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Putting Steel in Context

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# Gulf states' steel boom drives capacity growth

***Fast expanding economies in the Gulf states of the Middle East have created a steel supply gap which several new projects aim to close. Steel Business Briefing describes the main parameters of this region's supply/demand equation, and where they are heading.***

**The Middle East is rapidly** adding to global steel demand as the fast growing economies of some countries drive up infrastructure development and construction spending. In particular the six states of the Gulf Cooperation Council (GCC) – Saudi Arabia, Qatar, Oman, Bahrain, the United Arab Emirates (UAE) and Kuwait *(see map)* – are experiencing an economic boom of historic proportions.

The result has been a large increase in steel imports to plug the growing gap between limited local supply and fast expanding demand.

Although the contribution GCC member states make to global steel output is slight (around 1% according to the IISI), per capita steel consumption now exceeds 378 kg. This is significantly higher than in China, about ten times more than in India, and well on the way towards the 400kg - plus level in Europe – a region with a far larger and longer established steel-consuming industrial base.

**Regional Map**


*Source: Wikipedia*

### Energy fuels growth

Most analysts agree that the main driver for the region's rapid economic growth is the world's expanding energy demand and resulting high energy prices. A lot of this energy-related revenue has been pouring into the Middle East and Gulf states because of their prominence as oil and gas producers.

The upshot is that steel import dependency has grown phenomenally over the past ten years, and according to the Gulf Organization for Industrial Consulting (GOIC), steel supply shortages are a growing problem across the GCC. Consumption is expected to increase to 19.7m tonnes/year by 2008 from an estimated 15m t/y in 2005, a 30% rise.

So how is the steel hungry GCC zone plugging the gap?

Although there is much movement of steel between GCC countries and surrounding Middle East states, Turkey, India, China, Ukraine and Russia in particular sell large amounts of steel to the region – although there is quite a wide variation in the tonnages and types of steel imported by the various countries. ▶

Edited by
Paul Millbank

The Gulf States of the Middle East are experiencing fast expanding steel demand courtesy of the region's strong economic growth. This is being fuelled by income from sustained global oil and gas demand and elevated prices.

Infrastructure and other construction activity is the most obvious sign of this prosperity, with much activity evident to the visitor. And while concrete is often the material of choice for these structures, this is not fit for purpose without steel reinforcement. Consequently demand for rebar is soaring.

There is also demand for other types of steel, from sections and plate, through to tube and pipe. But whatever is required, there is insufficient local steelmaking capacity to supply it. Several projects are now in hand to try and correct this supply/demand imbalance, and some are utilising the region's low energy costs to help overcome its lack of indigenous steelmaking raw materials.

– *Editor,* insight@steelbb.com

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# SBB Insight - Gulf states' steel boom drives capacity growth



Figures from the Iron and Steel Statistics Bureau (ISSB) for the UAE, the biggest regional importer of steel rebar, illustrate how quickly demand has increased *(table 1)*. In all but semi finished products, and HRC and CR and coated sheet, imports have risen by a significant margin – something that underlines the construction-led nature of steel demand.

### Incentive to invest

This reliance on steel imports has left some GCC countries fully exposed to international price volatility, with the result that there is a growing desire for a bigger domestic steel industry. But can the gap in supply and demand be plugged, and if so, how soon? According to the GOIC's research it can, and within a few years if all of the many planned expansions and new plants in the region are built.

> ***"This dependence has led to a desire for a bigger domestic steel industry"***

In fact entrepreneurs within and without the region have been quick to take the opportunity to finance capacity expansions and new plants – including rolling mills, tube mills and fabricating factories in the GCC area. The result is that there is a large amount of new capacity about to come on stream across whole steel product spectrum *(table 2)*.

Table 1

**United Arab Emirates (UAE) steel imports ('000t)**

| Product | 2004 | 2005 | 2006 |
|---|---|---|---|
| Rebar | 1,284 | 2,150 | 2,438 |
| Semis | 949 | 426 | 399 |
| Tube | 497 | 666 | 925 |
| HR plate | 411 | 425 | 655 |
| Heavy sections | 325 | 333 | 610 |
| HR wide Coil | 291 | 363 | 316 |
| Coated sheet | 204 | 266 | 212 |
| CR sheet | 117 | 133 | 95 |
| Other longs | 235 | 312 | 329 |
| Other flats | 124 | 219 | 235 |
| **Total** | **4,437** | **5,294** | **6,215** |

*Source: ISSB, London*

### Main demand sectors

Real estate development is a major driver for regional steel demand, and rebar is the most sought after product. But in order to cut down on the time it takes to put up structures, steel beams are also being specified on some projects, and significant tonnages are now being consumed.

