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Energy Policy Formulation in Israel Following its Recent Gas Discoveries

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ABSTRACT

The development of gas in the Tamar and Leviathan fields is a turning point for Israeli energy policy, as its government decided not only to enhance its energy security but also to become an energy exporter. This paper examines the factors that affect the formulation of energy policy in Israel. Initially, it examines the internal and external environment of Israel, assessing the evolution of policy, regulatory and competition issues related to the recent discoveries in its territory. Then it presents a qualitative research, undertaken in 2015, based on the responses of regional energy experts. The discoveries are not considered "a black swan" that change regional energy markets, but they are likely to be affect local energy systems. The paper demonstrates that Israel's energy policy will be evaluated mainly based on its techno-economic feasibility, considering that its energy policy does not strengthen political tensions while any progress in resolving the region's political disputes should be viewed as an unexpected gain.

Keywords: Israel, Energy Policy, Energy Resources
JEL Classifications: Q40, Q48, N55

1. INTRODUCTION

The Eastern Mediterranean region is expected to continue facing challenges in terms of the energy landscape. The economy in this region is expected to continue growing and the population is also expected to increase from 45.3 Mill in 2010 to approximately 60 Mill in 2030, the energy demand should also increase significantly over the next few years. Based on the current levels of consumption, regional energy reserves (oil and natural gas [NG]) are not expected to last for more than a few decades. However, the latest discoveries of NG resources in the offshore Levant Basin have affected supply-side forecasts for the region. These discoveries have the potential to provide the necessary energy supply to meet growing regional demand and possibly even spur exports (EIA, 2013).

They have also facilitated discussions and negotiations regarding the exclusive economic zone (EEZ) between neighboring countries, although the delimitation of the EEZ and maritime zones is a difficult topic because it involves both sovereign and economic interests. The delimitation of maritime zones is an extremely difficult and even contentious political issue because it addresses sovereign and economic interests. Articles in the Convention on the Law of the Sea 1982 (Articles 72 and 83) relate to the continental shelf and the EEZ. In Table 1, a short summary is provided regarding the agreements that Israel has reached in the East Mediterranean region thus far. In Figure 1, the maritime boundaries in the Eastern Mediterranean region are presented, while in Table 2, a list of geographical coordinates for the delimitation of the northern limit of the territorial sea and Israel's EEZ is provided.

The growing energy demand in the region, as well the prosperity that has resulted from the significant economic gains for the interested countries, has led to the preparation of numerous project plans to provide exports options for Eastern Mediterranean hydrocarbons. Infrastructure projects, such as pipelines, liquefied natural gas (LNG) terminals and electric interconnections, are supplemented by detailed techno-economic and feasibility studies that aim to justify their maturity. However, investment decisions

regarding regions that are sites of ongoing political disputes, such as the Eastern Mediterranean, are not normal business processes for which the only important criteria are techno-economic. Energy is not only a factor for economic growth but is also a political tool. Energy is seen "as a re-emerging domestic and foreign policy field" (Kuzemco, 2014. p. 58) and a country's energy policy is considered to be "a highly politicized topic" (Kaveshnikov, 2015. p. 585). It is believed that "by 2020 East Mediterranean gas is more likely to be a game-changer for local energy systems than for regional and international gas markets" (Darbouche et al., 2012).

Table 1: Agreements between Israel and other East Mediterranean countries

Country	Date of delimitation agreement/EEZ	Registration #	Remarks
Lebanon	June 2011 September 2011	N/A	Some difficulties still exist, mainly due to the ongoing dispute between Lebanon and Israel about their EEZ settlement
Cyprus	December 2010	48387	Agreement between the Government of the State of Israel and the Government of the Republic of Cyprus on the delimitation of the exclusive economic zone (with annexes) Even though Israel not signed UNCLOS yet
Jordan	January 1996	35333	
Syria	N/A	N/A	

