ADVISORY MEETING TAKEAWAYS

MEETING HELD 11TH JUNE 2025

BBTC MENA

BOTTOM OF THE BARREL TECHNOLOGY CONFERENCE

MECAT

MIDDLE EAST CATALYST TECHNOLOGY CONFERENCE

2025 Advisors

- **Dr. Marcio Wagner da Silva**, Optimisation and Process Engineering Manager, **Petrobras**
- H**atem Belfadhel**, Technology and Innovation Fellow, **SABIC**
- **Raji A Rauof**, Team Leader, Strategic Studies, **ADNOC Refining**
- **Yaser Fallatah**, Vice President Engineering & Projects, **Luberef**
- **Ibrahim Alshahrani**, Senior Process Engineer, **SATORP**
- **Mikael Berthod**, Head of JV Management Refining & Business Development, **OMV Refining & Marketing**
- **Nadim Jalbout**, Principal (Senior Manager), **Siemens**
- **Fadi Mhaini**, Vice President & General Manager, MENA, **Lummus Technology**
- **Mohammed Benchekchou**, Managing Director, **Topsoe**
- **Varun Mathur**, Head Manager - Middle East, **IPCO**
- **Markus Hartung**, Vice President, **Evonik**
- **Zhonglin Zhang**, Director of Refining and Petrochemical R&D Department, **Sinopec Tech Middle East LLC**
- **Abdulrahim Alturkistani**, Regional Director, Saudi Arabia & Bahrain, **Shell Catalysts & Technologies**
- **Jean-Gaël Le Floc'h**, Manager, EMEA Operations, **Becht**
- **Vipan Goel**, Senior Sales Director, **W.R. Grace & Co**
- **Joseph Ibrahim**, Managing Director, Middle East, **Axens**

EPC

- **Stefan Chapman**, Vice President
- **Miro Cavkov**, Technical Director - Downstream & Energy Advisory
- **Nour Makarem**, Senior Regional Conference Director
- **Kimberley J. Pereira**, Business Development Director

A truly inspiring Advisory Board Meeting for BBTC MENA & MECAT 2026!

The BBTC MENA and MECAT 2025 Advisory Board convened in June 2025 to bring together industry leaders and experts from the refining and petrochemical sectors. The meeting provided a platform to discuss the latest operational trends, innovations, and future opportunities within the industry. Amid a rapidly changing market and policy environment, the industry finds itself at a key crossroads — needing to maximise margins, cut emissions, and respond to growing policy pressures while extending the utility of existing assets.

The main messages from this meeting underscore a need for adaptability and innovation — adding specialised catalysis, employing hydrogen and digital technologies, and developing strategies to process unconventional feeds — all while optimising brownfield operations to match future conditions.

Key Takeaways

1. Combusting Fuel Oil in Refineries - Emissions Reduction Solutions
The meeting addressed a key operational challenge — many facilities are currently forced to burn heavy oil due to hydrogen or natural gas scarcity. Solutions were identified to cut emissions without overhauling process operations:

- Additives to Oil: Certain compounds can aid in more complete combustion.
- Flue Gas Cleanup: Installing scrubbers or specialised equipment can cut stack emissions directly.
- Burner Design: Small modifications to burners can produce more complete combustion and lower emissions.

This highlights a cost-effective, near-term opportunity to cut emissions and improve energy utilisation.

2. Residue Upgrading and Petrochemical Integration — Adding Margin from Bottoms
Petrochemical integration was recognised as a key path forward in a weak-margin environment. Residue-upgrading technologies enable facilities to maximise margins by converting low-value streams into valuable products.

- Hybrid Approach: Combining hydrogen and electrical heating to cut emissions while improving energy utilisation.
- Petrochemical Conversion: Residue can be routed into olefin and aromatic production, adding considerable margins.

3. Co-Processing Unconventional Feedstocks — Establishing a Sustainable Feedstock Base

Some facilities are exploring co-processing unconventional feeds alongside petroleum — for example, adding waste-derived oil from plastics or tyres into Hydroprocessing.

- Pyrolysis Oil: Large potential to create additional value chains while reducing waste.
- Economic Benefit: Short payback periods and scalable technology make this a viable path forward.

4. Market Outlook and Emerging Tech — Aligning Operations with Demand

The first consideration should be understanding future market signals — which products will be in demand and which will diminish. The meeting recognised the need to move from a reactive view to a more forward-looking, market-aligned view.

This highlights the necessity for specialised sessions at future conferences to showcase technologies that match these trends.

