levels. We are adapting how we find and produce oil and natural gas, optimising our portfolio to develop the best projects and evaluating solutions such as CCS and geothermal that will be necessary to fulfil the commitments of the Paris Agreement. The recent addition of US-based institutional investor EIG as a partner with 2pc of our upstream unit—a deal that valued this vertical in Repsol at \$19bn—reflects the proven ability of our strategy to transform our business and deliver results in the energy transition.

**Does addressing the energy transition require a greater degree of collaboration with other companies than the traditional business of oil and gas production? If so, how are those collaborations being fostered?**

**Imaz:** Collaboration is in our DNA at Repsol, and this has always been important for our industry to meet the energy needs of society through the services and products we provide. The benefits of collaboration are even more visible today for a just energy transition, which requires public and private partnerships to generate disruptive innovations and solutions to decarbonise our global economy. We are already making significant contributions through open innovation and cross-cutting collaboration that facilitates the transfer of knowledge, accelerates the detection and deployment of new technologies, and supports the entrepreneurship and innovation ecosystem. We engage in strategic alliances and collaboration with the aim of combining resources, efforts and capabilities to solve the energy challenges facing our industry and society.



ConocoPhillips is part of the Pathways Alliance

## ConocoPhillips in transition

Superindie talks to *Carbon Economist* about the energy landscape

ConocoPhillips is an official sponsor of the 24th World Petroleum Congress (WPC), which will take place from 17–21 September in Calgary, Canada. Here, Bij Agarwal, president of ConocoPhillips Canada, talks to *Carbon Economist* about the energy landscape as he sees it.

**The theme of this year’s WPC is ‘transition’. Can you talk about what ConocoPhillips is doing on this front, in terms of scope one and scope two emissions?**

**Agarwal:** ConocoPhillips’ ‘triple mandate’ is focused on meeting the energy transition pathway demand, delivering competitive returns, and achieving our net-zero operational emissions ambition by 2050. In 2021, we established a Low Carbon Technologies team to support our net-zero ambition, and in 2022, we published our Plan for Net-Zero Energy Transition. In April 2023, we announced an acceleration of our operational greenhouse gas (GHG) emissions-intensity reduction target for 2030 from 40–50pc to 50–60pc, using a 2016 baseline.

We have reduced our methane emissions intensity by approximately 70pc since 2015 and have exceeded our 2025 methane intensity reduction goal of 10pc, achieving a 13pc reduction in 2021 from a 2019 baseline. We set a new medium-term target to achieve a near-zero methane emissions intensity by 2030, and in 2022, based on flaring reductions to date, we committed to achieving zero routine flaring by 2025—five years in advance of the World Bank Initiative’s goal of 2030.



Bij Agarwal, president of ConocoPhillips Canada

**How important are individual and collective reduction targets for oil and gas producers as they approach the transition?**



**Agarwal:** We believe that individual and collective emissions reduction targets—near, medium and long term—will help to keep companies and countries on track as we pursue our net-zero operational emissions by 2050 ambitions. We continue to position ConocoPhillips for the energy transition and are committed to reducing operational (scope one and two) emissions, over which we have ownership and control.

**How is the renewed global focus on energy security changing the strategic thinking of firms involved in energy supply?**

**Agarwal:** We believe North America is strongly positioned to continue serving as a stabilising force that strengthens global energy security. However, we need a regulatory atmosphere that promotes investment and the unrestricted trade of natural gas, crude oil and refined products between the US, Canada and Mexico, as well as exports to the world market. This complementary market integration will support North America's continued economic prosperity, security and global energy leadership as we work to achieve the energy transition.

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North America is strongly positioned to continue serving as a stabilising force that strengthens global energy security

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We focus on remaining resilient and competitive in any scenario by safely and responsibly providing low-cost, low-GHG-intensity oil barrels and natural gas molecules by asset type with continuously improving ESG performance. Our strategy uses a fully burdened cost of supply, including cost of carbon, as the primary basis for capital allocation. Providing low cost of supply also addresses a key component of a just and orderly transition—a secure and affordable energy supply that strengthens global energy security.

