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2025 Season

# Duqm Now

## Leading Change

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EVENT REPORT 04

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# Petrochemicals & Everyday Life

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**الدقم**  
**DUQM**

المنطقة الاقتصادية الخاصة  
SPECIAL ECONOMIC ZONE  
سلطنة عُمان | SULTANATE OF OMAN



Duqm Now

Leading Change

## Our Partners

### PLATINUM PARTNER



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### EVENT PARTNERS



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@DuqmNow

We aspire to deliver impact with every post we make



Petrochemicals & Everyday Life

## What Are We Looking to Achieve?



### Raise Awareness

Increase awareness of Duqm as an attractive investment destination – providing information on its infrastructure, amenities, incentives, tenants and benefits.



### Promote Investment

Attract potential investors from different sectors and from various parts of the world, specifically those who could benefit from Duqm's unique offer.



### Network Building

Provide a platform for stakeholders, existing tenants – large and small – potential investors and government representatives to network and build partnerships.



### Facilitate Dialogue

Encourage open discussion about the opportunities available in Duqm, facilitate dialogue between businesses, investors, tenants and policy makers.



### Showcase Success Stories

Importantly, share success stories of businesses operating in Duqm – showcase the opportunities and growth potential for other prospective tenants.



### Knowledge Exchange

Create a knowledge-sharing platform where best practices, regulatory updates and industry trends can be discussed.



### Strengthen International Ties

Enhance international ties and foster greater international cooperation by attracting foreign investors and businesses.



### Sustainability Focus

Address sustainability issues related to Duqm's operations and highlight the initiatives taken by SEZAD towards eco-friendly practices.



Reserve your seat at [DuqmNow@duqm.gov.om](mailto:DuqmNow@duqm.gov.om)

### Session I

7:30pm Wednesday 5 February

## Up & Down the Green Stream

Globally, small and medium-size enterprises (SMEs) are playing a major role in the Green Energy sector and enjoying substantial growth. In Europe, for example, SMEs involved in renewable energy projects have increased revenues by an average of 15% annually over the last five years while the global green tech and sustainability market is expected to reach US\$139 billion by 2030.

Inspired by this potential, this Duqm Now session will explore the current and emerging renewable energy related opportunities for ambitious Omani SMEs and entrepreneurs in and around the Special Economic Zone at Duqm. With a special focus on major projects like SEZAD's Integrated Energy Valley, we will cover the role SMEs can play in supply chain management, manufacturing, specialized services and support infrastructure.

#### Key Discussion Points

- 1 The role SMEs can play within major projects like SEZAD's integrated Energy Valley from supply chain contributions to providing specialized services.
- 2 Opportunities created by new technologies and innovative practices in renewable energy.
- 3 Trends in the global renewable energy market and potential revenue potential for SMEs engaged in renewable energy projects.
- 4 Duqm's SME support infrastructure and scaling operations within the renewable energy sector.
- 5 The broader implications of a thriving renewable energy sector on sustainability and community development in Duqm and Oman.

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### Session 2

7:30pm Wednesday 16 April

## Classroom to Shop Floor: Education-Industry Links in Manufacturing

In accordance with the goals of Oman Vision 2040 and through the roadmap provided by the newly announced Industrial Strategy 2040, government is looking to increase the 9.8% contribution manufacturing made to Oman's non-oil GDP in 2023. The growth of the sector will create thousands of quality, long-term jobs for Oman's youth and central to equipping them with the skills they need to embark on and succeed in these careers will be collaborative University-Industry (U-I) programs. In fact, research suggests companies engaged in U-I arrangements report a 11% higher rate of productivity

with the flow of new ideas and technologies from academia to the production floor, significantly boosting competitiveness. For Duqm's tenant community these links have the potential to provide crucial support, enhancing technical capabilities and market responsiveness through access to tailored training programs and research.

This Duqm Now will delve into the fabric of both successful U-I partnerships and apprenticeships, looking at how they can bridge the gap between theoretical knowledge and practical application.

#### Key Discussion Points

- 1 Collaboration models between universities and industry, apprenticeships and research.
- 2 Successful partnerships between manufacturers and universities - case studies, outcomes, best practices and lessons learnt.
- 3 Gaps in the current skill sets of graduates and how industry input can tailor educational programs to better meet Duqm's workforce demands.
- 4 The integration of advanced manufacturing technologies into academic curricula and preparing students for the modern manufacturing environment.
- 5 Funding opportunities and resources available for educational institutions and manufacturing firms to establish and maintain productive partnerships.



### Session 3

7:30pm Wednesday 17 September

## Circular Economy: Rethinking Resource Use

Reserve your seat at [DuqmNow@duqm.gov.om](mailto:DuqmNow@duqm.gov.om)

The Circular Economy is all about moving away from the traditional, linear “take-make-waste” model and instead keep products and materials in use. For many companies, this shift in thinking may initially seem daunting - after all, some operate on slim margins, limited resources and complex supply chains. By simply reevaluating byproducts and waste streams as potential resources, firms can simultaneously cut costs, generate new revenue and gain a competitive advantage - essentially turning waste from a cost centre into a profit driver.

By embracing the Circular Economy, SEZAD businesses can reap substantial benefits - not just for themselves but also for the planet and its inhabitants.

