

The following is a report of the Nov. 17th and 18th Geopolitics of Gas Case Study Review Meeting. The meeting was co-convened by the Program on Energy and Sustainable Development at Stanford University and the James A. Baker III Institute for Public Policy at Rice University.

Geopolitics of Gas Case Study Review Meeting

Rapporteur's Report
November 17-18, 2003
Stanford, CA

Speakers: *See attached agenda*

Chair(s): David Victor and Amy Jaffe

Rapporteurs: Joshua C. House, PESD
Mark H. Hayes, PESD

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MEETING BACKGROUND

This meeting was convened for the purpose of presenting the first drafts of six case studies commissioned for the Geopolitics of Gas Study. Each of the case study authors made a presentation to the group of 40 industry and academic experts in attendance and received feedback on their preliminary analyses and conclusions. Attendees also participated in discussions on the plans for integrating insights from the case study analyses into the World Gas Trade Model (WGTM) being developed in tandem to the case study research.

INTRODUCTION

David Victor opened the meeting with a brief introduction to the larger Geopolitics of Gas study, and the key motivations behind it.

Most long-term global energy models predict that natural gas consumption will rise rapidly in both developed and developing countries over the next three to five decades. This growth is driven by the favorable environmental characteristics of gas, as well as the favorable economics of end-use technologies, such as gas-fired turbines for electric power generation. However, the major projected gas demand and supply centers are physically distant, and shifting to a more gas-powered world implies massive investment in transport infrastructure, like pipes and LNG tankers and regasification facilities. Much of this investment will be needed in countries with legal and institutional environments that are not inviting to investors. Many international projects implied by this global shift to gas would span countries with limited institutions to facilitate cooperation and connective investment. With these challenges in mind, the six case studies examine historical instances of natural gas transport infrastructure investment between two or more countries with less than ideal institutional environments and little or no history of economic cooperation. The aim is to understand why these projects nonetheless went forward, even as alternative viable projects floundered.

David Victor introduced what, at the outset of the subject, were thought to be the key factors explaining why some projects get built and some do not. These key factors included investment climate in supply country, transit country risk, off-take risk, and the strength of existing inter-country institutional structures for cooperation, among others. He also opened a brief discussion of the insights for future scenarios that have come out of the case studies so far, and invited participants to focus on this issue during the two days.

ARUN CASE STUDY DISCUSSION

Steve Lewis and Fred von der Mehden began the discussion of their case study by focusing on the factors deemed important when the Arun project to export gas from Aceh, Indonesia was originally considered. Of these, the most important seems to be the Japanese government's willingness to shoulder all of the risk from importing LNG from a country—Indonesia—that had no prior experience in the business. There was little very little pre-existing cooperation between Japan and Indonesia. The Japanese focus on energy security (a consequence of the oil price shocks of the 1970's) was such a strong driving force that concerns about supply security and investment climate in Indonesia and technical and environmental, risks associated with the immature technology were pushed into the shadows. Alternative uses of the gas—such as creating a local petrochemical industry—were much less attractive in this context.

Comments

Most of the discussion focused on the viability of the alternative projects, and whether or not the options of LNG exports to California (at Point Conception) or piped gas to

Singapore were seriously viable at the time. It was pointed out that Singapore was an extremely small market, and that the industries inside Singapore were more focused on oil, and Singapore had recent conflicts with Indonesia. Likewise, people questioned the seriousness of a proposal to ship LNG to California, arguing that the California option was used as a bargaining chip in the negotiations with the Japanese buyers. It was pointed out that from the standpoint of investors in, the California market was very serious about imported LNG evidenced by the tankers that were commissioned for the project. Other issues that were mentioned were the role of Mobil, which derived a large fraction of its global revenues at the peak of the project, and the Indonesian government's priorities of foreign exchange vs. using gas for domestic development.

