ESF North America

ENERGY & SUSTAINABILITY FORUM

Decarbonizing the Downstream Industry

ADVISORY MEETING TAKEAWAYS

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2024 ADVISORS

Ahead of the next edition of ESF North America, we gathered our 2024 advisors to discuss and debate the challenges and opportunities driving the decarbonization of the downstream industry, and importantly shape the discussions that will take place in May in New Orleans!

Here are the highlights and key takeaways from the 90 minute discussion.

MODERATOR

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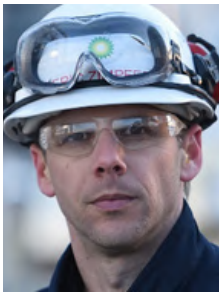

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APOLOGIES

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MATTHEW VIERGUTZ, GLOBAL HEAD CLEAN FUELS AND CHEMICALS LICENSING, **SULZER**

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DISCUSSION TAKEAWAYS

THE IRA, A YEAR+ IN

Without doubt, the incentives have created a supply stimulus, driving investment back into the US, spurring more production in the region, and insulating some of the foreign imports. Whilst across the value chain, biodiesel, SAF, and renewable diesel production projects have been boosted, in parallel strategically many are also contemplating feedstock businesses that will drive the healthiness of the North American market over the next few years.

IMPACTS ACROSS THE BORDER

The IRA has significantly impacted Canada's net zero transition investment landscape and shaken up supply-demand scenarios. At both provincial and federal levels, governments are moving to put in place the conditions that would allow for investment.
Newfoundland has moved quickly to propel the development of green hydrogen and ammonia. Canada's key chemical-producing province of Alberta has put investment support in place as have Ontario and Quebec. At a federal level, the government has proposed five new refundable investment tax credits (ITCs) designed to grow the country's clean economy and allow Canada to remain competitive in attracting investment in clean energy projects.

CARROTS AND STICKS

Besides the carrots, there are also sticks in Canada with the national carbon price and other regulatory initiatives that have implied carbon pricing effects including the clean fuels standard, the clean energy regulation, and the recently announced methane reduction framework. Beyond those, there is an oil and gas emission cap that's coming, and several other policy instruments that are being used in Canada to drive decarbonization. While the USA's IRA consists almost only of carrots, Canada's stick approach has consequences for the global competitive position of Canadian low-carbon products where decarbonization projects are effectively being paid for twice, once through the carbon obligation through OpEx on an ongoing basis and second by finding the cash to fund the project when it reaches FID. There are also uncertainties and impacts around the supply of feedstocks impacting the speed and ability of those in Canada to move and keep pace with US counterparts.

CERTAINTY AND DEMAND

While investment support is important, certainty and demand are critical. Canadian producers, as large final emitters are paying a carbon tax, whilst also expected to make new investments. Are customers prepared to pay a premium for a net zero product that's competing in a highly commoditized market? Dow's recently announced plans to build the world's first net zero ethylene and derivatives complex in Fort Saskatchewan speaks to customer demand. When it comes to certainty, is the infrastructure in place to transport and store the CO2, is there certainty around permitting? Whilst from a government perspective there's certainly interest in decreasing emissions, these are some of the critical hurdles, especially for those competing globally to overcome.

THE CHICKEN OR THE EGG

Which came first? Do you need the demand first before you can supply it, but can the demand be there without the supply? Incentives play a hugely important role in helping to get in front of this.

WHAT IS THAT PREMIUM?

Whilst there may be an increasing willingness to pay a premium for low-carbon products from customers, be it airlines, rail, or diesel customers, the question that remains is what is that premium and is there a transparent and fair allocation of risk versus economics across the value chain to drive that willingness? Today SAF isn't justified without a premium from the customers to produce and the expectation is that this lag won't be going away anytime in the short term. Another perspective is that whilst the customers lower carbon end product may be the same, a shiny new greenfield vs a brownfield retrofit is a factor impacting and influencing a customer's willingness to pay a premium.