This third Duqm Now will discuss how embracing circularity in manufacturing is not just a sustainability imperative for SEZAD’s community but a high-potential business opportunity. It will look too at what is involved in embarking on this shift, its challenges, support available and rewards.

### Key Discussion Points

- 1 Advanced waste management technologies and practices.
- 2 Strategies for maximizing resource efficiency in manufacturing processes.
- 3 Methods for extending the lifecycle of products and their potential impact on Duqm’s industrial sector.
- 4 Opportunities for collaboration between business, government and other stakeholders to promote and support sustainable manufacturing practices in Duqm’s industrial sector.
- 5 Challenges for Duqm-based businesses in transitioning to a Circular Economy model.

### Session 4

7:30pm Wednesday 10 December

## A Greener Petrochemical Pipeline

Reserve your seat at [DuqmNow@duqm.gov.om](mailto:DuqmNow@duqm.gov.om)

Despite environmental challenges - including greenhouse gas emissions and plastic waste - and pressure from regulators, customers and investors to decarbonize, the global demand for petrochemicals is projected to double by 2050. This anticipated growth, driven by increased population, urbanization and rising living standards, underscores the urgent need for innovative and sustainable practices in the petrochemical industry.

Taking a fresh look at the petrochemical industry, this expert Duqm Now panel will explore the transition to low carbon petrochemicals including innovations such as process optimization, waste heat recovery, the creation of biodegradable plastics and the shift towards a Circular Economy for these products. The conversation will include discussion on the economic benefits and potential for job creation of these approaches. We will also investigate how the petrochemicals industry is evolving in Duqm and what the next steps will be as Oman works towards its 2050 Net Zero Target.

### Key Discussion Points

- 1 The transition to bio-based and renewable feedstocks and decreasing reliance on traditional fossil fuels in petrochemical production.
- 2 New technologies and methods for enhancing efficiency in petrochemical processes.
- 3 Strategies to create a more sustainable lifecycle for plastics.
- 4 Economic benefits and job creation potential associated with implementing sustainable practices within the petrochemical sector.
- 5 Major industry environmental challenges and strategies to mitigate these impacts as the global demand for petrochemicals continues to rise.



# Duqm Now

Showcasing the Real Opportunities Available Right Now on SEZAD



Moderated by **Talal Al Shahri**  
Director, Specialized Radio Stations  
Ministry of Information



**Khalid Al Qassabi**  
Director General, Industry,  
Ministry of Commerce,  
Industry & Investment  
Promotion



**Dr. Idris Al Siyabi**  
Renewable Energy Lead  
PDO



**Dr. Mohammed Al Hasmi**  
COO  
OQ8



Following the highly successful session, we spoke with Eng. Ahmed Akaak, SEZAD's CEO about Duqm Now and delved further into how Omani businesses of all sizes can capitalize on the possibilities of Oman's green transition.

**Eng. Ahmed Akaak**  
CEO  
SEZAD

In simple terms, what are petrochemicals?

They're the materials that make modern life work. They're not glamorous, they're not optional and most of the time they go unnoticed. If you removed petrochemicals from daily life, you wouldn't get a simpler version of today. You'd get shortages, improvisation and empty shelves where basic necessities used to be.

People often imagine petrochemicals as something distant, happening behind refinery fences. In reality, they're already in your home, your car and your workplace. The foam in a mattress, the insulation around wiring, the casing of electronics, fibres in clothing, sealants that stop buildings leaking and packaging that keeps food safe all depend on petrochemical chemistry. There's no mystery to that. These materials are reliable, consistent and scalable at a cost consumers, businesses and governments have been willing to accept.

Can you give examples people can picture easily?

Of course. Take luxury goods and healthcare, two sectors that don't usually sit together. A premium lipstick relies on polymers and additives for texture, stability and shelf life. Without them, products separate, smear and degrade quickly. That's not acceptable at any price point. Now look at hospitals. IV tubing, blood bags, syringes, diagnostic components, sterile packaging and protective equipment all rely heavily on plastics derived from petrochemicals. The WHO reported in 2024 that single-use plastic medical devices remain essential because sterility and infection control aren't negotiable in clinical settings.<sup>1</sup> If you want modern healthcare delivered at scale, you're also choosing petrochemical materials. That's not ideology. It's operational reality.



Isn't that dependence the real problem?

Dependence isn't the problem. Waste is the problem. Emissions are the problem. Poor design is the problem. Weak collection systems are the problem. When those issues are blurred together, serious discussion turns into theatre. A world without petrochemicals isn't automatically greener. It's often less safe, less resilient and more expensive. Remove key medical plastics and you don't get virtue. You get shortages. Remove insulation materials without viable substitutes and energy use rises. The more useful question is how petrochemicals are produced, how they're used and what happens after use.<sup>3</sup>

How central is the industry really?

More central than most people realize and probably more central than many would like. The IEA reported that petrochemicals accounted for roughly 16% of global oil demand in 2024 and are expected to deliver a large share of demand growth in the medium-term as transport fuel growth slows.<sup>2</sup> That changes the logic of energy and industrial strategy. Petrochemicals are no longer a secondary activity. They're increasingly the demand engine that remains difficult to replace at scale. There's also a point that's often missed. Many low-carbon technologies are materially intensive. Wind turbine blades, solar panel components, insulation and electric vehicle parts all rely on advanced polymers. The energy transition reduces combustion. It doesn't remove petrochemicals.