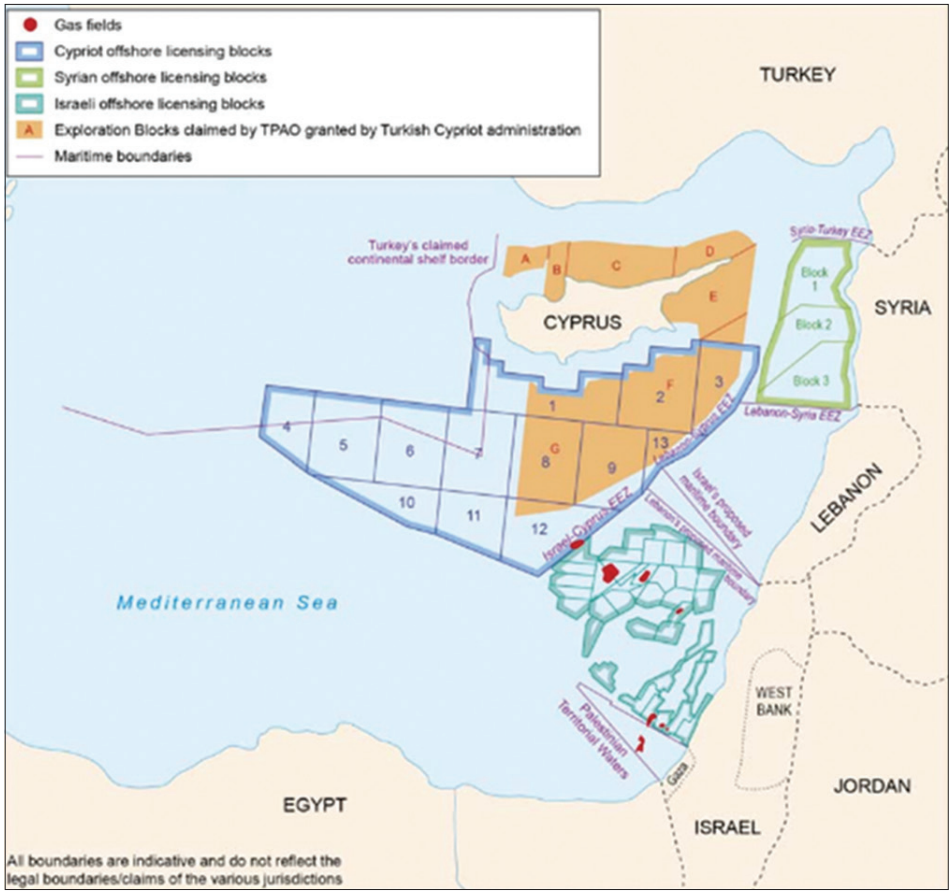
Source: United Nations, 2015, EEZ: Exclusive economic zone

Table 2: List of Geographical Coordinates for the Delimination of the Northern Limit of the Territorial Sea and EEZ of the State of Israel in WGS84

Points	Degrees	Minutes	Seconds	Longitude	Degrees	Minutes	Seconds	Latitude
31	35	6	13.0	E	33	5	39.5	N
32	35	4	10.0	E	33	6	23.0	N
33	35	3	3.0	E	33	6	39.0	N
34	34	53	11	E	33	10	33.5	N
35	34	46	38.0	E	33	13	9.0	N
1	33	53	40.0	E	33	38	40.0	N

Source: United Nations, 2015, EEZ: Exclusive economic zone

Figure 1: Maritime boundaries and exploration blocks in the East Med at the end of 2012



Source: Oxford Institute for Energy Studies, 2012

The recent gas field discoveries in the region are important for the regional countries' economy because they can contribute to its independence from imported energy and their capacity to meet their needs with the available quantities in the area. However, as long as the conflicts and disputes among the states in the Eastern Mediterranean and Middle East regions continue, it will be more difficult to envision a clear future for gas development (Darbouche et al., 2012. p. 9-10). According to David Koranyi, Director of the Atlantic Council's Eurasian Energy Futures Initiative, the era of illusion has past and there has been an "exacerbation of tensions" in the region, while there is also "a unique constellation of opportunities there built around natural resources." At the same time, Harry Tzimitras, Director of the Peace Research Institute Oslo Cyprus Centre in Cyprus, has noted that there is no country in the region that "does not have some kind of crisis" and that such countries need "to get beyond the idea that their situation is unique" (Snow, 2015).

