SPECIAL PRINT EDITION

IRAQ OIL REPORT

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Iraq exports rebound

Two tankers are loaded with crude at the off shore loading facility at the Basra Oil Terminal. (Ben Lando/Iraq Oil Report)

BASRA - Iraq's average daily exports rose by 551,000 barrels per day (bpd) in February – a 26 percent jump from January – as the oil sector benefited from infrastructure repairs, upgrade projects, and debottlenecking work.

That momentum will need to continue over the coming months because several major fields are scheduled to bring more than 500,000 bpd of new production online by the end of the year, led by the start-up of West Qurna 2, which operator Lukoil is set to push to 300,000 bpd. This oil will need somewhere to go, lending urgency to ongoing initiatives such as the expansion of the domestic refining sector and the expansion of the storage and export facilities at Fao.

New volumes of oil will also generate more associated gas, which will need to be captured and processed.

Iraq's February exports averaged 2.799 million barrels per day (bpd), up from 2.228 mbpd in January, according to Iraq's Oil Ministry and Deputy Prime Minister for Energy Hussain al-Shahristani. Total production averaged nearly 3.5 mbpd, with roughly 600,000 bpd going to refineries and just under 100,000 bpd going to power plants.

The surge in exports traveled mainly through Iraq's primary outlet, in the Basra Gulf, where new capacity is coming online due to a massive infrastructure upgrade project. Basra exports rose to 2.507 mbpd, up from 2.036 mbpd in January and 2.081 mbpd in December, according to the Oil Ministry data.

Such capacity has been badly needed. In previous months, when rough weather has temporarily prevented tankers from loading in the Basra Gulf, Iraq has lacked the onshore storage to handle any significant backlog of oil; as a result, field operators have been forced to shut in production at the wellhead, which is costly in the short term and bad for the long-term health of reservoirs.

In February, tanker loading also benefited from better weather.

Oil flow through the Iraq-Turkey Pipeline (ITP) increased to 292,000 bpd on average last month, according to the Oil Ministry data, up from 192,000 bpd in January and 260,000 bpd in December. Attacks and other disruptions were minimal compared to previous months.

Iraqi crude sold for an average of $101 per bar-

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Q&A: Thamir Ghadhban

DUBAI - As policymakers and investors contemplate the vast energy potential buried beneath Iraq, they all want to know what production target the government will set and whether it can be achieved.

The answer is more nuanced than the question appears to give room for, according to Thamir Ghadhban, a two-time Oil Minister and the chairman of the Iraqi Prime Minister's Advisory Commission. The fortunes of Iraq's oil sector are closely tied to the country's political debates and security dynamics, its relationship with its neighbors, and the vicissitudes of world markets.

Iraq will need "a dynamic approach, not to have one fixed scenario," Ghadhban said at the MEED Iraq Energy Projects conference on Wednesday.

Ghadhban has been the driving force

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Q&A: TAQA Iraq President Leo Koot

DUBAI - An essential element of the Kurdistan region's oil policy is to attract larger oil companies that can spend heavily and quickly even while political relations between Iraq's central government and the Kurdistan Regional Government (KRG) cloud prospects for return on investment.

Abu Dhabi's TAQA, an energy company 75 percent owned by the emirate, fits that bill.

After a global spending spree in the mid 2000s, the company is increasing its focus on the Middle East. Following a brief dabble in Kurdistan as a minority shareholder in Canadian exploration firm WesternZagros, in December 2012 TAQA paid $600 million to acquire a 39.9 percent operating stake in the Atrush block from Colorado's General Exploration Partners.

Atrush is a large oil field, with an estimated 3.5 b barrels of oil in place. It's also one of the most remote in Kurdistan, with exploratory drilling halfway up a mountain. There, TAQA and

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Q&A: Thamir Ghadhban

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behind the Iraqi National Energy Strategy, a document aimed at outlining a holistic framework for the development of Iraq's energy and energy-related sectors. Not only must Iraq manage oil field development with big-name international companies, but it must also account for a host of ancillary demands and drivers, such as handling increases in associated gas, renovating the electricity grid and diversifying the economy so that hydrocarbons wealth encourages – rather than stifles – the health of other sectors.

One urgent priority is refining.

"We are now still a net importer of oil products," Ghadhban said, adding that Iraq will need to more than double the current refinery capacity. "We need 1.5 mbpd for refineries to satisfy domestic demand, which is growing at 10 percent per annum."

That capacity will be developed by 2020, he said.

Meanwhile, most of the gas currently being flared should be captured by 2016.

One of the major factors casting uncertainty on such timetables is the security situation. Ghadhban said the surge in terrorism is again taking its toll on the Iraq-Turkey Pipeline and preventing operation of a new 750 megawatt power plant south of Mosul.

One IOC executive commented that security takes such a toll in Diyala province that drilling a shallow well in Mansuriya costs more than twice as much as a deeper well in Siba, in Basra.

"It is a long war against terrorism," Ghadhban said, who spoke with Iraq Oil Report on the sidelines of the conference.

Ben Lando: The Cabinet Tuesday in its statement said it approved two degassing stations, each more than $800 million. One to Hyundai Heavy Industries and one to Samsung Engineering. Are they both for Zubair?

Thamir Ghadhban: Yes, both are for Zubair. The first one is for the northern part – it is called Hammar. The other one is for the central, which we call Zubair. The third one, which is the southern one, Rafidiya – the cost of the best offer is about 50 percent above our estimated or budgeted cost. This program we use for all of them. Those two, they were fair – 15 or 20 percent more. But this one [Rafidiya] was about 47 percent more. It was not agreed on, but we agreed to go ahead and talk with the best offer.

BL: What about the power investment approved by the Cabinet?

TG: Two were also awarded. This is an investment license: IPP [Independent Power Plant]. It is one to the Shamara group, in Rumaila – 3,000 megawatts. The second one, to Mass Global, Ahmed Ismael's company – 1,500 megawatts, at Besmaya, in Baghdad.

A third one, which is KAR Group, it was not awarded because there was no application and they have a problem with the Ministry of Oil. So, they were told to go and settle their issues with the Ministry of Oil and go back to the National Investment Commission to get approval.

BL: What are the terms of the IPP?

TG: They call it a license. The details are with National Investment Commission Chairman Sami al-Araji, but I can tell you in principle, that the terms are: the investor will bring investment, build his own power station, operate it; he will have a contract of fuel supply with the Ministry of Oil.

Former Iraqi Minister of Oil Thamir Ghadhban. (Reuters)

BL: Gas?

TG: Depends on where. Those two are gas. [The company] will sell power, electricity, to the Ministry of Electricity at a fixed tariff, similar to what is done in Kurdistan. It is protected by the Investment Law. So [the company] will be exempt from taxation, will bring in material, goods for the first three years exempt from tax. You'll find it in the law.

BL: You mentioned in your presentation a PPP [public-private partnership] law.