**In relation to producers in other parts of the world, how well placed are Canadian firms to address the global transition to a low-carbon economy?**

**Agarwal:** Canada has an abundance of low-carbon energy sources and strong natural geology to support carbon sequestration, and the Canadian government has put a price on carbon that enables transparency on decarbonisation investment. All of these factors can help make us a global leader in net-zero investment and the transition to a low-carbon economy.

At ConocoPhillips, we are developing and growing our Canadian assets in a manner consistent with the global transition. The Montney gas field was designed to eliminate the majority of methane emissions by using self-generated electricity and electric equipment rather than traditional natural gas-driven equipment. And at the Surmont oil sands field, we see a credible opportunity for material operational emissions reductions using the CCS pipeline and hub proposed by the Pathways Alliance.

**Is the policy regime in Canada providing adequate incentives for producers to reduce their emissions and invest in new technologies, or can more be done?**

**Agarwal:** For Canada to be a world leader in the energy transition, our industry needs to remain competitive with other global producers. We encourage governments to design policy, programmes and incentives that de-risk investment, encourage innovation and enable various pathways to net-zero

operational emissions. The emissions reduction projects that have showed early success are using a collaborative model where governments co-invest alongside industry. In the Netherlands and Norway, for example, CCS projects are receiving public support for up to three-quarters of the cost of the carbon-capture investment.

The Investment Tax Credit (ITC) for CCS as well as the clean technology ITC provide a great basis for Canada's competitiveness, and we believe there are opportunities to strengthen Canada's competitiveness in attracting investment in emission reduction technologies. In the US, the Inflation Reduction Act (IRA) will provide nearly \$370bn of subsidies for clean energy. Canada will need to keep pace if it wishes to remain competitive. It will also need to ensure that the broader fiscal and climate policy environment does not undermine the efforts the government is making to compete with the IRA.

**How important are technologies such as CCS and hydrogen in the oil and gas industry of the future?**

**Agarwal:** Hydrogen has an important role to play in decarbonising the global economy. We have identified two types of hydrogen manufacturing that fit into our company's core competencies and have the potential to grow into a scalable business: hydrogen from natural gas with associated CCS ('blue hydrogen') and hydrogen from the electrolysis of water using electricity from renewables ('green hydrogen'). Technologies for manufacturing both types are rapidly evolving, and, like CCS, we are pursuing various ways to access these technologies and qualify them for use in projects. In Canada, ConocoPhillips is proud to be a member of the Pathways Alliance—its six member companies are working together and with governments to capture CO<sub>2</sub> from oil sands production facilities and store it safely and securely deep underground.

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Reducing the GHG emissions intensity of our in-situ oil sands operations continues to be a priority for our Canada operations

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Our Pathways colleagues share our ambition to achieve net-zero GHG emissions from oil sands operations by 2050. Together, we are developing an actionable approach to address emissions, while also preserving the more than \$3tn the oil sands are

expected to contribute to Canada's GDP over the next 30 years.

**Are there any technologies not yet commercialised (other than CCS and hydrogen) that could be a game changer for producers?**

**Agarwal:** Reducing the GHG emissions intensity of our in-situ oil sands operations continues to be a priority for our Canada operations. At our Surmont asset, we are piloting two technologies to optimise the steam-assisted-gravity-drainage (SAGD) process to reduce our steam-to-oil (SOR) ratio. The first technology—warm applied solvent process—replaces most of the steam in the SAGD operation with a light hydrocarbon solvent.

A second technology to optimise the SAGD process is steam additives, which have the potential to reduce SOR and GHG emissions intensity by 15–35pc. These additives, specifically surfactants, can promote oil drainage rates increases while reducing energy losses. This results in improved thermal efficiency, reduced GHG emissions intensity and incremental oil production.





Bennett Jones is the official legal sponsor of the 24th World Petroleum Congress

## Bennett Jones sees opportunities in Canadian energy transition

*Carbon Economist* spoke to the law firm about Canada’s legal and regulatory landscape

Canadian law firm Bennett Jones is the official legal sponsor of the 24th World Petroleum Congress (WPC), taking place in Calgary from 17–21 September 2023. Here, *Carbon Economist* talks to Pat Maguire, vice-chair and Calgary managing partner at the firm, about the opportunities in Canada’s legal and regulatory landscape in the energy transition.

