



Re-launching Iraq's energy sector

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Iraq's overall economy is closely linked to the performance of its energy sector. Both have suffered from 40 years of intermittent warfare and international sanctions. About 90 per cent of the federal government revenues come from oil exports. Therefore Iraq's prosperity depends on a sustained revival of oil production and prudent use of the wealth it creates.

Iraq today has oil and gas reserves that rank among the world's largest, yet the infrastructure, needed to take advantage of these resources, is inadequate, industries that depend on these resources are not yet developed, and Iraq's electric power system is unable to meet demand.

All the components of Iraq's energy sector, upstream and downstream oil, natural gas, power and linked industries need to be developed in a coherent, sustainable and environmentally-friendly manner to meet domestic energy needs, foster growth of a diversified national economy, improve the standard of living of Iraqi citizens, create employment, and position Iraq as a major player in global energy markets.

The upstream oil sector

In the last four years, Iraq has taken major steps to increase oil and gas production. Most importantly, the federal government has awarded 12 technical service contracts through highly transparent and competitive international bids received from several international oil companies.

The issue of Iraq's future sustained production capacity was a subject of a thorough study both by the Ministry of Oil, field operators and international consultants. Many factors were examined both technical and economic and a range of production profiles were considered from 'high' at 13.5 million barrels a day (mb/d), through 'medium' at 9 mb/d and 'low' at 6.0 mb/d. The 'medium' scenario of 9 mb/d to be reached by 2020 and sustained for 20 years was chosen, since it met the five strategic objectives that were put for the energy sector: energy security; government value maximization; economic diversification; employment generation; and environment sustainability.

The downstream oil sector

The downstream oil sector comprises three broad activities: commercializing crude oil for export; refining crude oil into oil products for domestic use and export; and distributing refined oil products to domestic customers.

Iraq has contracted to build 5 single point mooring

terminals (SPMs) and associate sea lines, and to rehabilitate its two oil export terminals in the northern Gulf to enhance its export capacity from the south to 6 mb/d by 2014, as the Asian market is expected to show largest growth in demand and offer Iraq the highest return.

SPM terminals are floating buoys that can service tankers moored farther away from the Gulf coast, and they will give Iraq more export capacity, in particular the ability to increase shipments from the country's southern oil fields.

We are also considering building a new system of pipelines to the Mediterranean across Syria and to the Red Sea through Jordan, in addition to the existing 1 mb/d pipeline across Turkey. This will provide flexibility to manoeuvre by pumping oil from the south all the way to the Mediterranean.

Also in order to avoid compromising our recognised brands of light crude oil from Kirkuk and Basra, we plan to segregate the heavier grades of crude oil that will be tapped as production increases, and build separate pipelines and export facilities for the light and heavy crudes.

Oil refining sector

Approximately 20 per cent of Iraq's current crude production is refined into products for domestic consumption. Iraq has major refineries in three locations with aggregate design capacity totaling 900,000 barrels a day (b/d), but the components of demand and production are not aligned. The Iraqi refineries produce far more fuel oil than Iraq can consume, and the excess is simply blended back into crude oil. On the other hand, these refineries produce less gasoline, gas oil and liquefied petroleum gas than needed domestically resulting in substantial import requirements.

The rising demand for high quality refined products represents a challenge to the energy sector. To address this shortage, four new refineries with total capacity of 750,000 b/d are planned to be built. The Ministry of Oil has already invested in front end engineering design (FEED) work for these refineries to define the needs in terms of size, crude and products specifications and the degree of complexity of each refinery. These refineries are offered for investments with substantial incentives under Investment in Refinery Law No. 64 and the Investment Law No. 13.

The natural gas sector

Iraq estimates that it holds approximately 3 trillion standard cubic metres (tscm) of natural gas reserves which makes

it the twelfth largest holder of conventional gas reserves in the world. Large areas of the country with good potential for gas have not been explored. With this additional potential, Iraq's total gas reserves could be as high as 7.5 tscm, placing Iraq among the world's top five holders of conventional gas reserves.

As we ramp up crude oil production, associated gas production will increase as well. The newly established Basra Gas Co. is tasked with the collection and processing of most of the gas that will be made available from the three major oil fields in the south of Iraq with the objective to minimize, and eventually stop, flaring. All new oil fields under development will have facilities to process, compress and transport the associated gas and no flaring is allowed under technical service contracts that were signed with the international oil companies.

The demand for natural gas is expected to increase significantly for power generation and also chemical industries such as the petrochemicals and fertilisers which shall use gas as a feedstock. In the long term, Iraq aims to become a natural gas exporter once the domestic demand is satisfied and we start witnessing excess production capacity from both associated and non-associated gas. In the coming months, there will be a bid round targeting exploration for free or non-associated gas with more attractive terms than in the previous rounds.

The power sector

Iraq suffers from shortage of electricity due to the large gap between supply and demand due to low production base after the fall the old regime and rising demand with annual growth rate of 10 per cent. The shortage imposes major costs on the economy due to lost production time, damage to capital assets from power interruption and an inability to carry on normal commercial process on a reliable schedule, in addition to imposing hardship on the citizens.

This shortage is due to a variety of system deficiencies, and the first step taken to overcome that was signing contracts to add 40 new plants which will be built and put into operation by 2015 adding some 20 GW of production capacity to the existing 10 GW. Most of the new plants are gas turbines and the next step shall be upgrading them to combined cycle which will add another 8 GW.

We also intend to encourage the private sector to operate as independent power producers to keep pace with demand growth which is expected to grow at 10 per cent annually.

The linked industries

Six industries have been chosen to be simultaneously developed in our energy development strategy. These include: petrochemicals, fertilisers, steel, aluminium, cement, and bricks. Each of these industries consumes large quantities of energy in the form of power, or heating fuel in the production processes, and two of these industries (petrochemicals and fertilisers) require large quantities of natural gas components (methane and ethane) as feedstock.

Today these six industries are underdeveloped and most of Iraq's demands are met through imports. With Iraq's energy resources and potential these industries can be quickly developed to meet all of Iraq's needs and enter the export market.

For the petrochemicals, the domestic demand is 200,000 tons per year which is almost entirely imported. Under our National Energy Strategy Plan, substantial investment will be made in petrochemicals, bringing total capacity to about 16 million tons per annum (mtpa) by 2030, or an increase of 80 times.

As for fertilisers, Iraq has three fertiliser plants with a combined utilised capacity of 0.3 mtpa, which is about half of Iraq's domestic demand for fertilisers. This plan is to increase fertiliser capacity to about 6 mtpa by 2030 to meet global rising demand which is estimated to expand at 5 per cent annually for the coming 20 years.

Institutional reforms

Iraq's energy sector requires fundamental institutional reform and the institutional challenges fall into two time-frames: short term and medium to long term. For the short term, the paramount challenges concern implementation of the field development plans agreed with the international oil companies by streamlining bureaucratic procedures.

For the medium to long term, Iraq's energy sector needs to adopt institutional reforms that are needed to oversee lasting growth and value creation by legislating new Hydrocarbon Law and re-establishing the Iraqi National Oil Company to operate as a commercial entity overseeing oil production and marketing.

As Iraq implements its National Energy Strategy Plan and re-launches its energy sector, it will emerge as a major producer of oil, gas and petrochemicals, and the world can count on it as long-term dependable supplier of these products. 