

International Energy Agency

**Workshop on
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Keynote Speech

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Ladies and gentlemen, good morning

As you know Iraq has embarked on the biggest development effort ever of its oil and gas resources, and it is most fitting that the IEA decides to publish an Iraq energy outlook this year. This project comes at a most opportune time as the country's oil production and export capacity starts to witness new levels unseen for the past 3 decades, and will soon be followed by unprecedented natural gas production capacity and in a few years we will witness the first major Iraqi gas exports ever.

In the next few minutes I will try and give you an overall view of where the upstream, downstream and power sectors stand and where they are heading, and what this entails for Iraq's position within OPEC.

Let me start with the Production Capacity.

Back in 1989-90 Iraq adopted a plan to increase its oil production capacity to 6 mb/d within 6 years from a capacity of about 3.50 mb/d. This was at a time when Iraq's proven reserves stood at over just 90 billion bbls. The plan was based on field capacities and proven reserves but it was meant to be implemented within the limitations imposed by a nationalistic framework. Despite this and in view of the need for investment it was meant to open the sector, to foreign companies to participate in a limited role. However, this plan was not put into action due to the start of the 2nd Gulf War. This was the second attempt at building Iraq's oil capacity to its natural level, followed from an earlier plan of 1979-83 which aimed at reaching a capacity of 5.5 mb/d by national effort but never saw the light because of the Iran-Iraq war. For us, Iraqi technocrats, this 6 million b/d target was within our reach, technically speaking.

Looking at higher recovery factors achieved elsewhere these days, new technologies in oil field development and advances in reservoir management, the old 6 million b/d target is conservative in today's terms. Bearing in mind that we have 50% more proven reserves than in 1990, and the fact that IOCs are now already involved in developing the fields, brown and green, the potential is actually double that. The question is: according to what timeframe.

Several factors govern the future development of production capacity:

- Investment: because of the country's needs there is pressure on capital investment available to develop the sector. Higher capacities mean higher costs and higher risk of redundant capacity which in turn put more pressure and add to the risk on prices, and to close the circle, less return per barrel.
- Market fundamentals have to be conducive to higher capacities which in turn cannot be accurately forecasted on a long term basis

- National business environment and the legacy of the previous decades play a role as well in the ability to deliver according to plans. This is particularly relevant to the first few years of the development underway.

Based on this, it's obvious that the achievable target within a reasonable timeframe is somewhere between the 6 million b/d, today considered conservative and the 12 million b/d which is ambitious.

A capacity of 6 million b/d though achievable but is not the answer to the state requirements of revenue, while 12 million b/d can't be maintained for a long time and requires higher investment within a short number of years and involves a high risk if the markets cannot absorb it. Committing huge investments to end up with an idle capacity is not an ideal scenario for Iraq. In my view it's more prudent to adopt a phased approach targeting 9 million b/d of production capacity by the end of this decade, taking into consideration that domestic demand for refined products and power generation would need at least 1.5 million b/d within the same timeframe. This leaves us with about 7.5 million b/d of exports to market.

The advantage of targeting a phased approach over a reasonable period of time is that the scope of work involved would be manageable – drilling, surface facilities, water supply for water injection and export infrastructure. Furthermore, a longer plateau period is necessary for the government to insure continuous flow of revenues over a longer period rather than a speedily-reached high plateau but short lived.

One of the prime objectives for the country is the diversification of the economy. The higher the plateau is, the less the diversification because we will be dependent on higher revenue and less motivation to diversify. The influx of revenue would not encourage the search for alternative sources leading to complete dependence on oil revenue for salaries and others will continue which has been the case for years.

With exports, one needs to examine the possible Routes. So, what is needed for the 9 million b/d production capacity? In parallel to building up the export facilities, we need to take into consideration Iraq's geographic location and regional geopolitics. Since our major reserves are in the south and we have limited access to the sea, in addition to political risk in the area such as the threat of closure of the straits of Hormuz, this requires strategic thinking and taking those eventualities into consideration. We do not want to be caught napping. This means that while we're ramping up our export facilities in the south in the Arabian Gulf by adding SPMs and sealines, expanding the Fao terminal, as well as carrying out the rehabilitation and expansion of khor al-Amaya and Basrah Offshore Oil Terminal, we need greater flexibility to maneuver by sending oil from the south all the way to the Mediterranean, be it through the existing ITP or/and building a new export system through Syria. Keeping this in mind, about 2.5 mb/d transport

capacity is required from the south to Haditha west of Baghdad with all the required tankage and pumping system, rehabilitation and building up of the existing ITP to its original capacity of 1.6 mb/d with ample connectivity between the two systems.