TG: I am overseeing lots of reform programs. One of them is this relationship between the public-private-partnership. UNIDO [United Nations Industrial Development Organization] is working with us. And so we completed a draft law. We need the final touches and I will take it to the Cabinet for approval.

BL: What will it do? There was an attempt to do PPP power projects a few years ago but it didn't work.

TG: It will enhance opportunities for the private sector to work in Iraq on better conditions and terms. It will encourage partnership between the two. It will not be looked down on, that this is private and we should only support the public sector. They will be treated like our national partners - including the foreign partners.

BL: What is the status of Sonangol?

TG: They did their best, to be fair. The environment is bad. It is not an environment to carry on civil works in a normal way and many Iraqis were killed - officers, soldiers - and terrorists were killed. The villagers were very supportive. But those al-Qaida groups don't want any power station or oil development because it will lead to prosperity. They want them - to recruit them.

BL: Has it been made official?

TG: Not yet. This is for the NOC and the [Oil] Ministry, but I know they have reached a limit now.

BL: The ministry has been saying that "we understand the situation, we will give them one or two more years because of the circumstances." Sonangol before wanted to and now is saying "khalas."

TG: I can understand their position. I wish they had gone through such and experience. They were really willing and we wanted them to work in Iraq. But unfortunately, the situation is unfortunate. The termination, I cannot say yes or no, as I am not in charge of this. It could happen.

BL: There has been no final pen on the paper.

TG: Not yet.

BL: The status of negotiations between the KRG and Baghdad – there seem to be three sticking points: One, the central government is insisting that SOMO must sell all oil from Iraq, while the KRG says that they have authority. Two, there is disagreement over whether the KRG oil revenues will go to the DFI account or Turkey's Halkbank. And three, whether there can be an automatic payment mechanism to the KRG. Is that accurate?

TG: These are. You are right. We don't agree that there will be another bank, whatever the nationality. It has got to be DFI. This is one.

Number two, SOMO has been always our trading arm. We cannot invent a new company, to do marketing instead of SOMO. It has been there for years and it has an excellent reputation. The Kurds can be represented in it and that's what we offer.

DFI is our regulation and I think it is on the record as very transparent.

They have not yet been resolved. There are still standing issues.

BL: What is the latest proposal, a proposal from Baghdad or a counter-proposal from the Kurds?

TG: We presented our proposal. They sent their remarks. And after that, I don't know.

BL: What has the U.S. government communicated to Iraq and the Oil Ministry about possible Iran sanctions violations? Not the weapons issue, but energy issues. What are the points of contention?

TG: We are not promoting an Iranian export project through Iraq to the Mediterranean, which used to be mentioned. All that we are doing now is a short-term supply of gas for urgently needed domestic service, for power generation. My understanding of what we were presenting is legitimate. Otherwise, we do not need commercialization of Iranian gas by proxy to the international market.

BL: This is direct purchase for power plants.

TG: That's all. And short-term. Five years. We don't want to depend on Iran for our energy. We are talking about exporting gas in the future. So, it is a short period of time that we want to be ready. The hardship is so immense that we don't have right now enough gas to generate power, which is totally dependent now mostly on gas turbines. It is really a necessity. ◆

Iraq exports rebound

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rel on the market, earning Iraq $7.9 b in February sales.

While Iraq's final production plateau target is not yet decided – contracted plateau targets are being renegotiated with a number of IOCs and, according to Thamir Ghadhban, Prime Minister Nouri al-Maliki's top economic advisor, the final target will be flexible to meet market demands – Iraq is planning to increase production capacity to around 9 mbpd.

Over the weekend, top energy officials inaugurated two key projects necessary to support such an ambitious goal.

Iraq's state-run South Refinery Company (SRC) added 70,000 bpd of capacity to the Basra refinery. Following nearly four years of work, the refinery can now handle 210,000 bpd of crude, according to Khalid Abdullah, the acting production manager of SRC.

"We are planning to conduct additional technical studies for the development of more operating units that would increase capacity to 300,000 bpd, in addition to a fourth production line that is still being studied," Abdullah said, adding that future upgrades would also allow for increased production of kerosene, LPG and gasoline.

This new capacity – in addition to the Basra Gulf export upgrades – further raises Iraq's ability to absorb the increasing crude production in Basra province.

As that production increases, it will also generate rising volumes of associated gas. Much of Iraq's current associated gas production is simply burned, or "flared"; this wasteful practice is damaging to the environment and deprives the country of a valuable commodity that can generate revenue, provide badly needed feedstock for power plants, and reduce the government's fuel bills.

The Basra Gas Company (BGC) – a new joint venture between the state-run South Gas Company (SGC), Royal Dutch Shell and Mitsubishi – is currently the primary vehicle for both reducing flaring and increasing output of gas products.

Two new compressor units at Hamar Mushrif and Rafidiya were commissioned, adding 60 million standard cubic feet per day (scf/d) of capacity.

"This is part of the rehabilitation process," said Gasser Hanter, Shell's Managing Director at the BGC. "We have managed to increase gas capture from 240 million to 500 million cubic feet per day and decrease flaring by 20 percent."

Kar Refinery in Erbil. (Sebastian Meyer/Metrography/Iraq Oil Report)

Oil Minister Abdul Karim Luaibi called it "an important addition and a new dawn in the gas sector."

Below are Iraq's average daily crude exports and total revenues, by month, as provided by the Iraqi Oil Ministry, since January 2011:

2014

2014 average daily total to date: 2.514 mbpd
2014 total revenue to date: $14.973 b
Feb. 2014: 2.799 mbpd - $7.9 b
Jan. 2014: 2.228 mbpd - $7.073 b

2013

2013 average daily total: 2.391 mbpd
2013 total revenue: $89.145 b
Dec. 2013: 2.341 mbpd – $7.471 b
Nov. 2013: 2.381 mbpd - $7.238 b
Oct. 2013: 2.253 mbpd - $7.169 b
Sept. 2013: 2.07 mbpd – $6.511 b
Aug. 2013: 2.579 mbpd - $8.356 b
July 2013: 2.324 mbpd – $7.272 b
June 2013: 2.328 mbpd – $6.799 b
May 2013: 2.483 mbpd – $7.477 b
April 2013: 2.622 mbpd – $7.764 b
March 2013: 2.417 mbpd – $7.772 b
Feb. 2013: 2.536 mbpd – $7.644 b
Jan. 2013: 2.358 mbpd - $7.672 b

2012

2012 average daily total: 2.42 mbpd
2012 total revenue: $94.078 b
Dec. 2012: 2.348 mbpd – $7.551 b
Nov. 2012: 2.620 mbpd - $8.2 b
Oct. 2012: 2.624 mbpd - $8.578 b
Sept. 2012: 2.598 mbpd - $8.371 b
Aug. 2012: 2.565 mbpd - $8.44 b
July 2012: 2.516 mbpd - $7.5 b
June 2012: 2.403 mbpd - $6.453 b
May 2012: 2.452 mbpd – $8 b
April 2012: 2.508 mbpd – $8.795 b
March 2012: 2.316 mbpd – $8.472 b
Feb. 2012: 2.013 mbpd – $6.595 b
Jan. 2012: 2.106 mbpd – $7.123 b

