

Planning of natural gas from cyprus environmental sciences essay



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Abstract

In this research, the potentials of natural gas found in Cyprus will be introduced. The recently discovered natural gas reserves offshore in Cyprus, appears to be getting closer into the European markets. A part of it will be used for the production of electricity and other usages in Cyprus, but the major part will be used for exportation. Possible solutions are discussed and the LNG solution and supply chain are presented. Also, the costs that will occur from this decision and the inventory management needed for the production. The solutions and problems that will occur, political and economic, related to the transportation planning are presented. Each of them has different physiognomies and futures and shows the prospects and benefits Cyprus will gain. Also, there are a lot of potentials from a possible cooperation with the neighboring Israel. More than the half of Israel's gas will be exported to foreign markets and the scenario of the gas transportation from Cyprus will be studied. Furthermore, the possible solution of moving the gas directly through subsea pipelines to south Turkey from Cyprus will be considered and what will be the possible earnings from this choice for Cyprus.

CHAPTER 1 INTRODUCTION

Background

The importance of natural gas and its exploitation will be very important for the economic future of Cyprus. As the oil consumption increases, for the production of electricity, natural gas seems to be the perfect solution. With natural gas, the need of resources like mazut and oil can be decreased. It is

predicted that the electricity demand for Cyprus will be increased by 3, 17% in 2013 and by 9, 05% until 2015. Eurogas forecasted that until 2030 the share of natural gas is expected to reach 30% of the Primary energy Consumption. Until 2020 Europe will use natural gas for the 28, 8% in 2020 of energy demand and 30, 1% until 2030. Because of " its green properties" and highly efficient application technologies, natural gas will remain the fuel of choice and will carry on growing its contribution to energy supply in the European Union. Natural gas can play an important role as a bridging fuel to a sustainable energy future over the coming decades. Natural gas consumption in EU member states is expected to increase from 438 mtoe in 2005 to 625 mtoe in 2030, which is an increase of 43%. At 60% of the total demand increase, most of the growth will come from power generation. Cyprus has recently discovered an amount of 7-8 trillion cubic feet (140×10⁹-230×10⁹ m³) of natural gas in Aphrodite gas field (block 12) in the country's maritime. This amount is the 40% of the annual demand in European Union. Also, Geologists believe the eastern Mediterranean could contain up to 122 trillion cubic feet (3. 45 trillion cubic metres) of recoverable reserves, enough to cover EU gas demand for around seven years. The biggest finds have so far been made in Israeli waters, where the Tamar and Leviathan gas fields will cover Israel's gas demand for decades while generating huge export potential. Because the Leviathan and Aphrodite gas fields lie in close proximity, the governments of Israel and Cyprus agreed on joint exploration of some of the gas, making development more attractive for potential investors. Cyprus's second licensing round, in which it received 15 expressions of interest by 29 companies either on their

own or in consortia for 9 offshore blocks, will be wrapped up by the end of May. So far five blocks have been awarded in the second round.

Purpose of the Study

For the moment, the options that appear to be practical for the movement of produced gas include the construction of an LNG terminal in Cyprus and the exportation via tankers to importers or through pipelines. Natural gas has been traditionally transported in pipelines over shorter distances; however ships are more efficient for transportation over long distances.

Technologically, due to the growth of maritime industry, ships have been made a good alternative. This can be done by cooling down the gas to liquid state so it can be transferred through vessels. This is called liquefied natural gas (LNG). The LNG supply chain consists of exploration, extraction, liquefaction, transportation, storage and regasification. Maritime transportation is a vital part of the LNG supply chain, and LNG is transported in special designed ships, LNG tankers. The demand for LNG tankers has increased considerably as the entire LNG industry continues to see strong growth. Hence, there is a great potential and need for optimization based decision support to manage the LNG fleet, liquefaction plants, and regasification terminals in this business. So we have two possible solutions, the construction of LNG plant or via pipelines. Of course in the case of pipelines the routes should be considered. A thought from EU is to export the gas to Turkey through pipelines and export the most of the commodity there, as it is the most cheap and viable option. Another option that is backed by Greece's DEPA, is the construction of a pipeline stretching all the way to mainland Greece and to the Southeastern European gas networks.

Research Questions

To investigate the possible solutions of the transportation of the natural gas exports To understand how to manage the LNG Supply Chain. To explore the political and economic influences of each solution

Significance of Research

Who is interested in reading your research industry or academic world?