So, is the sector untouchable?

No, not at all. It's under pressure from several directions at once. Public tolerance is thinner. Regulation is tighter. Markets are less forgiving of inefficiency. Overcapacity in parts of Asia has compressed margins. That isn't a moral judgement. It's the maths of supply exceeding demand. In this environment, success belongs to operators with efficient assets, strong integration with downstream demand and the ability to meet tougher standards. Facilities that are carbon intensive, poorly located or disconnected from end markets will find it increasingly hard to justify themselves when capital providers and customers start asking the same questions.



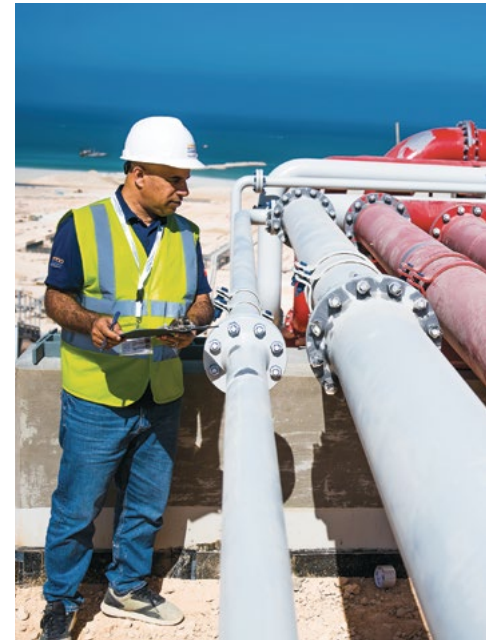
16%

Of global oil demand in 2024 was accounted for by petrochemicals.

IEA

Where does Duqm fit into this picture?

Duqm matters because geography matters again. Global supply chains were once optimized mainly for cost. Now they're designed to manage disruption. Location with access to multiple markets has become a form of flexibility. Duqm sits close enough to Asia, Africa and Europe to avoid being a single-direction proposition. SEZAD's role is to create conditions for industrial development that reflect market reality. That means enabling integrated projects rather than isolated assets. It also means taking standards, reporting expectations and long-term operability seriously. Industrial zones either support competitive outcomes or lock in outdated models. In my view, the difference comes down to execution.



What should investors and policymakers be watching?

They should be watching for realism. The sector isn't going to disappear, but it will have to justify itself more rigorously. Policy will increasingly target outcomes. Investors will favour assets that can operate under tighter constraints and higher transparency. The Economist reported in 2024 that industrial transitions tend to reward incumbents that adapt and punish newcomers that promise disruption without scale.<sup>4</sup> The same logic applies here.

What's the message of this Duqm Now report?

That petrochemicals are embedded in modern life. Any serious discussion about sustainability and industry has to start there. Petrochemicals 2.0 isn't about denial or decline. It reflects higher expectations and clearer rules. If the future is going to work, we need to be honest about what the present is made of.

# What Does Petrochemicals 2.0 Mean?



◆ Dr. Mohammed Al Hasmi, COO, OQ8

The tag Petrochemicals 2.0 gets used frequently and often without explanation. It's treated as a signal of progress rather than a definition. In practice, it doesn't describe a single technology or a neat roadmap. It describes the conditions the industry now operates under.

At its core, Petrochemicals 2.0 reflects tighter limits. Carbon costs are visible rather than abstract. Margins are thinner because of oversupply. Buyers ask for proof rather than assurances. Capital is more selective. The old model, where scale came first and accountability followed later, no longer fits. This isn't a change in attitude. It's a change in constraints.<sup>1</sup>

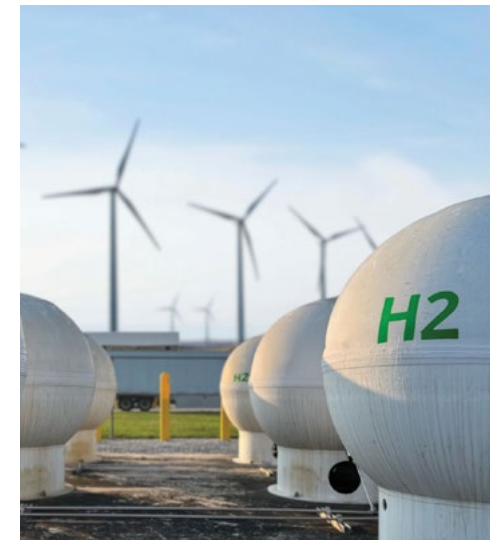
## Petrochemicals & Everyday Life

Lower-carbon production is one of the clearest features, though it doesn't look the same everywhere. Emissions intensity varies depending on feedstock, energy source, process design and integration. Integrated sites with access to lower-carbon power operate differently from older standalone plants reliant on higher-emissions energy. That variation now has direct commercial consequences. Carbon performance has become a differentiator rather than a footnote.<sup>2</sup>

Hydrogen sits within this longer-term adjustment. Green hydrogen in particular carries strategic importance as costs decline, infrastructure develops and supply chains mature. Near-term applications are likely to be selective, focused on processes where hydrogen can reduce emissions without disrupting operational stability. Petrochemicals 2.0 is therefore about designing assets with hydrogen integration in mind from the outset. Facilities that anticipate future hydrogen availability retain optionality and long-term relevance. Those that assume rapid or universal substitution risk misalignment between ambition and execution.<sup>3</sup>