2011

2011 average daily total: 2.165 mbpd
Total revenue: $82.97 b
Dec. 2011: 2.15 mbpd – $7.06 b
Nov. 2011: 2.13 mbpd – $6.83 b
Oct. 2011: 2.09 mbpd – $6.74 b
Sept. 2011: 2.103 mbpd – $6.62 b
Aug. 2011: 2.189 mbpd – $7.12 b
July 2011: 2.167 mbpd – $7.31 b
June 2011: 2.273 mbpd – $7.17 b
May 2011: 2.225 mbpd – $7.47 b
April 2011: 2.141 mbpd – $7.34 b
March 2011: 2.159 mbpd – $7.17 b
Feb. 2011: 2.202 mbpd – $6.06 b
Jan. 2011: 2.163 mbpd – $6.08 b

Ali Abu Iraq reported from Basra. Ben Lando reported from Paris. Iraqi staff reporting from Baghdad are anonymous for their security. ◆

Q&A: TAQA Iraq President Leo Koot

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minority partners ShaMaran Petroleum and Marathon Oil are drilling the fourth well in the block, and are preparing the ground for production facilities.

TAQA aims to have 30,000 barrels per day (bpd) of production capacity in early 2015, under a field development plan approved in Sept. 2013. The company has opened a large office in Erbil and now has more than 60 staff in country.

In an interview with Iraq Oil Report, TAQA President Leo Koot says the company is "right in the middle" of negotiations over the logistics of bringing Atrush's oil to market by pipeline, in what is a "crunch year" for the company's operations in Kurdistan. Staffing is ramping up, and the company's contractors are working on bringing hundreds of tons of equipment into the field.

TAQA is also partnering with Mass Global, the dominant company in the Kurdistan region's power sector, to operate the Chemchemal power station in Sulaimaniya province.

Koot said TAQA will spend nearly $400 million in Kurdistan in 2014 alone, and expects to pour in a total of $1.2 b to bring production up to 120,000 bpd – all for export through a tie-in, to be completed in early 2015, to the Khurmala-Feyshkabour pipeline.

PATRICK OSGOOD: You've had a development plan approved by the Ministry of Natural Resources (MNR) and are pushing ahead to first production next year. Why did you decide to develop Atrush in the way you have, particularly pushing back first production into 2015 when you could be producing now?

LEO KOOT: We are focused on being present in the Kurdistan region for a long time. When we acquired the stake in Atrush from General Exploration Partners, their focus was different. They wanted to quickly establish commerciality of the block, to get some early production going — about 10,000 bpd — and to truck the oil down the mountain from Atrush to sell locally.

We didn't like that approach. First of all, 10,000 bpd is not material, it hardly covers your costs, plus it generates lot of risk in trucking oil down from the mountainous regions, through various villages and safely into a refinery. So we've taken a step back and said that if we want to get a meaningful first stage of development under way we need to produce at least 30,000 bpd. And rather than trucking that oil we need to be connected to pipeline infrastructure. So that was our philosophy, which we agreed with the MNR and our partners in the block.

So that's what we are doing, and we're drilling well number four now and then we'll drill well number five. From those first five wells we'll have three that we can turn into production wells. We've started already with the civil works preparing the site on the mountain to receive the equipment necessary to achieve that first production, combined with working on evacuating the oil. We'll be sending the oil from the south side of the mountain and our production facilities will be on the north side, so we'll need a pipeline that literally flows north to south over the mountain. And then in the valley at the south we are going to be installing and running pipeline connecting to the main export route to Turkey.

PTO: A lot of early producers in Kurdistan started with modular and lease-to-buy units, but it sounds like the TAQA early production facility (EPF) will be more substantial than that.

LK: It is. This is a robustly-designed unit which can stay in production for the next 30-40 years. It can be expanded on. We can get enhanced production from this facility, we can add sulfur treatment equipment and any water treatment equipment if the field development dictates. So it's a flexible design, it's designed for the long term, and we've physically placed the order and it's being built.

PTO: When do you expect to take delivery?

LK: It will be in phases, throughout the summer. As early as July, then through to September.

PTO: No mean feat, bringing so much equipment to such an isolated and elevated spot.

LK: Yes, where we're doing the civil works now is at 1,100 meters elevation, up small, hairpin mountain roads leading up to the worksite. So the safety aspect when getting things to the worksite is our primary concern.

PTO: On drilling, where are things at with Atrush-4 and Atrush-5?

TAQA Iraq President Leo Koot. (arabianindustry.com)

LK: At Atrush-4, we are testing right now; we've drilled the hole and are in the reservoir we've completed. Now we are getting ready to test. We expect the test to go on for not longer than a month, then we'll move the rig to Atrush-5.

PTO: And do the prior wells need working over for production?

LK: Our phased plan is to mobilize a second rig into the block, so when the current rig is drilling AT-5, we'll use the other to further appraise the fields. The second rig will start drilling on the east area of our block, test the reservoir there and understanding how the next phase will look like. The dead rig will also be used to complete the first three wells for first production of first oil.

PTO: You mentioned sulfur treatment equipment. Atrush is not alone in the area as a field rich in hydrogen sulfide (H2S). As you look from an initial 30,000 bpd to 60-90,000 bpd, how are you going to deal with the amount of sulfur produced? You don't want a yellow mountain on top of the green one.

LK: We're here for the long term and we want to do the right thing. We have started a study which is going to tell us what solutions are best for our block. There are some uncertainties still because we don't yet have any long-term production data, so the exact sulfur content and what is needed to process the amount of sulfur is unknown. So we'll have a period when we will be starting production, and we will be measuring and testing what we are going to be getting from the reservoir. With the pre-work we've done, we'll know which way to go, which engineering solution to use. But the overriding principle is that we are going to be building something that captures the value in the gas stream, and also in the sulfur stream. In other parts of the world, sulfur is a valuable commodity, you can use it as fertilizer for example.

So we hope and would like to see both the gas and the sulfur used to create extra value for the development.

PTO: Is there an environmental restriction on the amount of gas you can flare or sulfur you can produce? I know the KRG's environmental policies are evolving.

LK: The KRG is very conscious that the flaring of sour gas is destroying value and it's also not very good for the environment. So for the first production phase we have been granted a 12-month flaring permit. And in that time we are going to come up with and engineer a long-term solution.

PTO: On the gas side, the monetization seems to be a bit sporadic or tackled in bits and pieces. Genel and DNO have signed up to power the Sumel power plant with gas, but at a low price. When you're looking at capturing gas, how important is the price on that? Expectations must be quite low.

LK: We expect Atrush to be an oil field with some associated gas, so our first gain is to use the associated the gas to provide power for the facilities. Initially we will be needing diesel for the development to give the development power, but you can imagine that diesel trucks, trying to get them up the mountain, is not ideal. And it's costing money. So initially we are going to create some value by eliminating those trucking charges and the risks associated with transporting diesel.