### What are the top opportunities in Canada in the global energy transition?

**Maguire:** Renewable energy is surging in Canada. The wind and solar sectors are growing rapidly and attracting investment across the country, especially in Alberta.

Canada is ready for large-scale, low-carbon-intensity hydrogen production. The entire value chain is ripe for investment. Government support for the sector, financial and policywise, is strong across all levels of government.

We are at the front of the pack when it comes to CCUS. We have a unique combination of geology, technology and infrastructure, and around 15 projects are in development. Shell Canada’s Quest facility opened in 2015 as the world’s first commercial-scale CCS project applied to oil sands operations.

The number of renewable natural gas (RNG) projects operating in Canada is expected to more than double between 2021 and 2025. There are government incentives federally and provincially. Here in Alberta, Calgary

will be home to North America’s largest carbon-negative RNG and ethanol facility.

Many energy transition projects create new and novel business opportunities to partner with Canada’s Indigenous peoples in a way that advances reconciliation. We have seen a number of successes already.

### What about the legal challenges and risks?

**Maguire:** In Canada, we see two spheres of risk: one is domestic and the other is international. Domestic risks include the time, cost and uncertainty associated with permits and approvals, exacerbated by the overlapping jurisdiction between provinces and the federal government. Some provinces are very well

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Canada is ready for large-scale, low-carbon-intensity hydrogen production

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advanced in regulation that supports transition projects. Other jurisdictions may be a little less advanced. There is also concern regarding the federal government’s ability to regulate some provincial matters or projects that have an environmental impact.

Internationally, there is a lot of competition for investment in the context of the Inflation Reduction Act in the US, although Canada has done a pretty good job of addressing most of those concerns. In Canada’s 2023 federal budget, there were two new investment tax credits announced—one for clean electricity at 15pc and one for clean manufacturing at 30pc, in addition to previously announced credits for hydrogen and CCUS. These green energy incentives are competitive from an international perspective.

### How do energy transition projects fit in Canada’s legal framework?

**Maguire:** The whole legal architecture around energy transition projects is really consistent with what we have seen in the conventional oil and gas sector. There is already a legislative and regulatory ecosystem in Canada that accommodates new energy project developments, or requires only minor tweaking to do so.

A lot of the regulatory structures that deal with oil, gas or hydrocarbons work perfectly well in connection with hydrogen projects but do not technically apply to them because they are not hydrocarbon projects. Those structures do not require wholesale reworking as much as making sure that transition projects can be addressed within that context. In areas such as CCUS there are some jurisdictions that have not clarified the law with respect to the ownership of subsurface storage space in the way that Alberta has.

When it comes to small modular reactors (SMRs), the Canadian Nuclear Safety Commission has anticipated the future development of this technology and has been proactive about making sure that its regulatory approach to SMRs is ready.

Intellectual property protection will be an interesting area that people are going to have to work their way through on some of these new technologies, especially in hydrogen.

### What are the challenges associated with regulating new projects and new technologies?

**Maguire:** Right now in Canada, we have multiple projects all looking to move through the system at the same time. It is also notable that, in a conventional setting, projects were frequently advanced by a single project developer, or at most a couple of partners. In new CCUS projects, as an example, we are seeing



a number of participants in a single project—emitters working with a capture technology provider, a midstreamer to move the CO<sub>2</sub>, and even sometimes separate companies taking on the sequestration role.

On hydrogen, governments and regulators need to work through the issues related to its injection into natural gas streams and hydrogen transportation in ammonia form. Hydrogen in the context of industrial use is going to be a little less problematic. There may be a tweaking of regulations, but to the extent you are looking to generate hydrogen to serve an industrial site, I think that will be relatively straightforward.

### What is the public's perception on energy transition projects in Canada?

**Maguire:** Canadians know the move to a lower-carbon economy is inevitable. It is generally supported across the country. It can be interesting, though, to see how companies, governments and communities view the actual development of projects. When you get on the ground, there can be local and competing interests in getting a project underway.

This is one of the areas where ESG is so critical in the energy transition. When a company has ESG principles embedded into its core business strategy, it will vastly improve its ability to connect with communities and tell its story.

