



ESF Europe 2023

ENERGY & SUSTAINABILITY FORUM

Decarbonising the Downstream Industry

20–22 February | Amsterdam

POST EVENT REPORT

ORGANISED BY EURO PETROLEUM CONSULTANTS

 europetro.com/esfeurope

TABLE OF CONTENTS

Introduction	3
Seminars	5
ESF Europe in Numbers	7
Media (Video & Photo Gallery)	8
#ESFEurope in the Media	9
Sponsors & Exhibitors	13
Participating Companies	14
Media Partners & Supporters	15
Key Speakers	16
KEYNOTE PRODUCER PANEL	
Secure, Affordable & Low-Carbon - The Energy Trilemma	17
Decarbonising Across Different Agendas	18
Securing Global Competitiveness and Investments	19
PANEL - Decarbonisation & Digitalisation: When Two Mega Trends Collide	21
DEBATE - The Big Debate Hydrogen - Enabler or Hindrance	22
Arguing for the motion	22
Arguing against the motion	23
PANEL - Planes, Trains and Automobiles: Fuelling the Future of Mobility	24
PANEL - Empowering Waste: Plastics Potential	26
KEYNOTE TECHNOLOGY PANEL	
The Hare and the Tortoise - It's a Marathon Not a Sprint!	27
Regional Differences	28
Technology Deployment and Role of Companies	29
CLOSING PANEL	
Viva España!	30
Low Carbon Hydrogen - A Game Changer	31
Innovation to get to Scale	32
Contact Us	34

INTRODUCTION

From the 20-22 February at the Anantara Grand Hotel Krasnapolsky, Amsterdam, downstream industry leaders gathered to discuss how decarbonisation targets can be met as efficiently and rapidly as possible. With societal pressure towards climate change ever increasing, the industry must be at the forefront of the energy transition and ensure the sustainability journey continues to move forward. Across three days of interactive panels, seminars, debates, engaging presentations and networking formats, we explored and discussed a range of strategies and solutions to help enable the industry to meet its goals.

The conference kicked off discussing “Decarbonisation – From Pathways to Delivery”. This keynote session gave us insights into how Europe’s downstream industry can be enabled and supported to deliver on the 2050 Net Zero goals. Presentations from **Wood Mackenzie, Neste, Lummus Technology, Topsoe, Axens, Fluor, KBC & Sulzer** explored today’s market threats and opportunities and how these can be overcome or leveraged, whilst exploring the various pathways for the industry’s decarbonisation journey. The session also featured our keynote producer panel where leaders from **MOL, Galp, Neste & OMV** joined us to discuss the pressing topics of “**Secure, Affordable & Low Carbon – The Energy Trilemma**”.

[Read the full panel takeaways.](#)

The afternoon of day one saw the conference dig deeper into various hot topics. In-stream A, we welcomed informative presentations from **Emerson, Honeywell, Schneider Electric & Cognite** who gave us a great insight into how digitalisation is driving decarbonisation. To conclude the session, digital experts from **Essar Oil UK, MOL Group, Eni, Repsol & Accenture** took to the stage to discuss how digitalisation can enable the downstream industry to meet its decarbonisation goals.

[Read the key takeaways.](#)

In parallel, our Hydrogen & CCUS session covered how hydrogen can be brought from niche to mass market. Excellent presentations from **Wood, Essar Oil UK, Becht & BD Energy Systems** explored some of the various H2 technology solutions available. Rounding off a very successful first day, leaders from **BP, Repsol, Equinor & Phillips 66** took part in an exciting new format and debated on whether the fixation on hydrogen as “The Silver Bullet” is a hindrance to the energy transition.

[Read the key debate takeaways.](#)

Day two continued with focused streams. In stream A we heard insights into sustainable fuels with presentations from **Axens, Honeywell UOP, SHV Energy, Grace & ART Hydroprocessing, Lanzatech, ExxonMobil & Johnson Matthey** who discussed ways to support the future renewable refiner. This session also featured a panel joined by **Neste, Chevron Renewable Energy Group, BP, Boeing & Cepsa** who shared their views on how to fuel the future of mobility.

[Read the key takeaways.](#)

Stream B covered all things related to circularity and sustainable chemical catalysts & feedstocks, with excellent presentations from **Lummus Technology, Topsoe A/S, BASF, Honeywell UOP & Evonik** who explored the solutions helping the industry achieve a circular economy. To cover the important topic of **“Empowering Waste: Plastics Potential”**, **CEFIC** led a team of experts from **Chevron Phillips Chemical, Alliance to End Plastic Waste, Agilyx, Braskem & Eni** in an insightful panel discussion.

[Read the key takeaways.](#)

With so much discussion around the future and long-term goals, the final session 'Critical Capabilities & Collaboration' explored what can be done today to provide the industry with quick wins. Diving into the low-hanging fruits and opportunities for the industry, **Alfa Laval, Petroval, Daily Thermetrics & Genesis** gave us technical insights into the proven solutions available today. This session also featured our keynote technology panel, gathering senior representatives from **KBC, Wood, Lummus Technology, Johnson Matthey & Honeywell** to discuss **“The Hare and the Tortoise - It's a Marathon Not a Sprint”**.

[Read the full panel takeaways.](#)

To bring the event to a close and give us a taste of what to expect next year, **Cepsa, Repsol & Galp** joined us to discuss how Iberia is decarbonising. With ambitious projects and goals in line, we can't wait to catch up with them again in Madrid 2024 and see how their sustainability journey is progressing.

[Read the full panel takeaways.](#)



SEMINARS

ESF Europe began with two pre-conference seminars hosted by **Wood** & **Honeywell**.



Securing the Supply of Sustainable Energy: Balancing the Challenges and Investing in the Opportunities

Opening the seminar day, Wood's experts took delegates on a decarbonisation journey to address the key solutions to reduce emissions and engineer a net-zero future. Topics included:

- Understanding carbon footprint and developing roadmaps for successful decarbonisation
- The opportunities for decarbonising existing asset portfolio
- Technology evolutions and digital solutions to address the circular economy, and the opportunities of processing waste plastics
- Producing low-carbon fuels from renewable energy

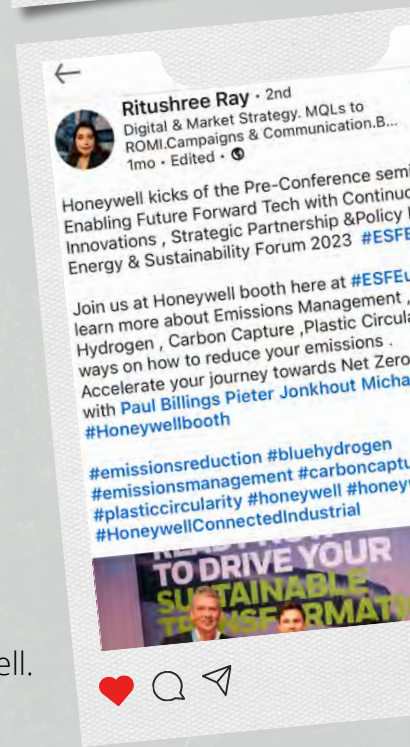
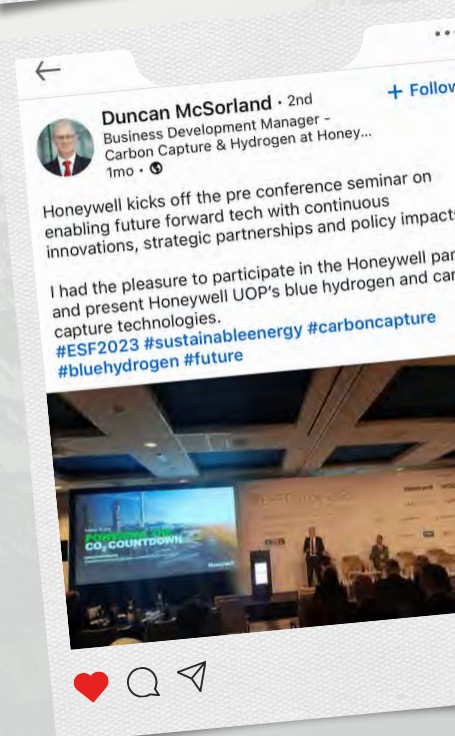
Honeywell

Enabling Future Forward Technologies with Continuous Innovations, Strategic Partnerships & Policy Impacts


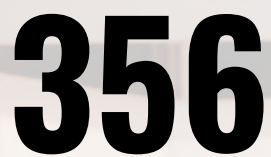
Honeywell's seminar focussed on a wide range of emission management innovations and sustainable solutions that are driving the energy transformation and helping to create a carbon-neutral future. Topics included:

- Policy impacts, the need for innovations & emission management tools
- Syncing software in the refining & chemicals industries to meet sustainability goals
- Simulation of the energy infrastructure & carbon footprint to measure, monitor and report emissions
- Turning carbon emitters into capturers with Advanced Solvent Carbon Capture
- Fuels of the future – Sustainable design of clean hydrogen and biofuels

Delegates then enjoyed a networking drinks reception hosted by Honeywell.





