2016 Middle East Downstream Construction Outlook Whitepaper

Key analysis into the state of play of the Middle East petrochemical & refining project landscape, with detailed analysis on the opportunities and challenges facing the market

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INTRODUCTION

With falling crude oil prices depressing profit margins and company budgets in the Middle East, petrochemical & refinery owners in the region are focusing on bringing costs down by stripping unnecessary expenses and improving productivity and reliability.

While about 70-80% of production expenditures in the process industry depend on the cost of the feedstock and energy costs, companies that are adding new capacity can save millions of dollars in capital expenditure or gain a competitive advantage by ensuring that their projects are completed on schedule and within budget.

Controlling construction costs will be key to petrochemical & refining producers in the Middle East in the short and mid-term, especially as they will be exporting more than two-thirds of their production and need to offer very competitive prices. Margins are occasionally very tight, and companies need to ensure construction costs remain under control if they are to recoup their capex investment.

To assist petrochemical & refining owners and engineering, procurement and construction (EPC) companies in the Middle East in planning their capex investments, this whitepaper presents a market outlook and industry players’ insights on the key regional construction challenges and strategies in 2016, with a focus on:

- The effect of the oil price and feedstock costs & availability on capital project budgets, investment and product margins in the Middle East, with a focus on the Gulf Cooperation Council (GCC) countries
- The current status of the major petrochemical and refining projects in the GCC
- Adapting project management strategies to the new oil price scenario to control schedules and budgets
- Trends in procurement and contracting strategies in the current project environment

OIL PRICE EFFECTS IN 2016

Plummeting oil prices and a decreasing production of advantaged feedstocks such as ethane have slowed down growth in the GCC countries – which comprise Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates (UAE) – as well as the rest of the Middle East region.

Average GDP growth in the Middle East and Africa (MENA) is projected to be around 2.56% in 2016 – down from 3.3% in 2015 – 2.28% between 2016 and 2020, and 2.18% in the 2021-2025 period, according to Petrochemical Update’s US Ethane, Ethylene & Polyethylene: Exports & Markets Report, published in December 2015.

The effects of volatile oil prices vary along the petrochemical value chain and are most acute for commodity petrochemicals, with delayed and dampened impact on the middle and end of the value chain.

Moreover, ethane availability is becoming tight in the Middle East, especially in Saudi Arabia, and new cracker projects in these areas are turning to propane/naphtha as a primary feedstock, effectively changing the design basis of new petrochemical projects from natural gas to heavier liquid fuels.

The cost of ethane in the Middle East has historically been highly competitive to US pricing as it has been governmental policy to support the local petrochemical industries with low-priced ethane.
At the beginning of 2016, Saudi Arabia raised the price of ethane by 133%, from 75 cents/million Btu (MMbtu) to $1.75/MMBtu, and increased the price of methane by 67%, from 75 cents/MMbtu to $1.25/MMBtu. The government also raised the cost of electricity and water by 40%, and that of gasoline by 50%.

Meanwhile, the Saudi government also benchmarked the propane prices from earlier 0.72x to 0.80x average naphtha prices, effectively reducing the discount on heavy feedstock from 28% to 20%.

The change is projected to increase feedstock prices for polypropylene (PP) players in the country. Considering an average FBO price in 2015 for naphtha at $491/mt, the increase in propane cost would be about $39/mt, translating into an 11.1% increase in feedstock cost, according to a revised forecast by Aljazira Capital published in late January 2016. Based on an average polypropylene price of $1,048/mt, the PP-propane spread would contract by 5.6%.

Middle East and North American crackers exhibit the highest usages of ethane as feedstock, while naphtha is the predominant feedstock in other regions, according to the US Ethane, Ethylene & Polyethylene: Exports & Markets Report (See Figures 1, 2, 3 and 4).

Figure 1: Global cracker capacity by region

![Global cracker capacity by region](image)

Figure 2: Ethane feedstock by region

![Ethane feedstock](image)
Figure 3: Naphtha feedstock by region.

Naphtha feedstock

Middle East and Africa


Collectively, the GCC countries have about 20,045,000 metric tons of annual nameplate cracker capacity, according to Petrochemical Update estimates.

Saudi Arabia has 14 ethylene steam crackers with a total capacity of about 13,155,000 metric tons/year, and is expected to add another 1.5 million metric tons/year in 2016 with the commissioning of the Sadara cracker, a joint venture developed by Saudi Aramco and the Dow Chemical Company.

