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**Recent Discoveries In the Energy Field** 

# The Accidental Discovery That Revolutionized American Energy and changed World Energy Equation

One day in 1997, while supervising the operations of a a well in north Texas, a group of geologists made a small mistake that would help change the future of fracking.

Eight years ago, oil production was in steep decline and natural gas nearly as hard to find. Today, the United States produces over 7.7 million barrels of oil a day, up more than 50 pewr cent since 2006 and the most in nearly 25 years. The nation could pump more than eleven million barrels a day by 2020. The U.S. is on track to pass Russia as the worlds largest energy producer and should have enough gas to last generations.

The wildcatters responsible for the transformation are as unexpected as the energy surge they produced. These men, operating on the fringes of the oil industry and often without backgrounds in geology or engineering, met success drilling and hydraulic fracturing extremely dense shale, a process thats become known as fracking.

George Mitchell is the father of the energy revolution. His impact eventually could approach that of Henry Ford. Mitchell and his team werent out to change history, though. They just wanted to keep their company alive.

## New Discoveries of Oil and Natural Gas in the Eastern Mediterranean

# South East Mediterranean gas: discovery, development and geopolitical implications:

- 1- A new hope for Europe to save itself from Russian gas bondage;
- 2- To pave the way for a final solution of the Cyprus problem but a new plan behind Annans plan would put Turkey in a difficult situation
- 3- A new opportunity for Turkey to transport the Isreali and cypriot gas to Europe via Turkey- as a juncture country

## **Overview**

The EU is reliant on natural gas for 24 per cent of its gross inland energy consumption. A total of 67 per cent of this consumption is satisfied through imports. According to the latest projections of the European Commission (EC), the share of natural gas in energy consumption is projected to stay unchanged throughout the period 2010-2050. As domestic sources of natural gas deplete, the EUs import dependency will further increase.

Despite the big increase in worldwide recoverable conventional and unconventional reserves of natural gas (currently estimated at 6,600 tcf) and the ensuing changes in market structure, this market remains a predominantly regional market. Geopolitical considerations are therefore of great importance.

Over the past decade, security of supply and the diversification of supply sources has consistently been a top priority of EU energy policy. The EU relies on only four countries for around 80 per cent of its natural gas imports. Russia has a dominant role in the European gas market, as it accounted roughly for 32 per cent of imports in 2012. Through its dominant position in the EU gas market, Russia gains political influence on other agendas and the EU is highly vulnerable to supply interruptions that happened mainly because of disputes that Russia had with piped gas transit countries such as the Ukraine or Belarus.

The literature discussing potential improvements in the EUs security of supply of natural gas has focused on several aspects such as the establishment of pipelines that avoid the transit through countries that have frequent disputes with Russia, the increased integration of the EUs internal energy market and the diversification of supply sources. Studies on diversification of suppliers have analysed import potential from the Caspian region and the potential of additional purchases of natural gas from the MENA (Middle East and North Africa), essentially considering countries such as Algeria, Egypt, Libya, Qatar, Iran and Iraq. This paper is trying to fill a gap in the existing literature by analysing the potential impact that gas supplies from the new discoveries in the Eastern Mediterranean Levant Basin can have on European security of supply.

Feasibility studies showed that the most economical and secure way for pipeline of Israel natural gas is Turkey. This pipeline will be connected to TANAP gas pipeline that will be completed in 2018. Therefore Israel gas will be transported to EU via Turkey within three years.

NEW CHANGES AMONG THE ENERGY PRODUCER COUNTRIES IN THE WORLD

TWO NEWCOMERS: USA AND BRAZIL

1-USA

 countries, a new report released by the agency says.

The foundations of the global energy systems are shifting, Fatih Birol, chief economist at the Paris-based organization, which produces the annual World Energy Outlook, said in an interview before the release of the report. The agency, which advises industrialized nations on energy issues, had previously predicted that Saudi Arabia would be the leading producer until 2035.