TRANSMED CASE

Mark Hayes began with a brief overview of the case, followed by a discussion of the factors that were important and unimportant in explaining why the Transmed pipe (Algeria to Italy) was built in the early 1980's and a proposed alternative underwater pipeline to deliver Algerian gas to Spain was not built at the time. The key was Italy's existing gas infrastructure and the strong political power of the Italian gas monopoly, ENI. In Spain, the gas monopoly Enagas was comparably weak, and the Spanish gas market was completely undeveloped. A key driver in ENI's decision to pursue the pipeline from Algeria was ENI's desire to expand a core competency and become an expert at laying deep water pipes.

Comments

An opening comment was made about the desire to diversify away from Russian gas supply as an important driver inside Italy. A participant noted that Algerian politics over the past 30 years have been extremely volatile, and that the case would be served well with a lengthier discussion of it. Discussants also noted ties between Sonatrach and the military, and the ongoing struggle for power between technocrats and revolutionaries inside Algeria. Where the technocrats have been ascendant gas exports have proceeded on commercial terms; where revolutionaries have asserted control the Algerian gas supply has been more uncertain—including a two year closure of the Italian pipeline during a pricing dispute.

SOUTHERN CONE CASE

David Mares opened with a brief description of the multiple projects included in his case study. The case examines an "early" gas pipeline built from Bolivia to Argentina (YABOG) in 1972, the GasBol pipeline that delivered Bolivian gas to Brazil in the 1990s, and the competition between pipelines to deliver Argentine gas to Chile in the 1990s. These built projects are compared to alternative routes that were proposed but never completed. The YABOG pipe was essentially a project to add an additional field to the already developed Argentine gas network—and thus facing relatively smaller hurdles than a pipe to deliver gas to a nascent Brazilian market. The World Bank played a significant role in making the GasBol project feasible in the 1990s—the under-developed state of the Brazilian gas market made the project unattractive to private investors

without the bank's support. In comparison, the Argentina to Chile pipelines were completed with minimal governmental and no IFI participation—the routes that were commercially most viable attracted investment while grander (and more risky) visions fell away.

Comments

Comments were offered on the role of Multilateral Assistance by the World Bank in the GasBol project. In retrospect, it appears that the World Bank enabled GasBol when it was not commercially viable. Some commented that perhaps the project *should* not have been completed, given the slow development of a Brazilian gas market and the conflicted interests of Petrobras in importing gas from Bolivia. Foreign investors pushed the project on expectations that the Brazilian power market would be restructured to make more attractive gas-fired power generation (in competition with hydro power). Comments were also made on the varying strategies of multi-national investors in these projects. Some seek to collect returns early in a project's life—an assertion supported by significant changes in the ownership structures of these projects in the first three 2-3 years—some investors essentially cashed out. Comments on the Argentina to Chile projects noted the importance of gas and power market liberalization in fostering the development of these projects and the particular routes chosen (e.g. the GasAndes route was built because for its commercial attractiveness relative to an alternative project that would have extended gas service, but provided smaller private financial returns).

QATARGAS CASE

Kohei Hashimoto began with a brief discussion of the investment decision making process on energy policy in Japan from the 1970s to the present. He described the situation in Qatar in the early 1980s, when gas exports were first considered. During this period increasing oil prices spurred further domestic oil exploration efforts at the expense of North Field (gas) development. Also contributing was Japan's desire to diversify its energy inputs away from the Middle East. In the late 1980s, the Middle East continued to be unattractive as the "Tanker War" between Iran and Iraq made shipping costly and unreliable. However, when Japan got around to considering Qatar in the 1990s, the shoe was on the other foot. Japan was now heavily dependent on SE Asia for LNG supplies and additional Gulf supplies spread supply risks. Perhaps more important, however, was Chubu electric's desire to have its own Greenfield franchise—an achievable goal in the the bubble period in Japan. These factors combined to make Qatargas finally move ahead in the mid 1990s.

