



URNS OUT WE HAVE SHALE GAS AFTER ALL

Amidst increasing concerns over Turkey's vast current account deficit (CAD), fuelled by foreign dependence to cater for the energy requirements of a rapidly developing economy and further exacerbated by soaring global oil prices, a news story signals a game changer: Turkish Petroleum Co. (TPAO) General Manager Mehmet Uysal told Reuters in an interview on March 12, 2012 that ExxonMobil is interested in tapping Turkey's shale gas potential.

For a vast majority, the only possible reaction was "what shale?" Shale oil and gas have been the source of the new buzz as alternative resources over the past few years, but the countries named for significant potential did not hitherto include this part of the world. It turns out, however, that Turkey, along with numerous other countries in Latin America, Asia and Europe, does in fact have shale gas potential, and arguably a good one at that.

So what is shale gas? Shale gas is natural gas trapped in a specific rock formation named ‘shale,’ which may soak up gas and oil like a sponge and offer a rich potential of oil and gas. Along with coalbed methane, tight sandstones, and methane hydrates, shale gas is part of what is termed as unconventional gas. While the initial efforts to extract shale gas date back some two centuries, it was only in the last decade that new technology (namely, directional and horizontal drilling, micro-seismic imaging, and hydraulic fracturing) made larger scale shale gas extraction technically and economically feasible. The impact of shale gas on the US gas market has been so radical that observers tend to call it a revolution. Despite the fact that the calorific value of unconventional gas is lower than conventional gas, the discovery of enough US reserves to cover demand for another century paved the way for energy self-sufficiency (ponder the impact of this for US foreign policy for a minute) and the title of the world’s biggest gas producer, surpassing even Russia (now consider the impact of that on Russian foreign policy). Meanwhile, it has been widely explored as an option around the world, with deposits being discovered and disclosed in some part of the globe every other day.

On the Turkish front, TransAtlantic and Valeura have been the first companies that entered the market via M&A deals and collaboration with TPAO for the exploration of the country’s shale resource potential. The companies cite seismic studies indicating the presence of “world-class” reserves in northwestern and southeastern regions, as well as other regions with lesser potential around the country. The discovered potential has apparently sufficed to entice global giants to assume a part in shale gas production in Turkey. We may expect quite a bit of action on that front in the days to come.

Shale gas extraction is not very straightforward: Horizontal drilling (an L-shaped drilling in fact) is used in combination with hydraulic fracturing (or fracking), a technique where water, chemicals, and sand are pumped into the well to fracture the rock, unlock the gas trapped in shale formations and allow gas to flow into the well. In addition to the fact that shale gas reserves are more dispersed and less concentrated, the complex method itself results in gas production at a higher cost than conventional gas extraction.

The nature of the reserves and the methods to be employed hint at what is problematic with shale gas production: Numerous wells need to be drilled, interconnected to one another and connected to an outlet via numerous pipelines, which increases the scale, cost and complexity of the extraction. Needless to say, the time lapse from initial investment to full operation can take up to 10 years. Operation fields tend to cover massive territories, which can pose a challenge in areas with high concentrations of population, as in Europe. The materials used for extraction tend to seep into underground waters, causing pollution. Some of the gas escapes during extraction and adds on to greenhouse gases, and shale gas has higher concentrations of methane. Furthermore, the methods that change the composition and structure of underground land formation can cause tremors, disconcerting dwellers nearby. Even if not comparable to nuclear energy, shale gas extraction has created its own army of sceptics and protestors, particularly in Europe.

Although this new resource in town continues to stir as much euphoria and uproar in Europe as elsewhere, we do not know whether unconventional gas can impose a comparable weight outside the US. Former geological surveys fail to suggest the magnitude of the potential. As EU members dispute whether the risks are worthy of the benefits and block one another’s shale pursuits along the way, marginally few wells have been opened so far in Europe to have any indication as to whether Europe’s shale adventure will create as big an overhaul in the market structure.

Likewise, we do not know whether Turkey's shale gas potential as described by the decision- and investment-makers can deliver its promise. What we know, however, is that the leaders in the Turkish energy and economy scene are desperate about the CAD implications of the import energy bill, so much so that they resort to domestic coal promoting it as a viable alternative with acceptable levels of environmental hazard, or pursue their nuclear energy scheme despite massive protests and the retreat of the entire world from the idea. Therefore, the government will probably not heed ecological concerns or possible popular discontent over shale gas all that much. It remains to be seen, however, whether Turkey's shale reserves are adequate in volume and viable for extraction. We will have to wait and see if this new resource could be the answer to Turkey's prayers.