



# Natural gas, Azerbaijan and Europe

Speaker: **Iain Conn**

Title: **chief executive, Refining and Marketing**

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Ladies and Gentlemen,

I am very pleased to have the opportunity to speak here at the BP Berlin Forum this morning about natural gas, Azerbaijan and Europe.

These are three important subjects close to the heart of my company. Individually they are all important. Joined together they represent both a fascinating challenge and a tremendous opportunity. Let me start with a few observations on energy.

## Energy as competitive advantage

I worry that the debate about energy in Europe has arrived in a strange place, where energy is seen only in negative terms as an unwelcome and expensive problem.

However, a little thought immediately says the opposite is the case. Energy is fundamental to our industrial and social fabric and our way of life.

And it is also a fundamental source of competitive advantage in a globally competitive world.

Let me explain a little more what I mean.

This chart shows the historic, and BP projected, convergence of energy intensity of GDP.

It shows that the World intensity of GDP is falling. It also shows that the energy intensity of GDP for China, a major driver of global energy demand growth, is higher than average and will remain so for some time. The EU, indicated by the yellow line, is lower than average.

On average, the World is currently at about 0.15 tonnes of oil equivalent per \$1000 of GDP. Now, we all know what 0.15 tonnes of oil equivalent is.....it is just over a barrel.

This means that on average it now costs about \$115 of energy per \$1000 GDP, and for China it is approaching \$200. When oil prices were \$25/bbl this mattered less. At today's prices, and with the potential for further rises, it matters a lot. Securing the energy for growth is expensive, and fundamental.

So if the Chinese economy has an energy intensity of GDP approaching twice that of Europe, energy is not a problem for Europe but the opposite – one of our few remaining structural sources of competitive advantage.

It is an advantage that we need to preserve and strengthen.

My view is that we really need to check our mindset - to make sure that we see an efficient energy system as a source of advantage and not as a problem.

So where does this structural competitive advantage for Europe spring from?



Probably from many factors but these certainly include

- extensive installed infrastructure and generation capacity
- diversity of energy types and sources of supply
- liquid and effective energy markets
- embedded technological and innovative capability

And there is one more obvious point from this analysis – that good energy policy is not an optional extra but a core driver of competitive advantage.

Meaning that energy policy cannot be based on fashions or aspirations but on a clear headed, factually based assessment of the realities of the energy economy.

And recognizing that the opportunity cost of the wrong energy policy choices can be very high.

## Natural gas

Perhaps I can now lead this thinking through to natural gas.

Natural gas is an inherently competitive source of energy.

Importantly it has high capital efficiency when used for power generation. Natural gas fired power stations can be highly efficient and rapidly and reliably constructed to meet demand.

And the use of gas can be continually and flexibly adjusted to match changing demand – for instance if the temperature suddenly changes or the wind drops and takes wind capacity off line.

Combined with the inherent combustion efficiency of natural gas, this flexibility means that natural gas can also be a major contributor to greenhouse gas emission reductions.

Relative to super-critical coal fire powered generation, natural gas fired CCGT power generation can deliver the same power at half the levelised capital cost and with half the CO<sub>2</sub> emissions per kWh. This efficiency of a quarter the CO<sub>2</sub> per \$ invested per kilowatt can and should be locked in now, so continuing to keep Europe's competitive advantage and slowing the rate of greenhouse gas build up through the crucial energy transition to 2050 and beyond.

Furthermore, recent experience confirms that natural gas is in plentiful supply in the crust of the earth. The BP Statistical Review estimates remaining reserves at about 60 years of consumption and this is largely without accounting for shale and other forms of so-called unconventional gas.

As you know, shale gas has transformed the energy economy of the US in a few short years from gas deficit to self sufficient for the next hundred years.

And this is not only about gas fired power. It also means that core industries in the US, such as steel and chemicals, have received an unexpected and game changing boost to their global competitiveness.

In BP we believe that China could be positioned to embark on a similar journey.

In Europe it is important that regulation of shale gas is appropriate and supports public confidence. But it would be foolish indeed for Europe not to use its unconventional gas capability to the full.

Where Europe also has clear competitive advantage is in diversity of natural gas supplies.

Indigenous conventional natural gas production is in decline but Europe is a continent surrounded by large and competitive natural gas supplies – including Norway, Russia, the Caspian Sea, North Africa, Atlantic Basin LNG, the Middle East and potentially the East Mediterranean.