PTO: And the diesel is cost oil, so it's coming out of the KRG's pocket eventually.

LK: Yes. So our objectives are completely aligned with the KRG. We both want to minimize the costs and risk associated with trucking diesel. The only answer then is using associated gas. Because that gas is sour, we will probably have to use some kind of treatment, a small portable treatment facility which strips out the sour elements of the gas so we can burn it in our gas turbines. And the next stage for monetizing is, well, we are an energy company. So if we've got excess associated we would be inclined to install excess power generation capacity and then connect to the grid.

PTO: How gassy is Atrush?

LK: Not very. Initially we expect to be producing around 12 million scuft [standard cubic feet] a day.

PTO: Another aspect of your field development is tying into the Khurmala-Feyshkabour pipeline. Talk me through how the storage and blending arrangements will work here, with how Atrush oil gets mixed for export with crude from other sources.

LK: We are right in the middle of all that work now. We have approximately a year to get the pipeline infrastructure in place, and we need to get a lot sorted. We have got the underlying design, so we know what size the pipeline needs to be, what routing the pipeline needs to take. And we are now working with our contractors on the details in terms of the supply chain. But there are also several elements with ownership transition: who owns the oil in what part of the pipeline, who will be operating these pieces of the pipeline, and those are detailed discussions we are having at the moment with the Ministry of Natural Resources.

PTO: So those discussions are under way right now.

LK: Yes.

PTO: So TAQA will have a spur into the main pipeline. The main pipeline contractor is KAR Group. Will you contract KAR to build the spur, or will the line itself be a TAQA piece of infrastructure? How does it physically connect together?

LK: Well, these are exactly the discussions we are having. In the end, we believe the structure will be paid from cost oil, so the infrastructure will be paid by the natural resource, and then the question of who is putting in the up front capital investment, that is up for debate.

PTO: Returning to the location. Atrush is a difficult place to bring in so much kit, and it's also somewhere that has a unique human history and people who are very remote. How have you dealt with bringing capital, equipment and staff into Atrush? It can be extremely disruptive for people, and takes careful management.

LK: It's an important point. You mentioned it's remote. Communication between the regional government and mukhtars [local mayors] is not efficient, so what's being discussed in Erbil doesn't necessarily reach the fields. So we take this issue very, very seriously. We have a dedicated team of 20 people continuously updating people on the field, explaining what we are doing, and explaining how the local population can do business with us. We explain that we'll work with people on a contractual basis only, that we'll train individuals to operate the heavy equipment that they can be supplying. Plus we can help get local businesses certified so their quality of work stands up to the standards we require for our operations.

But it all starts with making it clear from the start that we are going to be there for the long term. It's not a pump-and-dump project; we are going to be there for the next 25-40 years maybe. And we want to develop the critical infrastructure of the area, and we expect to see a lot of economic development.

PTO: This can be a tricky element of community relations in a lot of places. The money flows into the center but people close to operations, they expect to see the economic benefit, they expect to see it very quickly and locally. What's TAQA been doing — and what's expected — at a local level?

LK: Our target over the next 5-10 years is to have a majority Kurdish workforce. We want to go to 80-90 percent of Kurdish nationals working for us within the region. At the moment we are somewhere between 50-60 percent, so we are making good headway. Because these people are getting a salary from TAQA that benefit is very direct. People can really see the benefits of working with us. And we've established a couple of local suppliers in the Atrush area, so it's starting to work; we are starting to build those relationships. Our drilling contractor is on a similar workforce curve to us, so to the extent that their staff are not Kurdish now, they are destined to be in the next five years, following the necessary training. And we have built a school outside Atrush village and are working on how to staff it up.

PTO: Taking a step back, as you move from pure drilling operations to civil works, construction and production, what are the main difficulties, other than the obvious things such as the geography of the block? What do you make of the state of the broader services sector supporting TAQA?

LK: This will be a crunch year. With any project, when you're going through the capital investment, you see all this activity in the block, a lot of new infrastructure being installed. This is where we'll see a lot of activity. We're spending close to $400 million in 2014. So you can imagine how many people will be running around, how many trucks. After the infrastructure is in place, it will settle down, and they'll be a local workforce of between 75 and 100 people, and then it will feel very different. In the long term we feel it will be a sleepy area that's pumping oil out of the ground. So this is the phase we will really manage very carefully, to make sure everyone's sufficiently informed, that we have the road infrastructure to support heavy transport, plus training and educating.

PTO: With the training and educating, it seems to be an example of where operators in Kurdistan have the same or very similar issues, but they are all approaching it individually at the moment. When you are thinking about these potential bottlenecks, how much do operators talk to each other? Is everything coordinated through the MNR? These are not new problems to oil companies.

LK: This is a young basin, the number of operators is high and there's still a process of rationalization going on. I expect the operators will be around 20 to 30 in the region long term. I expect the operators and contractors will align themselves almost like Oil & Gas UK in the North Sea, a trade body I was a director of. So we know how that works and how to contribute. It will get there, the industry will start forming one voice, but it has to be non-threatening. No one wants to paint the regulator in the corner, and it has to be aligned with the long-term revenue generation of this new oil province.

PTO: So how would you characterize the service sector here, and if you had a few wishes to improve it, what would those be?

LK: I've got two wishes. I need a different type of oilfield resource. At the moment the region attracts mission mercenaries: people who come in for a few months at a time, want to make money, go out, and forget about their work in the Kurdish region. We want people on the ground, being interested in what we think is important and what we think is important for the region. That may require the region to become even more secure, for the security ratings for Kurdistan to drop from 4-5 to 3. Then you can bring families in, so provision of health and education improves. This will benefit everyone. Then once you have the right people in, you'll be able to get the right services.

At the moment the major service companies are setting up in the region, they are setting up their workshops so they can maintain tools and equipment here. But they face the same issue we do, they have to work with rotators, people who fly in and out. This is disruptive to continuity.

PTO: TAQA has two sides to its business, upstream and then utilities. Can you give an update on the status of the joint venture with Mass Global? I understand the deal is done but the paperwork is not quite completed yet.

LK: That's correct. Nearly two years ago we signed the SPA [share purchase agreement] with Mass Global. We are about to complete on that and enter the next phase of that relationship. It's our first entry into the power arena in Iraq and the Kurdistan Region of Iraq. We expect to be expanding our power portfolio into southern Iraq itself. Because whereas oil production is sometimes contentious, power isn't. So power will be our obvious entry into southern Iraq.

PTO: By the "next phase" with Mass Global, what do you mean exactly?

LK: We are keen to establish a relationship with Mass Global and [Mass Group Holding Chairman] Ahmad Ismail. It fits very well with what we think we can bring to the table. We believe although we are a semi-national oil company, we are nimble and we can move quickly, so we can be an institutional partner of a very well-performing entrepreneur, which we believe will open material opportunities in the region.

