



METECH 2021

MIDDLE EAST TECHNOLOGY FORUM FOR
REFINING & PETROCHEMICALS

15-18 February 2021 VIRTUAL



ME-TECH VIRTUAL 2021 MIDDLE EAST TECHNOLOGY FORUM FOR REFINING AND PETROCHEMICALS

ADVISORY MEETING REPORT

14 DEC 2020 // HOSTED BY EURO PETROLEUM CONSULTANTS

IN ATTENDANCE

- FABIEN LUNDY, SALES DIRECTOR, **AXENS**
- JOSEPH IBRAHIM, MANAGING DIRECTOR MIDDLE EAST, **AXENS**
- GAVIN MCLEOD, BPM DEPUTY PROJECT DIRECTOR, **BAPCO**
- CHRISTIAN VAN DER WOUDE, CHIEF EXECUTIVE OFFICER, **DUQM REFINERY (DRPIC)**
- WADDEH GHANEM, SENIOR DIRECTOR, LOGISTICS AND MARINE ASSURANCE, **ENOC**
- FRANCESCO DE FRANCESCO, DEPUTY MANAGING DIRECTOR - OPERATIONS & PERFORMANCE, **ENI ABU DHABI**
- ABHI RAJENDRAN, HEAD OF GLOBAL OIL MARKETS RESEARCH, **ENERGY INTELLIGENCE**
- JAMES MOSHI, REGIONAL GENERAL MANAGER, **HONEYWELL UOP**
- RICHARD CHARLESWORTH, EXECUTIVE DIRECTOR, **IHS MARKIT**
- NAWAF ABDULLAH AL-SHARHAN, MANAGER CORPORATE PLANNING, **KIPIC**
- MOBARAK MESFER AL MUTAIRI, MANAGER TECHNICAL SERVICES MAB, **KNPC**
- JAD DIB, PARTNER, **MCKINSEY & COMPANY**
- MARCIO WAGNER DA SILVA, PROCESS ENGINEER AND PROJECT MANAGER, **PETROBRAS**
- NADIA BADER HAJJI YOUSEF, DEPUTY CHIEF EXECUTIVE OFFICER PROJECTS & BUSINESS DEVELOPMENT, **PIC**
- MOHAMMED AL HAZMI, DIRECTOR - CHEMICAL SCIENCE, CORPORATE RESEARCH, SABIC TECHNOLOGY & INNOVATION, **SABIC**
- HATEM BELFADHEL, GLOBAL TECHNOLOGY LEADER OIL TO CHEMICALS (OTC), **SABIC**
- NASEEM ZAINADDIN, DIVISION HEAD OF REFINING TECHNICAL SUPPORT – DOWNSTREAM REFINERY & NGLF (DR&NGLF), **SAUDI ARAMCO**
- RAPHAEL DUFLOS, VICE PRESIDENT MANUFACTURING, **SATORP**
- MOHAMMED BENCHEKCHOU, DIRECTOR NEW BUSINESS DEVELOPMENT – MENA, **SHELL & AMG RECYCLING**
- DAVID MARION, VP MANUFACTURING AFRICA, MIDDLE EAST, ASIA & PACIFIC FOR REFINING & PETROCHEMICALS, **TOTAL**
- SANJAY LODHA, GLOBAL BUSINESS DIRECTOR, **TUBACEX GROUP**
- DANIEL CARTER, BUSINESS DEVELOPMENT DIRECTOR, SPECIALIST ENGINEERING & CONSULTING, **WOOD**

CHAired BY:

- SÜLEYMAN ÖZMEN, SENIOR CONSULTANT, **3P18 INDEPENDENT CONSULTANTS LLC**
- STEFAN CHAPMAN, VICE PRESIDENT, **EURO PETROLEUM CONSULTANTS**

EURO PETROLEUM CONSULTANTS:

- LAURA MCMANUS, SALES & CONFERENCE DIRECTOR
- MARYANNE MORRIS, CONFERENCE DIRECTOR
- CHRISTINA ROMANOVA, EVENTS EXECUTIVE
- SONIA SANCHEZ, PROJECT EXECUTIVE

THE MARKET OUTLOOK AND IMPACT OF COVID-19

The first, and possibly the most important, question asked and discussed was: Has crude oil demand peaked? The question opened up an insightful and passionate discussion setting the scene for the meeting to exchange on future projections and investments, the evolution of transportation fuels, impact on petrochemicals growth and what the energy transition will really mean for the future of the downstream sector.

