



# ESF 2021

ENERGY & SUSTAINABILITY FORUM

*Decarbonising the Downstream Industry*

**31 May - 2 June 2021, Virtual**

# POST SHOW REPORT

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This event is amazing, the presentation are at high quality level. Sharing, networking is one of the best way to improve your business and make strong relationships. TotalEnergies is transforming to provide clean, affordable and reliable energies for all in the world, and proud to be part of ESF 2021.



525 Registered Delegates



59 Speakers & Panellists



92 Meetings



65% Operators/Producers



11 hours of content



1688 Visits to Exhibition Stands



# KEYNOTE SPEAKERS:

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**Gabrielle Gauthey**  
Senior Vice President  
Carbon Neutrality  
Businesses

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**TOTAL**

## **Getting to Net Zero**

“The energy sector has a great responsibility to reach the 1.5-2 degrees target. We have committed to very ambitious sustainability goals, an ambitious plan to become carbon neutral across our whole value chain, first across our scope 1 and 2 by 2030 -40% vs 2015. Scope 3 we want to reduce by 20% worldwide by 2030”

Three pillars of our policy;

- 1) Tackling our own emissions, scope 1 and 2
- 2) Decarbonising the energy mix of the products we sell, scope 3
- 3) Developing carbon sinks



**Samar Al-Hameedi**  
Vice President  
Sustainability

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**ADNOC**

## **Building Upon a Low Carbon Legacy**

“The energy transition raises some existential questions for the oil and gas industry, so how can we manage a shifting landscape and as well, play a leading role in the decarbonisation story? National oil companies find additional challenges as they are stewarding the national hydrocarbon resources and contribute significantly to the enhancement of the national economies that they operate in. They are also a major contributor to national commitments on emission reduction, so therein lies the dual challenge. As the transition to a low carbon system progresses, global dependence on oil and gas will remain a reality, therefore it is imperative that energy is produced with the lowest carbon footprint possible”



**Dr. Fahad Al-Sherehy**  
Vice President  
Energy Efficiency &  
Carbon Management

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**SABIC**

## **Enabling the Circular Carbon Economy (CCE) Through the Application of Game-Changing Technologies**

“Looking at the 4 Rs, reduce, recycle, reuse, remove. We have two aspects, first around our GHG emissions, scope 1 and 2 and looking at the materials we are producing and how we can provide solutions for our customers and society whilst helping others address the sustainability challenge!”

# PANELLISTS:



**Giuseppe Ricci**  
Energy Evolution  
Chief Operating  
Officer  
**ENI**



**Vincent Baril**  
Président  
**SHELL FRANCE**



**Eric Duchesne**  
SVP Refining &  
Chemicals,  
Manufacturing &  
Projects  
**TOTAL ENERGIES**



**John Cooper**  
Director General  
**CONCAWE &  
FUELS EUROPE**



**Leon de Bruyn**  
CEO  
**LUMMUS  
TECHNOLOGY**



**Bryan Glover**  
President & CEO  
**HONEYWELL  
UOP**



**Jean Sentenac**  
President & CEO  
**AXENS**



**Marco Villa**  
COO  
**TECHNIP  
ENERGIES**



**Stephan Roest**  
Strategic Platform  
Leader Circular  
Economy Solutions  
**BOREALIS**



**Marco Jansen**  
Director of Circular  
Economy &  
Sustainability EU &  
Asia / Global Director  
of Bioplastics  
**BRASKEM**



**Miguel García  
Carreño**  
Senior Manager  
Process Design  
**REPSOL**



**Wrishi Sutradhar**  
Director of Strategic  
Planning  
**HONEYWELL UOP**



**Li Tu**  
Global Sector Lead for  
Base Materials, Senior  
Investment Officer  
**INTERNATIONAL  
FINANCE  
CORPORATION**