Operational efficiency forms another pillar. Digital optimization, advanced process control and predictive maintenance are becoming standard practice. Plants that deploy them well improve energy efficiency and reduce unplanned downtime. The gains don't come from novelty. They come from execution discipline and from people who know how to run more complex systems.<sup>4</sup>

Green hydrogen in particular carries strategic importance as **costs decline.**



Circularity is part of the picture, though it's often discussed without enough precision. Mechanical recycling, chemical recycling and alternative feedstocks each address different parts of the value chain. Recycled inputs will grow in importance, but they won't replace virgin production at scale in the near term. Petrochemicals 2.0 incorporates circular materials where they make technical and economic sense.<sup>5</sup>

Integration consistently outperforms isolation. Sites that combine refining, petrochemicals, utilities and logistics tend to operate more efficiently and with greater resilience. Integrated design allows for heat recovery, by-product use and better emissions management. As margins narrow, these advantages compound.<sup>2</sup> Governance and disclosure complete the picture. Petrochemicals 2.0 requires credible data, consistent reporting and transparent engagement with regulators, financiers and customers. Disclosure is no longer about presentation. It's about access.<sup>6</sup>

Petrochemicals 2.0 isn't a retreat from the sector and it isn't a promise of reinvention. Demand for materials across healthcare, infrastructure, manufacturing and consumer goods remains strong. What's changed is tolerance for inefficiency and opacity. Assets are now judged on how well they perform under pressure rather than on scale alone. In practical terms, Petrochemicals 2.0 describes an industry operating without a safety margin. Oversupply, carbon costs and buyer scrutiny have removed it. What remains is the ability to compete on efficiency, reliability and transparency.



# Petrochemicals The Last Growth Engine of Oil



◆ Dr. Idris Al Siyabi, Renewable Energy Lead, PDO

For most of the past century, oil demand growth was driven by movement. Cars, trucks, ships and aircraft absorbed rising volumes as populations expanded and trade intensified. That pattern has weakened. Efficiency standards, electrification and policy pressure have slowed growth in transport fuels across many markets. Petrochemicals stand apart because their demand is tied less to movement and more to material needs.

This isn't because petrochemicals escaped scrutiny. It's because they sit at the intersection of population growth, urbanization and material intensity. Rising incomes lead to more consumption of packaged food, household goods, medical products, textiles and construction materials. Each of these relies heavily on petrochemical inputs. These categories scale with living standards and urban density, making them difficult to reduce without affecting quality of life or public health.

## Petrochemicals & Everyday Life

By 2024, petrochemicals made up around 16% of global oil demand and absorbed a rising share of incremental growth as transport fuels lost momentum.<sup>1</sup> This concentration reshapes priorities. When alternative demand routes narrow, attention naturally settles on the segments that remain durable. This durability reshaped the energy sector's strategy. Integrated producers began treating petrochemicals as a central pillar rather than a secondary activity. Chemicals offer exposure to longer product lifecycles and more diverse demand bases than fuels alone. Refining, without chemicals, became more exposed to volatility. Petrochemicals extended value chains into products with longer lifecycles and broader applications, providing more stability.

There's an additional, often overlooked dimension. Many low-carbon technologies are materially intensive. Wind turbine blades, solar panel components, insulation, cables and EV parts all rely on advanced polymers and composites. The energy transition reduces combustion. It doesn't eliminate petrochemical-derived materials. In some cases, it actually increases demand for them.<sup>2</sup>

This combination of durable demand and limited substitution explains why petrochemicals absorbed so much investment. As other oil demand pathways narrowed, chemicals became the obvious outlet for capital seeking scale and longevity. Capacity expanded quickly in anticipation of long-term growth.

That expansion, however, created its own pressure. When multiple regions added capacity simultaneously, supply outpaced demand growth. Margins compressed, and utilization rates fell. What had been a forgiving market became more competitive. Growth alone no longer guarantees returns. This is where petrochemicals transitioned from being a simple growth story to a performance-driven one. When demand grows steadily but supply grows faster, differentiation becomes crucial. Cost position, asset efficiency, market access and logistics start to determine outcomes. Growth alone no longer protects margins.

For host economies, the implications are similar. Petrochemicals still offer participation in a durable segment of global demand, but they no longer offer immunity from market cycles. Success now depends on how well assets are positioned within global flows of feedstock, energy and demand. Petrochemicals became the last growth engine of oil because they're embedded in how modern economies function. That hasn't changed. What's changed is the environment around them. Growth now comes with scrutiny, competition and constraint. That sets the stage for what comes next. When growth persists under pressure, execution becomes the deciding factor.<sup>3</sup>



# China Changes Everything



◆ Talal Al Shahri Director, Specialized Radio Stations, Ministry of Information

For years, China was treated mainly as a destination. It absorbed surplus output from global producers and underpinned capacity expansion across multiple petrochemical chains. That framing no longer holds. China has become a system shaper, influencing prices, trade flows and investment decisions well beyond its borders.