Definition of Key Terms

Liquefied natural gas is natural gas that has been converted to liquid form for ease of storage or transport. Liquefied natural gas takes up about 1/600th the volume of natural gas in the gaseous state. It

is odorless, colorless, non-toxic and non-corrosive. Supply Chain: A supply chain is a system of organizations, people, technology, activities, information and resources involved in moving a product or service from production to the end user. Natural Gas is a naturally occurring hydrocarbon gas mixture consisting primarily of methane, with other hydrocarbons, carbon dioxide, nitrogen and hydrogen sulfide. It is an energy source often used for heating, cooking, and electricity generation. It is also used as fuel for vehicles and as a chemical feedstock in the manufacture of plastics and other commercially important organic chemicals. Inventory management is the process of efficiently overseeing the constant flow of units into and out of an existing inventory. This process usually involves controlling the transfer in of units in order to prevent the inventory from becoming too high, or dwindling to levels that could put the operation of the company into jeopardy.

Time Plan

Limitations of the study

Information, sample size, more research needed regarding our topic

CHAPTER 2 LITERATURE REVIEW

Cyprus: A Last Window of Opportunity?: The basic premise of this article is that conditions have ripened for an overall settlement of the Cyprus conflict, provided a rational approach prevails in addressing the issues that still remain unresolved. The article first shows that the root of the conflict has been ethno-nationalism and the derivative concept of a nation state. Second, after demonstrating through an historical "flashback" that nationalism has led to a dead-end road in Cyprus, it presents convincing evidence that a steadily increasing number of citizens in both communities of the island are realizing the need to transcend the ethnic division and reach a federal settlement. Finally, based on policies favorable to the exploitation and transportation of hydrocarbon (i. e., the materialization of the Nabucco pipeline strategy), the article, while admitting the complexity of the situation, makes a strong point that natural gas may become a catalyst for a solution in Cyprus. Because, it would benefit all parties involved: Cyprus, Turkey, the EU and other Eastern Mediterranean countries.

CHAPTER 3 RESEARCH METHODOLOGY

Research Theories

Descriptive Research: This type of research is also a grouping that includes many particular research methodologies and procedures, such as observations, surveys, self-reports, and tests. The four parameters of

research will help us understand how descriptive research in general is similar to, and different from, other types of research. Unlike qualitative research, descriptive research may be more analytic. It often focuses on a particular variable or factor. Descriptive research may also operate on the basis of hypotheses (often generated through previous, qualitative research). That moves it toward the deductive side of the deductive/heuristic continuum. Finally, like qualitative research, descriptive research aims to gather data without any manipulation of the research context. In other words, descriptive research is also low on the "control or manipulation of research context" scale. It is non-intrusive and deals with naturally occurring phenomena. Exploratory research is a form of research conducted for a problem that has not been clearly defined. Exploratory research helps determine the best research design, data collection method and selection of subjects. It should draw definitive conclusions only with extreme caution. Given its fundamental nature, exploratory research often concludes that a perceived problem does not actually exist. It often relies on secondary research such as reviewing available literature and/or data, or qualitative approaches such as informal discussions with consumers, employees, management or competitors, and more formal approaches through in-depth interviews, focus groups, projective methods, case studies or pilot studies. The Internet allows for research methods that are more interactive in nature. Causal Research is the investigation into an issue or topic that looks at the effect of one thing or variable on another. Causal research might be used in a business environment to quantify the effect that a change to its present operations will have on its future production levels to assist in the business planning process.

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Research Design

Information needed: Which other markets may we supply with gas and how far from Cyprus are these? Cost of LNG Cost of pipelines to Turkey or Greece • Determine whether the research need exploratory, conclusive, descriptive and/or causal research In this research the how exploratory research can and cannot be used, you should understand the kind of data most exploratory research procedures produce. And, to that end, you should also understand what type of data these procedures do not produce. Broadly speaking, data – and the research procedures that produce them – may be divided into two categories: qualitative and quantitative. For most purposes, exploratory research produces qualitative data. Generally, exploratory research techniques simply involve conversations between a researcher and the people being studied. Although the researcher may guide the conversation across certain issues, the questioning is usually informal and semistructured. Thus, the data produced by qualitative research is textual. That is, the research produces a "text." Although the text is analyzed, the methods of analyses are not statistical; textual data are not numerical and do not lend themselves to statistical analysis.