At the same time, there exist arguments that the economic factors are the sole determinants of decision making in critical infrastructure projects. Kaveshnikov (2015. p. 585) said that "one should remember that energy is business: It is primarily about prices, profits and recoupment of projects." As David Koranyi (Snow, 2015) noted, it is not possible "to build a common gas development vision in the Eastern Mediterranean, partly because support for doing so from outside the region has been woefully insufficient." According to him, "US energy diplomacy was hampered by the changing situation in Turkey, and European energy diplomacy wasn't even there." The best scenario to overcome obstacles is to create "a regional market for this new gas" because "Eastern Mediterranean gas should be used there, with Europe as a secondary market since those countries have other alternatives to Russia they can pursue" (Snow, 2015). Moreover, there is strong opposition from Israel's security services to "the location of export facilities outside Israeli territory" because it prefers its infrastructure to be "firmly placed under Israeli sovereignty" and raises objections to the option of "joint liquefaction with Cyprus on security/military ground" (Darbouche et al., 2012. p. 26-27). Considering the several opportunities for Israel in the Eastern Mediterranean region, the private sector could take advantage of "trade and enhanced cooperation." However, "politics have so far trumped them" and "energy cooperation has been hindered by severe political difficulties of varying degrees" among the neighboring countries in that region (Sachs and Boersma, 2015).

There have been several cases in which the decision to initiate and develop an energy-related project (i.e., the pipeline Baku-Tbilisi-Ceyhan) was made based on political and geopolitical parameters and motivations and not on economical-financial ones because the latter did not support the continuation of the project (Nourzhanov, 2006). As Shaffer (2013) noted, energy development has been seen to be an attempt by a country to "use the disruption of the NG supply to promote foreign policy goals," which supports the idea of energy policy as a means of political domination.

Considering that the formulation of energy policy of a country is a complex task including, economic, technical, environmental, geopolitical, regulatory and other factors, paper aims to identify those critical factors that affect decision making. It focuses on the energy policy formulation of the state of Israel, which is an important actor in the region, after the recent gas discoveries. The paper contributes to the literature, which has already identified the obstacles that concern Israel's gas export options (Shaffer, 2011). Moreover, other studies, such as (Darbouche et al., 2012. p. 25-30), have distinguished short-to-long term approaches that aim to present the possible choices for Israel's energy policy and describe the actions that should be taken in the future. However, there has been a gap in the literature in terms of identifying the critical factors that affect the decision making and formulation of energy policy in Israel; this paper aims to fill that gap. In order to draw conclusions, the paper analyzes the responses to a questionnaire/interviews, using an intentionally small sample of energy experts who are based in Mediterranean countries - Israel, Cyprus, Greece, and Turkey. The interviewees are asked to identify the factors that influence the energy policy of Israel, and to provide their opinion on a number of competing projects, including pipelines, LNG terminals and electric interconnections, which have been proposed as NG exports from Israel.

The paper is structured as follows: In Section 2, the paper provides information on the internal and external environment of Israel, assessing the evolution of policy, regulatory and competition issues related to the recent discoveries in its territory. Section 3 aims at identifying the critical factors that affect the decision making on energy policy of Israel, presenting and discussing the results of a qualitative research, that has been elaborated in a 3-month period in 2015. Finally, Section 4 provides a summary of the main conclusions and policy implications of the paper.

2. THE ISRAELI ENERGY ENVIRONMENT

This section provides information on the internal and external environment of Israel, and focuses on the evolution of its energy policy, related to the recent gas discoveries, concerning the exploration activities, the export options, regulatory and competition issues.

2.1. Internal Environment

Israel's political system is based on a parliamentary democracy, in which the legislative branch of the Israeli government, the Knesset, has the power to enact and repeal all laws. Since the formation of the state of Israel in 1948, all governments -with the exception of one instance- have been composed of coalitions (The Word Factbook, 2015). The regulatory situation in Israeli's energy sector was stable for almost 60 years until 2011, when Israel was eligible for 12.5% of the royalties from the sale of energy supplies that were developed by the holders of development licenses, in addition to normal-rate corporate taxes. The opportunity costs affect the investor-friendly license conditions. Foreign investors that sign energy contracts with Israel are at a higher risk because they are denied the option of entering into energy contracts with the Arab states due to the Arab economic boycott (Glick, 2015).