About 62% of the ethylene produced in Saudi Arabia is from ethane, around 25% from propane, 10.8% from naphtha and 1.4% from butane, according to Platts Analytics. The percent of ethylene produced from naphtha is forecast to increase to 17% by 2024.

The ethane price hike introduced by the Saudi government will bring Saudi ethylene producers that rely mostly on ethane feedstock closer to those in the United States in terms of feedstock costs, though the new Saudi price is still lower than the depressed 2015 US ethane prices and, Saudi producers will continue to have the lowest feedstock costs globally.

The Saudi Arabian Fertilizer Company (SAFCO) and the Saudi International Petrochemical Company (SIPCHEM), in particular, could be affected due to their dependence on natural gas/methane for feedstock. Moreover, the petrochemical players who rely on liquid gas as a feedstock are likely going to be the least impacted.
EFFECT OF SAUDI ETHANE PRICE HIKES ON COMPETITIVENESS

Using typical conversion factors, the new $1.75/MMBtu Saudi ethane price on a $/mt basis is about $86/mt, compared to the average US ethane price in mid-January of $112.26/mt (15.13 cents/gal), the price of naphtha in Northwest Europe for the same period ($309.75/mt), and the price of naphtha in Northeast Asia ($342.88/mt), according to Platts Analytics.

Table 1: Typical cracker yields.

<table>
<thead>
<tr>
<th></th>
<th>ETHANE</th>
<th>PROPANE</th>
<th>NAPHTHA</th>
<th>NGL'S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene</td>
<td>77.6 %</td>
<td>41.7 %</td>
<td>34.0 %</td>
<td>53.7 %</td>
</tr>
<tr>
<td>Propylene</td>
<td>2.8 %</td>
<td>16.6 %</td>
<td>16.3 %</td>
<td>23.0 %</td>
</tr>
<tr>
<td>Crude Butadiene</td>
<td>0.2 %</td>
<td>3.0 %</td>
<td>4.9 %</td>
<td>4.2 %</td>
</tr>
<tr>
<td>Aromatics</td>
<td>1.0 %</td>
<td>3.0 %</td>
<td>11.9 %</td>
<td>3.7 %</td>
</tr>
<tr>
<td>Fuel Oil</td>
<td>1.2 %</td>
<td>0.1 %</td>
<td>3.4 %</td>
<td>1.1 %</td>
</tr>
<tr>
<td>Other</td>
<td>18.4 %</td>
<td>29.0 %</td>
<td>22.0 %</td>
<td>36.0 %</td>
</tr>
<tr>
<td>Tons of feedstock to produce 1 ton ethylene</td>
<td>1.29</td>
<td>2.40</td>
<td>2.94</td>
<td>1.86</td>
</tr>
</tbody>
</table>


Based on the typical cracker yields in Table 1, the price of feedstock to produce 1 metric ton of ethylene – not factoring in the co-products, and the estimated variable and fixed costs – would be $110.8/mt in Saudi Arabia using 100% ethane (up from about $47.3/mt before the price hikes), $144.6/mt in the US using 100% ethane, $911/mt in Northwest Europe using 100% naphtha, and $1,008.47/mt in Northeast Asia using 100% naphtha.

The year-on-year decrease in the oil prices and the higher feedstock costs will chip away from producers’ profitability, and hurt their life cycle costs and economics, raising concerns about the feasibility of new investment proposals.

According to Fawzy Harraz, PMT project controls manager at the Egyptian Ethylene and Derivatives Company (ETHYDCO), oil, feedstock and energy prices and forecasts will be the key factors driving investment incentives in new petrochemical and refining construction projects.

According to Harraz, given that the minimum investment cycle in the region takes at least 10 years, the overall investment process will remain at stake until the industry has a fairly reliable oil/feedstock pricing forecast that can be used with confidence to generate reliable and feasible economic models that can persuade lenders to finance the investment proposals.

Aljazira Capital (AJC) estimates that the price hikes introduced by the Saudi government would hurt the Advanced Petrochemical Company’s net profitability by around 9.1% in 2016 and increase the production costs by about 1.5%. Higher feedstock, electricity, and fuel gas costs are also expected to hurt SABIC’s net profitability by around 20.7% in 2016, according to Aljazira Capital. SABIC itself forecasts that the increase in electricity and fuel gas costs will push up its production costs by about 5% this year.
Yanbu National Petrochemical’s net profitability is projected to suffer some 20.1% in 2016, according to AJC, while the increase in prices of electricity and fuel gas is expected to increase the production costs by about 6.5%.