THE RISKS AND APPETITE FOR STEP-OUT TECHNOLOGIES

Specifically in the US where subsidies drive investment decisions and economics, the attention is shifting away from long-term “step-out” technology development towards what can be built now and at a larger scale by tweaking existing mature technologies that also present better bankability for lenders' green investment vs the risk perceptions of the new step-out technologies. More generally, while there is a tremendous amount of interest in supporting new technologies once the risks of the “first of a kind” are seen, that interest very quickly disappears, presenting a huge challenge for the industry in bringing in anything that is “step-out”. On the positive, this allows for more time to keep developing those technologies to mature and commercialize.

THE POWER OF PARTNERSHIPS

We’re seeing an increasing number of partnerships to help fast-track and accelerate technology developments and make them more bankable, NET Power being a recent example.

THERE IS A LARGE DEMAND FOR CAPITAL DOLLARS....

which in Canada is skewed towards reducing emissions in the short term. An escalating carbon price and no credits for R&D are incentivizing an environment where every dollar is spent on reducing physical emissions as opposed to taking any of the technology bets seen in other environments like the US and Europe.

RENEWABLE MARGINS AND SHIFTS

As the US phases out from the non-derived carbon intensity (CI) blenders tax credits to the CI-derived clean fuel production credit (CFPC), there are still questions around which feedstocks are going to get the credit and uncertainty around the shifting impacts and rebalanced feedstock positions and credit pools. For instance, will soybean oil biodiesel plants get any credit, and if so, how much? Do they face uneconomic operations, or will they be forced to shut down?

THE SAF "FLAVOR DE JOUR"

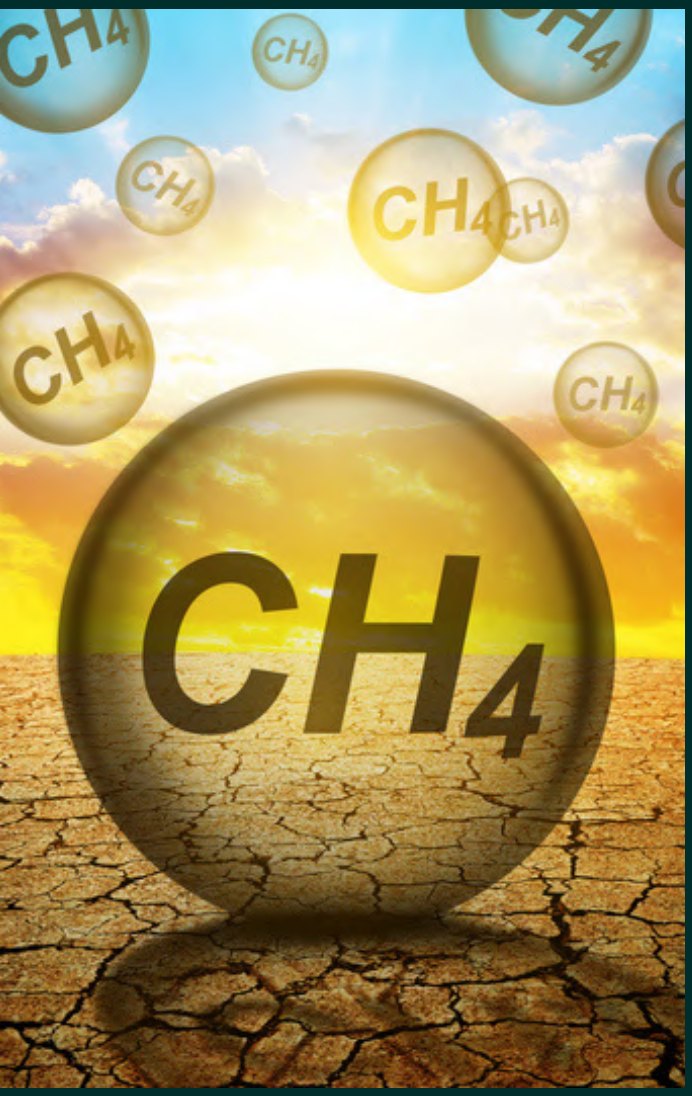
We're witnessing a slowdown in biodiesel and a pivot towards SAF. Is this pivot towards SAF investment a continuing trend at the expense of biodiesel? The slew of SAF projects in North America is creating a market expected to produce 2,418 million gallons per annum by 2030.