The meeting heard that project implementation this year was extremely challenging for owner/operators and EPC's with force majeure clauses used to deal with time and on site support constraints – this resulted in schedules being heavily impacted, especially for well advanced and close to start up projects. Some projects in an early stage, have been put on hold simply for the reason of not knowing where the market is heading, how long the pandemic will continue, how important the impact will be and when demand will recover to make economics more viable and sustainable. However, some companies with cash availability (i.e, Asia) continue building assets on budget/schedule taking advantage of availability of low-cost resources and short delivery time of key equipment.



Peak oil is still forecast for 2025 – 2030 but it could be a lower peak of 5 million barrels per day - however it is important to consider geography - as some regional markets have already peaked, such is the case for Europe.

The pandemic erased much of the growth from recent years. Advice to operators is to look at the demand effect of specific refined products as some may take a long time to recover and in certain markets, they may never recover so refiners need to review their refinery configuration and if already in construction, look to see if the project can be modified to meet demand of different refined/speciality products focusing on petrochemicals.

THE MARKET OUTLOOK AND IMPACT OF COVID-19

Supply and demand cycles may look different in the future and could be more supply focused. The aim of the game is to increase efficiency, reorientation of assets and to become more sustainable - Best adapting to the new reality. Key is better carbon molecule management toward petrochemicals while reducing CO2 emission and be ready to the switch in transportation energy (electricity, green Hydrogen).

Technology suppliers are focused on how to react to new demand and requirements whilst giving confidence to operators that, new or updated technologies are being developed to adapt to the new changes. During 2020, instead of focusing on new sales and new business, a lot of focus has been on supporting client existing assets remotely and providing solutions to improve efficiency and ultimately, reduce operating costs and CO2 emissions.



THE MARKET OUTLOOK AND IMPACT OF COVID-19

Operators are not operating at peak capacity resulting in many being able to extend the turnaround period and hence delaying some of the activities that were planned for 2020. Licensors agreed that the COVID-19 pandemic has resulted in them becoming closer to customers to understand their current challenges to adapt to the new world. Services provided throughout 2020 included revamps, feasibility studies, energy optimisation, commissioning start-ups and drop-in solutions.



As business strategies across the supply chain change focus, R&D has ramped up their activities to meet demands for new technologies (Energy transition, COTC, Green H2, renewables...) and solutions in a different landscape. Suppliers provided key solutions to help customers in optimising their operations during to this period, looking at the whole supply chain, from storage tank to storage tank, to see how improvements for operations and efficiency can be made in order to optimise the yields where they see potential.

Technology companies are continuing their development of technologies for when the markets recover, and customers look at greenfield and brownfield projects again.

LOOKING INTO THE CRYSTAL BALL: THE FUTURE OF REFINING AND PETROCHEMICALS

The discussion moved onto another important topic: Where should the Middle East continue to invest?

By common consensus the Middle East remains the most important region - with 50% of global oil reserves and with the major players overseeing major oil and gas exploration projects. The past few months have been difficult and the market has seen a number of announcements that CAPEX cuts are to be expected. CAPEX cuts in the region of 30% have been forecast for the coming years which in turn results in 70% CAPEX spend - with some projects still going ahead. A change in investment strategy – with a stronger focus on greener projects in the form of alternative energy may be seen. It is important to valorise as much as possible an existing asset as investment is difficult today.