Meanwhile, higher feedstock costs would impact Saudi Kayan Petrochemical Co’s earnings after FY2017, according to AJC, and the increase in electricity pricing is expected to raise production costs by about 1% in 2016.

In response, virtually every petrochemical and refining producer in the region has introduced new efficiencies and cost-optimization programs to minimize the impact on their balance sheets.

### STATUS OF MAJOR PROJECTS

Most of the petrochemical companies in the GCC region are wholly or majorly owned by the local governments and have access to special government funds, which can soften the effects of the low oil prices on capital budgets.

According to Abdulwahab Al-Sadoun, secretary general of the Gulf Petrochemicals and Chemicals Association (GPCA), the timelines and scopes of the strategic petrochemical megaprojects will not be significantly affected by the new price environment, although smaller projects that have not been firmed up yet might be pushed aside until the oil price recovers.

“The petrochemicals and the oil and gas projects are being built by the local players with the vision that the return will be on a long-term basis,”

Al-Sadoun told Petrochemical update. “Those are capital-intensive projects so the developers have this in mind when they set to build these projects in the region.”

### Table 2: Major petrochemical and refinery projects (announced, planned or under construction) in the GCC (2016-2020).

<table>
<thead>
<tr>
<th>OPERATOR</th>
<th>PROJECT</th>
<th>COUNTRY</th>
<th>CITY</th>
<th>CAPACITY</th>
<th>TARGET STARTUP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bahrain Petroleum Company (BAPCO)</td>
<td>BAPCO Sitra Refinery Upgrade &amp; Expansion</td>
<td>Bahrain</td>
<td>Sitra</td>
<td>100,000 bpd</td>
<td>2020-2021</td>
</tr>
<tr>
<td>Petrochemical Industries Co (PIC)</td>
<td>Olefins III Plant</td>
<td>Kuwait</td>
<td>Al-Zour</td>
<td>1 mtpa</td>
<td>2020</td>
</tr>
<tr>
<td>Kuwait National Petroleum Company (KNPC)</td>
<td>Al-Zour New Refinery Project</td>
<td>Kuwait</td>
<td>Al-Zour</td>
<td>615,000 bpd</td>
<td>2018</td>
</tr>
<tr>
<td>EQUATE Petrochemical Company</td>
<td>Shuaiba PE Plant (expansion)</td>
<td>Kuwait</td>
<td>Shuaiba</td>
<td>100,000 tpa</td>
<td>2016</td>
</tr>
<tr>
<td>Salalah Methanol Company</td>
<td>Salalah Ammonia Plant</td>
<td>Oman</td>
<td>Salalah</td>
<td>365,000 tpa</td>
<td>2017</td>
</tr>
<tr>
<td>Oman International Petrochemical Industries Company (OMPET)</td>
<td>Sohar Port PTA</td>
<td>Oman</td>
<td>Muscat</td>
<td>1.1 mtpa</td>
<td>2017</td>
</tr>
<tr>
<td>Oman Oil Refineries and Petroleum Industries Company (ORPIC)</td>
<td>Ethylene Plant [part of Liwa Plastics Industrial Complex Project]</td>
<td>Oman</td>
<td>Sohar</td>
<td>900,000 tpa</td>
<td>2019</td>
</tr>
<tr>
<td>Oman Oil Refineries and Petroleum Industries Company (ORPIC)</td>
<td>ORPIC Sohar Bitumen Refinery</td>
<td>Oman</td>
<td>Sohar</td>
<td>35,000 bpd</td>
<td>2017-2018</td>
</tr>
</tbody>
</table>
Many of the major projects in the Middle East, particularly in the GCC region, are large integrated projects, aimed to capitalize on economies of scale. Andy Gibbins, CEO of GLAS Consulting, expects this trend to persist in the region as building smaller-scale plants will become less economically viable in the future.

The GPCA projects that GCC chemical capacities will grow 6% in 2016. Only Saudi Arabia is projected to add major new petrochemical production capacity in 2016 based on the current pipeline of projects, with capacity slated to increase 10% on year on year, according to the GPCA.