The background of the entire page is a photograph of a trade show or conference. On the left, there's a semi-transparent grey overlay containing statistics. On the right, the photo shows several people in business attire. In the background, exhibition booths are visible with signs for 'ALFA LAVIAL' and 'DENTITE'. The lighting is warm and indoor.

356

REGISTERED DELEGATES

155

PRE-ARRANGED MEETINGS

66

SPEAKERS & PANELLISTS

16

HOURS OF CONTENT

10+

HOURS OF NETWORKING

2

SEMINARS

ESF EUROPE IN NUMBERS

MEDIA

Don't take our word for it!

SEE IT, HEAR IT, READ IT!



**VIEW THE VIDEO
ON YOUTUBE**



**VIEW THE
PHOTO ALBUM**



**FOLLOW THE
OFFICIAL HASHTAG**
... and never miss the latest news!



A great event, meetings with many interesting people, establishing new contacts, expanding knowledge of what is happening in the context of decarbonization and achieving zero emissions by 2050.

*Business Analyst
MET DEVELOPMENT SPA*



It was a very useful conference in terms of technologies and networking. This was the first time I attended the ESF event but won't be the last.

*Digital Transformation Group Manager
SOCAR Türkiye*

#ESFEurope IN THE MEDIA

Axens
@AxensGroup

"Co-designing the #decarbonization pathway" by our expert Romain Roux at #ESFEurope 2023 hosted by @EuroPetro. Thank you for attending!



Romain Roux · 1st
Vice President Decarbonization & Consulting | Sustainable Entrepreneur
1mo · 1

Looking for clear case studies how to decarbonise the O&G downstream industry? I was glad to present at #ESFEurope today how Axens is co designing with its customers their #Decarbonization pathways.

- Energy Efficiency
- SAF production
- Refining to Petrochemical
- Circular economy as Plastic and Lubes recycling
- CCUS
- Hydrogen



Marco Verna · 2nd
Head of Global Downstream Market
1mo · Edited · 1

We at #Genesisenergies are sponsoring the #ESFEurope, join us at our stand with Valeria Bernardini and Siddharth Ragoowanshi Neave Hamblin



Jens Michael Poulsen · 2nd
Business opportunities in plastics sustainability | Cost-effective Design...
1mo · Edited · 1

A sustainability and circularity conference well worth participating in. I enjoyed it, and hope to also be at ESF24 in Madrid.

Camilla Lorentzen · 2nd
Account Executive, Digital Transformation | Oil & Gas
1mo · 1

Thank you for organizing such a great conference this week, **Euro Petroleum Consultants Ltd** 🌟

Really looking forward to continue the discussions we had on how **Cognite** can enable downstream companies to get the most out of their data and support the journey on becoming more sustainable 🌱

#ESFEurope #make #carbonfootprint #
Martin Jönsson · 3rd+
Supporting industries to use the best technolo...
1mon ... 1
Exciting event with an important focus on decarbonize existing industry.

James Patterson · 2nd
VP Hydrogen, bp
1mo · 1

Great debate today at the ESF Europe conference in Amsterdam. Very proud to be on the panel debating on the side of Hydrogen being a key enabler for Europe decarbonisation. bp are doing great things in Europe and globally to take action in low carbon Hydrogen.

Hana Smeckova · 1st
Executive Assistant at Lummus Technology
1mo · 1

#LummusTechnology at #ESFEurope in Amsterdam
#energytransition
#decarbonization #oilgas #sustainability
#circulareconomy #thisislummus



Becht
14,422 followers
1mo · 1

Albert Van Den Bosch took the stage today with an engaging Becht presentation on CCUS Technologies and highlighted recent selection and implementation project success.

Euro Petroleum Consultants Ltd
14,471 followers

Richard Spires · 1st
Director Of Technology Development at Wood
1mo · 1

#Teamwood and our colleagues from #OMV have had a great few days at #ESFEurope in Amsterdam discussing the challenges of the circular economy that can be solved by the ReOil technology. Please reach out to us if you're interested to find out more. **Richard Spires** & **Stefan Pirkner**



+ Follow

Leon de Bruyn · Following
Chief Executive Officer at Lummus Technology
1mo · 1

A great Day 1 at the #ESFEurope, with healthy discussions and common view on the need to advance technologies towards #EnergyTransition.



Kathryn Cole · 1st
Market Developer at ExxonMobil
1mo · Edited · 1

We're here in Amsterdam at #ESFEurope! Come by our booth to discuss how ExxonMobil can support your Lower Emission Fuel (LEF) goals!

ExxonMobil is engineering methanol to jet technology to enable the manufacturing of sustainable aviation fuel (SAF) from renewable methanol.

Louis Burns Mikhail Shiryayev David Mc Namara Ruben Melendez Kathryn Cole Jim Mallon ExxonMobil Javier Moya Antonini ExxonMobil Chemical



Stefan Chapman · 1st
Vice President - Euro Petroleum Consultants Ltd
1mo · 1

Well done to our team at **Euro Petroleum Consultants Ltd** - another great event #ESFEurope 😊

And thank you to **KBC A Yokogawa Company** for hosting the networking event and supporting the conference.

Lee Dacey · 2nd
CEO of Green Star BCS
1mo · Edited · 1

I am excited to be attending the #ESFEurope conference in Amsterdam this week. Looking forward to learning about the decarbonization and sustainability activities in Europe, meeting new acquaintances and hopefully some old friends. Please don't be shy, if you see me say hello!



Colin Baillie · 2nd
Segment Marketing Manager Distillate Hydrotreating and Renewables - ART...
1mo · 1

Excited to be presenting ART's new hydroprocessing catalyst technologies for producing renewable diesel and sustainable aviation fuel. #art #grace #chevron

Euro Petroleum Consultants Ltd
14,471 followers

Jose de Barros · 2nd
VP Ethylene Business Group at Lummus Technology
Great forum and meaningful open discussions

Sascha Vukojevic · 2nd
Director Sales Chemical Catalysts & Adsorben...
1mon ...
Thanks **Euro Petroleum Consultants Ltd** for organizing this fantastic event and for giving us the opportunity to present our sustainability solutions.

Alex Joseph · 2nd
Transforming Industrial Data into
Business Value
1mo · 📌

Brilliant time in Amsterdam attending the ESF
conference this week hosted by **Euro Petroleum
Consultants Ltd** 🇳🇱

Really enjoyed the discussions on how the Downstream
sector pivots to decarbonise and elevate operations
through digital solutions.

As the industrial world, becomes more overloaded with
data, the difficulty of collating and gaining context out
masses of data is becoming more challenging.

Looking forward to returning to the next conference with
the A-Team 🙌

Camilla Lorentzen Patrycja Zamojska Andris Piebalgs
#ESFEurope #industrialdataops #makedatadomore



David Helffaier · 1st
Reimagining Energy @BP | Business Developer
Hydrogen NW Europe
1mo · 📌

Happy to participate at the Energy & Sustainability
Forum Europe 2023 #ESFEurope in #Amsterdam today!