An export system is needed from Haditha to the Mediterranean through Syria allowing for the transportation of Iraqi crudes whether from the south, midland or the north, taking into consideration lessons learnt from the past experience when the pipeline system was nationalized by the Syrian government in 1972 and then closed in 1983 for political reasons. Finding financing for this system is challenging but Iraq will not and should not repeat the same mistakes of financing a pipeline in other countries that could be taken over. This means it could be beneficial to involve a third party in this project as investor and operator under a BOT arrangement. Regardless of the ongoing political turmoil in Syria, this is a long term plan that is between two states, regardless of the regime in place.

As to IPSA, a very modern system of pipeline and pump stations, of 10 mbbl onshore storage and an offshore terminal, was fully built and financed by Iraq but was only used for a short period. First, it was closed by Saudi Arabia in 1990 following the invasion of Kuwait, and later was confiscated. This was an unprecedented move which was obviously politically, but also strategically, motivated. I do not think it's feasible to renew the experience.

A Jordan route to Aqaba was examined in the 1980's as well, but we opted for the Red Sea option via Saudi Arabia instead.

Economically speaking, the route to the Mediterranean through Syria is more advantageous and attractive than via Aqaba which would add further costs to exports through the Suez Canal. It also imposes limitations on the size of tankers.

The Aqaba route would be more beneficial when compared with the one across Syria, in a case where we target the Asian markets vs the Mediterranean. I believe one should not dismiss the Jordan route completely as especially one that supplies Jordan's domestic needs once the south-north strategic pipeline is underway. In that case, a spur line to Jordan would be doable based on old studies and plans that were discussed in the late 1980's and early 1990's.

In summary, from a strategic point of view, Iraq should always have at least 3 outlets: a major one through the Arabian Gulf, and two to the Mediterranean via Turkey and Syria, with a sizable capacity of 2.5 mb/d to shift oil from south to north or vice versa.

We should avoid the kind of mistake we committed in the past by reallocating the strategic pipeline for domestic usage, and a separate trans-country system should be established for the domestic transportation of crude and products.

It should be noted here that when discussing pipeline networks, be it for domestic use or for export purposes, we should account for the crude evacuation from the **Kurdistan region** as well as the distribution of products to and within the region. I'm confident, based on the experience we had over the past 9 years that the current differences between the Federal government and the government of Iraq's federal region of Kurdistan regarding the award of contracts, will be solved in the near future. However, and irrespective of how and when they are going to be solved, the resolution without any doubt will add to Iraq's production and export capacity. As for the legal framework and the legislative challenges regarding regulating the oil industry, the upstream in particular, this is an on going process, albeit slow, that requires time just like the so many difficult legislative issues we face nowadays and which also need to be solved.

Now I would like to turn to the issue of Iraq's role and its future quota within **OPEC**. As you know Iraq has been practically outside the quota system for more than two decades. The last quota assigned to Iraq was 3.140 million b/d in June 1990 which was in parity with Iran. Many analysts who have examined Iraq's future production plans talked about the possibility of conflict within OPEC once Iraq takes back a leading role within the organization.

Although this issue is not of immediate concern within OPEC, as we are still two or three years away from Iraq reaching a production level of 4.2 mbd in parity with present Iran's quota, I would like to present a number of points for Iraq's case. The expansion of Iraq's production and export capacity is now a reality and IOCs are engaged in the capacity development leading to substantial increases to take place in the next 5 years. Commitment to increase production levels rests on the country's need for greater revenue to satisfy its people's needs and its desire to improve the living conditions after the long years of deprivation; the lost capacity over the past three decades benefited other producing countries, many of which sit on hundreds of billions of dollars in sovereign funds, and the expected call on Iraq's oil based on forecasts of future supply and demand balance, or rather imbalance. OPEC Oil Outlook Review issued end of last year considers at its Base scenario a demand growth to reach 95 and 110 mmb/d in 2015 and 2035 respectively. Call on OPECs oil according to the same scenario shall increase from 29.3 in 2010 to 39.3 mmb/d in 2035. Taking this into consideration, together with the inability of a number of OPEC member countries to sustain their present quota, I am of the opinion that we're not facing an imminent problem with regard to Iraq's efforts to regain its rightful place in OPEC. I think it's more constructive to look at the bright side of Iraq becoming again a main contributor of oil supplies, and hopefully natural gas as well, to world markets in the near future and its contribution to market stability.