It was advised that the pandemic should not impact long-term strategy – it is a relatively short-term issue, however it is heavily affecting cash flow in both the upstream and downstream sectors – which is a rare occurrence as usually it is one or the other. The pandemic is impacting current spend but it was noted that many refiners have been in crisis mode for the past decade – having to cut costs, rationalise, and look for new opportunities. It is a job refiners know well. The aim is to maintain current projects and to freeze/postpone/delay certain projects and wait for a better time to implement. The key is to review feasibility of

projects based on demand changes due to the energy transition mandate and clearly understand where the fossil fuels molecules best use will be (transportation fuels vs, petrochemicals).



LOOKING INTO THE CRYSTAL BALL: THE FUTURE OF REFINING AND PETROCHEMICALS

The meeting heard that the long-term drive towards petrochemicals is still very much the right direction for the market with the transition from fuel to petrochemicals remaining strong. It was highlighted during the discussion that the route for middle distillate conversion to chemicals with existing technologies remains challenging and technology improvements are needed.

Long-term demand and uncertainty around middle distillates caused by COVID-19 have added to this issue. Rather than large greenfield COTC projects we have seen announced over last few years, we now could see a focus on integration of existing assets - perhaps even between different owners to look at maximising opportunities.

The importance of Internal Rate of Return (IRR) for projects remains high. The current product prices do not necessarily support investment, so the industry needs to look at how to guarantee reasonable returns when investing beyond the steam cracker to produce derivatives. Integration between upstream and downstream into petrochemicals needs to ensure benefits and see revenues being shared across all business units and operations, especially when looking at COTC projects.

When looking at the viability of COTC in the ME region – we see the growing competition from China. The Middle East continues to have an advantage with regards to availability of feedstock, whereas China has the advantage of much lower CAPEX (30-40%) and access to market.

In line with the trend prior to the pandemic impact, many do not see the possibility of a new refinery happening without integration of petrochemicals. Demand on petrochemicals is healthy, but when it comes to refining, we don't see many brave enough to propose a new refinery without having full integration of petrochemicals built into the design.

Growth in petrochemicals is expected to return to post COVID levels. However, we heard that even before the pandemic, there were certain chemical markets that were already saturated and over supplied. This could keep rates depressed and Paraxylene oversupply was given as an example. In terms of implementing integration, modularisation could be solution to reduce capex and increase efficiency.

ENERGY TRANSITION – FROM BIG OIL TO BIG ENERGY IN THE MIDDLE EAST?

Co-creation was a theme during 2020, with suppliers working together with operators to integrate solutions through a very challenging time. COVID-19 has accelerated thinking about the energy sector of the future. The message is to be smarter, ready to adapt quickly and invest in OPEX. A time for upskilling of workforce, reviewing of digitisation policies for remote operations and monitoring and examining new opportunities to improve efficiencies. To meet demand up to 2030, it is more vital than ever to optimise current assets, reduce unplanned shutdowns and debottleneck key areas.

The topic of energy transition has been around for some time – the last two to three years have seen a growing importance in the topic. The downturn has led some to believe that the transition must be accelerated, and everything must change permanently. Or would it be more prudent to wait for the next 12-18 months to assess the impact, demand and what the new normal will look like before big changes in strategy are made?



IOC's have a clear strategy for their energy transition and NOC's are starting to speak a different language about the long term, setting some targets and making some firmer commitments. All will depend on consumption and the need for a different energy mix perspective. It was noted that typically any transition takes longer in developing markets and the growth trajectory for fossil-based carbon products is still high for the Middle East region and towards the east over the next decade.

The meeting heard that it is a long way to 2050 pledges of zero net carbon as it is only 2021 now. Industry needs to be smarter to develop projects like joining solar with electricity, joining bio diesel with aviation sustainable fuels and the development of plastic recycling and the Circular Economy. Investors want to invest in low carbon projects so this is how we can encourage investment whilst feeding demand, which is still increasing in the region.

ENERGY TRANSITION – FROM BIG OIL TO BIG ENERGY IN THE MIDDLE EAST?

The aviation industry has been looking at sustainable fuels for some time now. Is there an opportunity for companies to be in a position to produce bio-jet coming from bio-source? Different strategies will depend on region and access to bio source, but it is very important to be look at this opportunity. Ideally all key players would be involved such as airplane manufacturers, airlines, fuel producers and technology providers.