Most notably, Sadara is expected to launch its $20 billion chemical complex in 2016 in Jubail Industrial City II, Saudi Arabia. The company will be the first chemical producer in the Gulf to use naphtha as a liquid feedstock.

Meanwhile, Petro Rabigh, a Saudi Aramco and Sumitomo Chemical JV, will add the Petro Rabigh Phase II complex, an $8 billion expansion aimed to double the size of Petro Rabigh’s operations and add a range of petrochemical derivatives. In December 2015, the company announced that it is delaying the completion of the Phase II project by nine months – to September 2016 - and raised the projected cost by 1 billion riyals from the previous estimate, to 31 billion riyals ($8.3 billion).
The company said the increase was due to the “the failure of the key contractors of the project to meet the planned implementation schedule,” without elaborating.

More new capacity in the GCC in 2016 will come from an elastomers JV between SABIC and ExxonMobil Chemical, and several smaller projects that are scheduled to be on stream later in the year.

At the same time, the plummeting oil price, shortage of advantaged feedstocks in the Middle East, and large planned capacity additions in the United States have led several GCC producers to rethink their investment plans.

In January 2015, state-owned Qatar Petroleum and Shell said they would not pursue the proposed $6 billion Al Karaana petrochemical project in Ras Laffan, Qatar, and would stop further work on the site, citing high capital costs that rendered the project “commercially unfeasible.”

The shelving of the Al Karaana project came just months after Industries Qatar said in a statement to the Qatar Exchange that Qatar had halted plans to build the Al Sejeel petrochemical plant, a joint project by Qatar Petroleum and the Qatar Petrochemical Company (QAPCO).

Looking ahead, more projects in the Middle East Gulf region that have not reached a final investment decision are said to be delayed or are being re-evaluated in light of the new market environment, while certain other investments are taking longer to materialize than originally planned, industry participants told Petrochemical Update. Several projects in the GCC that have started construction but have not spent major capex yet have also been put on hold, though no public announcements have been made.

The depressed margins for many petrochemical and refined products could mean that some projects that are already under construction might see some intentional delays, according to AbdulAleem A. Khokhar, project manager - Business Development at the National Industrialization Company (TASNEE) in Saudi Arabia.

“The push to complete projects on time could ease a little bit, provided the oil price stays the same and the EBITDA margin of the companies is projected to be negative. If [the EBITDA] is positive, companies would still try to complete the project on time so they can reduce some of the losses,” Khokhar said.

Meanwhile, in Oman, SABIC is still planning an oil-to-chemicals facility, and the Oman Oil Refineries and Petroleum Industries Company (ORPIC) is planning a 1.4 mtpa steam cracker as part of its Liwa plastics project. The cracker will use mixed feedstock to produce polypropylene and, for the first time in Oman, polyethylene.

Also in Oman, the Oman International Petrochemical Industries Company (OMPET) intends to build a 1.1 mtpa plant to produce PTA, and the Duqm Refinery and Petrochemical Industries Company plans to award EPC contracts in 2016 for a greenfield refinery in the city of Duqm.

Despite the more than 70% drop in oil prices since mid-2014, Kuwait is also moving ahead with its energy-related capital spending. In 2015, the country awarded $32.2 billion worth of project contracts – a 20% increase year on year – with more than half of the contracts going to the oil and gas sector, including refinery and petrochemical projects.

In early 2016, Kuwait said it plans to launch a new integrated downstream company to manage a $27-28 billion oil refinery and petrochemical project in its southern Al Zour region. Investments in the project, to be called Kuwait
Petrochemicals and Refining Company, are estimated at $16 billion for the Al Zour oil refinery and $10 billion for the petrochemicals complex, with the remainder invested in gas supply facilities.

In the United Arab Emirates, ChemaWEyaat is preparing to bring a major chemical complex on stream in the Taweelah district of Al Gharbia in Abu Dhabi around 2018-2019, though IHS Chemical reported in January that the project has been delayed.

MAJOR CONSTRUCTION CHALLENGES

Meeting budgets and schedules has been a challenge for many industrial projects in the Middle East in the past decade as the region has struggled to achieve capex excellence. Capex inefficiencies – including high costs and schedule overruns – have most often been caused by project delays, limited infrastructure, the need to import equipment and technology, as well as the high dependence on foreign design, engineering, procurement and construction labor.