Israel's national policy regarding NG was examined during an inter-ministerial committee meeting in 2012. The important conclusions of that meeting are summarized as follows:

- It is not easy to identify the generally accepted international government policy concerning the development and management of NG
- There is a need to secure long-term energy for the country
- It is important to restore the confidence of investors
- The economic benefits of the national economy should be maximized
- The market environment should be competitive
- The market should allow for flexible decision making so that policy makers can react and adjust to supply-demand changes.

In Israel, the NG authority at the Ministry of Energy and Water Resources operates under the provisions of the NG Sector Law (Israel's Ministry of Energy and Water Resources, 2015). As Snow (2015) noted, "Israel's government is extremely attuned to international markets and it also has to deal with domestic price regulation and show some largesse in dealing with the Palestinian economy, which is in a shambles."

2.2. External Environment

Israel has experienced a complex and unstable geopolitical environment over the last few decades. Apart from the dispute with Lebanon, Syria and the Palestinian Authority, Israel is confronted with the Arab world, which is a major actor in the energy grid. In addition, bilateral disputes between other neighbors are active: This includes the Northern Cyprus question, the Syria-Lebanon conflicts, and the Syrian drama that took place after the recent Arab Spring (Darbouche et al., 2012. p. 5-8).

The exploitation of hydrocarbons has led to close cooperation between Cyprus and Israel, as well as between Cyprus and Egypt, while the future pooling of Cyprus' deposit "Aphrodite," which abuts Israel's EEZ, has been shown to be important for the protection of Cyprus' interests. The US has appeared to undermine its interest in the region, as it is energy self-sufficient due to its own shale-gas industry. Thus, Turkey has tried to upgrade its regional status in an attempt to demonstrate its power (Inbar, 2014). The strategic partnership between Turkey and Israel is not a classic balance-of-power play inasmuch as both countries are jointly stronger militarily than any regional alliance. It is, rather, a relationship between two "status quo powers" (Bir and Sherman, 2002). However, this partnership is being challenged, due mainly to Turkey's attempts to become a regional power.

2.3. Exploration Activities and Competition Issues

The significant NG discovery in October 2010 in the Levantine Basin in Israel's EEZ represents a critical change in its energy policy formulation. The Tamar field has been proven to be approximately 10 trillion cubic feet (tcf), while the Leviathan appears to be the largest exploration success in Noble Energy's history (Noble, 2014), with gross mean resources of 22 tcf of NG. Commercial sales from Tamar already started in 2013, and there appears to be enough recoverable gas under Israeli waters to provide all of the country's power generation for 40 years. In Table 3, we have summarized Israel's gas discoveries from the end 2012 until today, while Figure 2 shows the offshore exploration wells in Levant.