**Gianpiero Nacci**  
Director Green  
Economy and Climate  
Action  
**EBRD**



**Erwin Nederkoorn**  
Managing Director -  
Energy  
Mid/downstream  
and Services  
**ING BANK**



**James Mackey**  
Managing Director -  
Project Capital  
**OGCI CLIMATE  
INVESTMENTS**



**Outi Ervasti**  
Vice President  
Renewable  
Hydrogen  
& PTX  
**NESTE**



**Torbjørn Fossum**  
Vice President  
Global CCS  
Solutions  
**EQINOR**



**Dr. Graham  
Cooley**  
CEO  
**ITM POWER**



**Jorgo  
Chatzimakarkis**  
Secretary General  
**HYDROGEN  
EUROPE**



**Mark Tandy**  
Senior CCS  
Developer  
**TOTAL ENERGIES**



**Marcos Matijasevich**  
Senior Advisor  
Transition to Lower  
Carbon  
**ESSAR OIL**



**Niels Anspach**  
Vice President  
Bio & Low Carbon  
**BP**



**Michele Viglianisi**  
Circular Economy &  
Green Refinery  
**ENI**



**Panu  
Routasalo**  
Vice President  
**UPM  
BIOFUELS**



**Alex de Mur**  
Managing Partner  
**BOSTON  
CONSULTING GROUP**



**Christian Küchen**  
Director General  
**MWV**



**Tilman Weide**  
SVP Global  
Execution, Member  
of the Executive  
Leadership Team  
**LINDE**



**Stefan Diezinger**  
Vice President  
Sustainable Energy  
Systems  
**SIEMENS ENERGY**



**Christian Cabrol**  
CEO  
**TOTAL ENERGIES  
GMBH**



# KEYNOTE PANEL DECARBONISING THE DOWNSTREAM INDUSTRY IN A (POST) COVID-19 ERA

Our day 1 morning keynotes concluded with our keynote panel (comprising of Eric Duchesne, TOTAL ENERGIES, Vincent Baril, SHELL FRANCE, Giuseppe Ricci, ENI, John Cooper, CONCAWE & FUELS EUROPE & Alan Gelder, WOOD MACKENZIE) where our esteemed panellists addressed some of the most pressing challenges and opportunities that have impacted the industry over the last 18 months.



In a year characterised by uncertainty, what has 2020 taught us? Undoubtedly the COVID-19 pandemic has been deeply challenging, shaking global economies. Closer to home for the downstream sector, we witnessed a deep and sudden fall in energy demand that has partially recovered today however, it was remarked that the transition to climate neutrality will have a bigger impact on business models, value chains and long-term growth. Backed by a surge in PPE and medical equipment, demand for polymers has increased, confirming for the industry the trend towards petrochemicals.

After many initially considering the pandemic as a problem for the transition, it was soon recognised as an accelerator due to the significant changes witnessed to the model of life. 2020 has proved the importance of flexibility and adaptability of assets, and of operational excellence.

Governments all over the globe have put money into recovery plans, a lot of which is dedicated to the energy transition. Green recovery policies will help to foster growth and accelerate decarbonisation however, it won't be easy and the industry has to work hard to deeply change. When it comes to the legislative frameworks, it's work in progress. There is a great deal going on, with the European Commission due to imminently announce a large package of proposals for how to implement the increasingly ambitious Green Deal. Furthermore, a revision of the Renewable Energy Directive is expected with obligations for the fuels industry. Finally, a change in taxation to be carbon based will have a big impact on the economics of bio and e-fuels. With a huge amount going on, it's hard for our industry to know what to aim for while the targets are moving!

Looking at Biofuels, it was agreed that they are a good opportunity for Europe and will grow. For Europe's metropolitan areas with a high concentration of cars doing a low number of kilometres per day, electrification is a good solution. But for the hard to abate heavy duty, long distance, marine and aviation sectors, a realism has come back in that we need a wide range of solutions and liquids can and should be a part of the solution alongside electrification and gaseous fuels. If the industry embraces a wide variety of feedstocks, then the scale that can be produced is quite significant. Meeting climate change neutrality is a science and technology challenge, and as a science and engineering-based industry, the downstream industry is well equipped to do that. Collaboration is key and will enable us to go much further and faster. What we know about energy transition is that we must invent new technologies, new supply chains, new value chains and new markets but we can't do that on our own, we need to partner with peers, customers, governments, and technology owners.