### Do insurance products for the industry need to evolve to accommodate new technologies?

**Maguire:** We are seeing some creative thinking by insurers around the different kinds of risks associated with emissions capture and subsurface storage, and the extent to which insurance products can fill in the gaps that

will facilitate project development. Project developers have to shoulder sizeable risks, which makes financing difficult. I expect that, in the next few years, we are really going to see advances in the availability of insurance products for new energy projects, which will help with financing by managing those risks.

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In Canada, we see two spheres of risk: one is domestic and the other is international

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### Will financing projects with Indigenous communities be different in the energy transition compared with traditional projects?

**Maguire:** The Alberta Indigenous Opportunities Corporation is a government-sponsored entity that helps Indigenous communities find equity participation in projects, including energy projects. Other jurisdictions also have other ways of supporting similar participation. An important part of the development of energy projects, whether they be conventional or new technologies, will be making sure that the issues around Indigenous participation have been addressed, including through these additional funding mechanisms.

### You have practised energy law in Calgary for over 30 years. What does it mean to host the WPC here in Canada for the first time?

**Maguire:** It will be an absolute pleasure to host the energy world and show off our incredible city and our abundant resources, both natural and human. Canada's energy sector has always been on the cutting edge of the global energy industry and hosting the WPC will be a welcome opportunity to show the world how Canadian knowhow, entrepreneurship and technological capabilities can play an important role in the global energy transition. We also know how to throw a really good party.

## Canadian Prairies' role in the energy transition

### Federal department PrairiesCan speaks to *Carbon Economist* about the energy sector in the region

*Carbon Economist* talked to Michele Evans, assistant deputy minister, Alberta region, from Prairies Economic Development Canada (PrairiesCan) about how the Prairies are tackling the energy transition.

### Can you broadly outline the work of PrairiesCan?

**Evans:** PrairiesCan is the federal department that supports economic growth in Alberta, Saskatchewan and Manitoba. Our programmes and services help businesses, not-for-profits and communities grow stronger. Our mandate is to support economic growth and diversification in the Prairie provinces and to advance the interests of the region in national economic policy, programmes and projects. We have four primary roles. First, as an investor, we make strategic investments that support the ability of businesses and sectors to expand and create jobs. Second, we are a convener, which means we connect economic actors to support collaboration and growth. We are also an adviser, which is to say we inform economic decision-making and advocate for Prairie interests. And finally, we are a pathfinder, helping people navigate federal economic programmes and services.

### How do the economies of Alberta, Manitoba and Saskatchewan differ from other provinces in Canada, especially with regard to the energy sector?

**Evans:** The Prairies are an economic, agricultural and energy powerhouse, contributing significantly to Canada's prosperity. We also have significant strengths in the digital and clean tech sectors, which are driving innovative approaches to efficient resource extraction and value-added activities. This is why, in 2021, the federal government created PrairiesCan and Pacific Economic Development Canada from the former Western Economic Diversification Canada to better focus on each region's strengths. The Prairies' rich natural resources include world-leading reserves of commodities such as oil, natural gas, potash and uranium. Its vast landscape spans nearly 2mn km<sup>2</sup> of land and freshwater, which accounts for over 82pc



Michele Evans, assistant deputy minister, Alberta region, from PrairiesCan



of Canada's farmland. In 2021, oil and gas extraction, including support activities for oil and gas extraction, accounted for more than 22pc of the Prairie provinces' GDP.

### **To what degree does the transition to a low-carbon economy represent an economic opportunity to firms in Alberta, Manitoba and Saskatchewan?**

**Evans:** The low-carbon economy is a huge economic opportunity and it drives the work that we are undertaking on the Building a Green Prairie Economy Act. At its core, the act is about working collaboratively with partners to focus efforts to grow a Prairie economy that supports well-paying jobs in a net-zero economy. Consultations are being done with Prairie provinces, municipalities, Indigenous peoples, industry, labour organisations and Prairie residents to develop a framework for local cooperation and engagement to grow the green economy. Among the act's themes is supporting the continued development of clean energy across economic sectors.

As the energy industry evolves, our Prairie provinces have the knowhow and determination to be leaders in innovative clean energy solutions. The recent PrairiesCan-funded Alberta Energy Transition Study suggests the clean technology sector could create 170,000 jobs and contribute \$61bn to GDP by 2050 in Alberta alone. For example, if we can use clean technologies to capture carbon or reduce methane emissions, there is going to be a seismic shift in our region's ability to take on economic opportunities. We need to share our big ideas and products with the world.