PTO: And in terms of how that looks with Chemchemal, the plant has a pending, large expansion of its capacity through converting the plant to combined cycle generation. There's a need to do that with the other plants. TAQA has financial heft behind it. Will TAQA lead in capitalizing those investments and then recoup these investments? How will the partnership work practically?

LK: All the things you just mentioned, these are the attractive things in this deal. Our effort is on making this first deal work, establishing the relationship, understand what is important to the partners, so we can use this as a stepping stone to a long-term successful future.

PTO: Feedstock has been an issue in Kurdistan, to the extent that there is not enough gas to fully fire the main plants. The contracts are take or pay, though of course no one wants to sit with a plant that is not doing anything. How big an issue is feedstock?

LK: Well, we see this as an opportunity. We are buying into a plant that runs primarily on gas, but which also sometimes has to run on diesel. Gas is more efficient, it allows plants to be run better, and there are expansion opportunities to improve efficiency and returns on the asset.

PTO: The federal government has taken another look at independent power producer (IPP) contracting, and has announced the grant of licenses to two projects. In terms of TAQA taking a look at the south, what levels of interest has TAQA shown so far?

LK: In the south we have got one specific project on the boil, which is looking good. It's still a bit unsure but it is a robust opportunity and we would be happy to invest in this particular project.

PTO: This is in Basra?

LK: It's still too early to disclose just yet. But the other thing we have done is expressed an interest to be part of the two deals which have been recently signed.

PTO: So that's Mass Global for one...

LK: And KAR for the other.

PTO: So is the relationship with KAR formal in any way?

LK: At the moment our main engagement with KAR is over how to tie in to their main export line to Turkey. We may engage with KAR on shared power opportunities in future, though that's speculation. ◆

Q&A: U.S. International Energy Envoy Carlos Pascual

WASHINGTON, DC - As Iraq struggles to rebuild from decades of war, in an atmosphere of perpetual crisis, one of the country's chronic problems is a lack of institutional capacity to make plans and implement them systematically.

In the energy sector, this lack of coordination — between power generation and fuel supply; between oil production and export capacity — has cost the Iraqi government bs. The uncertainty has also taken a toll on international energy companies, which need to plan projects that will span decades.

The U.S. government is trying to help. Although the American presence in Iraq has dwindled since the December 2011 military withdrawal, the U.S. and Iraqi governments have engaged in a substantive dialogue on energy issues.

The most high-profile efforts have centered on addressing the oil policy disputes between the Iraqi central government and the autonomous Kurdistan Region – a topic of such sensitivity that key American officials have consistently declined to comment on it.

But beyond the political intrigue, the U.S. has provided a wide array of technical assistance. Under the auspices of the Joint Coordination Committee (JCC) for energy issues — which is an element of the Strategic Framework Agreement (SFA) that governs Iraq-U.S. bilateral relations — the U.S. has hosted Oil Ministry delegations, provided training to oil sector personnel and made efforts to help bring international best practices to Iraq's oil industry.

Ambassador Carlos Pascual has been central to all of these efforts. As the State Department's Special Envoy and Coordinator for International Energy Affairs, he sits at the intersection of U.S. energy policy and foreign policy. Along with Deputy Secretary of Energy Daniel Poneman, Pascual is also a co-chair of the U.S.-Iraq energy JCC.

In an interview with Iraq Oil Report, Pascual discussed the latest JCC meeting, which was held on Feb. 5 in Baghdad — a dialogue covering the development of oil production and export capacity, natural gas, electricity generation and more.

Ben Van Heuvelen: To start, and to orient the discussion, can you describe your position? Where does Iraq fit within your portfolio, and what's the scope of your engagement with Iraq?

Carlos Pascual: Sure. The Energy Resources Bureau is a relatively new part of the State Department. It officially was launched in November of 2011 and was sparked by the particular interest that Secretary Clinton had in ensuring that the State Department had the ability to bring all of its diplomatic resources, to be able to fully integrate energy issues in the way that we handle foreign policy and national security questions.

The reason that we were created was that after a very detailed review of the major international foreign policy challenges that we face over the next 25 years, energy consistently came up as a central issue that affects national security concerns – issues of wealth and power, geopolitics. It definitely affects the future world of energy that we have to create in order to ensure that we have a sustainable planet. And it's fundamental and critical to our development concerns as well.

So, that role that we have is to work within the State Department and across U.S. government agencies, and with the private sector, to try to help align the way that we shape our foreign policy so that it can facilitate and encourage effective and productive investment on the part of the private sector — U.S. and otherwise — that we can help supply and maintain stability in international markets, but that we can also look at what are some of the key factors that provide incentives for investments in the energy economy that we're trying to build for the future.

Ambassador Carlos Pascual, Special Envoy and Coordinator for International Energy Affairs for the U.S. Department of State, speaks during the CERAWEEK conference in Houston March 7, 2012. REUTERS/Donna W. Carson (DONNA W. CARSON/Reuters)

We work very closely with the DOE [Department of Energy], as you might imagine, and we try to take complementary approaches to issues, where they obviously have an unparalleled technical expertise, and we try to compliment that with the diplomatic and policy expertise that we have in the State Department and the worldwide presence that we have.

And in that spirit, we jointly chair a joint coordinating committee [JCC] on energy with Iraq. I chair that with Dan Poneman, the Deputy Secretary of Energy, and we were in Iraq convening the second meeting that took place of the joint coordinating committee, chaired on the Iraqi side by Deputy Prime Minister Shahristani. We've tried to bring together many of the major players ¬— both sides, U.S. and Iraqi ¬— who are involved in energy policy issues — oil and gas, electricity, security issues related to energy, as well as financing questions, that are critical to address for the future.

BVH: I want to dive into the JCC in a second, but first I'd like to ask you to place the JCC within the context of broader U.S.-Iraq energy cooperation.

CP: I think any bilateral relationship needs a series of fulcrum points that you can use as mechanisms to bring together key actors, players and develop strategies and programs around critical issues. So, while the JCC on energy may meet once a year, its purpose is not just to simply have an interesting exchange in that one meeting, but to provide an impetus to creating an action plan and agenda on issues that both sides feel are important to be able to address — and then, to be able to give impetus to further action over the course of the year. To ensure that key players understand each other, know each other, and are able to then create greater momentum on what we're trying to do on a day-to-day basis, or on a regular basis, in the bilateral relationship.

I think it's been helpful that we've also been able to reflect back views that we've heard from companies that are involved in Iraq in energy production, and customers and clients and refineries around the world — the experiences that they've had with Iraq and how that might play into [Iraq's] infrastructure development strategies, and helping Iraq identify where some of the issues and constraints may be.

BVH: So is the JCC basically a high-level coordination mechanism to set a framework for moving forward, with follow-up happening on a lower level? Or are you drilling down into the details of issues like infrastructure constraints as you're sitting across the table from Deputy Prime Minister Shahristani?