Make sure to not miss todays panel debate 'Hydrogen -
Hinderance or Enabler' with **James Patterson** at 3.45

Eva Andersson · 2nd
Refinery Processing Optimization
Specialist 📌 International B2B sales...
1mo · 📌

Today I shared with the audience in #ESFEurope how to
reduce energy and CO2 intensity in their refinery
processes with 25%. That is what we in **Alfa Laval** call
#RethinkYourRefinery!
Thank you **Euro Petroleum Consultants Ltd** for giving
us the opportunity to talk about this interesting and
important topic!



Ad Roetgering · 2nd
Account Manager at BASF CCP
1mon · 📌

A wonderful and successful event!



Tim Shire · 2nd
Energy Management & Combustion at
Essar Oil
1mo · Edited · 📌

Intensively brainstorming the low carbon future of the
industry at ESF Amsterdam #Es
#ESFEurope

Petrochemicals Europe (Cefic)
2,423 followers
1mon · 📌

A great discussion, thank you for organising!

Diana Maria Matei · Author
Project Development Expert la OMV Petr...
1mon · 📌

Thank you for making it possible! 🙌

Denis Vidotto · 2nd
Business Junior Analyst presso MET
Development SpA (Maire-Tecnimont...
1mo · 📌

What a great pleasure it has been to join this year's
Energy&Sustainability Forum - #ESFEurope in
Amsterdam, bringing together different stakeholders for
the common target of #decarbonising the #OilandGas
#Downstream industry.

It was amazing hearing about how it is our own
responsibility across the whole industry - Oil&Gas
companies, EPC Contractors, Technology providers just
to mention a few - to come together in deploying every
possible measure to tackle #GHGemissions, starting
from #EnergyEfficiency and #Digitalization of current
assets.

#SustainableFuels, #CircularEconomy and Carbon
Abatement measures via #CCUS were definitely among
the most debated topics, with #SAF being really at the
centre of the stage.

Thanks to the **Euro Petroleum Consultants Ltd**
for the amazing organization of this event!
See you in Madrid for #ESF2024!

Markus Hartung · 1st
FOLLOW ME! - Teams make the difference!
1mo · 📌

Conferences bring people together and create space to
generate new ideas and exchange thoughts.

In the last days the #esf2023 took place. A great place
to meet people who have defossilisation and
sustainability on their agenda!

What is my take:

chemical recycling will be key for a sustainable
future

plastic is too valuable to waste (thank you **Leon de
Bruyn** for repeating!)

teaming is essential to create the speed which is
necessary for new technologies to make a change

Thank you **Euro Petroleum Consultants Ltd** for
organising this event!

It was fantastic so see and feel the momentum of the
industry to take the challenge!



Bruno De Jonckheere · 2nd
Petrochemical - Refining - Chemicals | Proces...
1mon · 📌

Well done. Excellent lectures and networking
opportunities.

Jens Perregaard (He/Him) · 2nd
Global Vice President Custom Catalysts & Inno...
1mon · 📌

Had a very energizing time in Amsterdam. A
lot of good conversations many focused on
energy transition with 3 main focus areas
1) Efficiency gains (using assets more
efficiently vs building new)
2) Diversification of feed (moving away from
fossil towards bio and electrons)
3) CO2 capture using both CCS and CCU

Hope we jo

Diana Maria Matei · 1st
Project Development Expert la OMV Petr...
1mo · Edited · 📌

Is there a decarbonization #silverbullet to
get the debate started at #ESFEurope 2023

#esf2023 #omvpetrom



Johnson Matthey
148,677 followers
1mo · 📌

Our CTO, **Maurits van Tol**, spoke on the #ESFEurope
Keynote Technology Panel this week, discussing the
#decarbonisation routes available today, as well as our
investment in future technologies.

"Collaboration is key in our drive to help society move
towards net-zero. We've had some great discussions
with customers and prospects, with partners and
suppliers, and we remain committed to our role in the
energy transition."

Read our 3 key takeaways from the conference
below 🙌

#sustainability

3 key takeaways from ESF Europe · 5 pages

Johnson Matthey
Enabling science, enabling life

3 key takeaways from

Neha Vijh · 2nd
Strategic Marketing Manager at Johnson Matt...
1mon · 📌

Delighted to be in Amsterdam this morning!
We have already kicked off with fantastic
debates on timings, scalability and
technological impact. I'm excited to be on the
journey with **Johnson Matthey**, playing to our
strengths and continuously innovating to
decarbonise the downstream industry
#esfeurope



Francisco Vieira • 1st

Strategy Advisor | Strategy & Sustainability at Galp
1mo • 1

Today, I had the privilege to be part of a panel discussion with colleagues from Repsol and Cepsa at the ESF Europe 2023 conference, in Amsterdam. During the discussion, I had the opportunity to share some insights about Galp's current energy transition strategy and highlight how Iberia is well-positioned to be a front-runner in this crucial journey.

I want to thank [Lee Hodder](#) for giving me this opportunity, and especially for coaching me throughout these days. I also want to thank [Kay Mitchell](#) and [Christina Romanova](#) for all the efforts in making sure everything went smoothly (which it did!).

The energy transition its a reality that shouldn't be ignored and I'm proud to be part of a team and a company that is committed to "regenerate the future together"!

Looking forward to hearing more great insights from next year's conference in Madrid!

Iain Gilmore • 2nd

Business Manager New Products at Davy Proc...
1mon ...

Such a great couple of days at [#ESFEurope](#) this week! Fantastic to see the collaboration and progress towards [#netzero](#). Plus, lots of interest in BioForming® S2A technology for 100% drop-in [#SAF](#) – looking forward to developing these discussions in the weeks and months ahead!

[#decarb](#)

Rebecca Groen • 2nd

Executive in Renewable Energy and Sustainabl...
1mon ...

An excellent session! Thanks for organizing and for all presenters for their enthusiastic and inspiring contributions. The good news is (for those that weren't here today) that there are multiple technology options to produce sustainable fuels. And we need all the options, not to mention the brilliant minds and organizations represented here. I am a bit

Alan Gelder • 2nd

Head of Oils Research
1mon ...

I look forward to ESF 2024 in Madrid

Martina Valachovicova • 2nd

Technology development engineer
1mo • 1

Interesting presentations at [#ESFEurope2023](#)
you [Euro Petroleum Consultants Ltd](#)



You and 233 others



Alvaro Macarro Andres • Following

Aviation Sales Manager en Cepsa
1mo • 1

I enjoyed so much this morning discussing during the [#ESFEurope](#) in Amsterdam important topics of how energy industry and [Cepsa](#) are adapting to the growing demand for SAF and getting the insights on the future of mobility through the rest of sustainable fuels, feedstocks, regulation, etc....Great time !! Nice to share this panel with [Olivier Macé](#), as moderator, and [Jonathan Wood](#), [Jacobus Barnhoorn](#) and [Robert Boyd](#) as panel colleagues.

[#PositiveMotion](#)

[#sus](#) **Olivier Macé** • 2nd

[#ESF](#) Biofuels Expert | Business Mentor | Non-Execu...
1mon ...

Delighted to have been a part of it, thank you again for the invitation [Euro Petroleum Consultants Ltd](#)

17

Laura Ezquer Matallana • 3rd+

Hacer las cosas de manera diferente, Transfor...
1mon ...

Enhorabuena [Alvaro Macarro Andres](#) y [Cepsa](#) por estar a la cabeza de tan importante cambio para el transporte aéreo. Seguro fue un interesante foro con otros expertos europeos!!



James Patterson • 2nd

VP Hydrogen, bp
1mo • 1

[+ Follow](#)

Today's big debate at ESF 2023 Amsterdam - "Is Hydrogen an enabler for decarbonisation or a hindrance." I was proud to be on the side of ENABLER. [bp](#) is doing great things in hydrogen in the 3 keys areas of 1) Local low carbon H2 production in demand centres 2) Enabling distribution infrastructure; and 3) Future-focused low carbon H2 production in low cost supply hubs.