### **CCUS and hydrogen are likely to be key technologies in the future. What is happening in the region around these technologies and how is PrairiesCan helping?**

**Evans:** PrairiesCan is focusing on supporting small- and medium-sized firms to commercialise new technologies in relation to both CCUS and hydrogen. We recently provided \$1.5mn for CarbonNext, Canada's commercialisation hub for CCUS and monitoring technologies. When it comes to hydrogen, we are actively working with partners and recently invested nearly \$10mn to build Alberta's expertise throughout the entire value chain to develop new hydrogen supply, distribution and end-uses that will support a green economy, enable a low-carbon energy ecosystem and sustain good-paying jobs. Given Alberta's existing expertise in the energy sector, the province already has the skilled workforce here to drive the emerging hydrogen economy. Construction on the largest hydrogen plant in the world is proceeding in northeast Edmonton. The \$1.6bn plant, led by [industrial gases company] Air Products

Canada, will produce up to 100,000t/yr of hydrogen when fully operational and was supported with federal funding.

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Prairies are an economic, agricultural and energy powerhouse, contributing significantly to Canada's prosperity

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### **How does PrairiesCan make decisions on how to allocate funding?**

**Evans:** PrairiesCan administers a number of grants and contribution programmes that enable us to strengthen productivity and competitiveness across the Prairies. Each of our core programmes accepts applications on a continuous basis. Eligible organisations submit an application for funding, which is then reviewed against programme criteria to determine eligibility for funding. Our core programmes reflect our three priority areas: the first is new value and competitiveness, which translates into accelerating economic growth through new sources of value and innovation in traditional sectors. The second is the green economy, which means enabling success in a net-zero future. The third is

inclusivity, which involves supporting a more equitable and inclusive economy through the economic participation of underrepresented populations.

### **How is PrairiesCan helping foster relationships between the business and Indigenous communities?**

**Evans:** PrairiesCan is growing its capacity and role in the federal government's commitment to support Indigenous communities, entrepreneurs and economic reconciliation. For example, we fund early-stage entrepreneurship development for new and existing Indigenous entrepreneurs through our Indigenous Business Development Services initiative. Another example is our support of the Forward Summit—a leading economic reconciliation event in Canada that brings together Indigenous and non-Indigenous businesses and organisations, providing participants the opportunity to connect, engage, learn and unlearn. In addition, through the federal Strategic Partnerships Initiative, we partner with other federal departments to support Indigenous communities to take advantage of economic opportunities.

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We are making strategic investments that connect small- and medium-sized firms with investors, larger companies and academia

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### **What is PrairiesCan doing to encourage outside investment in the region, and can you give some examples of specific projects?**

**Evans:** Supporting the World Petroleum Council in hosting September's World Petroleum Congress is just one example. The federal government has made international commitments and, along with many countries around the world, is advancing a plan to address climate change and reach net zero by 2050. Part of this plan relies on close collaboration with industry, governments, researchers and other partners to develop innovative clean energy solutions to reduce emissions across the country.

Furthermore, through our Business Scale-up and Productivity programme, we are also providing high-growth companies across the Prairies with non-dilutive funding so they can scale up. Specific investments in companies have included \$3.9mn for Calgary-based Kathairos Solutions to grow its emission-reduction business to serve oil and gas well sites, \$5mn for Calgary-based Genoptic LED to establish a manufacturing operation to mass produce advanced hybrid solar panel and battery storage technology, and \$1.34mn to enable Edmonton-based G2V Optics to increase manufacturing and export capacity of its solar simulation technology.

### **What is PrairiesCan doing to foster innovation in the energy sector?**

**Evans:** We are making strategic investments that connect small- and medium-sized firms with investors, larger companies and academia. For example, in January 2022, we announced support for an Energy Transition Centre in downtown Calgary. This centre provides a space where Canada's largest energy companies are collaborating with clean energy startups, innovators and investors. It is facilitating access to specialised equipment, energy transition subject matter experts and entrepreneurship programming. As a central hub for energy transition, we expect at least 25 new businesses to emerge from this centre over the next few years, as well as the growth of many other firms operating in the clean energy sector. Another example of an organisation we are collaborating with is the Energy Futures Lab, an Alberta-based coalition of diverse innovators and leading organisations working to accelerate the transition to a low-emission and socially equitable energy system.