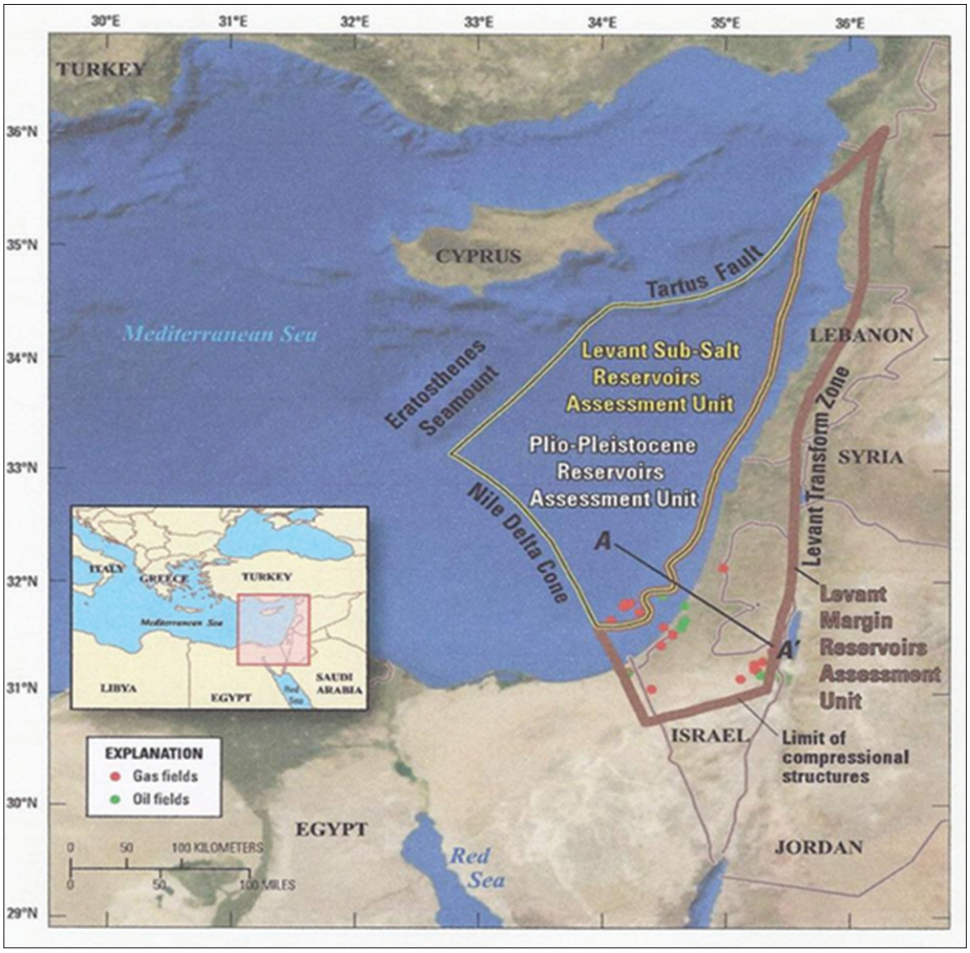
The NG from the Tamar field goes through existing onshore facilities at Ashdod through a pipeline that ends at an existing Mari-B site. There have been discussions about building a floating LNG project that will allow the NG supply from both the Tamar field and the Dalit field. This plant is scheduled to start production of approximately 144 bcf annually starting in 2017. Another new

Table 3: Israel's Gas Discoveries as of end 2012

Field	Reserves (est), tcf	Shareholders (%)	Date discovered	Date commercialized
Leviathan	17-20	Noble Energy (39.66) Delek group (45.34) Ratio oil (15)	2010	2016
Tamar	9.7	Noble Energy (36) Isramco (28.75) Dekek group (31.25) Dor gas (4)	2009	2013
Tanin	1.2	Noble Energy (47.06) Delek group (52.94)	2012	N/A
Mari_B	1.1	Noble Energy (47.1) Delek group (52.9)	2000	2004
Noa	0.04	Noble Energy (47.1) Delek group (52.9)	1999	2012
Dalit	0.35-0.5	Noble Energy (36) Isramco (28.75) Dekek group (31.25) Dor gas (4%)	2009	2013
Dolhpin	0.08	Noble Energy (39.66) Dekek group (45.34) Ratio oil (15)	2011	N/A
Shimshon	0.27-0.55	ATO oil and gas (40) Isramco (50) Modiin energy (10)	2012	N/A

Source: Darbouche et al., 2012

Figure 2: Exploration wells offshore in the Levant zone



Source: Noble Energy, 2014

offshore discovery was that of the Tamar Southwest exploration, which is approximately 13 km from the Tamar Field and has reserves of approximately 0.5 tcf of NG (EIA, 2015). The recent discoveries of gas fields in Israel are expected to support the country's needs in the coming years because it has been estimated that they can "provide by 2020 up to 73% of Israel's energy supply for the next 50 years if not exported" (Fischhendler and Nathan, 2014. p. 155).