Speaking at the Arab Iron and Steel Union Summit in Oman recently, Raman Madhok, former chief executive of UAE-based Al Ghurair Iron & Steel LLC, told delegates that steel is the construction material of choice for a number of reasons in GCC countries. These include strength, durability, ease of value addition and prefabrication, adaptability and cost effectiveness.

A lot of steel is also being used to build new oil rigs and gas platforms for the region's booming energy industry, and in particular large tonnages of wide steel plate. Demand for Oil Country Tubular Goods (OCTG) and linepipe have also surged in today's buoyant energy market. Analysts' projections show further consumption growth for the near future.

> ***"Real estate development is a major driver for steel demand"***

Indeed, figures recently quoted by Saudi Arabia's Al-Tuwairqi Group, state that across the Arab world about $38.1bn will be invested in ►

### Steel consolidation unlikely – yet

Sudarshan Singh, group technical director of Saudia Arabia's Al-Tuwairqi Group, tells SBB he believes the GCC zone's steel producers are perhaps not yet "mature enough" for there to be much consolidation. However, for large experienced producers like Al-Tuwairqi and Hadeed, another Saudi company, there may be scope in the near future. "Consolidation of the steel industry is a worldwide phenomenon, not regional, and there is potential for it in the Middle East," Singh says.

One example in the region has been Egypt's Ezz Steel, which acquired Egypt's ANSDK in 2000. George Matta, marketing director of Ezz, says conditions were right for the match. The two companies had market leadership positions, were competing fiercely, had overlapping customer groups within common geographic markets, had excess capacity to export, and both had plans to expand into flat products.

One barrier slowing possible consolidation is that most producers are engaged in rebar production and have little product diversity, notes Matta. Also, steel producing companies are seen as national champions and viewed as a source of national pride, so cross-country mergers may not be encouraged.

However, the oil based economies of the GCC could face a slowdown if there is a decline in energy prices. The resulting drop in steel demand could lead to overcapacity and financial difficulties for producers, and consolidation may then become necessary for continuing competitiveness, and even for survival.

the next four years on new petrochemical projects and on the upgrading of existing ones.

Also, the last 12 months has seen the construction industry in the GCC pick up pace. In the next three years consumption of rebar in Saudi Arabia is expected to touch 11.8m tonnes, according to the Saudi government. And Patrick Michael, editor of *Gulf Construction* magazine, tells **Steel Business Briefing** he thinks construction projects which break the multi-billion dollar mark will continue to be announced across the area during 2007. "Saudi Arabia and the UAE will continue to lead the way," he notes. ►

Table 2

**Examples of regional steel projects**

| Country | Company | Products | Details | Status |
|---|---|---|---|---|
| UAE (Abu Dhabi) | Al Ghurair Iron & Steel | Cold rolled & galvanised steel | Pickling line 350,000t/y<br>Cold rolling 250,000t/y<br>Galvanizing 200,000t/y<br>CR full hard 50,000t/y<br>Pickled & oiled HRC 100,000 t/y | Phase 1 (Sept 2007). Capacity to be expanded later |
| UAE (Abu Dhabi ) | GHC (Emirates Iron & Steel Factory) | Billet, rebar, wire rod | Expansion to 2m t/year rebar/wire rod + adding EAF steelmaking & casting + 150m t/y DRI plant | Phase 1 commissioning 08-09. More products to be added later |
| Bahrain | GIIC | DRI pellets | Present plant increase to 5m t/y end 2007 | Second pellet plant will add 6m t/y from 2009. Third plant possible. |
| Oman | Shadeed Iron and Steel | DRI, HBI, billet | DRI capacity 1.5 m t/y. 400,000 t/y merchant HBI; 1.1m t hot linked to EAF + billet caster | Commissioning begins 2008 |
| Oman | Al Jazeera Steel Products Co | Merchant bar/ 4 x pipe mills, 3 x galv lines | Capacity will rise to 600,000 t/y | Will commission the mill by July 2007 |
| Al Tuwairqi | Saudi Arabia | Billet, rebar, epoxy coated wire rod, DRI | Rolling 2.6m t/y<br>Melting 1.8m t/y<br>DRI 0.75m t/y | Plans to boost rolling capacity to 6m t/y, melting capacity to 6.25m t/y, and DRI to 6m t/y by 2011. |
| Hadeed (Sabic) | Saudi Arabia | Rebar, wire rod, sections, angles, squares, HRC, CRC, HDG, pre-paint, plate. | 2.4m t/y longs<br>1m t/y flats | Plans to raise finished products capacity to 17m t/year by 2020 |