5. Integrating Newly Built Refineries — Large, Modern Configurations
Some companies are designing large, sophisticated refineries from the outset — integrating hydrogen, deep residue-upgrading, and co-processing capabilities into their configurations.

This approach lets a new refinery maximise margins and minimise emissions from day one, yielding a more flexible, future-proof configuration.

6. Innovations from Operations — Integrating Sustainable Solutions into Existing Assets
The meeting recognised numerous opportunities to cut emissions and maximise profits by making small but impactful modifications in existing facilities.

Examples include adding green hydrogen production alongside Hydroprocessing or applying specialised coatings to heaters to cut energy consumption.

7. Synergy through Revamps — Small Changes with Large Impact
Revamps — adding or enlarging processing segments — can produce dramatic benefits without needing a complete rebuild.

For Hydroprocessing, adding specialised trays or swapping to more-active catalysis can raise throughput and selectivity. For Fluid Catalytic Crackers and Hydrocrackers, tweaks to equipment or conditions can maximise desirable products and cut emissions.

8. Catalyst Innovation — Speciality Solutions for Feedstock Conversion

Catalytic technology plays a key role in adding flexibility and profits:

- Higher Selectivity: Modern Hydroprocessing and Hydrocracking Catalysts maximise desirable products while minimising byproducts.
- Higher Activity: Better resistance to poisoning lets these facilities process more challenging feeds.
- Controlled Conversion: Allows facilities to cut hydrogen usage, maximise liquids, and minimise waste.

9. Digital Transformation — Integrating Digital Tools into Operations

Digital technologies, from process simulation to digital twins and Machine Learning, were recognised as powerful enablers:

- AI: Machine-learning algorithms can maximise hydrogen utilisation, cut emissions, and boost profits by optimising conditions in real time.
- Digital Twins: Provide a sandbox for testing modifications and training without disturbing operations.
- Training: Digital technology lets operators visualise and practice scenarios safely.

The meeting highlighted a clear industry momentum toward a more circular, efficient, and smarter refining future. Successful demonstration, combined with collaboration, knowledge exchange, and technology, can enable this transformation. The Advisory Board concluded the meeting with a strong sense of optimism about the industry's ability to innovate and adapt to rapidly changing conditions. This momentum provides a solid foundation for advancing technology deployment, operational improvements, and sustainability initiatives — ultimately strengthening the resiliency, competitiveness, and future readiness of the Middle East refining sector.

BBTC MENA

BOTTOM OF THE BARREL TECHNOLOGY CONFERENCE

Unlocking Profitability through Bottom-of-the-Barrel Innovation

February 2026 Bahrain

As global energy transition timelines recalibrate, bottom-of-the-barrel conversion is regaining strategic significance. BBTC MENA is the region's leading technical forum focused on residue upgrading, advanced conversion routes, and cleaner product strategies. With the industry under pressure to maximise efficiency, flexibility, and value recovery from heavier fractions, this high-level event provides a platform for technology alignment, knowledge exchange, and commercial strategy development.

We are calling papers on the following topics:

- **Residue upgrading strategies**
- **Advanced hydroprocessing**
- **Integration with petrochemical routes**
- **Energy efficiency & emissions reduction**
- **Feedstock flexibility & heavy crude processing**
- **RFCC**
- **Bitumen, base oils & specialty product production**
- **Unit Revamp & Repurposing Strategies**

Make a Presentation

Case studies and practical examples of technology application and implementation will be favoured.

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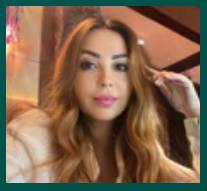

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ME-CAT

MIDDLE EAST CATALYST TECHNOLOGY CONFERENCE

Optimising Catalyst Performance in Refining & Petrochemical Processes

February 2026 Bahrain

ME-CAT is the Middle East's only technical platform fully dedicated to refining and petrochemical catalyst technologies. Held directly after BBTC MENA, ME-CAT 2026 focuses on boosting operational performance, decarbonisation, and process reliability through innovative catalyst design, application, and lifecycle strategies.

We are calling papers on the following topics:

- **Catalyst performance optimisation**
- **Circular catalyst economy**
- **Catalyst monitoring & handling systems**
- **Decarbonisation & sustainability alignment**
- **R&D, licensing, and collaboration models**
- **RFCC**
- **Process-specific petrochemical catalyst innovation**
- **Catalyst developments for chemicals & petrochemicals**

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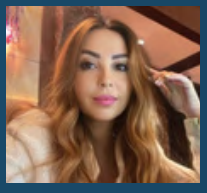

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