Petrogenium
3,185 followers



Angara Global
1,264 followers
1mo • 1

It was a pleasure to exhibit at ESF Europe 2023 in Amsterdam and meet up with our partners, existing Clients, and meeting many prospects. Pragmatic decarbonization remains high on everyone's agenda, and it was inspiring to see many great minds pulling all into the direction of a better and greener future. [#ESFEurope](#) [#decarbonization](#) [#sustainablefuture](#)



BD Energy Systems, LLC
1,748 followers
1mo · 🌐

Our team wanted to extend a big thank you to the ESF Europe crew for putting on such a great conference in Amsterdam.

The event was filled with informative and thought-provoking topics, including one by our own **Steve Lancaster** who shared the stage with **Tim Shire**, **Albert Van Den Bosch**, **Omar Bedani**, and **Walter Pfeiffer** who all did an amazing job!

We were thrilled to have the opportunity to connect with so many talented individuals and expand our network. We can't wait to attend the next conference!

#ESF #energy #syngas #sustainability #conference



Fluor Corporation
830,049 followers
1mo · 🌐

Juan Simon Arteaga Puente, **Burcu Ekmekci**, **Fred Baars**, **Sander Groenendijk** and **Samiya Parvez** of Fluor's Energy Solutions group are attending the Energy & Sustainability Forum (ESF) Europe 2023 in Amsterdam. Fred and Samiya presented earlier today, discussing considerations for refinery decarbonization and possible scenarios to meet net zero by 2050.

If you're attending ESF Europe 2023, visit Booth 10 to meet our team and learn more about our role in the energy transition.



Paul Ticehurst · 2nd
Senior Business Development Manager at Johnson Matthey
1mo · 🌐

What a fantastic couple of days networking and presenting at **#ESFEurope**!

Great to see so much interest in JM's **#SAF** enabling technologies – including FT-CANS™ technology at Fulcrum Sierra which has demonstrated that Fischer Tropsch is cost competitive with other means of SAF production like HEFA.

Many thanks to all involved!



BASF Chemical Catalysts and Adsorbents
22,809 followers
1mo · 🌐

Thank you, **#ESFEurope**, for having us. **Bert Sandee** had the pleasure to give a presentation on how we at **BASF** Catalysts enable the use of renewable feedstocks as substitute for fossil raw materials and for new products with unique properties. Bert presented our catalyst solutions based on renewable resources for value chains like glycerol, bio-ethanol and maleic acid.

If you missed his presentation or want to please take a look at our Green Map and <https://lnkd.in/dDAGgSDn>

#BASF Catalysts #sustainability Euro Pe Consultants Ltd



Tobi Pardo · 2nd
Director of Aviation and Asphalts in Cepsa
1mo · 🌐

En 2050, como mínimo, más de la mitad del combustible de la aviación europea debe ser sostenible. Un objetivo que se alcanzará de manera progresiva y en el que ya hemos dado grandes pasos.

Esta semana **Alvaro Macarro Andres** ha participado en una mesa redonda de **#ESFEurope** en Amsterdam para explicar cómo desde **Cepsa** estamos respondiendo a la creciente demanda de SAF. En el último año firmamos alianzas con seis de las principales aerolíneas mundiales para descarbonizar los cielos, apostando por una movilidad sostenible por tierra, mar y aire.

Es un orgullo que nos representes y pongas en valor el enorme trabajo de todo el equipo de Aviación, Alvaro. ¡Bravo!

#PositiveMotion #SAF #Descarbonización



Petrochemicals Europe (Cefic)
2,423 followers
1mo · Edited · 🌐

Frans Stokman, **Petrochemicals Europe (Cefic)** Executive director, moderated the "Empowering Waste: Plastics Potential" panel discussion that brought together a group of industry leaders at the Energy & Sustainability Forum in Amsterdam this week.

Throughout the discussion, there was a clear sense of urgency about the need to act NOW to meet sustainability targets in the context of climate change, growing energy demand and a fast-changing global environment. The panellists agreed that in order to achieve this while keeping Europe globally competitive, we need an enabling regulatory framework that encourages innovation and investment in scalable infrastructure to tackle plastic waste.

Thank you to **#ESFEurope** organising team and to **Benny Mermans**, **Ch & Plastics Europe**, **M Plastic Waste**, **Tim S Braskem** and **Patrizi** provoking and engag

Yvon Bernard · 2nd
Business Development Manager Renewable & Low carbon
1mo · 🌐

Yesterday at **#ESFEurope**, discussions were about : commercial technologies to lower carbon intensity. Some players are seeing it at a "risky investment" since they do not see the technology as mature, de-risked, commercial, I have shown

I stressed (yesterday and today again) that **Axens** suite of Technologies for Alcohol to Jet - Jetanol(tm) - but not only - is commercial already !! and ready to take off :) **#saf #commercialdesign**

Mark van Otterlo · 2nd
Executive Director at Yokogawa Europe B.V.
1mo · Edited · 🌐

Today, live at the ESF Europe in Amsterdam: the energy sustainability forum, where producers and industrial supply chain partners continue to discuss the progress on decarbonising the industry and exploring new insights, technologies and business models that are now more promising than in the past.

In a moment our colleague **Duncan Mitchell** from KBC (a Yokogawa Company) will talk about Demystifying our

Pinch
2,750 followers
1mo · 🌐

Third and final day of the Energy & Sustainability Forum in Amsterdam.

It was a pleasure to see that energy efficiency has received prime attention.

Pinch's proprietary technology allows production of steam from waste heat where direct heat exchange is not possible. With our technology we produce nearly OpEx free CO2 neutral steam. Learn more at: pinch.com

#Pinch #QHT #esfeurope #energyefficiency #wasteheat #innovation



Illia Lazorko · 1st
Business Development & Senior Consultant | Energy & Sustainability | Downstream Decarbonisation | Key Ac...
1mo · 🌐

Enjoying my coffee with **Honeywell** at **#ESFEurope 2023**. Many interesting presentations and insights into the latest technologies helping to decarbonize the refining and chemicals industries.

Kay Mitchell · 1st
Senior Event Director · Content Creator · Driving Decarbonisation in the Oil & Gas Downstream Industr...
1mo · Edited · 🌐

Teamwork makes the dream work

Our aim: to support the refining and chemicals industries as they decarbonise and transition to a more sustainable future.

Thanks to everyone who has joined us in Amsterdam over the last few days for **#ESFEurope** and a special thank you to **KBC A Yokogawa Company** for hosting last night's networking evening at **The HEINEKEN Company** museum



Rafael Larraz · 2nd
R&D Director CEPESA
1mo · Edited · 🌐

It was a pleasure participate in the **#ESFEurope 23**, talking about **#energytransition** and **#CEPSA** in this field. Thanks to **Adriana Orejas**, **Francisco Vieira** and **Alan Gelder** for their insights about Iberian Peninsula key role in European sustainability



Yvon Bernard · 2nd
Business Development Manager Renewable & Low carbon
1mo · 🌐

Yesterday at **#ESFEurope**, discussions were about : commercial technologies to lower carbon intensity. Some players are seeing it at a "risky investment" since they do not see the technology as mature, de-risked, commercial, I have shown

I stressed (yesterday and today again) that **Axens** suite of Technologies for Alcohol to Jet - Jetanol(tm) - but not only - is commercial already !! and ready to take off :) **#saf #commercialdesign**



SPONSORS & EXHIBITORS

Platinum Sponsors

Honeywell



A Yokogawa Company

wood.