To conclude, the transition is a pathway, not a moment in the story. There is no silver bullet, and we must take advantage of all the opportunities in parallel – hydrogen will be there, alongside liquid fuels, and electricity. Our industry with its infrastructure, technology and know-how can make a significant contribution and needs to be confident in the important role that it will play. Despite the huge challenge ahead with smart collaboration we can be sure of success!

# KEYNOTE TECHNOLOGY PANEL THE PATH TO NET ZERO: TRANSFORMATIONAL TECHNOLOGIES AND ENABLING ENGINEERING

The conference welcomed leading technology experts to discuss their central role in the transition journey, Marco Villa, TECHNIP ENERGIES, Jean Sentenac, AXENS, Leon de Bruyn, LUMMUS TECHNOLOGY, Bryan Glover, HONEYWELL UOP & Stefan Chapman, EURO PETROLEUM CONSULTANTS. The COVID-19 pandemic has had a significant impact on the market growth of products and fuels but a strengthening in petrochemicals due to demand of PPE. We have witnessed long-lasting changes in a short amount of time such as changes in mobility resulting in huge interest in sustainable fuels. The technology for sustainable fuels (diesel and jet fuel) is not new – it has been 10 years since the first renewable distillate plants started up and the first transatlantic flight using renewable fuel took place. Growth in this sector was moderate but today there is a huge level of interest in transitioning existing facilities for sustainable fuels with hydrotreating and hydrocracking units much more flexible today for repurposing.

Complexity is growing and we need a coherent approach between industry, government and all key players. For example, complexity of logistics is going to increase as we move towards the energy transition for feedstocks and products i.e., waste plastic recyclers will become producers of feedstock for the petrochemicals market as new pathways open up and move away from fossil derived feedstocks. The benefits of partnerships apply here to provide drop-in/modular solutions to operators. Existing technology providers have the expertise, skills, R&D and process knowledge to support these new partnerships, therefore speeding up the time to market for new technologies.

**Commercial Officer Refinery, Guvnor**  
EPC goes future. Driven by the circumstances this year, EPC has not made the event a good one but a real great one. Taking into consideration the change from meeting face-to-face to this year's format was fantastic and great achievement of the EPC team. Technically very well realised. Enabling all us of to share, listen, network and follow the discussions as we are used from the past. Thanks to EPC team and all people that made this event great.



Fossil derived fuels are being replaced with bio-derived products and refiners that feed into petrochemicals are looking more closely at COTC solutions. As the production of fossil transportation fuels is eliminated, an interesting dynamic is emerging; refiners could become pre-treatment facilities for petrochemicals. We all know the world cannot function without plastics, but we cannot keep producing unrecyclable products so co-processing is the solution.

The potential of hydrogen is a lifeline to refiners and the technologies for low carbon/blue hydrogen are available now. For example, CO2 produced from SMR hydrogen production can be captured much easier than other sources. Commercially proven technology can be integrated into PSA cycles which is economically attractive and can increase hydrogen production by up to 10%. Technology providers are also looking at ways to reduce the cost of carbon capture and how this process can be applied to all units.

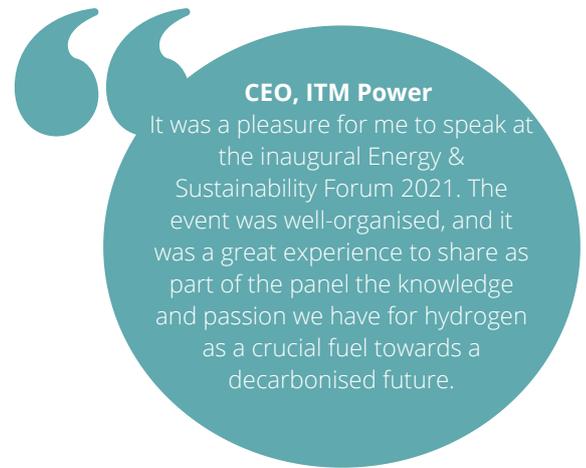
Looking ahead to the next five years, a holistic approach is required using a combination of process and digital technologies to maximise existing assets as well as offer the flexibility to meet market demands. We must remember that some assets have another 30-40 years of operation left so it is vital these are repurposed.