PAYING A PREMIUM

Whilst there is no shortage of project ideas or project potential to decarbonize, getting intelligence on what premium can be captured downstream to help pay for the projects and the customer's willingness to pay a premium for low-carbon products is make or break in determining how aggressively we can move forward with any projects, regardless of who is taking the risk. Today's high inflationary environment further exacerbates the challenge.

AMMONIA - A TEMPORARY SOLUTION?

Cumbersome, unsafe, logistically heavy, and essentially a circumvented way to move hydrogen from one place to another, will the economics be out-competed with making hydrogen at the destination points through other technologies?



WHAT ABOUT METHANE?

There is an enormous focus on CO2 reduction but there is a lack of focus on other emissions, especially methane. Several technologies exist to monetize methane and a hydrocarbon that has value, mitigating methane leakage and emissions can be profitable from day one.

IF IT'S NOT GREEN IT'S NO GOOD

There is a lack of recognition in our processes that we will make methane regardless. Converting the methane byproduct into hydrogen on a circular basis is not the same as creating blue hydrogen using natural gas from out of the ground which, in some parts of Europe especially, still gets a lot of stigma and is unincentivized. There are still hurdles of perception to overcome in understanding that not all blue hydrogen is the same, and in fact, circular hydrogen is arguably better than green!

PYROLYSIS' PIVOT POINT

Despite a lot of opposition, pyrolysis is a simple, scalable circular solution that can and is being implemented today and set to see substantial growth of investments in the coming years, perhaps even ahead of other more sophisticated chemical recycling technologies where feedstock availability and product disposition may be an issue. The economics are favourable and don't require investment in PE and PS sorting.

IT'S NOT GARBAGE, IT'S FEEDSTOCK

whether it's used cooking oil, or plastic waste, feedstocks are a commodity of great value fast becoming a business in their own right. Neste's acquisition of a used cooking oil collection and aggregation business from Crimson Renewable Energy to strengthen its renewable raw materials sourcing platform was shared as an example. From a Canadian perspective, garbage and waste collection is managed at a municipal local government level and the key driver for managing waste is cost. Today almost every jurisdiction is moving forward with the extended producer responsibility whereby the company that brings plastics into the marketplace is responsible for end-of-life management which will create some demand that will drive some solutions.

ADAPTATION

Direct air capture and other means for carbon removal may be the most cost-efficient way to deal with CO2 emissions in the atmosphere. CO2 is a global problem and whilst depending upon what we do and how we do it, there is an impact locally, but globally we still have to deal with the issues around adaptation. As an example, from an industry perspective, how do we make our facilities more resilient to changing weather?

HELP TACKLE HUMANITY'S GREATEST CHALLENGE

We cannot underestimate the resource challenge our industry is facing. We need to do more to promote the energy transition as a revolution and the next dot-com bubble. We are not doing enough to excite those who have an interest in sustainability and helping to fight some of the major challenges of our time to understand that it is our industry where they want to work. We are the ones that are going to make the biggest difference with the products we are making, and the technologies that we are going to be employing.

ESF North America

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29–31 May 2024

New Orleans, USA

EPC Euro Petroleum Consultants

JOIN US THIS MAY

SECURE YOUR SLOT IN THE AGENDA

Taking a technology-neutral approach, ESF North America will present and explore all the decarbonization technologies and strategies on the table including:

- Sustainable fuels, chemicals and circularity
- Low carbon hydrogen, green ammonia and methanol
- CCUS
- Energy efficiency and asset optimization, including digitisation
- Waste water use and management
- The energy trilemma - secure, affordable, and sustainable
- Industrial integration and clusters

Submit Your Abstract

SECURE YOUR PASS TO ATTEND

ESF North America supports the industry to reduce its carbon intensity and emissions, quickly and profitably. Secure your pass today and ensure you are part of the conversation in New Orleans next year. Refining, petrochemical and chemical producers/operators attend for free!

Register Now

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