An artist's rendering of the LNG Canada facility in Kitimat, British Columbia

## Canada can step up energy security role – CAPP

The country's oil and gas trade association tells *Petroleum Economist* that Canada has both the means and the responsibility to expand its contribution to global energy security

The Canadian Association of Petroleum Producers (CAPP) is a trade organisation that represents the companies that explore for, develop and produce oil and gas throughout Canada. *Petroleum Economist* spoke to Lisa Baiton, CAPP's president and CEO, and Greig Sproule, the organisation's vice-president of tolls and tariffs, about the issues facing the sector.

### How have the geopolitical events of the past two years changed Canada's place in the global energy landscape?

**Baiton:** The world has shifted dramatically over the past two years, and we are seeing decades-old trading alliances—particularly around energy—changing rapidly. As one of the few stable, democratic countries that produces more energy than we consume, Canada is well positioned to grow our role as a preferred global supplier of responsibly produced energy. We are the fifth-largest exporter of oil in the world, representing only about 4% of global oil production. But if you break it down a bit further, Canada makes up about 22% of total NATO oil production, making us an incredibly important player in the energy security of our allies. Canada has a responsibility to our NATO allies and trading partners. As energy demand grows, we must step into that role by growing our global market share to contribute to greater global energy security while enabling a thriving Canadian oil and gas industry for generations.

### How are Canadian producers responding to that change?

**Baiton:** The first step is gaining greater market access so we can provide more energy to the world. In terms of oil, the Trans Mountain Expansion Project, which is nearing completion, will increase our capacity to export oil by about 590,000b/d. Including the capacity of the Trans Mountain pipeline, this means we will be able to transport more than 800,000b/d directly to the west coast of Canada. On the gas side, within the next two years we expect to have our first globally significant LNG export terminal complete, and we have two others starting construction.

We have the oil and gas reserves to grow production to match our export capacity. With additional pipeline capacity coming and the emergence of our LNG export industry, Canada is poised to become a much bigger player in providing our coveted energy supplies to global markets.

### Is there a place for Canadian oil and gas in the transition to a low-carbon economy over the next 20 years?

**Baiton:** We believe the need for Canadian oil and gas will grow. CAPP members are investing significant dollars into developing and implementing cutting-edge technologies, such as the Quest carbon capture facility, which has so far captured over 5m t of CO<sub>2</sub>, and the electrification of gas facilities in British Columbia, which has reduced emissions by an amount comparable to taking 180,000 cars off the road. With projects already under way, Canada's oil sands companies have taken on the technologically challenging task of following a path to net zero. Federal and provincial government numbers show that oil and gas producers are on track to reduce methane emissions by 40–45% by 2025. We believe Canadian producers are among the world leaders in the drive to lower emissions from oil and gas production—and they are on a path that will enable Canadian resources to play a greater role in the global energy market for decades to come.



Lisa Baiton, CAPP's president and CEO

### How would you describe the policy regime for oil and gas producers in Canada?

**Baiton:** The country has almost all the right pieces to enable the growth of a lower-emission oil and natural gas industry developing some of the most responsibly produced energy in the world. We have world-class resources and world-class talent, and a reputation as a safe and secure trading partner. We just need to get the policy and regulatory pieces right. Today, there is unnecessary complexity across jurisdictions. We need to work collaboratively with the federal and provincial governments to attract more energy investment dollars and investment partners to build the big emission-reducing projects here in Canada.

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5m t – CO<sub>2</sub> captured by Quest facility

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**Canada will soon have one LNG export project with LNG Canada. Do you think there is potential for more?**

**Baiton:** The IEA predicts gas demand will increase to 5tcm in 2050 from 4tcm in 2019, and countries are looking to Canada to ramp up gas and LNG production and exports. There is a growing market for Canadian LNG, and we have the gas resources and upstream expertise to support significant export capacity.