Comments

The opening comment pointed out that the limited capacity of Qatari energy planning in the early 1980s impeded any clear decision on a gas export project. Based on this evidence, was an LNG export project during the early 1980s viable? Another alternative project would have piped gas to neighboring Gulf Cooperation Council (GCC) countries. Some suggested that this option should be explored further, although disputes between GCC members, in particular Saudi desires for regional hegemony, were suggested to have stalled pipeline proposals.

THE WORLD GAS TRADE MODEL

Jill Nesbitt gave a brief presentation on the progress of the economic modeling being developed in tandem to the case study research. The “World Gas Trade Model” integrates field level resource data with an innovative approach to estimate the demand for energy (and gas) to yield comprehensive projections for development of the global gas market. Constraints representing political factors (based on insights from the case studies—and integrated into coherent scenarios) will be introduced into the model to yield a more realistic picture of the future world gas trade.

Comments

Most comments focused on the scenarios that could be utilized to integrate political economy issues in the model. One speaker suggested that a model run starting in 1990 through 2003 be compared with actual projects built during that period. The comparison would help to reveal which political constraints are most important in development of gas infrastructure. Participants asked how technological improvements—in particular “gas to liquids”—would be included in the model. Questions were also raised on how the model would treat gas reserves with “negative opportunity costs”, such as gas that is produced as a byproduct of liquids extraction or is stranded due to anti-flaring regulations.

THE FUTURE OF A GAS OPEC

Amy Jaffe opened the discussion of an application of the team’s analysis to the possibility of a natural gas exporter cartel—akin to the role of OPEC for oil. She described some of the differences between the oil market and gas market, particularly with respect to geographic distribution of supply. Amy mentioned preliminary plans by gas exporters to control supply through coordination of export projects rather than the more difficult task of regulating short term export flows. The question was put to the group as to whether or not they believed that a “Gas OPEC” was feasible.

Comments

Most gas industry participants thought that a Gas OPEC would be extremely difficult to coordinate. In the immediate term, it was pointed out that there are simply too many remote gas fields chasing markets. Also, gas infrastructure investment is large and lumpy and would be hard to coordinate given the strong first mover advantages. One participant suggested that the most plausible precondition for effective gas exporter collusion is long term oversupply—a condition currently developing in the Asian LNG market.

FIRST DAY CONCLUDING REMARKS

The first day of the meeting ended with a discussion of factors that had emerged from the case studies that had not been discussed in the research protocol. Among them were the role of gas storage and whether or not the “resource curse” applies to natural gas. Participants also discussed whether projects would be more likely to succeed if public

benefits (e.g. gasification of poor remote areas) were tied to private incentives for investment.

SECOND DAY OPENING REMARKS

Invited speakers were asked to synthesize key take-aways and provide comments on the first day's discussions. One speaker highlighted the importance (and the challenges) of bringing academic and industry expertise together in this research project. Industry expertise should be drawn upon to ensure that commercial facts were properly represented in the case studies and in the modeling efforts. Without such involvement the case studies will miss important historical developments, the model drift from reality and the results will not be credible in the eyes of industry players.

Another speaker discussed several themes that have run throughout several of the cases. Among them were energy security (particularly in the cases involving Japan), institutions (particularly in the Southern Cone case), path dependency, and the importance of a strong anchor market for offtake. The speaker also mentioned the need to address new technological developments that are radically changing the gas trade, in particular LNG. Comments from another speaker noted that transit country disputes—contrary to some perceptions—appear to have more to do with simple rent-seeking than politics per say. The speaker questioned the importance of first-mover advantage, such as Trinidad's supposed advantage for moving before Venezuela. On the role of government involvement, the speaker also suggested that the current prevailing wisdom of “leave it to the market” may understate the importance of governments in creating favorable conditions (including direct financial support) for key projects.

Comments

A comment was made that the case studies should do a better job at looking at the specific package of risk mitigation factors that the parties include in the negotiations. Another comment was made that the authors should be careful when discussing contractual breaches; often the contracts are flexible and deviations are expected—they are not “breaches” in the legal sense. Participants also urged the authors to include more company-specific details in their case studies, as often these factors drive investment in projects.