## PANEL: Turning Trash into Treasure Commercialising Circular Economy Strategies

The conference heard from a panel of experts, Marco Jansen, BRASKEM, Miguel García Carreño, REPSOL, Stephan Roest, BOREALIS, Wrishi Sutradhar, HONEYWELL UOP & Frans Stokman, CEFIC, that discussed the path to sustainability within petrochemicals. The panel discussed two ways operators can improve their sustainability; first using bio-based or waste feedstocks along with sustainably sourced energy for operations and secondly by addressing plastic waste, with only 15% of today's plastics recycled globally. There is undoubtedly a lot of value in plastics and whilst the focus on plastic recycling has increased over the past few years, there are still challenges keeping the statistic of recycled plastic so low. The discussion continued with ways the industry could overcome these challenges by re-designing products with recyclability in mind, working together with the entire value chain and deploying the best technologies on the market to help close the loop.

In terms of technologies, it is recommended to close the loop first with mechanical recycling whilst continuing to develop new technologies for advanced mechanical recycling to offer a low carbon footprint. Chemical recycling is essential and compliments mechanical recycling to further valorise residue streams. To fully close the circle, we need to keep the plastics in the loop for as long as possible. For any leakage or wear-out, feedstock can come from renewable and potentially carbon capture utilisation.

It was noted during the panel that the speed of change over the last 10 years is enormous with continued investment in innovation and R&D needed for the massive scale up of recycling. The industry needs regulatory initiatives to standardise the methodology for life cycle assessment (LCA) and mass balancing and to provide tools to compare and measure different products collectively. Partnerships between all stakeholders is equally as important. Product end-users, waste management companies, municipalities, government, regulators, producers, and technology providers all have a part to play. Through education and policy, all stakeholders can be incentivised to contribute to the circular economy, adding value to the chain.



### Creating a Circular Economy for Plastics

"Every year, Europeans generate 25 million tonnes of plastic waste, but less than 30% is collected for recycling" states the 2018 European Plastics Strategy

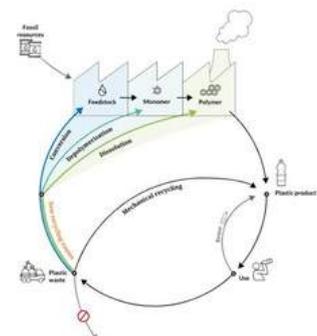
#### Plastic recycling today:

- 15% of the plastic waste today finds its way back to the market
- Mechanical Recycling

#### Plastics Recycling tomorrow:

- 85% currently incinerated or landfilled
- Mixed Plastics Waste
- Contaminated Plastics
- Complementing opportunity for Mechanical -, Dissolution -, & Chemical Recycling

Welcome to 2050!  
Circularity: The European Economy has gone circular, recycling all sorts of molecules into new raw materials



Visit our Chemical Recycling website for further information [www.cefic.org](http://www.cefic.org)

## PANEL: FUNDING THE PATH TO NET ZERO PUTTING CAPITAL INTO LOW CARBON

The panel (comprising of Erwin Nederkoorn, ING BANK, Li Tu, INTERNATIONAL FINANCE CORPORATION, James Mackey, OGCI Climate Investments, Gianpiero Nacci, EBRD & Suleyman Ozmen) discussed initiatives in place for companies looking for investment into their net-zero strategies as without capital investment, projects will not advance. It was evident that finance providers will not invest in projects that are not linked to their own sustainability goals, with the IFC and EBRD stating that 100% of new investments will be aligned with the Paris agreement by as soon as 2025. A question arose on how different governments are looking to incentivise the adoption of net-zero strategies.



The US was commented as having one of the most advanced policies for providing incentives into co2 reductions through carbon tax codes. A tax credit scheme is in place as one of the first attempts in North America to put a value on carbon. For certain activities in capturing carbon, between \$35-\$50 can be received per tonne of co2 that is captured and secured either in underground storage or co2 that is captured as part of a feedstock in a new product or process. In Europe, feed-in tariffs are often used as an alternative and have been responsible for the growth of the renewable power industry. It is evident that governments have a crucial role to play in introducing and including a carbon price, which will not only trigger investment, but will provide investors a better understanding of the return profile.