With LNG Canada nearing completion, Canada is on the cusp of becoming a global LNG player. Two other facilities, Woodfibre and Cedar LNG, are under construction and others are under consideration, including an expansion of LNG Canada. Getting these projects done would show the world that Canada is serious about playing a role in global energy security with LNG trade with the potential to grow—and that can attract greater interest and investment.

### Tell us about CAPP's work on Indigenous engagement.

**Baiton:** Indigenous communities in Canada are playing an important and growing role in the development of our oil and gas resources. Indigenous communities are often in more remote areas alongside our operations, and they have become a critical part of our talent labour pool. About 7% of the oil and gas workforce is comprised of Indigenous people. In addition to the participation in the workforce, Indigenous-





Greig Sproule, CAPP's vice-president of tolls and tariffs

owned and affiliated businesses make up a significant part of the industry's supply chain. As an example, a recent analysis of British Columbia's gas supply chain showed approximately C\$765m (\$580m) was spent on procurement with 135 Indigenous-affiliated businesses throughout Canada from 2018 to 2021. Going beyond supply chain benefits, Indigenous organisations are becoming direct owners of oil and gas infrastructure. In British Columbia, the Haisla and Nisga'a nations are lead investors in major proposed LNG projects, and 16 First Nations have agreed to become 10% owners in the Coastal GasLink pipeline. In Alberta, 23 Indigenous communities own a nearly 12% stake in seven operating oil sands pipelines.

**Is midstream capacity an issue in constraining Canada's gas production? If so, is this likely to be addressed in coming years?**

**Sproule:** Midstream capacity continues to be a constraining issue for gas production in Canada. Today, virtually all Canadian gas is consumed within North America, and there are a number of incremental projects

under way to improve that domestic network. Those projects will also enable improved access to the US Gulf Coast to supply LNG exports out of the US. One of the challenges is that expansions are taking a minimum of 4–6 years to complete, which means we need to work with governments in Canada to streamline the regulatory process for getting our products to market. The next large growth opportunity is set to start in 2024/25 with the Coastal GasLink pipeline, which will supply west coast LNG export facilities with about 2.1bcf/d, offering significant growth potential for gas production in Canada.

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*"Next large growth opportunity is set to start in 2024/25 with the Coastal GasLink pipe-line"*  
Sproule

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## Industry association supports the oil and gas industry's participation in a just energy transition

Ipieca, an official sponsor of WPC Canada, is the global oil and gas association dedicated to advancing environmental and social performance across the energy transition. It brings together members and stakeholders to advance climate action, environmental responsibility and social performance across oil, gas and renewables activities. Brian Sullivan joined Ipieca as the Executive Director in 2011 following a 23-year career at BP. Here he talks to *Petroleum Economist* about the work of the organisation.



Can you outline the Ipieca Principles and the best ways for your members to align with them?

Sullivan: Just over a year ago now, we launched the eight Ipieca Principles as a new condition of membership. Grouped around Ipieca's four strategic pillars of climate, nature, people and sustainability, each area includes two principles: the first drives support for a UN convention or initiative; the second advances the environmental and social performance of member companies' operations.

Through our global membership and its reach and influence, the principles align a significant portion of the industry around the Paris Agreement, the UN Convention on Biological Diversity, the UN Guiding Principles on Business and Human Rights and the UN Sustainable Development Goals. The principles also clearly demonstrate the important contribution our industry can make to these conventions through operational good practice.

When we launched the principles, we also published a practical toolkit that gives examples of actions that members, and the wider industry, can take to operationalise the principles, along with Ipieca guidance that can support them to do so.

To mark the first anniversary of the Ipieca Principles, we published case studies of how members are living the principles with the hope of inspiring wider industry uptake of the principles and further contributions to key UN conventions.

**How important is collaboration in addressing the goals of the transition to a global low-carbon economy?**

**Sullivan:** I am convinced that collaboration is key to tackling the climate challenge and believe that the oil, gas and alternative energy industry has a large role to play in the energy transition by working to provide affordable and reliable energy—which is needed to fuel growth and improve living conditions—while decreasing emissions to support a net-zero world.