Alternatives could offer huge potential in the Middle East. The resources are already there – sun, land, wind and seawater. Situated between east and west, the region has great competitive advance to establish a green hydrogen/ammonia industry hub, combining all resources including the cheap cost of producing electricity from solar power. Some projects are planning and implementing alternatives such as solar and wind into industrial sites.

The key players are still pursuing their long-term strategy to be a big player in the chemicals market. Circular economy is a must for achieving impact in sustainability. Throughout 2019, a topic heavily discussed and strongly debated was single-use plastics. By April 2020, single-use plastics in the form of PPE were the most sought-after product due to its hygiene and protection offered against COVID-19. The term 'Circular Economy' was a relatively new term for many in early 2020, it is now a business strategy being implemented not only for plastics but in the entire downstream value chain from recycling of metals to the manufacturing of energy storage units.

Recycling plastic is key for the future and will shape the industry going forward. However, there will be challenges going from waste plastic to olefins – for example if municipalities will be handling the waste; who will convert it into feedstock; and how to inject the feedstock back into the plant.

Strategies are being developed and there are some existing tools that could be used to address this new challenge. For example, several technology suppliers have the solutions to integrate a plastic recycle facility with a steam cracker producing pygas or directly olefins.

ENERGY TRANSITION – FROM BIG OIL TO BIG ENERGY IN THE MIDDLE EAST?

Electric Vehicles (EV's) present the industry with both challenges and opportunities. The United Kingdom recently announced that from 2030, all new cars bought will be EVs with the list of countries banning the purchase of diesel and gasoline vehicles growing.

Putting aside questions of infrastructure and economics we see that more EVs increases the demand for manufacturing plastics which in turn increases demand for heavier grades for example, carbon black and anode grade coke can be used for manufacturing materials required in batteries. The Middle East needs to deliver more flexible products as the region is in an ideal position for global competitiveness due to less and less assets operating in Europe as we get close to 2035 and 2050 timeframes so refineries need to make the most of this and position themselves well.



In terms of the Middle East positioning for the future, questions regarding consumer preference arose during the meeting. It is accepted that European IOC's have growing society and investor pressure to change (as well as not sitting on the same amount of reserves), resulting in being able to shift their portfolios very actively. Looking at the Middle East from a business perspective, many countries are dependent on oil for their economies and investment into renewables must make business sense. There is a cultural and political shift towards environmental and the trend of energy transition, but one uncertainty is - will the consumer pay more for a green/renewable product? For example, green hydrogen – information is readily available on how to make and supply but in terms of demand and if consumers are willing to pay a high cost for this versatile product, it is yet to be determined. For the consumer in the region, the relatively cheap cost of traditional fuel together with the high cost to purchase an EV makes the move towards sustainability more of a culture trend currently.

ENERGY TRANSITION – FROM BIG OIL TO BIG ENERGY IN THE MIDDLE EAST?

The industry has huge infrastructure such as units, steel, pipelines, tanks therefore we need to take a holistic approach to the energy transition to ensure we can repurpose assets that have become redundant so we are not creating more waste switching to more sustainability practises. Global initiatives, such as the task force on climate related issues for all companies across all industries asses the risk and opportunities presented by climate change, should be considered. The Middle East is the most competitive in terms of hydrocarbon resources and the most carbon efficient in the world. Challenges and opportunities can be viewed from very different vantage points depending on geographical region and resources they are sitting on.

We can summarise that the landscape is changing but fossil fuel will continue to contribute strongly to economies and our way of life, however we will see gradual changes. We are part of an industry that always needs upgrading. Preparation for 2035-2050 is key – the downstream industry should look at differentiation and integration. We must remember that our industry is ever evolving and the only constant is change.

Join us at ME-TECH VIRTUAL 2021 - the must attend downstream event in 2021.

**ME-TECH will cover all these topics and much more from 15-18 February 2021.
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