Gold Sponsors

ExxonMobil

Axens
Powering integrated solutions

JM Johnson Matthey
Inspiring science, enhancing life

Silver Sponsors

GRACE
Talenti | Technology | Trust™


SHV ENERGY

 **LUMMUS**
TECHNOLOGY

SULZER

TOPSOE

Sponsors & Exhibitors




ANGARA

Process Catalysts
We enable sustainability
BASF
We create chemistry



 **BECHT**
Good. Better. Becht.

 **COGNITE**


DAILY
THERMETRICS


EMERSON

 **EVONIK**
Leading Beyond Chemistry

FLUOR

 **GENESIS**

LanzaTech


QPINCH

 **PETROVAL**
REFINING & PETROCHEMICAL
PROCESS SOLUTIONS

Schneider
Electric

PARTICIPATING COMPANIES

accenture

agilyx

Air Liquide

ALLIANCE
TO END
PLASTIC
WASTE

ART
HYDROPROCESSING
A Chevron and Grace Joint Venture

aramco

aspentech

BLASCH
PRECISION CERAMICS

BLUEALP
Accelerating Plastic Recycling

BOEING

BOREALIS



BP Europa SE



Braskem

BROADMANOR
CONSULTING

CATALYST
INTELLIGENCE

CEPSA

CEPSA
Química

CLG
Chevron Lummus Global

Chevron
Phillips
CHEMICAL

Chevron
Renewable
Energy Group



CIRCULARISE

clariter

Crossbridge
ENERGY PARTNERS

DOOSAN



equinor

ESSAR
OIL UK

FURUKAWA
ELECTRIC GROUP

galp

GUNVOR

GreenStar
BCS
Beyond Carbon Solutions

Honeywell
Uop

INA

HyCC

KALUNDBORG
REFINERY

Ketjen



مؤسسة البترول الكويتية
Kuwait Petroleum Corporation

LG Chem



MEDIA PARTNERS & SUPPORTERS

Supporters



Research Partner



KEY SPEAKERS INCLUDED.....



Lee Hodder

VP Strategy & Chief Sustainability Officer

GALP



Lars Peter Lindfors

Executive VP, Innovation

NESTE



Leon de Bruyn

President & Chief Executive Officer

**LUMMUS
TECHNOLOGY**



Benny Mermans

VP Sustainability

**CHEVRON PHILLIPS
CHEMICAL**



Elena Scaltritti

Chief Commercial Officer

TOPSOE



Shigeyoshi Uehara

Chief Executive Officer

KBC (A Yokogawa Company)



Damon Hill

President - Growth & Development, Projects

WOOD



Otmar Schneider

SVP Schwechat Refinery

OMV



Jonathan Wood

VP Renewable Aviation Europe-MEA

NESTE



Maurits van Tol

Chief Technology Officer

JOHNSON MATTHEY



Barry Glickman

President, Sustainable Technology Solutions

HONEYWELL



Tomás Malango

Director, Hydrogen, Renewable Fuels & Circular Economy

REPSOL



Duncan Mitchell

Global Head of Decarbonisation

KBC (A Yokogawa Company)



Romain Roux

VP Decarbonization & Consulting

AXENS



James Patterson

VP Hydrogen, North West Europe

BP



Raahil Burhaani

Chief Information Officer

ESSAR OIL UK



Ole-Tobias Frich

VP Midstream Asset Development & Climate MMP Onshore Plants

EQUINOR



Patrizia Boschetti

Head of Circular Economy

ENI

SECURE, AFFORDABLE & LOW-CARBON THE ENERGY TRILEMMA

After the winter of discontent, Europe's downstream industry is in a race to address the affordability crisis whilst simultaneously improving its sustainability to ensure those ambitious net zero targets remain in sight. How can Europe stay competitive whilst addressing the broader decarbonisation agenda?

Led by **Alan Gelder**, VP Refining, Chemicals and Oil Markets, **Wood Mackenzie**, our ESF Europe 2023 keynote panellists:

- **Otmar Schneider**, SVP Schwechat Refinery, **OMV**
- **Lars Peter Lindfors**, Executive Vice President, Innovation, **Neste**
- **Lee Hodder**, VP Strategy & Chief Sustainability Officer, **Galp**
- **Szabolcs Szabó**, Group Downstream Value Chain Management Senior Vice President, **MOL Group**.

joined us to discuss exactly that.

Areas closer to the conflict are experiencing the most challenging supply and security issues, which brings them to the front of the political agenda. Whilst sustainability inevitably remains a priority, it perhaps takes a step back to ensure the local population have access to the energy they need at affordable prices. These are short term issues that must be resolved before addressing long term goals.



Areas closer to the conflict are experiencing the most challenging supply and security issues, which brings them to the front of the political agenda. Whilst sustainability inevitably remains a priority, it perhaps takes a step back to ensure the local population have access to the energy they need at affordable prices. These are short term issues that must be resolved before addressing long term goals.

Affordability is always a concern, especially given recent political interventions on price caps and regulation. However, the high prices are pushing producers to focus on energy efficiency, with the shorter payback time for efficiency improvement initiatives at higher prices, which the accompanying benefit of emissions reduction.

Looking at Scandinavia, the war has not changed the strategy. The Nordics, together with California, are seen as global front runners environmentally. Higher prices are putting increased pressure to remain focussed on the task at hand. The shift is still a gradual movement, since business' need to remain profitable in order to become sustainable over the long term.

Over to Iberia, whilst the high-level strategy hasn't changed, midstream are experiencing similar dilemmas. Russian VGO supplying a Portuguese refinery was rapidly suspended, creating difficulties in getting a secure supply from alternative sources. Some short-term trade-offs were also witnessed last year due to natural gas shortages, creating real sustainability versus affordability dilemmas. Questions arose as to whether there is enough gas to use in refineries as well as to provide to customers? Could naphtha be considered for a short period in the refinery? These dilemmas were much more visible in the short term.

However, sustainable solutions are a way to tackle supply and security issues, reducing reliance on crude supply. Therefore, Europe's energy security issues could be seen as an enabler for the energy transition.

Decarbonising Across Different Agendas

Looking at each of our panellist's individual company plans to decarbonise, first Galp's portfolio in Iberia, is placing green hydrogen at the backdrop of its first phase. With a large portfolio of renewable energy, it makes sense for some of those green electrons to be used to produce green hydrogen. For the first half of this year, they are looking for 100 MW of green hydrogen in the refinery, with plans to build up to 600 or 700 MW by the end of the decade. Together with efficiency projects, this will reduce around a third of scope 1 and 2 emissions from the refinery. Beyond the refinery, they are exploring a raft of other sectors, most notably, the lithium battery value chain, processing lithium to provide to EV battery manufacturers. Ranking ninth in the world for lithium reserves this makes sense for the country and region to pursue. Leveraging partnerships are crucial and Galp have partnered with Northvolt to pursue this.

OMV have a clear roadmap for 2050 and a shorter-term mission for 2030. For scopes 1 and 2, electrification is a key lever. In Central & Eastern Europe they have availability of green electricity in their supply, and so able to harvest that and bring that into the refinery. Green hydrogen is another option here. For scope 3 emissions, they have three big levers: vegetable oil, alcohols and advanced alcohols.

Looking at MOL and specifically Hungary, they have an abundance of geothermal energy, but lacking when it comes to wind and wind-based solutions, reiterating the importance of geographical location and companies needing to tap into the solutions that work best for them. Investments into green hydrogen are also key however, the current price to value ratio isn't beneficial enough to get this to scale. Circularity is crucial for MOL and they have a number of initiatives in place focussed on this, for example, grinding used vehicle tyres into small pellets to incorporate into bitumen production. This pathway has meant 10% of the country's used tyres have been repurposed to build new roads.

For Neste, carbon neutral electricity making carbon neutral hydrogen is extremely important foundation to deliver more circular and renewable feedstocks, so replacing crude oil. Neste has a dedicated innovation team, with 25% of the workforce working from tube experiments to building new plants. As a result, they have been able to develop Power to Liquids (PTL) technology for HVO production. Innovation is crucial for the industry to move faster.

A real game-changer for the industry could be getting PTL technology deployed in a cost-efficient way but this appears to be a long way off. The benefits from this cannot be ignored, as the industry would have something totally detached from biomass or other feedstocks. Unfortunately, getting carbon neutral electricity to that magnitude is not looking possible soon.

Securing Global Competitiveness and Investments

The US Inflation Reduction Act (IRA) has undoubtedly provided significant clarity for investment in the US, for example, the hydrogen incentive of \$3 per kilo allows companies to make quicker business decisions based on market price knowledge, but where does this leave Europe? Unfortunately, Europe has an extremely cumbersome process with many barriers and requirements to receive funding. To combat climate change and reduce crude oil usage, acceptance of other solutions must be encouraged. An example is nuclear power, which offers a carbon neutral way to produce electricity, also generating more opportunities to boost the hydrogen economy in Europe. However, complicated questions can arise over what kind of electricity can be used to produce that green hydrogen? There are also many limitations in oils and fats, what can be used and how. RED II is becoming RED III and it's becoming increasingly difficult to use the feedstock.