Let me turn now to Natural Gas.

At present, planned raw gas production is about 2100 MMcf/d out of which 880 MMcf/d will be fully utilized. Of this, 740 MMcf/d is dry gas and the rest, 1220 MMcf/d, is flared. As we ramp

up crude oil production, associated gas production will increase accordingly. The newly established Basrah Gas Co is expected to collect and process some of the gas that will be made available from the three major oil fields in the south, provided implementation is speedy and within the agreed timeline. Failing that flaring with greater quantities will continue for the next two years.

There remains a lot of work to be implemented in order to exploit all the associated gas that will become available once green fields start production. The requirements that fall on the government include adding additional gas processing capacity, transportation, and compressors. At the same time, we need to build the linked industries such as petrochemicals and fertilizers using natural gas as feedstock, and maximize the revenues to the state and provide badly needed jobs. This is important for the purpose of the diversification of the economy mentioned earlier.

It is obvious that the greater demand for natural gas shall come from the power sector. This is because most of the new plants being built now in Iraq are gas fired turbines. Furthermore, there is a huge gap in power supply compared to demand combined with a high annual growth rate.

On 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. The potential of the latter is very high based on studies on one hand, and the fact that exploration for gas was never a target. This is starting just now and we expect considerable gas reserves to be found, particularly in the Western Desert as well as the northeastern region.

The market for Iraqi gas is very promising. Iraq is surrounded by gas deficient neighbors including oil-rich countries such as Saudi Arabia and Kuwait as well as non oil-rich countries such as Jordan, Syria and Turkey. Demand for gas from all those nations is expected to grow in the coming years making Iraqi gas supply one of the preferable sources due to proximity and ease of project implementation.

Iraq will also target Europe as it has always done in previous studies and European countries are equally eyeing future Iraqi gas supplies. There are also opportunities for the export of LNG and NGLs from the south.

Refining is a very challenging sector and so far Iraq has been less than successful in building a viable refining sector. Our existing refineries are outdated, producing low grade products and high volumes of fuel oil at a time when demand is growing drastically. Attempts at upgrading the main refineries; Daura, Basra and Baiji, has been slow and limited. Fast track small topping plants, though important at the time, is not the solution for our domestic needs of refined products. Current refining capacity stands at 700,000 b/d but actual throughput is about 565,000 b/d based on actual 2011 figures.

There is a crucial and urgent need to launch new refining projects to respond to those growing needs to put an end to the import of products. At the moment Iraq is importing about 45% of its demand in gasoline or some 9 million liters per day. It also imports some gasoil, LPG and Kerosene during seasonal peak demand.

Iraq has launched four refining projects for private sector investment in recent years with a total capacity of 720,000 b/d. However, building an attractive investment model for those new refineries has been less than satisfactory, although legislation has been passed for private investment in the refining sector in addition to the national investment law no 13 of 2008 which both improved through amendments.

The investment in refineries law gives discounted crude FOB at 5% and a 50 year operating license, renewable. However, this proved not attractive enough for investors and I can assure you that this is being recognized by the ministry of oil, which has started searching for alternative models such as awarding investors fee-based contracts. The ministry invested in FEEDs for those refineries to enable it to define the needs in terms of size, crude, and products specs and the degree of complexity.

Those refineries are supposed to satisfy the growing domestic need for products and bridge the gap between supply and demand and cater for the expected growth. Offering the investor the right to export the refined products is not optimum for such an objective. Any export refinery or combined domestic/export refinery should be optimally located close to export outlets or to demand centers and markets. It makes more sense, both commercially and for attractiveness to investors, to place such a refinery in Basrah.

Subsidies remain a problem for any private investor in the refining sector and we do need to liberalize the market totally. On the long term, I expect the refining sector to be completely commercialized, albeit through a phased approach, as part of the reform of the state-owned enterprises adopted by the government.

In line with the long term high production capacity, Iraq has to take a dual approach: one is to build the ability to export products in combination with crude as well as building refining capacity abroad. This goes along with the effort to optimize the export grades of crude and aligning refinery input grades to the crude allocation strategy, such as allocating heavier crude grades that would be produced in the future to domestic refineries and freeing lighter crudes for export.