And Europe already has substantial infrastructure in place that brings the gas to the market in preference to other destinations.

So in reality Europe is positioned for competitive advantage in natural gas supply. And this advantage is strengthened by proximity to emerging new natural gas sources, that will add to the diversity and resource base available to the European market. And this is where Azerbaijan comes into the story.

## Azerbaijan in strategic perspective

On the day before the finals of the Eurovision song contest it's probably fair to say that Azerbaijan has only recently become a more familiar name to the wider European public. However, for those of us in the oil and gas industry, Azerbaijan has assumed increasing prominence and importance over the last twenty years.

It is a varied, often beautiful and richly endowed country, with a long and fascinating history and a rich cultural inheritance.

And it is also a major oil and now natural gas producer and the gateway to the natural resources of the Caspian region as a whole.

Over the last twenty years Azerbaijan has built an enviable track record as an innovative and reliable oil and gas supplier – first through the Azeri-Chirag-Gunashli giant offshore oil field development; then through the extraordinary Baku-Tbilisi-Ceyhan oil pipeline, bringing Azerbaijan's oil through Georgia to the Turkish Mediterranean without adding to tanker traffic in the Bosphorus; and finally through the development of the giant Shah Deniz gas field and its associated gas pipeline infrastructure.

In any circumstances this would be an impressive achievement.

For Azerbaijan, located as it is in a challenging and often troubled geographic neighborhood, it is an even more notable accomplishment.

And behind this Azerbaijan stands at the fault line of a more fundamental competition – the competition for resources between east and west, between the Atlantic and Asia.

Caspian gas is already flowing east from Turkmenistan to China. So it is of even greater importance that Azerbaijan sees its underlying strategic interest in gas supply to Europe, building upon the energy corridor it has already established with its neighbours, Georgia and Turkey.

For Europe it is equally important to secure its own strategic interests by ensuring that gas from Azerbaijan can flow to Europe as promptly and efficiently as possible.

It is the practical realisation of this objective that has come to be known as the Southern Gas Corridor.

## Azerbaijan gas to Europe

The key to development of the Southern Corridor is one field that will kick start the whole process – namely the Stage 2 development of the giant Shah Deniz gas field offshore Azerbaijan.

Discovered by BP in 1999, Shah Deniz is one of the largest gas fields in the world bringing the gas to market and is set to be one of the largest engineering projects in the world.

Shah Deniz Stage 1 was commissioned in 2006 and is already producing 8 billion cubic meters of gas per year, or bcma, for Azerbaijan, Georgia and Turkey.



Now BP and its partners are working intensively to develop the follow-on Stage 2 project for first gas delivery around the end of 2017.

Let me give you a quick overview of the Stage 2 project.

In fact it consists of six different projects:

- a wells project comprising of 26 wells, distributed around a field the size of Manhattan Island,
- offshore facilities, consisting of 500km of underwater pipelines and two very large platforms
- expansion of the Sangachal Terminal, already one of the largest oil and gas terminals in the world
- three pipeline projects - through Azerbaijan and Georgia, through Turkey and from Turkey into Europe

The total cost of these projects will be around \$40bn. They will produce an additional 16 bcma of gas. Some 6 bcma will be sold to Turkey and the remaining 10 bcma will be available for onwards transmission to the European markets.

It is this 10 bcma that for the first time offers firm Caspian gas for sale in the European market. This 10bcma enables the corridor to Europe to be established. Future gas potential in the Caspian means the corridor must be built with that in mind – future expansion as and when other gas is discovered and developed.

Four key events have opened the door to this historic development:

1. The Memorandum of Understanding signed by President Aliyev of Azerbaijan and European Commission President Barroso in Baku in January 2011, providing the political framework for sale of Azerbaijan's gas to Europe
2. The agreements on gas sale and transit signed by Turkey and Azerbaijan in Izmir in October 2011, crucially ensuring that Azerbaijan's gas can reach the western Turkey border with the EU
3. The recognition by key member states and the European Commission in November 2011 that where gas flows from the border of the EU single market is and should be a matter for normal commercial decisions
4. Approval by Shah Deniz partners in April this year to move to Front End Engineering and Design (FEED) for the Stage 2 project, committing substantial financial and human resources. This approval means that over the next few months Shah Deniz Stage 2 will literally start moving from sheets of paper to sheets of steel. It is now very much a real project, with hundreds of people working on it.