For renewable producers today, getting permits, especially for green electrons is too slow versus the growth ambitions. Projects that have been mechanically complete and technically ready must wait months for the final permit. This needs to improve. The IRA raises concerns over how reliable some of those new supply chains are. How will suppliers be motivated to work on projects in Europe when clients can be incentivised in the US with the possibility to squeeze higher margins?

Europe is one of the continents that is trying to move faster than most towards the energy transition, so solutions must be found. Geography plays a big part and each region needs to focus on their individual position in the market, utilising their natural advantage. There is no one silver bullet that fits all and more supportive regulation is required to meet these targets.



DECARBONISATION & DIGITALISATION

WHEN TWO MEGA TRENDS COLLIDE



Diving into the collision of two mega trends, we welcomed:

- **Raahil Burhaani**, Chief Information Officer, **Essar Oil UK**
- **Zoltán Szabó**, Head of Downstream Digital Development, **MOL Group**
- **Enrique Fernandez Puertas**, Chief Digital Officer, **Repsol**
- **Gabriele Provana**, Head of Governance & Strategy for Digital Information & Technology, **Eni**

KEY TAKEAWAYS

- Sustain, optimise and transform - the digitalisation of a site is a sequence. Stage 1 is to sustain and maintain existing operations whilst investing in its future. The next is to optimise; where what and how to optimize, and the third is transform.
- Digitalisation is not just about technology - It's about people, and how people will change the way they are working. Having the right skills to adopt technologies and make an impact is key. Those with digital in their job titles are just the facilitators of the process and in fact everyone works in digital when they embrace those processes.
- The age of economy is growing rapidly - the centrality of data and digital ecosystems are a key lever for the decarbonisation of the entire supply chain and the reduction of scopes 1, 2 and 3 emissions - plants, logistics, and customer supply chains.
- Collaboration through the Cloud - The cloud presents big opportunities, irrespective of where the data is coming from. There is lots of data in the public domain without data protection issues which can be used for cross industry collaboration.
- The question of data acquisition - especially in regards to Scope 3 emissions like purchased materials. The industry as a whole could save a lot of effort and become much more effective if there were more industrial data spaces.
- Looking forward - Collaboration, networks, clusters and sharing of data are the key success factors to stay competitive. Over the next 12 months digitalisation and decarbonisation will continue to become more aligned and more purposeful.

THE BIG DEBATE HYDROGEN - ENABLER OR HINDRANCE



A new format for this year's ESF Europe, we welcomed:

ARGUING FOR

Ole-Tobias Frich, VP Midstream Asset Development & Climate MMP Onshore Plants, **Equinor**
Simon Holt, Manager, Emerging Energy, **Phillips 66**

ARGUING AGAINST

Tomas Malango, Director, Hydrogen, Renewable Fuels & Circular Economy, **Repsol**
James Patterson, VP Hydrogen, North West Europe, **BP**

TO DEBATE THE FOLLOWING MOTION:

"Hydrogen is inefficient" – other solutions should get more attention

Arguing for the motion

- Hydrogen is not the silver bullet - Hydrogen can't be the only solution. The energy transition is too large of a challenge to pick only one. Beyond that, it's expensive and has technical challenges in handling and safe operations.
- One size doesn't fit all – Each country has specific potential and capabilities, meaning different solutions are needed. Using hydrogen will be a significant contributor to reduce the CO2 emissions and will serve as the solution for some significant sectors out there, but not all.
- Advanced fuels and biofuels will play a major role in the future – whilst the economics and timeline for hydrogen are difficult, it's not the case for other opportunities such as renewable fuels. Unlike hydrogen projects that have limited capital and challenge returns, renewable fuel projects such as second-generation biofuels have better economics and will utilise existing infrastructure, refineries, storage, and pipelines.
- Renewables will need to come down in price - Overhype can become self-fulfilling and helps funnel resources and funding but hydrogen is still the expensive "champagne". To get it down to the price of "beer", we need electrolysis and renewables to come down in price, which they will as technologies advance and scale, but it's like to take longer than first anticipated. Particularly some complex and bureaucratic EU regulations are slowing down progress, i.e., rules in the delegated act. US on the other hand has done its homework with IRA (Inflation reduction act) creating formidable conditions for the cost to come down.

- There's too much political momentum – too often we see the pursuit by governments of these “perfect” solutions not driven by science which consequently don't work out as intended due to a lack of thought about the supply of the raw materials, the ecosystem, and the timelines. – Ideology driven rules and regulations are hampering progress, while pragmatism, strong engineering capabilities and thinking in clusters should have priority.

Arguing against the motion

- The solution for some significant sectors - expectations are that 50-60% of emissions globally can be electrified, and 10-15% will be allocated in carbon sinks, leaving 30% of molecules that could be used to produce hydrogen, or any hydrogen carrier (synthetic fuels or synthetic methanol or ammonia), solving the solution for some significant sectors.
- Key to refineries of the future – Advanced biofuels play a major role in the future, certainly for commercial transportation. H₂ is a necessary feedstock for the production of those fuels, in fact in many cases next generation biofuels like renewable diesel and SAF are leveraging hydrogen. Particularly e-fuels will require significantly more hydrogen than the production of their fossil alternatives!
- You can't electrify everything - certainly where a heating process is required, you need to burn something. Particularly for industrial processes where you need guaranteed heat for 24 hours 365 days. You can't use electrification as an alternative solution to decarbonizing hydrogen as a feedstock. You can't grow a crop with a charger or battery-fed fertilizer, which leaves the need for hydrogen as a feedstock more broadly.
- Hydrogen can solve the intermittency problems of renewable energy.
- The overhype is self-fulfilling which is helping to funnel resources, funding and ultimately the technologies and solutions to help drive down the cost.

To conclude, we heard views that argued hydrogen is the centrepiece and others that it's overrated. Ultimately it is a centrepiece, but it's a very expensive overrated centrepiece which is a good thing because we need the money to pay for it!



PLANES, TRAINS AND AUTOMOBILES FUELLING THE FUTURE OF MOBILITY



Moderated by:

- **Olivier Mace**, Owner & Principal, **Broadmanor Consulting**

Panellists:

- **Jonathan Wood**, Vice President Renewable Aviation - Europe-MEA, **NESTE**
- **Jacobus Barnhoorn**, Manager Corporate Affairs, **CHEVRON RENEWABLE ENERGY GROUP**
- **Alexander Kerst**, Deputy Head of EU External Affairs, **BP**
- **Robert Boyd**, Regional Sustainability Lead, Global Sustainability Policy & Partnerships, **BOEING**
- **Alvaro Macarro**, Head of Aviation, **CEPSA**

KEY TAKEAWAYS

- Demand will drive supply, investment, and reduce the risk - Despite the expense of sustainable aviation fuels, it is the most effective pathway the industry has to go down to decarbonize Aviation. Regulated demand is underpinned by the policies and the regulation.
- “Policy is the glue between helping to drive demand, and stimulate supply” - Establishing policy, alongside working with airlines to make SAF more accessible and affordable, can help underpin demand through incentives and mandates, but there must be the supply to meet the demand. Policies are a significant enabler to altering the pace of scale up, but it must be sustainable, and ultimately should be solving a market failure. Global consistency is needed in policy intervention.
- Potential for feedstock alternatives - Municipal waste gasification with Fischer-Tropsch or alcohol-to-jet (AtJ) are alternatives, and ultimately for the amount of carbon abatement that we need, carbon capture is necessary to satisfy the sustainability and GHG reduction parameters. It is important to look at the effectiveness and sustainability of the feedstock, not just the easiest way to decarbonise.
- Renewable feedstocks need to be shared out – Green electricity, green hydrogen and sustainable biomass are wanted by many sectors, so an open-minded approach needs to be taken towards ingenuity and technology that can help find solutions, rather than simply capping those that we know are available. We must maximise the utilisation whilst developing alternative sources of renewable fuels and maintaining a wider portfolio.
- Alternative technologies are a long-term journey - Alternative technologies are not expected to be fully developed until 2030 due to the time it takes to make it scalable and commercially available. Without clarity in terms of policy, there is no investment security to make the scalability possible.