## Petrochemicals & Everyday Life

The scale of China's expansion is unprecedented. State-backed investment, access to capital and a strategic focus on domestic supply security drove rapid capacity growth across basic chemicals and polymers. Between 2020 and 2024, China accounted for the majority of net global petrochemical capacity additions, particularly in polyolefins and intermediates.<sup>1</sup> This expansion altered the balance between domestic consumption and external supply.



Trade data shows the impact clearly. China's polypropylene exports rose sharply in 2023 and 2024 exceeding 2.4 million tonnes and reversing its long-standing position as a major net importer.<sup>2</sup> Countries that once relied on Chinese demand now face competition from Chinese supply. Margins compressed and price volatility increased across Asia and beyond. China's production decisions aren't shaped only by short-term market signals. Industrial policy, employment considerations and long-term supply resilience play a central role. Even as global utilization rates declined, capacity continued to expand. This weakened the corrective forces that once constrained oversupply.<sup>3</sup>

**2.4M** tonnes

China's polypropylene exports rose sharply in 2023 and 2024.

Cost structure adds nuance. Many Chinese plants lack the feedstock advantages of ethane-based producers but scale and integration offset part of disadvantage. Newer integrated complexes sit closer to the global median cost position than older standalone facilities elsewhere.<sup>4</sup> Domestic demand also provides a buffer, allowing producers to redirect volumes internally when export margins tighten.

The impact isn't limited to Asia. European producers already facing high energy and compliance costs encounter additional pressure from competitively priced Chinese imports. In emerging markets, buyers have become more flexible about origin as availability increased. Procurement has shifted toward price-led sourcing rather than long-term supplier alignment.<sup>5</sup> These dynamics changed investment assumptions globally. Projects that once treated China as an anchor market now face greater uncertainty. China's industrial strategy evolved from import substitution toward export competitiveness in higher-value manufacturing, including chemicals and materials.<sup>6</sup> This places sustained pressure on producers across the value chain, not only in commodity grades.

Trade policy responses followed. Rising shipments prompted closer scrutiny and an increase in trade remedies affecting chemicals and related products. Such measures may slow flows, but they rarely reverse structural change.<sup>7</sup> Environmental policy adds another layer. China tightened emissions standards for new petrochemical facilities after 2021, improving efficiency relative to older assets globally.<sup>8</sup>



Scale remains decisive. Aggregate emissions are still substantial which matters as carbon-based trade measures expand.

For producers outside China, strategic options narrow. Competing on volume alone rarely works. Differentiation through integration, logistics, carbon performance and proximity to end markets becomes more important. Geography regains relevance in a market where demand no longer guarantees absorption. China hasn't simply added capacity. It has reset expectations. The global petrochemical market is no longer shaped by a single growth engine pulling supply forward. It's shaped by multiple centres of production competing for demand that grows more slowly and unevenly. That reality forces recalibration. Success is no longer defined by access to China alone. It's defined by the ability to operate profitably in a market where China is both customer and competitor.



The global petrochemical market is no longer shaped by a single growth engine pulling supply forward. It's shaped by multiple centres of production competing for demand that grows more slowly and unevenly.

# Carbon Rules Become Trade Rules



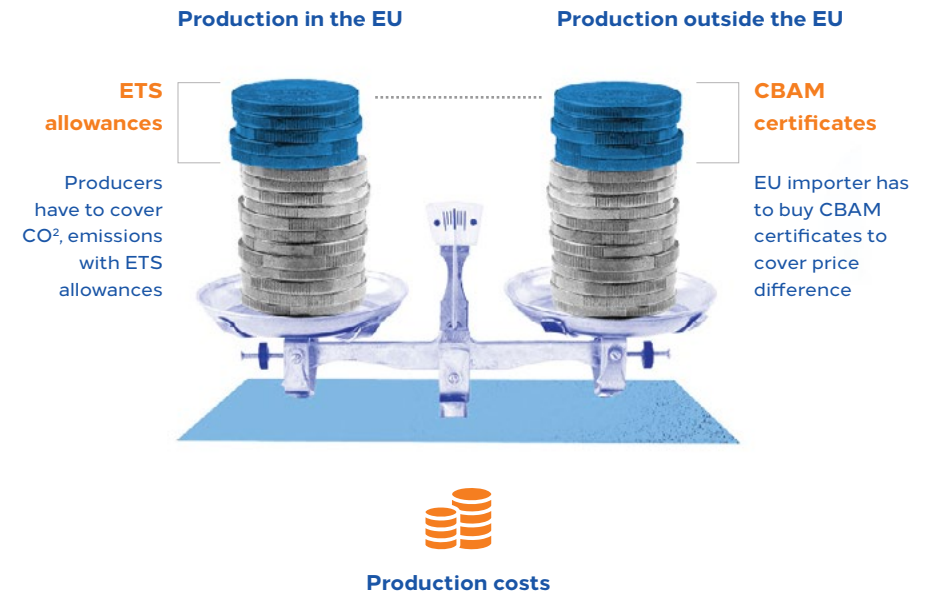
◆ Khalid Al Qassabi, Director General, Ministry of Commerce, Industry & Investment Promotion

For years, carbon policy and trade policy moved on separate tracks. One addressed emissions. The other governed market access. That separation has narrowed sharply. Carbon intensity now functions as a trade variable, shaping pricing, procurement and competitiveness across energy-intensive industries, including petrochemicals.