So where are we now?

The decision on pipeline routes are being made by the Shah Deniz partners on the basis of eight transparent criteria published a year ago. These include the normal commercial, financial and operational considerations. They also include the important aspect of sustainability.

By Alignment and Transparency we are referring to the willingness of the selected option to cooperate technically with Shah Deniz and to align with the timeline of Shah Deniz's full field development. The Public Policy issues being considered as part of this decision include Azerbaijan's strategic considerations, the European Community's stated objective of enhancing supply diversity of European natural gas markets and ensuring sustained support from all stakeholders.

In Turkey the detailed negotiations to implement the Azerbaijan/Turkey agreement on gas transit are proceeding well.



Two options are on the table – expansion of the existing Turkish pipeline grid operated by Turkish gas company BOTAS and construction of a new Trans Anatolia or TANAP trunk pipeline from the Georgian to the EU border.

All the parties to these negotiations - whether supplier, transit provider or purchaser – are looking for the same key criteria of expandability for future supplies and the highest international standard of operational, commercial and legal reliability.

For this reason the final arrangements for transit across Turkey can be fully expected to meet these demanding requirements.

And finally we reach the question of where the gas will flow once at the EU border.

The Shah Deniz partners have been looking at two basic options within the EU market. The first is the southern route through Greece and Albania to Italy. The second is into the markets of south-eastern and central Europe.

Shah Deniz partners recently selected the Trans-Adriatic-Pipeline (TAP) for the southern option to Italy. Exclusive negotiations are now in progress and there is no possibility of reverting to the alternative Interconnector Turkey/Greece/Italy (ITGI) project.

If Italy wishes to import Southern Corridor gas, it will need to be through the TAP project. And we are committed to working with the Italian, Greek and Albanian governments, and with TAP, to gain all the required regulatory approvals and permits to make this pipeline option a success.

For the Central European route, the Shah Deniz partners have been considering two options.

These are the South East Europe Pipeline (SEEP) and Nabucco West.

The SEEP concept has been assembled by Shah Deniz partners in collaboration with Bulgaria, Romania and Hungary and offers an efficient routing into and through these strategically important markets which can be scaled up in size as new gas volumes become available.

Nabucco West will also run from the Turkish border to central Europe and is being offered by the Nabucco International Consortium on the basis of work originally carried out for their Nabucco Classic pipe from Georgia to Europe.

I am pleased to say that formal submissions for these options were submitted by 16th May as per the request from Shah Deniz partners.

Work is currently in progress to evaluate these submissions and selection of a preferred south – eastern and central European option is expected by the end of June 2012.

Shah Deniz partners will then be on target to make a final market and route selection which is expected before the Final Investment Decision on Shah Deniz Stage 2 itself by June 2013.

I should emphasize again that all of these options have strategic value and offer the necessary scope for scalability as future gas supplies become available. There is no pre-determined winner, the competition is fully open and there is still everything to play for.

## Conclusions

I have covered a lot of ground today with some key purposes in mind:

- to emphasise how a diverse and competitive energy supply can underpin European competitive advantage



- to highlight the key role of natural gas as a competitive, plentiful and environmentally advantageous source of energy
- to point to the strategic importance of Azerbaijan for a diverse and competitive European energy supply
- to update you on the progress of the giant Shah Deniz Stage 2 project to open the Southern Corridor and bring Azerbaijan's gas to Europe

I hope you will agree that recent progress on Shah Deniz is compelling and the Shah Deniz partners are now well set to bring first Caspian gas to Europe.

There is more gas to come out of the Caspian - probably much more - and the requirement for scalability remains uppermost in the decision making process of the Shah Deniz partners.

But it is crucial to take the first pragmatic step, to get the gas moving and to unlock the Southern Gas Corridor for long term development.

As Shah Deniz partners we are confident that the entire Shah Deniz Stage 2 and Southern Corridor development has real momentum and the prize of bringing Azerbaijan's gas to Europe is now very much within reach.

It is an encouraging prospect that I am sure is welcomed by everyone interested in a competitive and diverse energy supply for Europe.

Thank you for listening and I look forward to our panel discussion.