The discussion moved to sustainable financing and the extent to which ESG is a requirement from lenders on the market. ESG plays an incredibly important part in investment decisions for many Multinational Development Banks (MDB). For the IFC, sustainable financing covers the green bonds and loans and blue bonds and loans provided in line with their sustainability commitments. IFC provides incentive benefits and offers lower pricing for sustainability projects, whilst also allowing these projects to use the World Bank Group name to promote the project or company once they receive a green/blue loan. An example was given of IFC investing in Indorama ventures, providing a \$300m blue loan to be used to help the company expand its recycling capacity in India, Thailand, Philippines, Indonesia, Brazil and Mexico. ING Bank also unlocks sustainable financing for their clients through green bonds/loans by identifying if they are eligible, the purpose of the funds and helping with the reporting of the green element, centred around carbon emission reductions. Secondly, they help companies to define and develop KPI's which are legible for the investment community to unlock sustainable financing. In the first quarter of this year, they have extended 54 green projects, a number which is expected to grow throughout the year.

There are a number of critical elements associated with net-zero investments, particularly in emerging markets and developing economies. There is a persistent lack of data, insufficient policy enablers and weak market price signals. An alignment of interest needs to be identified between the policy makers, project developers and investors to create a level-playing field. EBRD and other MDB's promote the development of intelligent low-carbon pathways at a sectoral level, national level and local level that not only identify the type of investment needed and the time frame but also identify the policy enablers that can support the investment. Deep decarbonisation projects tend to be very capital intensive and so creating a timeline of what technologies need to be implemented in what sequence will give comfort to investors. For example, EBRD has been working with the IFA and IEA to develop a global roadmap for the nitrogen fertiliser industry in identifying the steps to create green ammonia value chains which has created strong interest for global players.

In conclusion, it was stated that refiners must participate now at the front end of the transition rather than wait for regulations to be imposed which will see higher funding costs for those who do not take approaches towards cleaner production. Many governments will adopt appropriate carbon tax and price policies so the entire value chain will see operational costs rise should producers not move quickly enough with the transition.

## PANEL: HYDROGEN - THE FUEL OF THE FUTURE? DEVELOPING HYDROGEN AND CCUS VALUE CHAINS

The conference gathered the European Leaders active in Hydrogen and CCS (Marcos Matijasevich, ESSAR OIL, Mark Tandy, TOTAL ENERGIES, Torbjørng Fossum, EQUINOR, Outi Ervasti, NESTE, Jorgo Chatzimakarkis, HYDROGEN EUROPE, Graham Cooley, ITM POWER & Walter Pfeiffer, ROLAND BERGER STRATEGY CONSULTANTS), both of which are vital tools needed to achieve net zero. The discussion began with the type/classification of hydrogen with new terminologies being embraced - renewable/zero carbon (Green) and low carbon (Blue). It was strongly agreed by some panellists that to achieve scale, low carbon hydrogen must be part of the mix. CCS is an enabler to low carbon hydrogen, creating circularity. Business clusters give opportunities to existing refineries to attract investment and 'repurpose' both assets and job skills that exist within the Oil & Gas industry. Profit is a key driver - the rising cost of emitting carbon, the potential fall in the cost of carbon capture and the opportunity for companies to become storage and solution providers is driving commercial business development.

**President & CEO,  
Lummus Technology**

The ESF 2021 has brought together all stakeholders in our downstream industry. Euro Petroleum Consultants professionally organized a very comprehensive agenda and platform on which there is a great open exchange of insights and new developments that help all industry stakeholders prepare better for a sustainable future.

**Business Development,  
Motor Oil Hellas**

All aspects of Downstream decarbonisation were covered by a large number of knowledgeable panellists and speakers. Networking opportunities close to real.



There is enormous potential in zero carbon/green hydrogen through electrolysis technology whilst also offering energy storage solutions. The biggest challenge is how quickly the industry can scale up to achieve the huge gigawatt targets. The cost of electricity, availability of renewable electricity, geo-based projects and access to the grid are all critical factors. It is still unknown what will grow quicker, low or zero carbon hydrogen but it was agreed we will need both in the form of 'clean hydrogen' which should develop as a commodity guided by certain thresholds such as certification, schemes for trade and taxonomy.