The EU has driven this convergence. The Carbon Border Adjustment Mechanism (CBAM) entered its transitional phase in 2023 and is now fully operational for emissions reporting. Financial obligations begin in 2026. While the initial scope covers cement, steel, aluminium, fertilisers and electricity, downstream chemicals and polymers are under formal assessment for inclusion later in the decade.<sup>1</sup> This isn't theoretical. It's a defined regulatory path.



## How will CBAM work?



The logic is straightforward. EU producers face carbon costs under the Emissions Trading System. Imports without equivalent constraints are viewed as undermining competitiveness. Carbon pricing therefore becomes a condition of market access rather than a domestic compliance issue. In 2024, EU ETS allowance prices fluctuated broadly between €55 and €90 per tonne.<sup>2</sup> For petrochemical producers operating on thin margins, that differential matters.

What distinguishes this phase from earlier climate regulation is enforcement discipline. CBAM requires detailed reporting of embedded emissions using EU-defined methodologies and third-party verification. Importers unable to provide adequate data are assigned default emissions values that assume high intensity. In the absence of proof, the market assumes the worst case.<sup>1</sup>

Trade pressure isn't coming only from regulators. Buyers are acting as enforcers. Corporate disclosures published in 2024 show increased supplier requirements related to emissions data, product carbon footprints and reduction plans across consumer goods, automotive and electronics sectors.<sup>3</sup> These demands are framed less as environmental preference and more as risk management.

# 55-90 €

Per tonne, carbon costs increasing cost uncertainty for petrochemical producers.

EU ETS allowance prices



Procurement behaviour adjusted accordingly. Price still matters, but it no longer operates alone. Buyers increasingly assess suppliers using combined criteria that include cost, reliability and emissions intensity. In certain segments, lower-carbon material retained preference even at a modest price premium because regulatory exposure elsewhere in the value chain carries cost.<sup>4</sup> For petrochemicals, the implications are structural. Many products compete globally on narrow margins. Border-level carbon costs or buyer-imposed thresholds compress those margins further. High-emissions assets face a dual penalty. They incur higher compliance costs and risk exclusion from preferred supply chains. Facilities with access to cleaner energy and efficient design retain more commercial flexibility.

Carbon considerations also moved into capital allocation. In 2024, several international banks updated sectoral lending criteria to reflect exposure to carbon pricing and border measures, particularly for long-lived industrial assets.<sup>5</sup> Projects without credible emissions pathways face higher financing costs or tighter conditions. Carbon now appears routinely in investment committee decisions. The trend isn't confined to Europe. Policy discussions in Japan, Canada and parts of Southeast Asia referenced carbon border tools as mechanisms to balance climate commitments with industrial competitiveness.<sup>6</sup> Even where such measures aren't adopted, expectations around emissions transparency are converging. Carbon rules becoming trade rules doesn't mean trade is retreating. It means access is becoming conditional. Markets increasingly ask how products are made, not only what they cost.

Projects without credible emissions pathways face **higher financing costs or tighter conditions.**



# Duqm's Strategic Advantage



◆ Eng. Ahmed Akaak, CEO, SEZAD

Industrial geography has become less forgiving. For much of the past 20 years, location decisions were driven mainly by cost and the assumption that trade would remain fluid. That assumption weakened. Companies now weigh resilience, access and predictability alongside cost. In this environment, geography has regained strategic value.

## Petrochemicals & Everyday Life

Duqm's position fits this recalibration. Located on the Arabian Sea, it offers direct access to Asian, African and European markets without reliance on congested or politically sensitive chokepoints. Transit times to India and East Africa are materially shorter than routes from Europe or the US Gulf Coast, reducing freight costs and inventory exposure.<sup>1</sup> For industries operating on thin margins, days saved at sea translate into commercial advantage.



Feedstock reliability reinforces this position. Oman maintained stable oil and gas production despite regional and global volatility. In the first 10 months of 2025, Oman produced approximately 303 million barrels of oil and more than 47 billion cubic metres of natural gas.<sup>2</sup> Reliability rarely features in project models, but disruptions impose costs quickly once operations begin.

# 33mn

barrels of oil and more than 47 billion cubic metres of natural gas were produced by Oman in the first 10 months of 2025.

Energy transition dynamics add another layer. Access to renewable energy and the potential to integrate lower-carbon power into industrial systems is becoming more important as carbon rules tighten. Devoting 65,000 km<sup>2</sup> to renewable energy – that's 40+ the size of Greater London – Oman plans for large-scale renewable and hydrogen development over the next few years. While green hydrogen will take time to scale, proximity to these developments positions Duqm to adapt as requirements evolve. Flexibility carries value when rules are still forming.



## 65,000 km<sup>2</sup> to renewable energy.

Political context also shapes competitiveness. In a period marked by trade tension, tariffs and industrial policy intervention, Oman's neutral foreign policy reduces exposure to sudden policy realignment. Global trade monitoring shows a continued rise in trade restrictions and localization measures.<sup>3</sup> Neutrality doesn't remove risk, but it moderates it. For long-lived industrial assets that distinction matters.