CP: It's a combination of both, because the intent of it is to be able to drive action and to help facilitate constructive, effective engagement going forward. In order to do that, there are times where you need to drill more deeply into an issue and understand the underlying parameters. And so, what we've tried to do in the meeting is to be able to have enough time to analyze and exchange ideas, discuss important policy or technical questions, and then, from that, if we can't necessarily provide a solution there — and in many cases the issues are too complicated to provide a solution — we at least have enough of a basis of understanding so that when we set priorities and try to define actions going forward, we know what the baseline is that is actually driving the set of priorities that we're trying to put forward.

BVH: How unique is this energy dialogue from Iraq's perspective? Are they having similar conversations with other countries?

CP: I'm not aware of other countries where they have a similar kind of dialogue. They have a very important dialogue with World Bank, and the World Bank has also been an important intermediary that has facilitated that participation of Booz Allen Hamilton in helping Iraq put together the Iraq National Energy Strategy [INES].

The IEA has also played a useful role. The work that was completed between the IEA and Iraq to be able to provide the supplement specifically focused on Iraq — where also the Booz Allen Hamilton work provided important input — I think was key.

Iraq is a participant in the global gas-flaring reduction initiative, where both companies, governments and then the World Bank — which provides a secretariat for it — has played an important role in trying to bring together some global examples and experience on gas flaring and how to apply best practices in moving towards power generation.

But, I'm not aware of any other specific countries that have something that is as structured as this.

BVH: Speaking of gas flaring, I know that was one of the major topics you recently discussed in the JCC framework. So, to begin with, there's so much flaring — how do you even frame the problem, let alone start thinking about solutions?

CP: To be able to succeed, the capture and the sale of the gas has to be commercially viable. Companies are going to invest resources in being able to capture that gas and process it, and to then build the infrastructure that connects it to the power generation system, if, in the end, they can make money off of it.

And, so, Iraq at this stage has a number of important ingredients. One, it has a lot of oil, and that oil is going to be produced, and that oil is going to produce associated gas, and associated gas levels are going to continue to increase. And the demand for the gas is already there, and will continue to increase.

The critical things now that have emerged are how to create the incentives for the companies that are involved in producing oil to capture the gas; and how is that gas going to then be collected and then processed. At what prices can that gas be sold and moved into the power generation system? And eventually, the issue that Iraq is going to have to address is, how does that power that gets generated move to distribution companies, and eventually to end users who pays for it, so that you get the cash flow back to the system, so that you have a viable set of business operations. So, at this stage, one of the things that we have been raising with the Iraqis is, how do you create that full loop so that you have a viable business proposition.

One of the first steps that they're trying to work through is then capturing the associated gas. The biggest first big experiment has been with the Basra Gas Company. And what we've been working with them on and talking with the companies about — and with the government about — is how to create the incentives so that in Rumaila, Zubair and West Qurna the companies are capturing that gas and moving it into a feeder pipeline system and then putting it into a trunk system that brings it back to the Basra Gas Company to process.

We have not been a central player in the sense that we're not an investor. We've talked to all of the parties, we've helped facilitate some – raising some of the issues that come up, including some basic questions, like the levels of compression of gas and how it affects its ability to move through the pipeline system. By raising those issues, it's helped facilitate perhaps a clearer discussion between the government, Basra Gas Company, and the companies, the operating companies that are producing the oil and in effect the gas.

We've also been raising questions of whether there are other technical solutions that could be tested in the short term. We agreed to create, out of the JCC, a working group that is going to focus on what are called aerojet derivatives, and to see if there's an interest on the part of private companies and the Iraqi government to test these in an Iraqi context. They're used here in the U.S., in North Dakota, for example. It's essentially a jet engine, encased as a turbine, that has the ability to capture the gas when it's coming out of the well, to produce power. And in this case, the challenge is to then either use that power for uses that are necessary in the field, or to be able to put in the transmission lines that are necessary to bring that power to nearby villages or cities or towns. Whether or not that's going to be commercially viable is still not clear, but it's an example of one of the practical things that came out of the meeting, where there will be a working group that's already been tasked to follow up, to talk to potential suppliers, to link those suppliers up with both the relevant government and private-sector contacts, to see if something like this can be tested and the commercial viability proved or not.

BVH: In the short term, for the first bid round fields, BGC [Basra Gas Company] is the main mechanism that's being used to address the flaring problem. And there seems to be some "creative friction" in figuring out how to implement that plan. Can you elaborate on whether, and how, the U.S. government is helping?

CP: One of the challenges for each of the companies, and particularly in the first bid round, is that there's little profit incentive for them in capturing that gas. So, when there's a tension that arises over how much gas is kept within the fields to maintain the compression and to produce more oil, versus using that gas to be able to process, those are things — they're not surprising, that have to get worked out. And, the only way you work them out is to put them on the table and to have a frank discussion among the operators, BGC, the government and some priorities eventually are going to have to be set on oil versus gas, how the two are balanced. And this is one of the issues that we raised.

There isn't a clear outcome yet. I think there's now a very strong awareness of all of the parties of what the issues are, what the consequences would be. I think there's an awareness that a dialogue among those parties needs to take place. How that will actually be translated into practical action is one of the follow-up items that we're continuing to work on.

BVH: Is your understanding that it's ultimately the Oil Ministry's policy to decide? They probably don't want to just dictate a policy without input from their commercial partners, but do they have the final say under these contracts?

CP: I'd rather not get into a definition of how the contracts are going to work and where the final decision is going to come from. I think all of the parties recognize that they're going to be better off if, in the end, the accommodation balances the interests of all of the parties and that, in the end, the Iraqi government has a huge interest in maximizing oil production and has a huge interest in obtaining more gas because of the increased need for domestic power generation. To look at this as potentially a zero-sum situation doesn't help anybody win. I think the positive part of it is that the parties recognize that they're going to have to somehow come together and resolve these issues in a way that is reflective of the commercial interest that the operating companies, BGC, and the government have.

I think the other part of it that is important is to just underscore the importance of a dedicated gas development, and obviously it has been a challenge. In some of the parts of the country where they've looked to develop their gas fields – particularly in Anbar province – it's been racked by security [problems]. There is, I think, an acute awareness on the part of the government of the benefit that they would have of exclusive development of gas for the purpose of processing, because it would give them an ability to maintain stability and baseload, and then use the associated gas as that gas comes online. It's still a challenge that is a ways off, and creating the incentives to adequately develop those gas fields is a challenging process.

BVH: Looking ahead, is your sense that, in the medium term, any gas exports would be sold as LNG out of Basra, as the BGC deal anticipates? Or is it still up in the air? Did the JCC address gas exports?

CP: We didn't get into gas exports. We recognize that that the immediate requirement is to capture more gas for domestic power generation. Everybody is aware of the interest and intent of different parties — BGC, to have an LNG capacity; neighbors north and south, to potentially have the ability to import gas from Iraq via pipeline. But those issues are sufficiently in the distance that, other than noting the interest that's there, we didn't really get into the specifics of how they're going to occur at this stage.