A major internal debate with regard to the exploration of hydrocarbons in Israel concerns the role of the antitrust authority (Antitrust, 2014; Sachs and Boersma, 2015). In December 2014, Israel's antitrust authority chief David Gilo announced that "the Noble-Delek (US-Israeli) consortium controlling Israel's largest NG fields constituted a cartel that will likely distort competition in the domestic NG market and affect prices for the Israeli consumer." The antitrust authority chief's decisions are binding, but a clause in the antitrust law grants the economy minister the exclusive power to override decisions made by the antitrust authority chief on issues with sensitive strategic or diplomatic implications. In August 2015, Israeli Prime Minister Benjamin Netanyahu announced the signing of an agreement with the Delek-Noble consortium (Delek, 2015a). The new deal:

- Commits the consortium to invest $1.5 billion to develop Leviathan over the next 2 years
- Sets a price ceiling for gas sales to Israeli companies
- Within 6 years.
  - The Delek Group will sell its holdings in the Tamar, Karish and Tanin gas fields
  - Noble Energy will gradually reduce its holdings in Tamar to 25% (from its current 36%)
  - During those 6 years, prices for NG will be regulated.

In December 2015, the government approved the outlined plan to increase the amount of NG that is produced from the Tamar NG field and the rapid development of the Leviathan, Karish and Tanin NG fields (Delek 2015b). However, Israel's high court created further uncertainty and delay in the development of the gas fields, as it decided that Government Decision 476, whose purpose is "the existence of a stable regulatory environment" cannot stand, and the government has been given a period of 1 year to reorganize the stability (Delek 2016a). The recent agreement for the sale of all of the rights in the Karish and Tanin to the Greek oil and gas company Energean (Delek, 2016b), is strongly challenging the duopoly of Delek and Noble, paving the way for an open competition.

2.4. Export Options

In 2012, the inter-ministerial committee decided that exports of NG cannot exceed 500 bcm or else "the overall export quota" should be less than that. If the quantities of NG that are permitted

for export reach 500 bcm, or if 5 years have passed from the date of approval of the committee's recommendations, then the government must re-evaluate the situation "in light of the NG supply and the anticipated demand for NG for 25 years from that point in time, with regard to the need to update the overall export quota." In Table 4, the energy balance of the NG in Israel is provided, which shows the potential role of energy exports.

The Tzemach committee, which was formed in October 2011, advised that there would be upper limits for the developers of the fields to export (Tzemach Committee, 2012). More specifically, there is a different allowance per size of the reserves, starting from 50% for the larger ones (200 Bcm and over) and reaching 75% for the smaller ones (25-100 Bcm) (Darbouche et al., 2012. p. 25-26). In Table 5, the export allowances from the Israeli reserves are provided relative to the size of the fields.

In addition to the state of Israel, the main internal stakeholders and/or actors are the involved companies. Noble Energy has signed an agreement to trade the NG from the Tamar gas field in offshore Israel to businesses in Jordan because it wants to diversify gas imports from the Arab Gas Pipeline (AGP), which has been interrupted by Egyptian political unrest. The first deals and deliveries are expected to begin in 2016, when the minor pipeline project will be completed. The agreement – which has been concluded between NBL Eastern Mediterranean Marketing Ltd., Arab Potash Co., and Jordan Bromine Co.- refers to "a total gross supply of about 66 bcf at a priced based on a floor level of $6.50/mcf, with upside linked to Brent crude oil."

Keith Elliott, Noble Energy's senior vice-president, Eastern Mediterranean, said that the company is negotiating the sale of "significant quantities of NG" from the Tamar and offshore Leviathan fields "to multiple customers" (Oil and Gas, 2014). At the same time, the AGP runs from El-Arish in Egypt through Jordan and into Syria, and from there, it has a spur to Lebanon.