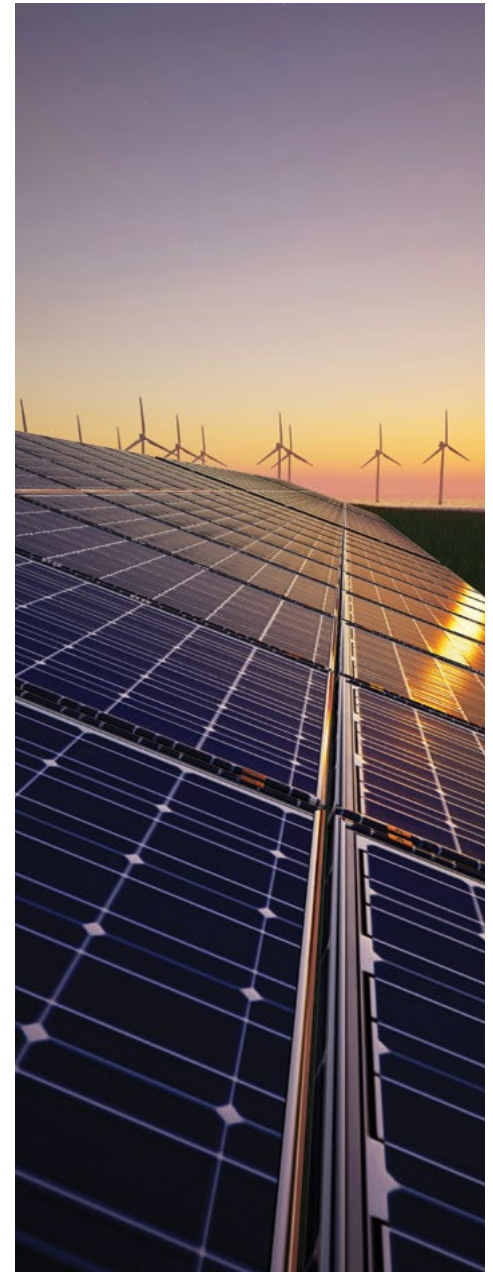
Duqm's planning model amplifies these advantages. SEZAD was designed as a connected industrial system rather than a collection of isolated sites. Port, refinery, airport, utilities and industrial land were coordinated from the outset. Integrated planning lowers lifetime infrastructure costs and improves investor retention compared with fragmented development.<sup>4</sup> Early coordination shapes long-term competitiveness. Capital discipline has also changed investment preferences. Companies increasingly favour phased development that allows capacity to be added in response to market conditions rather than forecasts alone. Duqm's available land and infrastructure support modular investment allowing projects to scale without committing upfront to full capacity. Investors are increasingly drawn to locations that support staged deployment and operational flexibility.<sup>5</sup>



Duqm's available land and infrastructure support modular investment allowing projects to scale without committing upfront to full capacity.

Environmental governance adds further clarity. Oman requires environmental impact assessments, monitoring and reporting for new industrial projects. While this introduces upfront requirements, it reduces regulatory uncertainty over time. Predictable standards have become a factor in long-term investment confidence as scrutiny across global supply chains intensifies.<sup>6</sup> Duqm's advantage doesn't rest on a single attribute. It emerges from the interaction of location, feedstock reliability, integrated infrastructure and political context. None of these elements alone guarantees success. Together, they align with the operating conditions described earlier in this report. In a fragmented world, optionality has become valuable. Duqm offers it. The ability to serve multiple markets, adapt to evolving carbon requirements and operate within an integrated system positions the zone as a viable location for long-term industrial investment. Strategic advantage today is less about being cheapest and more about being dependable under pressure. Duqm fits that bill.

**Strategic advantage today is less about being cheapest & more about being dependable under pressure. Duqm fits that bill.**



# Workforce Skills, Smarter Industry



◆ Talal Al Shahri Director, Specialized Radio Stations, Ministry of Information

For years, industrial competitiveness focused on assets, feedstock and energy prices. Workforce capability was treated as secondary, assumed rather than examined. That assumption is no longer tenable. As petrochemical operations grow more complex and margins tighten, the quality of people running plants has emerged as a decisive factor in performance.

Modern petrochemical facilities rely on advanced process control, digital monitoring, predictive maintenance and stricter safety and environmental management. These systems can raise productivity but only when operators know how to use them. Demand for skilled technical roles in process industries is growing faster than overall industrial employment, reflecting the rising complexity of operations.<sup>1</sup> Skills shortages now directly affect output, just like feedstock constraints.

## Petrochemicals & Everyday Life

Training systems have struggled to keep up with this change. While traditional apprenticeship models remain vital for safety and process fundamentals, they're no longer enough. Digital literacy, data interpretation and systems integration are now part of everyday plant operations. More than half of employers in energy-intensive industries say skills gaps hinder technology adoption.<sup>2</sup>

International examples offer helpful reference points. Singapore's Jurong Island, for example, has invested in training centres where government, industry and educational institutions collaborate to prepare technicians for automation, digital operations and advanced maintenance. Evaluations show these programs are linked to higher plant reliability and lower incident rates across the island's industrial base.<sup>3</sup>

Oman faces both opportunity and challenge. The country has a workforce of nearly 2.7 million people, including a growing number of engineers, technicians and skilled operators in construction, manufacturing and energy sectors. Universities and technical institutions are expanding programs in automation, AI applications, digital plant operations and advanced maintenance. Aligning these capabilities with industry needs is key to ensuring the workforce is ready for a more technologically advanced petrochemical sector.