BVH: So, an agreement for the Arab Gas Pipeline wasn't finalized and signed.

CP: You can write about that one another day.

BVH: Perhaps we can move on to crude oil. I tend to visualize Iraq's oil infrastructure as a series of bottlenecks, where the technical goal for the Iraqis is basically to figure out what's the smallest one, open it up, and then move on to the next one. So, if you agree with that framework, what would you say are the smallest bottlenecks? Or, to put it another way, what are the key priorities for raising production and exports — and what kind of help is the U.S. offering?

CP: I would say the smallest bottlenecks are probably the tightest bottlenecks, in the sense that they're most acute. Right now, there's a recognition that the Fao terminal and the lack of storage capacity, and the inadequacy of pumping capacity, is probably the most acute issue.

I mean, you've covered this extensively. The reasons for it are well known — all of the companies reiterate it, the government itself reiterates it. Right now, you've got production moving directly through internal pipelines to subsidiary pipelines to SPMs [single-point mooring export buoys] — and if there are weather disruptions or any other disruptions, you have to shut in [production at the fields]. And the amount that was shut in between September and the end of the year was on the order of 30 million barrels. That is a huge cost to Iraq, and to the companies themselves. And so, creating the storage capacity to be able to provide a mechanism to continue to produce, to capture the value of that resource, and to provide greater consistency and supply can be of tremendous benefit to both the Iraqi government and the companies.

One of the things that we have noted, based on discussions that we've had with countries and refineries around the world, has been that there are many refineries that have moved from Iranian oil to Iraqi oil. Some would be interested in taking more, but one of the challenges has been the weather outages, where shipments may be delayed 5 days, 7 days, and if that occurs, it could potentially force them to shut down their refinery and they suffer the cost of having to do that. I think it was useful to convey some of those experiences to our Iraqi interlocutors. I think Deputy PM Shahristani was particularly seized about this issue. We also discussed it with the Oil Ministry. [Shahristani] said that, as a next step, they absolutely need to bring in an international consultant to help them work through these issues: the questions of the storage tanks — bringing them online —ID'ing where the constraints may be in pumping capacity, and seeking to solve that problem as quickly as possible, or if it's necessary, to put in a set of incremental solutions, then developing a clear strategy on how to be able to do that.

The Iraqi government doesn't need us to do this for them. Part of the value of the JCC was that it provided a mechanism where, in preparation for it, it really encouraged conversations on the part of all parties, and we certainly did consulting with all of the major companies that are active in the south, both operating companies as well as service companies. Being able to understand from them where they see some of the critical issues and constraints, and then for the Iraqi side [to have] an opportunity to do the same; but in the meeting itself, it allowed for us to put these things on the table, explain them in a constructive way, and it wasn't for us here to necessarily say to the Iraqi side, "Here are the solutions." Deputy Prime Minister Shahristani was the one who took the initiative and said: "The way that we're going to do this is to bring in international advice on it, because it has become a critical bottleneck and one of considerable urgency."

BVH: I think SCOP [the State Company for Oil Projects] is working the storage expansion project at Fao. So would the government take it out of SCOP's portfolio, or would it just be international consultant coming in to help?

CP: No, I think the expectation is that the Southern Oil Company would hire someone and bring them in to provide direct advice.

BVH: Did the JCC cover any other big topics related to production and exports?

CP: I think the other issue, which was particularly helpful to discuss and is part of an agenda that we will continue to develop over the coming year, is the challenge that Iraq now faces in moving from the rehabilitation of existing fields – utilizing existing discoveries where, let's say, on average individual companies have been investing on the scale of 4 to 5 b dollars, to the development of 6 megafields, where the investments could potentially be on the scale of 40 to 50 b dollars.

And that presents many different challenges, but two types in particular. One is just the administration and management of projects of that scale and size. And, a recognition that, as the implementation challenge goes from something of a considerable scale to something of a massive scale, the numbers of contracts and subcontracts, and the size of those contracts are simply going to escalate.

BVH: Right, and imports of equipment, customs, visas for workers...

CP: Right, the visas, and the numbers of workers that will be necessary. So, the management of these issues, expediting decisions and achieving clarity on contractual decisions as quickly as possible is going to become extraordinarily important and is going to have huge cost implications.

If there's an expectation that a service company wins a contract, and that they need to mobilize and begin work immediately, they're going to begin with that mobilization, but if they don't get the final approval of the contract and they have people sitting on the ground for six months — all of those costs are going to escalate. So, it was just I think particularly helpful to talk through and work through those examples and underscore the importance of dealing with these processes now.

The other issue, which also was constructive to discuss and put on the table – again, as an agenda item on continuing work forward – is the financing of these projects, because up to now, Iraq has essentially been reimbursing contractors out of its budget revenues. At a certain stage, if there aren't other financing arrangements that are put in place using current revenue to pay for massive investments costs that need to be amortized over a long period of time, it's going to place a huge burden on the Iraqi budget. And how that is managed and how best practices from other parts of the world are brought to bear is going to be a critical factor. And I think it was important to open that set of issues with senior Iraqi officials, with the Ministry of Finance.

We have had discussions in the past of financing challenges. Some of them have already been incorporated into Iraq's thinking, so, for example, when they went out with the tender for the Haditha-Aqaba pipeline, they structured that as a build-own-operate-transfer tender, whereas in the past they just wouldn't have done it that way, they would've done it as essentially an EPC [engineering, procurement, and construction] contract as they did for Basra-Haditha. And a recognition that bringing in other contractual and financial tools is going to increase their flexibility, and in the end, that's going to accelerate their ability to actually get work done, and at the same time meet the other kinds of budgetary challenges and priorities that they have in education and health care, et cetera.

BVH: Speaking of pipelines, did the JCC address the importance of diversifying export routes? The pipeline to Jordan, connecting Basra to the Iraq-Turkey Pipeline — these initiatives have implications beyond the energy sector. There are issues of both regional stability and global economic interests at stake.

CP: I think one of the useful parts of the discussion was how to put both U.S. and Iraqi production in a global context, and it was extremely helpful to have the participation of the Energy Information Administration in the meeting. And, together, between their briefings and some of the briefings we provided on the gas side, were able to look ahead at the structure of global demand, the pace of increase, where it's going to be — particularly in Asia — and so, part of the discussion that we had was to look at energy supply and demand projections over the next 10 to 25 years. And while those are always based on a lot of modeling assumptions, they help us better understand how tight those markets may be, where competition may come from, where export routes are going to be particularly critical.

It reinforces the importance of diversification, but it also, for Iraq, reinforces the importance of Asian markets as a critical part of its future demand base. Because it doesn't take an awful lot of analysis of looking at IEA data to realize that virtually all of the demand growth in energy in the next two decades is going to be out of the non-OECD countries, and the vast majority of that is going to come from China, India, and other Asian countries. So when we talked about export challenges, what we discussed was the importance of being sensitive to the evolution of global markets and the structure of demand.