The panel finished off by stating that to be successful, we need strong demand which can be stimulated by government plus policy makers. Action is needed now and examples such as the German government announcing an investment of 8 billion for 62 hydrogen projects will help drive the industry forward.



## PANEL: GOING GREEN THE RISE OF THE RENEWABLE ZERO-CRUDE REFINER

As we heard many times over the three days, there is no one single solution to achieve net zero but multiple areas to develop in parallel to each other, and the discussion focused on the Renewable Zero-Crude Refiner was no different. The panellists (comprising of Michele Viglianisi, ENI, Panu Routasalo, UPM BIOFUELS, Niels Anspach, BP, Alex de Mur, BOSTON CONSULTING GROUP & Olivier Mace, BROADMANOR CONSULTING) see three options for existing refiners: CCS/offsetting carbon, hydrogen efuels and bio-based refineries. Each existing asset can be looked at individually to calculate the best way to decarbonise each unit keeping in mind scope 1,2 and 3. A solution for now is implementing co-processing into existing refining portfolios to help deliver the sustainability mandate to the customers in the most economic fashion using the existing supply chains.



Looking short-term (5-10 years) it can be said that the industry is optimistically engaged in bio-based refining. Demand is there for bio products and one challenge to be noted is the reliability and regulatory approval of bio feedstocks. We need a bio feedstock framework/sustainability certification that is both socially and regulatory accepted, as well as economically viable for now and for long-term development. For example, Carinata is seen as a strong potential for bio, whilst protecting the global food supply chain.

Supply and security of bio feedstock is expected to stay local due to transportation costs and associated emissions, however Europe may have to import. It was highlighted that engagement with the local community is important for waste support, whilst customer choice will guide what final products are produced so engagement is as important as ever.

### Refinery Market Manager, Alfa Laval

Wonderful conference with so many great presentations from various companies which provided insights and food for thoughts. Highly recommended!



### Director, Energy Transition and Sustainability, W.R. Grace

This event was a very well organized mix of policy contributors, technology companies, and operators who are transforming their businesses to enable a sustainable future.

# REIMAGINING THE FUTURE OF ENERGY IN GERMANY SETTING THE SCENE FOR ESF 2022 BERLIN

2022 will see ESF take place in Berlin so to conclude the inaugural ESF Virtual, our final panel discussion focused on Germany's energy transition journey to date, comprising of Stefan Diezinger, SIEMENS ENERGY, Christian Küchen, MWV, Christian Cabrol, TOTAL ENERGIES GMBH, Kilian Crone, DENA, Tilman Weide, LINDE & Philippe Roos, ENERGY INTELLIGENCE. The panel kicked off by discussing the success of the country's energy transition (so far). Much of the foreign press have focused on its failings with the continued substantial use of coal, slow decline rate of GHG emissions and expensive energy. Our panel discussed its mixed picture. On a positive, a lot has been achieved with renewable power generation being expanded significantly, contributing 45% of the power mix today. The country has developed and implemented many low carbon technologies – hydrogen, waste heat pumps and electrification, the foundation for the energy transition. Conversely, the price has increased dramatically. 25% of power price comes from the cost of generation, with the remaining attributed to taxes and fees. The expansion of renewables has slowed down tremendously, an increasing concern especially with the 2030 target from the federal court having risen from 55% to 70%. Our panellists concluded that accelerating the adjustment of the political framework and pace of implementation is required.

Discussing the future for liquid fuels in the country, it was commented that due to energy density and safety concerns, without doubt there remains a future for the aviation, marine, heavy duty and long-distance road transport sectors. For the aviation and shipping industries, the business models for renewables remains unclear. Despite Germany's ambitious 2045 GHG neutrality target, today there is still, and will continue to be, a significant number of cars with combustion engines. Even if the country's 48 million passenger cars on the road today are broadly electrified there is still expected to be 30-35million cars with combustion engines in 2030. Furthermore, demand for hydrocarbons remains from the chemical industry. Nevertheless, liquid fuels will be progressively replaced with the share of liquid hydrocarbons set to decline from 55% in 2019, to 35% 2030 and 20% in 2050.