If the world is going to stay on track to hit the Paris Agreement goals then all parties and solutions have a part to play. While we need to do more to decarbonise faster, we must not lose sight of the fact that science-based pathways to the Paris Agreement goals must ensure access to affordable, reliable, sustainable and



modern energy for all' (UN Sustainable Development Goal 7). This will require all energy sectors, including oil and gas, to play an important role in the global energy mix in the coming decades.

In addition to providing essential energy, the industry is leading on the research, development and operation of new low-carbon and mobility solutions, and will have a key role to play in supporting and scaling up the supply chains for these solutions.

Ultimately, a partnership approach will be needed to tackle climate change in a way that supports sustainable development. The oil and gas industry, along with all other sectors and parties, has an important role to play in helping governments turn their emissions reduction ambitions into a reality on the ground.

### **Do you see a big role for technologies such as hydrogen and CCS in the oil and gas industry of the future?**

**Sullivan:** Hydrogen and CCS will both be key enablers of the energy transition, supporting the oil and gas industry's contribution to a net-zero future. These technologies will also be essential for the decarbonisation of other sectors such as cement, plastics, steel, aviation and shipping. These are key drivers of the global economy, and indeed many emerging economies, but they produce significant greenhouse gas emissions and can't be decarbonised with electrification.

The oil and gas industry will be essential to scaling up both hydrogen and CCS. At present most hydrogen is consumed by the industry, which is also one of the main producers, with the most common method of production using natural gas. A hydrogen economy can make extensive use of existing gas pipeline infrastructure, and many other synergies between the two fuels point to the oil and gas industry being a key partner in any future hydrogen economy.

CCS is another technology that the industry is leading on, and can also enable large-scale, cost-effective CO<sub>2</sub> mitigation. The vast majority of currently operational and planned CCS projects relate to the oil and gas sector. CCS is also a prerequisite for the development of low-carbon hydrogen and the enablement of low-carbon fuels and electricity to be used in transport, homes and the industrial sector.

A big part of Ipieca's work is to raise awareness of these technologies and support collaboration within the industry and across sectors to support their sustainable scale up.

### **How can energy efficiency support the energy transition?**

**Sullivan:** While hydrogen and CCS get most of the attention, when it comes to energy transition enablers we shouldn't overlook the importance of energy efficiency as a tool in reaching a low-carbon future.

Reducing energy consumption is the most cost-efficient way of reducing GHG emissions and can make a huge impact on climate action. IEA analysis demonstrates that up to 40% of the emissions abatement required by the Paris Agreement could be delivered by energy efficiency. Importantly, taking energy efficiency measures not only lowers emissions but will generally also have a positive financial impact on operations—a win-win.

At Ipieca, we've recently updated almost half of our compendium of energy efficiency technologies and practices. Produced in partnership with IOGP, these web-based resources are freely available to all and provide guidance on energy efficiency technologies and best practices for use across the value chain, highlighting the business benefits of integrating them into operations.



Ipieca's CEO Brian Sullivan

### **How can the industry support a just transition?**

**Sullivan:** A just transition is at the heart of what Ipieca does: our vision is to advance environmental and social performance across the energy transition. Our interconnected strategic pillars of climate, nature, people and sustainability enable us to work on these issues in a holistic way, maximising impact. In 2021 we established a Just Transition Task Force to support the oil and gas industry's participation in the transition to a lower-carbon world in a way that's just and fair for workforces, communities and consumers. There is broad agreement from international development agencies, governments, NGOs, investors, companies, human rights organisations and civil society groups that the energy transition needs to be fair and not leave anyone behind. That means respecting the rights of communities and workforces—whether they are affected by the transition out of existing operations or by the development of new lower-carbon energy. We need to make lower-carbon energy affordable and reliable for all, while at the same time protecting the interests of vulnerable groups and making progress on the UN Sustainable Development Goals.

A just transition requires industry, and as part of this transition all sources of energy need to be managed in order to ensure access, security and progress. As a key pillar of the energy system, oil and gas is an important contributor to the ambitions at the heart of the UN Sustainable Development Goals, providing the energy needed to support fair growth and improved living conditions for all. Providing over half of the global energy mix, markets cannot simply switch off from industry if they are to support a smooth transition. As the incumbent sector in many places, the oil and gas industry has an unrivalled line of sight when it comes to how to support the transition, where investment is needed and what the economic, human and natural impacts might be.