EMPOWERING WASTE PLASTICS POTENTIAL



Moderated by:

- **Frans Stokman**, Executive Director, **CEFIC**

Panellists:

- **Benny Mermans**, Vice President Sustainability, **CHEVRON PHILLIPS CHEMICAL**
- **Martyn Tickner**, Chief Advisor, Circular Solutions, **Alliance to End Plastic Waste**
- **Tim Stedman**, Chief Executive Officer, **Agilyx**
- **Alexander Van Veen**, Commercial Director for Polymers and Recycling, **BRASKEM**
- **Patrizia Boschetti**, Head of Circular Economy, **ENI**

KEY TAKEAWAYS

- Refineries and chemical plants are intricately linked - their collaboration is essential to achieving circularity goals. Refineries play a critical role in creating decarbonised products, such as bio-naphtha, that can reduce GHG emissions by up to 90% compared to traditional feedstocks. Chemical plants can use these alternative feedstocks.
- Meeting circularity goals involves two key drivers: designing products with recycling in mind and developing infrastructure for advanced sorting and collecting. By separating plastic streams and increasing recycling rates, the industry can reduce waste and make more feedstocks available for recycling. However, a supportive legislative framework is crucial to make these projects possible as currently chemical recycling is not counted as recycled content.
- The industry must be wary of overregulation that stifles innovation. While regulatory frameworks are necessary, they should not hinder innovation and creativity. For example, instead of arguing about the specifics of mass balancing, the industry should focus on implementing it as a crucial step towards closing the loop. The investment needs to happen now, and the industry needs to work collaboratively to complement different technologies, including mechanical and chemical recycling.
- Sourcing and logistics of feedstock are also essential aspects. Moving plastic waste long distances is inefficient and costly. The logistics of transporting plastic waste needs to be optimised. Collection and segregation of plastic waste play a crucial role, but sorting technology is also important for materials that are difficult to separate.
- Digitalisation provides opportunities for the chemical industry, from advanced detection of plastic types to product passports that can collect data throughout the supply chain, helping the industry to optimise based on this information.
- There is ongoing work on defining the rules for mass balancing and chain of custody, which are critical components of achieving circularity goals. CEFIC released a paper that defines the need for mass balancing and chain of custody, and the industry needs to work towards implementing them in the regulatory framework. The landscape varies between Europe and the US, with different legal frameworks and feedstock characteristics, which pose unique challenges. Nevertheless, the industry needs to work collaboratively and invest in infrastructure and regulatory frameworks to achieve the circularity goals.

THE HARE AND THE TORTOISE

IT'S A MARATHON NOT A SPRINT!

Technology companies play a vital role in facilitating the downstream industries' journey toward achieving net-zero emissions. With rising affordability concerns, there is an urgent need to focus on energy efficiency. However, the question of whether the low-hanging fruits of energy efficiency have already been harvested arises. Our keynote technology panel gathered distinguished leaders, including:

- **Barry Glickman**, President of Sustainable Technology Solutions (STS), **Honeywell**
- **Maurits van Tol**, Chief Technology Officer, **Johnson Matthey**
- **Leon de Bruyn**, President & Chief Executive Officer, **Lummus Technology**
- **Dan Carter**, President of Decarbonisation, **Wood**
- **Shigeyoshi Uehara**, Chief Executive Officer, **KBC**

to explore how to optimise existing assets today and provide quick wins for the industry.

Energy Trilemma

Improving energy efficiency, leveraging existing infrastructure, and adopting new technologies are all key to reducing carbon emissions and reaching net-zero targets. The industry is undergoing significant transformation, but funding for this transformation remains a challenge without any governmental support. For many of Europe's refineries there is potential for low or no capex optimisation, including errors within modelling tools that drive specific operating parameters and conditions. Improving profitability now, can help pay for the longer-term transformations in the future. Improving energy efficiency today, is also about survivability. There are some assets that will not transform due to their infeasibility within the required time frames.



Improving energy efficiency, leveraging existing infrastructure, and adopting new technologies are all key to reducing carbon emissions and reaching net-zero targets. The industry is undergoing significant transformation, but funding for this transformation remains a challenge without any governmental support.

For many of Europe's refineries there is potential for low or no capex optimisation, including errors within modelling tools that drive specific operating parameters and conditions. Improving profitability now, can help pay for the longer-term transformations in the future. Improving energy efficiency today, is also about survivability. There are some assets that will not transform due to their infeasibility within the required time frames.

Regional Differences

Each region has its own specific agenda, with drivers depending on legislation, local markets, specificities, and incentives. While global trade has been the main driver for investment over the last couple of decades, economics today are based on local availability. Europe is facing increased societal pressure to make progress toward sustainability, but the rigid nature of adopting new technologies poses a challenge. However, the last 12 months have shaken up the energy transition, and hopefully, this will accelerate progress. A prime example of this is Germany's energy import terminal, that was implemented incredibly quickly, signalling promising signs for Europe's energy industry.

However, sustainable solutions are a way to tackle supply and security issues, reducing reliance on crude supply. Therefore, Europe's energy security issues could be seen as an enabler for the energy transition.

In the UK, the government is trying to encourage project financing, chasing price certainty and requesting delivery guarantees to ensure that the right projects are backed in the long run. Collaboration becomes key here, and risks must be shared throughout the value chain between operators, financiers, technology providers, and plant builders.

In the Middle East and Asia, new technologies are generally embraced more quickly, resulting in faster development. To compete, Europe needs to think outside the box, to avoid getting stuck in its decision methodology. Smaller, meaningful steps are crucial here and certainly more effective than taking one giant leap.



Technology Deployment and Role of Companies

To successfully deploy a suite of technologies, partnerships must be established throughout the complete value chain. Collaborating and piloting together is the key to bringing technology to market faster and in smaller, more manageable steps.

Regarding the role of licensors, Lummus Technology's impressive track record of successfully commercialising 140 technologies demonstrates the value of their expertise. If we consider that developing new technologies typically takes around 10 years, then it is clear that collaboration and risk-taking is essential to fast-track progress.

Technology companies face a roadblock when clients insist on installing only commercially tried and tested technologies, preventing new and innovative solutions from gaining traction. Finance Institutions also pose a challenge by applying extended risk assessments and rejecting financing for untested technologies. To speed up the transition, financiers must accept that limited capital costs may be necessary and local governments must unlock investment. The risk perception of new technologies is often overstated by conservative financiers, hindering progress.

Government bureaucracy also can often slow progress in many parts of the world, necessitating the industry to become independent of government support. The stringent permitting process must be abandoned, and the negative stigma attached to the oil and gas industry must be addressed. It is this industry that is making the effort to introduce circular products!

The role of R&D is crucial in building a battery of colourful bullets to solve all the issues. New tools in the digital space are available and intensifying. The possibilities today are key to unlock a broad portfolio of solutions and innovation.

Conversations need less focus on scope 1 and a dramatic shift toward scope 3, making the argument for circularity very clear. Honeywell has been very public about its scope 1 and 2 reduction commitments and tracking progress. They are now in the process of releasing Scope 3, which is hundreds of times the multiple of the combined scopes 1 and 2. Anybody who's in the fuel industry, who's not talking about Scope 3, doesn't deserve a seat at the table and has lost credibility.

These discussions require a stronger and more proactive voice. Each facility or asset requires a different pathway toward net-zero, depending on the sector, age, type, and location.

If the pathway and solutions are understood, a strong voice can raise negotiations with the government to achieve better outcomes for the industry and society as a whole.

VIVA ESPAÑA!

As ESF Europe 2024 moves to Madrid, we gathered some of Iberia's key companies and leaders paving the way for decarbonisation and sustainability to kick off the conversation:

- **Rafael Larraz**, R&D Director, **Cepsa**
- **Adriana Orejas Núñez**, Director Industrial Transformation Technology, **Repsol**
- **Francisco Vieira**, Strategy Advisor, **Galp**

joined **Alan Gelder**, VP Refining, Chemicals and Oil Markets, **Wood Mackenzie** to discuss the transformation of Iberia's refineries, the role of hydrogen technology in this and innovations in circularity.