Competition for experienced personnel is intense. Skilled operators, engineers and digital specialists are increasingly mobile. Wage progression, training opportunities and career development weigh heavily in location decisions. Employers that don't offer clear development pathways will see higher attrition. Continuity will suffer as a result.



Safety and environmental performance add pressure. Smarter operations demand not only technical competence but disciplined behaviour under constraint. Human factors continue to contribute significantly to unplanned outages and safety incidents. Proper training, supervision and organizational culture remain central to performance.<sup>4</sup> Workforce capability also shapes resilience. During disruptions, facilities with stronger skill bases recover faster. Plants with higher training intensity experienced shorter downtime following energy and logistics disruptions compared to less prepared sites.<sup>5</sup> Skills translate directly into flexibility under pressure.

For Petrochemicals 2.0, the message is clear. Smarter plants require smarter operations. That doesn't mean replacing people with systems. It means equipping people to use systems effectively. Capital investment without a parallel investment in skills leads to diminishing returns. Education systems must align more closely with industry needs. Companies must commit to continuous training rather than one-off initiatives. The benefits will accumulate through greater reliability, efficiency and reduced risk. In an industry where technical failure carries financial, environmental and reputational costs.



**WORKFORCE CAPABILITY IS NO LONGER SECONDARY. IT'S PART OF THE COMPETITIVE EQUATION.**

# Petrochemicals 2.0 & Economic Diversification



◆ Khalid Al Qassabi, Director General, Ministry of Commerce, Industry & Investment Promotion

Economic diversification is often talked about as a goal. In practice, it's something that happens when the right materials, industries and skills are in place. Petrochemicals matter because they don't support just one sector. They sit underneath many of the products people rely on every day. That's why they continue to feature in national development plans even as pressure on hydrocarbons increases.

## Petrochemicals & Everyday Life

The real value of petrochemicals lies in how many industries depend on them. Packaging, construction materials, car components, electronics, textiles and medical supplies all rely on chemical intermediates and polymers. Countries with a strong base in basic chemicals tend to develop more complex manufacturing ecosystems and keep more value within their own economies.<sup>1</sup> Petrochemicals provide scale. What follows them provides diversity. Trade data supports this. Exports that include manufactured goods made using petrochemical inputs are usually more stable than exports based on raw commodities alone. They serve more markets and more uses. During recent energy and trade disruptions, economies with broader manufacturing bases experienced smaller export shocks.<sup>2</sup> Diversification doesn't remove risk. It spreads it.

Petrochemicals 2.0 strengthens this role by improving how industries participate in global markets. Lower emissions intensity, higher efficiency and clearer reporting make petrochemical products easier for downstream manufacturers to use, especially as regulation and buyer expectations tighten. When materials meet these expectations, manufacturers are more willing to invest locally rather than rely entirely on imports. Smaller businesses benefit as well. Maintenance, fabrication, logistics, engineering services and specialized manufacturing tend to grow around large petrochemical facilities. These anchor industries support the creation and survival of SMEs in their surrounding areas, raising productivity across the wider economy.<sup>3</sup> Diversification isn't only about major projects. It's also about the networks that form around them.

Export markets matter too. Demand for consumer goods, construction materials and industrial products is growing fastest in Asia and Africa. These regions are expected to account for more than 60% of global population growth by mid-century, sustaining demand for housing, healthcare, infrastructure and packaged goods.<sup>4</sup> Petrochemical materials are built into all of these sectors. There's also a change in how petrochemicals are used. Beyond traditional products, they increasingly support industries linked to lower-carbon systems and technology. Insulation, lightweight materials, electrical components and renewable energy infrastructure all depend on advanced materials. Demand for these materials is rising as low-carbon technologies expand.<sup>5</sup> This allows economies to take part in future-facing industries without abandoning existing strengths.



However, there are limits. Petrochemicals on their own don't guarantee diversification. Without downstream industries, they remain exposed to global cycles and price volatility. The difference lies in policy alignment, infrastructure and skills. Where these elements work together, petrochemicals act as multipliers rather than endpoints. Investment behaviour reflects this reality. Capital increasingly favours locations like Duqm that combine anchor industries with credible routes into value-added manufacturing and export diversification. Integrated approaches attract longer-term investment than isolated projects. Diversification is judged by direction and follow-through, not declarations.<sup>6</sup> Petrochemicals 2.0 therefore plays a very specific role. It supplies competitive, acceptable materials to many industries at once. It supports jobs beyond the plant gate. It anchors wider industrial ecosystems rather than standing alone.

Needless to add, none of this happens automatically. It requires discipline in planning and execution. When done well, petrochemicals become a platform rather than a destination. For economies seeking to rely less on a single source of income, Petrochemicals 2.0 offers a practical route forward. It builds on what already exists while creating space for new sectors. Put simply, diversification works best when it starts with materials that already connect economies to how the world actually functions. Petrochemicals do exactly that.



**CAPITAL INCREASINGLY FAVOURS LOCATIONS LIKE DUQM THAT COMBINE ANCHOR INDUSTRIES WITH CREDIBLE ROUTES INTO VALUE-ADDED MANUFACTURING AND EXPORT DIVERSIFICATION.**



Footnotes

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