I think, also, the scale of increased demand is such that it doesn't need to be put in the context of accommodating American and Iraqi production, but that, indeed, American and Iraqi production and the increases that we would expect in both are going to be critical to supplying those markets. Obviously, for U.S. production, since we don't have the authority to export oil, the critical issue will be domestic demand. For Iraq, they supply the global marketplace. Incrementally over the next decade Iraq could potentially be the largest source of supply, which is affecting Asian markets.

And the thing we also tried to make very clear is that we have a self-interest in that. When we pay for oil, we pay global prices. And to the extent which there is unmet demand, that is driving up global prices coming out of Asia, that is something that has a direct impact on our own economic growth and what people pay at the gasoline pump. And we try to make very clear that we don't see Iraqi's production in any way in a negative way or as a competition with the US, we see this as totally complementary to the kind of stable oil market that we want to see in the future that is supportive of global economic growth.

BVH: So this assurance that the U.S. wants to see all of this oil come onto the global market – is this just a general observation, or does it have a bearing on encouraging specific export routes?

CP: I think it has a bearing on customers. And for all parties, it helps sharpen the recognition of where the demand is going to be, what some of the critical countries are going to be on the demand side of the equation. One can think about different ways to actually get supplies there, but there are these realities of — what kind of risk are you willing to absorb? Where there are one or two or three choke points that could really shut off all of your export opportunities? And so, in that context, I think, it does have an impact and has influenced the Iraqi thinking about, for example, why the Haditha-Aqaba pipeline could be a useful export diversification route for them.

BVH: Can you provide any insight into the status of that project? I mean, obviously, the pipeline will have to go through Anbar, which is a difficult place right now.

CP: Iraq is confronted with a series of security challenges that have risen to the top of the government's agenda. These are issues that they have to address. And that's obviously going to affect investor interest and prospects, especially if part of what one is considering is a pipeline that's actually going through one of the provinces that has been the most unstable at this point in time.

But that doesn't necessarily negate or diminish the importance, that the analytic work is happening and they're beginning to structure the procurement processes that can get them to where they need to go. And if there are detours that they have to take along the route, as long as you know why you're taking the detours and how to get back on the track you need to be on, then that's OK. I mean, you just have to be realistic about what you can expect and accomplish in a given circumstance.

BVH: On that note, I'd also like to ask about infrastructure security. I'm sure you don't want to talk about specific vulnerabilities, but I would be interested in hearing, more broadly, about the types of help the U.S. is providing — technical assistance, analysis, training, equipment — to help Iraq protect its energy infrastructure.

CP: The issue you raise is exactly

right: there's a huge sensitivity in talking about any particularly vulnerable points of infrastructure because if anyone then wanted to hit those vulnerable points of infrastructure, you're then providing a road map of where to go.

I think the most constructive thing I could probably do on this issue is to put it in context of how we think about this in the U.S. and lessons that we have learned — not just because of [concern about] attacks, but because of natural disasters. And in particular, Hurricane Sandy, which is one of the things that has made us particularly, acutely aware in the U.S. of the importance of key nodes of infrastructure.

In the end, what one has to be able to do is understand when you knock out some of those key nodes, what are the repercussions that it might have over a wider system? And so, it then raises the question of how do you further protect that? Are there backups that you can create around those key nodes? If there are particularly sensitive impacts that could result as a result of damage to some of those key nodes, then what are your mechanisms to create backups on those systems? And then, you put that against your cost analysis and begin trying to then link the two up so that you get the maximum benefit out of the available budget that you have.

In effect, what we have been doing with Iraq is taking some of those similar analytic approaches and working with them so that they have this as a tool and then, from that, being able to be responsive to them as they say, "We want to work on this particular area" to then help identify what kind of expertise can be potentially relevant to that. So, I think I'll leave it right now more at the broad parameters of the analytics rather than going into any of the specifics.

BVH: Can you give any specifics on the security of the northern export pipeline? I ask because its vulnerabilities have already been very well exposed. Was this a topic of discussion or an area where the U.S. is going to give some assistance?

CP: Certainly the vulnerabilities there were noted, and Deputy Prime Minister Shahristani has done it publicly. When we were both at Chatham House, he spoke on the record there — about 54 attacks over the course of 2013, so one per week, in effect. We did not get into any specifics on the northern pipeline.

BVH: One final question, just thinking back to your point about how Iraq is now moving into a new phase — developing new reservoirs as opposed to mainly rehabilitating discovered ones — where the level of investment needs to increase by an order of magnitude. So from your point of view, as someone who has just gone through this JCC exercise, can Iraq do it? Does the country have the institutional and human capacity? Or does the magnitude of the job essentially require the government to outsource some of the functions of the Oil Ministry, and maybe the Finance Ministry, to international consultants and private partners?

CP: I think the way to think about it is [to ask], does the oil and gas industry, globally, have the capacity to take advantage of this phenomenal resource, if given the right kind of policy environment in which to work. And the answer to that is yes. And that requires a recognition that the technical expertise and the capital is going to come from those international partners, and that the challenge for Iraq is to understand how to engage and interface with them in a way that creates the right incentives for investment, protects Iraq's interests, and ensures that there is accountability and transparency in the way that the resources are developed and how the revenues from it are actually used. Those things are all within Iraq's grasp to be able to do.

I think the Iraqis would be the first to realize that there are steps that they need to take to get better at it, and that the scale of what they're doing is huge. It's unprecedented to expand that scale of production in the period of time that they're seeking to do it. If you compare the decades in which Saudi Arabia did something similar to what they're in effect trying to do over the course of a decade, it's unprecedented in scale. And so, there are going to be major administrative challenges, especially for a country that was stuck in a time warp during the Saddam regime, where there is a phenomenal amount that they have to catch up on — on everything from technology, to human development, to modern financing techniques.

So, the way that we've tried to address this issue is to see ourselves as a friend to Iraq and a partner to Iraq that can help raise some of the questions that are going to be key as they're going through this process — to use some of the positive habits that we have as a country that, as we work through these problems, we do it in a dialogue with the private sector to learn from them where the constraints are and to be able to take some of those basic techniques of identifying problems and bottlenecks and to create problem-solving working groups around them, to the extent to which we can help and facilitate by identifying particular points of expertise that could be brought in.

In some cases, it may be expertise that Iraq may want to contract for. In some cases, it's expertise that we may be able to offer through national labs, through parts of our government. Can Iraq take advantage of this? Absolutely. Are there going to be setbacks along the way? Most likely, because nothing of this scale and complexity, technically, financially, economically, politically and even from a security perspective, could move ahead without having some setbacks. Can Iraq get massive amounts of energy resources both on to international markets and for exploitation for domestic power generation? Absolutely, it can.

I'm not going to get into what the right targets should be. Others can better opine on those. But in no way should we dismiss the significance of what this means, and, frankly, what it's already meant as a benefit to international markets thus far. And the approach that we've tried to take is to look at the positive additional benefits that can occur and how to be able to get there, and how to help our Iraqi partners take the decisions that make it possible for them to do that. ◆

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