*Source: SBB*

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**Title Photos: Corus, Arcelor Mittal**



## What is... ...alloy steel?

Firstly, what is an alloy? This is a material comprising two or more elements, at least one of them a metal. Alloys achieve better specific characteristics than their constituent parts, and steel is itself an alloy of iron (see *"What is the difference between iron and steel?" – Insight No.21,* 12 October, 2006).

Alloy steels are steels in which additional elements have been added to the usual iron, carbon, manganese and silicon that is present in ordinary carbon steels in order to improve their properties and performance. This typically involves better strength and/or hardness and/or ductility and/or corrosion resistance. Several additional elements may be present, and sometimes the desired properties are achieved through a combination of alloying and heat treatment.

There is a vast array of alloy steels developed for very specific applications – such as bearings, gears, shafts, drills, saws, bolts, tyrecord, car bodies, aircraft undercarriages, armour, etc, etc. Alloying elements include bismuth, boron, calcium, chromium, cobalt, lead, nickel, molybdenum, selenium, silicon, sulphur, tellurium, tungsten and vanadium.

In the UAE some $35.6bn-worth of projects are currently under construction, accounting for about 64% of the total value of projects under development in the GCC region. Examples of the scale and scope of these projects are given in table 3.

### How suitable for steelmaking?

The availability of energy at low cost is a significant advantage to the GCC area in the expansion of its steel industry. Although there is no indigenous iron ore, and scrap is not plentiful, cheap natural gas and electricity make it potentially one of the world's most competitive regions for producing direct reduced iron (DRI) and hot briquetted iron (HBI) steelmaking raw materials. According to Steel Consult International, the costs of production are some $80/t lower than in the USA. However, analysts also note that the steel industry must compete with other local industries for ►

Table 3

**Some major construction projects in GCC countries**

| Project | Country | Description | Value | Size |
|---|---|---|---|---|
| Burj Dubai | UAE | 120 storeys. Soon to be world's tallest building.<br>59,200t rebar used so far. | Part of Dh73bn ($19.8bn) mixed-use project | 422.5 metres high |
| Jebel Ali Airport City | UAE | Mega-project to create logistics hub. | $544m first phase | 140 sq km |
| Jizan Economic City | Saudi Arabia | Industry, hotels, port residential | $30bn project | — |
| Pearl of the Gulf | Qatar | Man-made island 350 metres off coast of Doha | $1bn | Built on 400 ha of reclaimed land |
| The Wave | Oman | Luxury hotels, homes, & retail complex | — | 2.5m sq metres |

*Source: SBB*


Table 4

| Middle East Import $/t | | | | |
|---|---|---|---|---|
| | HDG | | Rebar | |
| | min | max | min | max |
| **Nov 06** | 800 | 810 | 490 | 510 |
| **Dec 06** | 800 | 820 | 490 | 510 |
| **Jan 07** | 800 | 820 | 520 | 545 |
| **Feb 07** | 810 | 830 | 580 | 595 |
| **Mar 07** | 860 | 890 | 640 | 650 |
| **Apr 07** | 860 | 960 | 550 | 660 |
| **May 07*** | 880 | 980 | 570 | 650 |

**SBB forecast; Copyright SBB 07*

energy, and a cheap source of supply is far from guaranteed.

Labour costs across the Middle East are also significantly lower than in other recently industrialised and mature economies, and analysts say these should give countries in the region a competitive advantage in the years to come.

Analysts also believe that the considerable capacity expansions planned in the coming years will lead to further economies of scale for steel producers. Infrastructure improvements will also help.

But there are also some obstacles to economic steelmaking. As already indicated, the GCC countries are not blessed with iron ore deposits and so are exposed to contract prices and freight costs. Also, while the regional workforce is relatively cheap, it is also reliant on immigrant workers, mostly from the Indian subcontinent. This means it is exposed to changes in these workers' host countries which could lead to their returning home suddenly.

And finally, newly constructed steel plants could be vulnerable to imports of cheaper steel from low-cost producers such as China and India. ■

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