#### 2-BRAZIL

Brazil is the 8th largest total energy consumer and 10th largest producer in the world. The latest complete EIA statistics for all countries (2010) indicate Brazil is the 8th largest energy consumer in the world and the third largest in the Americas, behind the US and Canada. Total primary energy consumption in Brazil has increased by more than one third in the past decade because of sustained economic growth. EIA 2010 statistics show Brazil is the 10th largest energy producer in the world. In addition, Brazil has made great strides in increasing its total energy production, particularly of oil and ethanol. Increasing domestic oil production has been a long-term goal of the Brazilian government, and recent discoveries of large offshore, pre-salt oil deposits could transform Brazil into one of the largest oil producers in the world.

Total Brazilian energy consumption grew to 11.7 quadrillion British thermal units (Btu) in 2011. The largest share of Brazil's total energy consumption comes from oil and other liquid fuels (47 per cent), followed by hydroelectricity (35 per cent ) and natural gas (eight per cent). Additionally, Brazil is consuming increasing amounts of biomass in both the residential and industrial sectors.

# Oil and other liquid fuels

According to the Oil and Gas Journal (OGJ), Brazil had 13 billion barrels of proven oil reserves as of January 2013, the second-largest in South America after Venezuela. The offshore Campos and Santos Basins, located off the country's southeast coast, hold the vast majority of Brazil's proved reserves. In 2012, Brazil produced 2.7 million barrels per day (bbl/d) of liquid fuels, of which 78 per cent was crude oil. Liquid fuels production in Brazil declined slightly in 2012.

In March 2013, Brazil launched a 10-year energy plan that aims to expand oil production to over 5 million bbl/d by 2021, a decrease from its previous plan of over 6 million bbl/d by 2020. The plan sets targets for oil exports of over 2.25 million bbl/d by 2021.

#### CHANGES AMONG THE ENERGY CONSUMER COUNTRIES OF THE WORLD

China, India and the Middle East countries will become the top energy consumer countries in the world, according to the International Energy Agency (IEA). On the other hand, the percentage of the rise in the consumption level of energy of the OECD countries is only for per cent, the same agency states.

China has passed the U.S. to become the world's biggest energy consumer, according to new data from the IEA, a milestone that reflects both China's decades-long burst of economic growth and its rapidly expanding clout as an industrial giant.

China's emergence as the world's most voracious energy consumer has wide implications for US national security and foreign policy. The IEA, energy adviser to most of the world's biggest economies, says China consumed 2.252 billion tons of oil equivalent last year, about four per cent more than the US, which burned through 2.170 billion tons of oil equivalent. The oil-equivalent metric represents all forms of energy consumed, including crude oil, nuclear power, coal, natural gas and renewable sources such as hydropower.

China has disputed the IEA figures, without offering alternative data. China's economic rise has required enormous amounts of energy, especially since much of the past decade's growth was fueled not by consumer demand, as in the US, but by energy-intense heavy industry and infrastructure building.

China's growing energy demands will present new challenges to US foreign policy, as well as to international efforts to reduce emissions of greenhouse gases linked to climate change. China National Petroleum Co., the country's biggest oil company, is pushing forward with oil and gas projects in Iran, despite US efforts to enforce sanctions against the Tehran government.

A China-Russia gas pipeline has been under discussion for the past ten years. Under a 30-year deal signed on May 28, 2014, Russia's Gazprom will begin supplying China's CNPC with up to 38 billion cubic metres of gas per year from 2018, with the agreement said to be worth some \$400 billion (300 billion euros) overall. This agreement will change global

energy geopolitcs.

#### **III-GEOPOLITICAL AND ENERGY CONFLICTS**

Their Reciprocal and Interrelated Effects on Each Other

# A-EXPORT OF IRAQI KURDISTANS OIL VIA TURKEY

More than one million barrels of Kurdish oil were shipped from Turkey to Europe yesterday, Turkeys energy minister and the Iraqi Kurdish administration said, prompting Iraq to try and block the transaction.