Construction productivity is also a challenge in the region, according to interviews conducted by Petrochemical Update, due to the harsh weather conditions (heat, dust, etc.), and the growing reliance on low-cost engineering and construction centers abroad, which is sometimes affecting EPC companies' ability to maintain the same quality of engineering standards.

Engineering, procurement and construction management services oversight could range between 18% and 22% of the total installed cost for a petrochemical greenfield and brownfield investment, respectively, according to a senior manager at one of the leading EPC contractors in the Middle East.

Another challenge for meeting deadlines at state-funded capital construction projects in the Middle East Gulf region has also been the typically long project contracting cycle, which gives little flexibility for scope and other changes as project timelines get locked in early in the process.

It usually takes 9-13 months for contracts to be awarded for state-owned refining projects in the United Arab Emirates, according to Umer Asif Janjua, cost & contract control engineer at the Abu Dhabi Oil Refining Company (TAKREER). The bidding cycles for a typical lump-sum turnkey (LSTK) contract in Saudi Arabia range between 6 and 8 months, with 4 months to quote, about a month for evaluation and a month for contract negotiations.

Overall, major capital projects in the process industries in the region typically take one year to develop and three years to construct.

ADAPTING PROJECT MANAGEMENT STRATEGIES

Though companies in the region have yet to develop new project management and execution strategies in response to the oil price environment, they are nevertheless starting to re-think their investments, according to TAKREER's Umer Asif Janjua.

TAKREER, for example, has reduced its capex and put more focus on reliability-related projects in 2016. The company is not planning any major expansion projects in 2016, according to Janjua.

In parallel, many petrochemical firms are increasing investments in the less cyclical downstream chemical sector to lessen their dependence on oil and gas prices.
The GCC petrochemical producers could achieve an additional 10% in return on investment through optimizing every aspect of their operations, including during project planning, engineering and construction, according to a report by the GPCA and McKinsey published in November 2015.

According to GPCA’s Al-Sadoun, companies could focus on streamlining and standardizing their existing procurement processes – for instance, by ramping up collaborations among the suppliers and aligning inventories with project schedules – and by adopting global best practices.

Companies in the region could achieve a 2-3% ROIC in capital projects, for example, through optimizing project design, increasing the level of standardization and applying lean construction approaches, according to the GPCA-McKinsey report.

Additional value can also be captured from higher integration with refining, according to the report. While the benefits of integrating cannot fully justify new capex into petrochemical capacity on its own, it can generate an additional $50-100 margin per ton of ethylene, the report said.

PROCUREMENT

The availability of engineering, procurement and construction (EPC) contractors and engineering resources, combined with the ability of owners to develop high-quality front-end design packages, are all influencing the execution strategies for the current pipeline of petrochemical and refining construction projects. The resources of operators and contractors are under pressure in the current project environment, despite many of the owners having large balance sheets.

Owner companies could begin improving their project management strategies by optimizing the early phases of a project, for example by using lower-cost, high-quality EPC contractors, and developing better collaborations with suppliers, said TAKREER’s Umer Asif Janjua.

On the contractor side, more and more EPCs in the Middle East are looking at offering more competitive rates and capturing better margins by optimizing their labor mix, for example by increasing reliance on lower-cost engineering and fabrication shops in Asia, according to GLAS Consulting's Gibbins.

The more competitive market environment has, for example, prompted the industry to focus on more innovative ways to reduce capital costs, including engineering work-sharing with low-cost execution locations such as India, as well as a greater focus on strategic sourcing of equipment from lower-cost markets. EPC contractors have also formed successful joint ventures to leverage each other’s strengths to take on some of the larger, more complex mega-projects in the refining and petrochemical market, such as Kuwait National Petroleum Company (KNPC)'s Clean Fuels Project.

In addition, a stronger focus in project management strategies on getting construction and production materials on time – particularly those that lack a sufficient local supply chain, such as pipes, building columns, vessels, exchangers, control valves and transmitters – could help prevent material-related project delays and budget overruns, according to a cross-business units manager at a company in Saudi Arabia.

At the same time, global sourcing means petrochemical and refinery owners should routinely assess the engineering and fabrication shops’ productivity, rework rates, weld rejection rates and other metrics for quality assurance early in the project cycle. This in turn will also determine the size of the
quality control teams, front-line inspections, and quality assurance teams during fabrication, transportation and installation.