First, exploring each company's initiatives, Repsol set the pace by becoming the first oil and gas company worldwide to pledge net zero emissions by 2050. It's been an impressive four years since that ambitious announcement, which has seen them set several targets as stepping stones toward achieving their ultimate goal. By 2050, Repsol aims to reduce 15% of CO2 emissions in scopes 1, 2, and 3, with the first wave of projects already in full swing. By the end of this year, the company will see the startup of a plant producing 22,150 KT per year of sustainable fuels, with a target of 2 million by 2030. Additionally, Repsol is proactively retrofitting units to produce even more advanced biofuels, and the Ecoplanta project in Tarragona is another milestone, feeding municipal solid waste from the Barcelona area to produce methanol at a rate of 400KT per year.



CLOSING PANEL

Looking at Cepsa, their “Positive Motion Pledges” includes a target of 55% reduction in scope 1 and 2 emissions and a reduction of their carbon intensity index by 15-20% by 2030. The company aims to produce 2.5 million tons of advanced biofuels by 2030, with 800,000 tons dedicated to SAF production. Decarbonising energy is a crucial goal for Cepsa, and they have already launched several projects, running 7 MB of renewable energy for their own consumption. In a groundbreaking agreement with Rotterdam harbour, Cepsa is set to produce 2 GW of green hydrogen. They have set circularity targets of 15% by 2030.

Finally, turning the attention to Galp's impressive initiatives in Portugal. Their primary goal is reducing scope 1 and 2 emissions by 40%, requiring significant investments in renewable energy. They already have the capacity for 1.4 GW of renewables, and their goal is to reach 12 GW by 2030. In the industrial sector, Galp is investing with the hope to achieve an FID for a 100 MW green hydrogen project this year, and they have already successfully completed a 2 MW pilot project. They are also investing in dedicated HVO units with crucial partners to produce biofuels.

Low Carbon Hydrogen A Game Changer

The demand for green hydrogen in Europe is undeniable, and Portugal and Spain have an advantage in this field due to their access to inexpensive renewables. Iberia has the potential to become a transatlantic hub for Europe, providing access to green hydrogen. In Portugal, the goal is to transition from grey to green, particularly since it is one of the largest hydrogen consumers. The hydrogen refuelling stations present a new market trend that companies must address by switching their own consumption from grey to green and providing availability for customers. European regulations mandate that the transport sector achieve a minimum share of RFNBO, increasing the target from 2.6% to 5.7%, indicating that green hydrogen will be in high demand for both consumers and industry.

Repsol's demo plant in Bilbao operates at a semi-industrial scale and produces 50 barrels per day, powered by CO2 capture from a hydrogen plant in the refinery. The system is further optimised through an electrolyzer and renewables connection, and scientific data from a digital twin is instrumental in this process. Repsol's collaboration with Aramco is critical to the success of this project.



Innovation to get to Scale

As the clock ticks towards looming targets, the urgency for R&D to find solutions is greater than ever. Cepsa is leading the charge with multiple mature technologies under development, including HVO, while other innovations are close to commercialisation. Task forces have been established to ensure speedy progress, each dedicated to specific areas such as water, CO₂, biofuels, and circularity. These task forces bring together experts from R&D, regulation, and supply chain, among others, to tackle every aspect of the project simultaneously.

Plastic waste has long been a challenge for the industry, but refineries are now ready to increase the quantity of plastics feedstocks. Repsol has been using pyrolysis oil from plastic waste since 2015. New technologies are under development, such as a second-generation steam cracker for 2025-2030 that can process various raw materials beyond plastic.

Transforming plastic to olefins in an eco-friendly manner while retaining the value of circular polymers is a complex process, but the industry is taking it head-on with European partnerships and collaborative efforts.

Already, there are success stories to celebrate. For instance, Repsol's biofuels powered Marc Marquez through 12 laps of a circuit, showcasing the possibilities and solutions that are available today. However, pilot plants and demo plants must be built to industrial capacity without delay, and engineering departments must work in unison to achieve common goals while balancing capex and opex.

There's a short amount of time until 2024 and there needs to be material progress made in those 12 months. We're looking forward to welcoming our leaders back to ESF Europe 2024 in March in Madrid to discuss the developments made and dive deeper into these topics and more.





Adriana Orejas • 2nd

+ Follow

Energy Transition Tech Director Repsol
- Presidenta comisión Innovación Fei...
1mo • Edited • 🌱

#Energy transition implies **#collaboration** between companies, technologist and society. Repsol's team is aware about the necessity to speed and go further in technology transition. Thank you very much to ESF 2023, **Stefan Chapman**, **Kay Mitchell**, and all the EPC team to give us the opportunity to recover time and space to share our goals. Repsol is working with technology suppliers and other companies to collaborate in this challenging objective. Thanks to **Jose Miramontes** and **PEDRO MORA MARTINEZ** from **Honeywell**, thanks to **Leon de Bruyn** from **Lummus Technology**, thanks to **Maurits van Tol** from **Johnson Matthey**, thanks to **Romain Roux** from **Axens** and **Markus Hartung** from **Evonik**, **Mark Stephen (CEng MinstMC)** from **LanzaTech**, thanks to **Shigeyoshi Uehara** from **KBC A Yokogawa Company**, **Irene Coronado** from **VTT** **Eva Andersson** from **Alfa Laval**, and many others.

My colleagues, **Tomas Malango**, **Enrique Fernandez Puertas**, **MIGUEL ANGEL GARCIA CARRENO** and me are proud to be part of this courageous group of people committed with **#netzeroemissions** objectives for **#Europeanindustry**.

Three take aways: 1. If we want to go far and fast, we need go with others; if we want to achieve **#Netzeroemissions**, we should speed in all the **#technological** routes, to achieve our objectives, we need **#talent**.

We can do it!!!

Welcome to Spain next year!!! Thanks to **Alan Gelder**, **Rafael Larraz** and **Francisco Vieira** to close the event with me, inviting you to the Iberian Peninsula March 2024.

#energytransition **#technology** **#team** **#society**
#decarbonization **#hydrogen** **#digitalization**



Alan Gelder • 2nd
Head of Oils Research

1mon • ...

I look forward to ESF 2024 in Madrid



Francisco Vieira • 1st

Strategy Advisor | Strategy & Sustainability at Galp
1mo • 🌱

Today, I had the privilege to be part of a panel discussion with colleagues from Repsol and Cepsa at the ESF Europe 2023 conference, in Amsterdam.

During the discussion, I had the opportunity to share some insights about Galp's current energy transition strategy and highlight how Iberia is well-positioned to be a front-runner in this crucial journey.

I want to thank **Lee Hodder** for giving me this opportunity, and especially for coaching me throughout these days. I also want to thank **Kay Mitchell** and **Christina Romanova** for all the efforts in making sure everything went smoothly (which it did!).

The energy transition is a reality that shouldn't be ignored and I'm proud to be part of a team and a company that is committed to "regenerate the future together"!

Looking forward to hearing more great insights from next year's conference in Madrid!



You and 233



Rafael Larraz • 2nd
R&D Director CEPESA
1mo • Edited • 🌱

17 comments

+ Follow

It was a pleasure to participate in the **#ESFEurope 23**, talking about **#energytransition** and **#CEPSA** in this field. Thanks to **Adriana Orejas**, **Francisco Vieira** and **Alan Gelder** for their insights about Iberian Peninsula key role in European sustainability



You and 101 others

8 comments • 2 reposts

CONTACT US



Kay Mitchell

Event Director

kay_mitchell@europetro.com



events@europetro.com



+44 (0) 20 7357 8394



europetro.com/esfeurope



Christina Romanova

Event Manager

christina_romanova@europetro.com



FOR SPONSORSHIP/EXHIBITION ENQUIRIES:



Laura McManus

Sales Director

laura@europetro-me.com