The ministry and its official marketing company, SOMO, said that they reserve the right to embark on legal proceedings against companies loading Kurdish oil from Ceyhan without approval from authorities in Baghdad.

The Kurdistan Regional Government, which controls the semi-autonomous Kurdish region in northern Iraq, said the sale was in line with the Iraqi constitution.

Revenues will be deposited in a KRG-controlled account at Turkeys Halkbank and treated as part of the KRGs budgetary entitlement under Iraqs revenue sharing and distribution as defined in the 2005 charter, the regional government said. The KRG will continue to exert its rights of export and sell oil independently of SOMO, it said in a statement posted on an official website.

## **Federal Approval**

We dont support oil exports from any part of Iraq without the appropriate approval of the federal Iraqi Government, Marie Harf, a US State Department spokeswoman, told reporters in Washington

The Iraqi Kurdish administration said it remains committed to negotiate in good faith with its counterparts in Baghdad to reach a comprehensive settlement on oil issues. It said five

percent of the sales revenue will be set aside in a separate account for reparations to meet Iraqs continued United Nations obligations.

### **B-SITUATION IN SYRIA**

Syrias Pipeline War: Operation Gas Pains

Bombing Syria is not about a chemical weapons of mass destruction. Its about the rivalry between competing gas pipeline projects  $\ \ \ \ \$  one that has been proposed to take gas from Qatar to Europe via Syria and Turkey. The other pipeline is proposed from Iran, via Iraq, Syria and Lebanon. The Battle of Pipelineistan waged by the US on behalf of Qatar, Israel, Turkey and Europeans, everybody but Americans, is about resolving who gets the gas line concession through Syria. Its about that simple.

The key chemical weapon involved in this conflict is natural gas.

Qatar wants a gas pipeline running to Europe through Syria. The Turks want the Qatar pipeline to Europe to run through Turkey as well as Syria. Assad has blocked this pipeline. So the Turks and Qatar have been supporting the imported al Qaeda fighters who are trying to overthrow Assad.

Iran does not want the Qatar pipeline to Europe. It wants its own pipeline to Europe via Syria. So the Iranians are supporting Assad. But this proposed line goes through Lebanon (and then under sea to Europe) bypassing Turkey, which wants to get rid of Assad.

Russia does not want the proposed Qatar gas pipeline to Europe, where they export most of their gas. So they have been supporting the Assad government, which blocked it on their behalf until Assad agreed to the Iranian pipeline to Europe.

Thats when his troubles began: By signing on to the Iranian pipeline, Assad angered his benefactors, the Russians, his neighbor, Turkey, and Qatar, leaving Iran his only friend in the region. The US (and the Israelis) do not want the Iranian pipeline project to go through Syria. But the Americans will look the other way on the pipeline if Iran drops its nuclear

bomb program.

These strategic concerns, motivated by fear of expanding Iranian influence, impacted Syria primarily in relation to pipeline geopolitics. In 2009 - the same year former French foreign minister Dumas alleges the British began planning operations in Syria - Assad refused to sign a proposed agreement with Qatar that would run a pipeline from the latter's North field, contiguous with Iran's South Pars field, through Saudi Arabia, Jordan, Syria and on to Turkey, with a view to supply European markets, albeit crucially bypassing Russia. Assad's rationale was "to protect the interests of [his] Russian ally, which is Europe's top supplier of natural gas."

Instead, the following year, Assad pursued negotiations for an alternative \$10 billion pipeline plan with Iran, across Iraq to Syria, that would also potentially allow Iran to supply gas to Europe from its South Pars field shared with Qatar. The Memorandum of Understanding (MoU) for the project was signed in July 2012 - just as Syria's civil war was spreading to Damascus and Aleppo.

In summary, new discoveries in the energy field brought a new energy geopolitics to the 21st Century. This will shape the new world as well as international relationship that will be elaborated in Part III of this article.

About the author:

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