Domestic distribution is also an important sector.

Despite legislation of Law 9 of 2006 for the import and distribution of refined products by the private sector, the government still controls the distribution sector while being the main supplier

at the same time. The two tier price and the unattractive market did not lead to the creation of a viable private distribution network. On the retail side, there are three types of outlets: government-run distribution outlets, government owned but leased to private sector and totally owned and operated by the private sector. The latter by far outnumbers the other two but the service provided is far from being satisfactory. Reforms are needed here whereby the government should completely exit the sector and take the role of regulator. We need to allow wholesaler companies to become a buffer between the government and the retailers. Subsidies should be removed in order for the import of products to be feasible with a compensation scheme for low income citizens to mitigate the impact of higher prices.

Let me now give you a quick overview of the Power sector.

Iraq had always had a chronic power generation problem especially since 1991 when most of the major power plants were bombed. Reconstruction of the bombed power plants was basic without proper maintenance due to sanctions. Add to that no new power plants were built during the sanctions era to bridge the gap between supply and demand. Comes 2003, we started from a low base where a large gap between supply and demand already existed. Today the average supply of electricity is about 8 hours/d.

The government opted for several solutions, including:

- Building new power plants through EPC contracts
- The import of electricity from neighboring countries, mainly Iran and Turkey
- Leasing diesel-fueled power generation barges.
- IPPs in Kurdistan region complement the public sector generation. In the rest of Iraq the government also subsidizes the private power generation by providing free or discounted fuel

This summer, when demand surges, it is estimated that the overall supply will reach around 9,000 MW. The gap between Supply and Demand is estimated at 5,000-6,000 MW and the growth in Demand is put at 10% per annum, requiring adding some 1,000 MW/year.

The government's medium term plan 2011-2013, consists of a fast track solution by constructing small gas and diesel units in combination with gas turbines purchased from GE and Siemens in 2008. This will provide about 15,000 MW. From 2013 onwards, large scale thermal steam units will be built with total capacity of 8,000 MW from 2014. Furthermore, combined cycle units will become operational from 2015.

Parallel to the construction of new plants, rehabilitation of plants up to 2015 should add about 1500 MW. Based on this plan, the existing gap between supply and forecasted demand should be bridged by 2015. According to the 5-year plan 2011-2015, about 20,000 MW should be added.

But in order for this plan to work, several conditions need to be satisfied such as the timely completion of new plants, availability of all fuel at required types and adequate quantities,

continuation of power imports in addition to adopting policies regulating demand on energy and introducing alternative power sources...etc

The plan relies entirely on government financing to implement the construction and rehabilitation of the electricity sector. The call on government finance forecast for implementing the plan over the four years between 2012 and 2015 is \$26.8 billion in addition to \$5 billion for the import of electricity. This total does not include the cost of local and imported fuel, nor does it cover the operational cost of the sector.

In implementing the plan 2011-2015 there will be big dependency on natural gas as fuel for generation. It is forecasted that the demand on natural gas will jump from 1100 MMcf/d to generate 3800 MW in 2011 to 4300 MMcf/d to provide 15,000 MMW in 2015. This calls for the efficient utilization of gas especially the associated gas being produced from oil fields, adapting the type of power generation to the available gas and timely production of the required volumes of natural gas, both associated and non-associated.

Based on this, it is obvious that there is a big call on the ministry of oil to make sure the volumes of gas required are made available within the timeframe of the power generation plan. It is also imperative that measures are introduced now in order to be able to eliminate the gap between the gas required and supplied beyond 2015.

On the long term, one should not exclude the possibility of regional cooperation with neighboring countries based on the bilateral experience we have with Turkey on one hand and Iran on the other.

In closing, I would say that even though Iraq is in transition towards a nascent democracy, with all the challenges that this entails, we are experiencing more confidence towards achieving our goals, among which rebuilding the oil industry takes a priority. While Iraq's relations with its regional environment are progressing, as witnessed by the most recent Arab Summit meeting in Baghdad and the improving relations with Kuwait, much effort is being invested internally on reforming the economy and modernizing the public sector and improving services. I will not be exaggerating when I say Iraq will become a Middle East hub within the next decade, connecting the Gulf with Europe.

Finally I would like to thank the IEA for this recognition of Iraq's future role by taking the initiative to carry out this important task.

I would also like to thank you, ladies and gentlemen, for taking the time to attend this workshop which I hope will be stimulating and inspiring at the same time.