Table 4: Israel's natural gas data

NG supply	Quantity (bcm)
Prospective resources as per today	~ 680
(Our of these) prospective resources with over 90% probability	~ 150
Reserves and contingent resources	~ 800
Total NG supply (reserves, contingent resources and Prospective resources)	~ 1480
Total NG supply for the purpose of setting a policy	~ 950
Cumulative demand of NG for 25 years	~ 450
Max quantity permitted for export purposes	~ 500

Source: Natural Resources Administration, Ministry of Energy and Water Resources, 2012

Table 5: Israel's export allowance

Reserves (bcm)	Max allowance for exports (as % of the quantity of the field)
200+	50
100-200	60
25-100	75

Source: Darbouche et al., 2012

There has been discussion about finally connecting the pipeline with Turkey, but the unstable environment in Syria does not support such an option in the coming years. The latest turmoil that occurred in Egypt brought some degree of instability, further reducing flow. Furthermore, there is another export pipeline from Egypt to Israel that runs from El-Arish to Ashkelon, but the available quantities have been recurrent over the last few years (EIA, 2013). Figure 3 presents the AGP between Egypt and Israel.

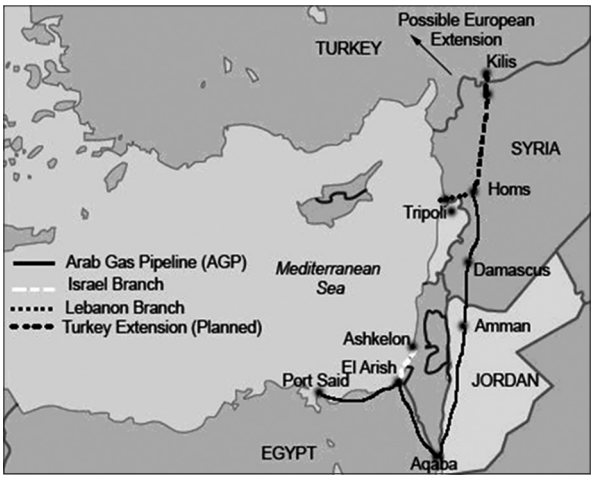
There have been efforts to establish gas price controls in Israel "to keep electricity costs in check," which will add to uncertainties and "will keep more outside producers from entering the country" (Snow, 2015). The gas from Tamar will mostly be used to meet Israel's local needs, while there is always the option "to export quantities to Cyprus and further afield through a floating liquefaction facility (FLNG)" (Darbouche et al., 2012. p. 26-27).

In the Levant area, the other two actors are the Palestinian Authority and Syria. Regarding the Palestinian Authority, its relations with Israel are not good, and some efforts to develop and utilize the Gaza Marine field-which is under the jurisdiction of the Palestinian Authority-have failed. Regarding Syria, it is the only country in that region with a history in gas development, albeit from onshore reserves (Darbouche et al., 2012. p. 3). However, the political and humanitarian situation in the country for the last few years does not allow any serious projection for the immediate future, until the civil war ends. A synoptic view of export options for Israel is provided in Table 6 with comments in each case-country.

It is necessary to identify several obstacles in consideration of Israel's gas export options. The majority of these are summarized as follows (Shaffer, 2011):

- There are still gaps in Israel's energy policy with regard to exports of NG
- There is a currently an oversupply in the NG and LNG markets
- The EU is considering several options to reduce costly projects
- The European market seems to prefer to avoid transit states
- Neither Greece nor Turkey has the proper infrastructure to accept additional quantities of NG