### DAY 3: PANEL DISCUSSION: REIMAGINING THE FUTURE OF ENERGY - FOCUS ON GERMANY



Turning the conversation to the deployment of a hydrogen economy in Germany and EU, no one can foresee momentum in the next few years, with no significant scenarios before 2030. Looking at the drivers for hydrogen in Germany with its low solar potential and densely populated space constraints, there are high hopes for hydrogen to be big and help to close the gap in the ambitious climate targets. Conversely to be cost effective, green hydrogen requires cheap, abundant renewable electricity and large production facilities both of which are not conducive for the country. Whilst the hope is that green will eventually win, there will be blue in the interim, requiring CCS. It was agreed that without carbon capture and sequestration Germany cannot decarbonise its industries completely, let alone quickly enough. The country has the CCS technologies and demonstration plants to prove that it is not only technically, but also quickly feasible.

## REIMAGINING THE FUTURE OF ENERGY IN GERMANY SETTING THE SCENE FOR ESF 2022 BERLIN

Whilst the hope is that green will eventually win, there will be blue in the interim, requiring CCS. It was agreed that without carbon capture and sequestration Germany cannot decarbonise its industries completely, let alone quickly enough. The country has the CCS technologies and demonstration plants to prove that it is not only technically, but also quickly feasible.

Echoed in earlier panels, there is no silver bullet from technology point of view that will solve all problems. Several technologies are required in parallel in transition steps.

Looking specifically at Germany's downstream industry, petrochemicals and downstream processes will continue for the long term but feedstocks will move to bio based or hydrogen generated. To achieve climate neutrality, the refineries of the future cannot be oil based and must adapt to accommodate new feedstocks and technologies. Step by step oil will be replaced with bio-based waste residues and feedstocks. From a technological point of view, Germany has started to deploy electrolyzers with 40% of planned electrolyser capacity to be installed in refineries in Germany. Furthermore, we expect to see more synthetic fuel processes via methanol or Fischer-Tropsch.

Looking at the role of natural gas, whilst coal and oil are phased out, it will play a great complimentary role to renewables as a bridge fuel. Biogas is expected to play a significant role in the hard to decarbonise marine and long-haul transport sectors.

To conclude the conversation turned to net zero targets. Will Germany, Europe and the world make it by 2050? Our panellists had mixed views. Despite being deemed technically feasible, it requires the right framework, and today's regulations will not suffice. Europe is on track, but there is a lot of work to be done to make it accepted by the population from a cost perspective. Once again, there is no silver bullet and all available routes need exploring. Questions were asked about how the developing world can afford the transition, affirmed the need for a global solution.



We look forward to further tackling and discussing the downstream industry's journey to decarbonisation at ESF 2022 taking place in March in Berlin, Germany.

# UPCOMING ESF EVENTS

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The realisation and realities of sustainability and climate goals are hitting the Middle East's hydrocarbon sector. The region, with its abundance of natural resources is uniquely positioned to be instrumental in fulfilling the goals.

The downstream sector is key to delivering the transition globally. Today success is no longer just measured on safe and profitable operations, but also the delivery of energy and operational efficiency whilst demonstrating a commitment to ESG and maximising in-country value and circularity.

As the region's refiners and petrochemical producers position themselves for a low carbon transition, ESF MENA will support the collaborations, discussions, and development of a sustainable energy future in which the Middle East's downstream industry continues to play a leading role.

Find out more here: [esfmena.europetro.com](https://esfmena.europetro.com)

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Following the great success of the inaugural ESF in June 2021, Euro Petroleum Consultants are pleased to announce ESF 2022 will take place in March in Berlin.

Stay tuned for further updates! Visit [esf.europetro.com](https://esf.europetro.com) for more information

## Technology Development Engineer, CEPISA

This forum has been very interesting, it has covered most of the challenges we are seeing in the energy industry. Congratulation also for the organization, everything has run smoothly.