YAMAL CASE STUDY

David Victor opened his remarks with a brief overview of the project being studied and the alternative projects. A key driver in the case is Gazprom's desire to sell gas directly to German users without Ruhrgas as an intermediary. For this reason, in addition to the desire to bypass Ukraine as a transit country, Gazprom and partners build a gas pipe across Belarus and Poland. Although Gazprom envisioned a large project that would include development of the rich Yamal fields other parties had more modest aims; a big

factor in this process was the scalability of the investment. The risks associated with transit countries seem to be not as important as was previously thought. Insights coming out of the case include the assertion that the era of grand national gas projects may be over as investors (and thus also Gazprom) are now more attuned to market conditions.

Comments

Initial comments noted the role of Gazprom's virtual monopoly in production and pipes and the current exclusion of associated gas from Russian gas supply. The issue of Russia's debt to Germany was also mentioned. A key driver for the new export pipeline seems to have come from within Gazprom due to its focus on pipelines. Other comments were made about the necessity of improving discussion of the German gas market structure within the study.

TURKMENISTAN CASE

Martha Olcott opened the case by noting that this case study, as currently conveyed, does not illuminate the Turkmenistan story as richly as in the other cases. This is because all proposed new gas export pipelines from Turkmenistan remain essentially unbuilt. Turkmenistan is caught between two countries, Russia and Iran, each holding major gas reserves for export. Investment climate plays almost no role since Turkmenistan had a miserable investment climate, and international institutions play almost no role as well. A key driver was the fall of the Soviet Union, which led to a lot of interest in Caspian gas supply. Geopolitics, rather than economics, seemed to play the key role in deciding whether and how Turkmenistan's gas reserves get to market.

Comments

An opening comment was made about Turkmenistan's small export pipeline to Iran actually being a means by which President Niyazov sought Russia's attention. Another comment was made about the role of an Israeli company in controlling gas investment in Turkmenistan that needs to be discussed more. It was suggested that part of the reason the Iranians might have gotten involved was to offset the influence of the Israelis. One participant addressed Unocal's involvement in Turkmenistan's gas reserves. Unocal had originally wanted to pipe gas across Afghanistan to Pakistan. The Turkmen government wanted ownership in the pipe despite the fact that it had no money to invest. Unocal stayed with the seemingly unviable project because once it had begun investing, it found it extremely hard to leave. The discussion focused on the need to re-orient the case study on the competition between three new export routes for Turkmenistan in Iran and Pakistan with the much larger potential for greater utilization of the Central Asia Pipeline to Russia. The latter, controlled by Gazprom, offers much greater export options. This study, read together with the Russia case study, would then reveal Turkmenistan's role as "gas bath" for Russia.

FINAL COMMENTS AND DISCUSSION

With a view toward synthesis and application, David Victor opened the floor to final comments. One participant suggested that the modeling and case study tracks didn't converge too well, and suggested that the modeling try to specifically integrate some of the insights from the case studies. One participant noted that the study would do well to focus on future issues, such as the emergence of a spot market, the transformation of gas contracts, and the possibility of seasonal LNG swaps between the northern and southern gas markets. It was also noted that security of supply will become a more important issue in the future. Participants noted that if the model was going to consider a gas OPEC, it might also want to consider a buyer cartel similar to the IEA.

David Victor and Peter Hartley ended the discussion with an updated outline of possible model scenarios that had come out of the discussions. The first model run would be a base case run starting in 1990 so that could then be compared to actual gas infrastructure developments. A range of scenarios were then suggested including alternative regional developments in China and Russia, technological scenarios for LNG and GTL to be modeled by adjusting relative fuel prices, a "Gas OPEC" scenario, and a scenario for LNG spot market development.

The meeting ended with David Victor and Amy Jaffe thanking all attendees for their insightful comments over the two-day meeting.