Companies that use global engineering centers should also adjust their staffing strategies to ensure good communication between the different project interfaces and locations.

FRONT-END PLANNING

Early collaboration between the owners, contractors and suppliers will be key to controlling project scopes and timelines.

Involving the construction execution teams early in the FEED or FEL/FEP stage of a project, for example, will be crucial for optimizing budgets and schedules. According to interviews conducted by Petrochemical Update with industry participants in the Middle East and the United States, companies should also make sure to complete their upfront planning, engineering, design and scheduling before bringing construction contractors to the field.

While best-practice FEL/FEP requires upfront investment of time and resources, the resulting project savings are more than worth the investment. With its focus on coordinating between the business need, project strategy, scope, cost and schedule, and maintaining that link throughout the project life cycle, the FEP stage could often be the key to executing the project within budget and on time. Effective FEP can mitigate project risks through the development of detailed scope definition and the subsequent efficient use of project resources.

There are few, if any, uncertainties influencing the refining and petrochemical industry as much as capital cost estimation. With even small projects costing hundreds of millions of dollars, undertaking substantial engineering only to learn that a project is not economically viable is very costly. Owners need a way to obtain reasonable estimates early in a project.

According to Sai Sawant, Project Engineer at CH2M in the US, companies in the process industries can better control costs if they perform Total Installed Cost (TIC) estimates after each stage of the capital project, as well as any time there is a major change in the project. He recommends having a TIC estimate of +/- 25% at the FEED stage and narrowing it down further, to +/- 15%, at the FEL3 stage.

At the start of the project, the company should also have a well-defined project execution plan and update it at every stage of the project, according to Sawant. Besides, the project should have a well-defined deliverables list. The deliverables list indicates “what is to be done” and the execution plan dictates “how you are going to execute the work.” The work packages (engineering and construction), including costs and schedule targets, should be well defined going into detailed design.

Besides focusing on costs and schedule, the capital projects team should also emphasize reliability and engineering reliability will ultimately drive the plant's long-term profitability.
CONTRACTING

Most owners in the Middle East prefer lump-sum, turnkey (LSTK) contracts - the so-called EPC contracts - though some companies have also experimented with other contracting strategies, with varying results.

Most developers and foreign investors still prefer to lock in less risky lump-sum, turnkey pricing so that they can get access to financing since EPC contracts tend to give owners and financers more certainty about the costs it would take to execute a project.

Another reason for the higher reliance on LSTK contracts in the Middle East is that most owner companies in the region don't have big in-house engineering capabilities and prefer to delegate this to a qualified contractor. Cost-reimbursable contracts, for example, require lot more control of inflation, intervention, management, and support from the owner side. By contrast, locking in pure lump-sum contracts is becoming increasingly difficult in heated construction regions such as the US Gulf Coast, where the only option considered by most contractors in the current market environment might be a negotiated lump-sum with carve-outs for labor wages and other options to reduce the risk premium. In most cases, contractors are willing to consider construction-only lump-sum arrangements.

More and more companies in the US are also considering conversion and other hybrid contracts, whereby the owner brings in a contractor early on under a cost-reimbursable agreement to define the scope of the project and then switches to a lump-sum contract.

However, more owners in the Middle East might start looking at other, more sophisticated contracting approaches to get better control of project timelines and budgets in the changing market and project construction environment. In 2015, Saudi Aramco, for example, reportedly asked some of its contractors to review and re-submit their bids for current projects.

“The companies in the region will have to look for better strategies to reduce their costs. That involves improvement in their skillset, as well as taking some risk – for example, by sharing the risk between the contractor and the owner,” TASNEE’s AbdulAleem A. Khokhar told Petrochemical Update.

CONCLUSION

Volatile oil prices, growing feedstock costs and the uncertain market forecasts are forcing petrochemical and refining companies in the Middle East to focus on developing capital projects that provide more value for money.

Rising pressures on owner companies’ balance sheets and growing difficulties in getting access to financing are translating into cost pressures on EPC companies, sub-contractors and suppliers, prompting companies in the Middle East to balance short-term cost savings with long-term operability and reliability.

With global competition from alternative feedstocks expected to intensify in the coming years and with oil prices expected to remain volatile for a while, petrochemical & refining operators and contractors in the region that plan to add new capacity should focus on understanding the construction environment in the Middle East as a key strategy to manage project cost escalation, benchmark their bids and optimize their capital budgets.