Figure 3: Arab Gas Pipeline between Egypt and Israel



Source: http://www.pipesinternational.com, 2010

Table 6: Israel's export options

Neighbor country	History	Current situation/prospects for Israel to export
Egypt	Egypt ceased exporting gas to Israel in beginning of 2012	Egypt planning to import LNG from 2013
Jordan	The county imports from Egypt through AGP, but below the contracted quantities	Jordan is considering permanent LNG imports to plug its deficit. Other option for Israel to supply Jordan's Arab Potash Company by the extension of the gas pipeline that currently supplies Dead Sea Works does not look workable due to the Arab shareholders (KSA, Kuwait, UAE)
Lebanon	The country has not received any supplies from AGP since 2010	Lebanon has plans to construct a temporary floating regasification terminal until local offshore reserves are developed
Syria	The country was importing through AGP	Syria looked at pipeline imports from Iraq and Iran; It is also unlikely that it will be in a position to utilize these options before the local conflict ends
Palestinian Authority in the West Bank	There are no power stations at the moment; Electricity is supplied by 95% from Israel and 5% from Jordan	The better scenario would be to connect the Gaza Marine field to Israel's offshore gas network through Mari-B
Cyprus	Good neighborhood relations between the two countries	There are synergies due to many reasons (common exploration companies in both countries, sensitive to security, recent settlement of EEZ, etc.). Then, Cyprus can examine further exports to Greece (and thus EU) or Turkey having to address real problems such as deep waters (to Greece) or political problems (for the case of Turkey)
Turkey		There is always the possibility of building a pipeline to Turkey for exports to Turkey and the EU, but the latest problems in their relations since 2010 do not support any development in the short-term. In addition, any such pipeline needs to pass through Cyprus' EEZ for which Cyprus would raise serious objections due the long exiting dispute with Turkey
Greece		Political discussion in 2010 between the two states showed a strong willingness to consider exports from Israel to Greece and then too EU. However, several obstacles are in place (see below)

Sources: Darbouche et al., 2012; Henderson, 2013; Shaffer, 2011, EEZ: Exclusive economic zone

- Europe's NG infrastructure is not properly networked to support Israel's market expansion.

3. IDENTIFYING THE CRITICAL FACTORS AFFECTING ISRAELI'S ENERGY POLICY

As mentioned in Section 1, a number of projects have been proposed as competitive/supplementary exports options for Eastern Mediterranean hydrocarbons, including pipelines, LNG terminals and electric interconnections. The decision making on which of those projects will be implemented is a complex issue. A recent study (Darbouche et al., 2012. p. 25-30), provides a framework of the possible choices and the necessary actions for Israel to formulate its energy policy. Introducing the importance of the time dimension, it identifies the following short, medium and long-term approaches:

- Short/Medium-term approaches: Due to the current status of Israel's political relations with its neighbors, liquefaction seems to be the only feasible option for gas exports for the country. Thus, there are two subsequent options:
  a. Develop a joint liquefaction facility with Cyprus. This would help Cyprus to dispose of enough gas to produce synergies for its own LNG export projects. In addition, it would be in the EU's interest because project of common interests are already a reality; it would also help to strengthen EU's security through the diversification of sources. However, such a choice requires major investments, while gas prices weakened significantly in 2015.
  b. Construct an export terminal in the Jordanian Free Economic Zone at Aqaba. This would help Jordan to obtain gas supplies through the pipeline and thus also serve local needs. In addition, this option would support Israel's exports to Asian markets and thus avoid shipments transiting through the Suez Canal.
- Long-term approaches: Israel could consider the alternative option for FLNG, which could be workable for the Tamar field and even for the Eilat, provided that a 250 km pipeline would be constructed to bring gas from the coast. With this option, Israel could confront any "political and regulatory complications on onshore liquefaction" and also address the "fears over the loss of sovereignty and economic benefit from depending on a third party." The regional geopolitical complexity in the Eastern Mediterranean has already affected

the progress in the export of gas in the area, and as soon as the regional conflicts are resolved, the pace of development will increase significantly.

The above analysis creates an uncertainty as to which criteria ultimately affect decision making on critical energy investments. To address this issue, a primary study was conducted to identify which criteria are the most important. The analysis is presented in the following section. In this section, the methodology that was used to identify the critical factors that affect Israel's energy policy is presented.

3.1. Qualitative Research

A qualitative study was implemented by obtaining responses from energy experts in the region by questionnaire. The research included the following components:

- Research: Qualitative
- Type/Method: Interview (one - to - one and electronic)
- Type of Interview: Semi-structured
- Sampling: Purposeful sampling and most particular snowball effect
- Size of sample: The sampling was terminated when no new information was forthcoming
- Selection criteria: Relevant to the field, highly educated (academic degree and over), ethnicity: Israel, Cypriot, Greek, Turkish, other
- Period: Beginning of May to the end of July 2015 (3 months).

The selection of the sample in qualitative research is generally not random. It is usually purposeful and small (Merriam, 2009). For this reason, the study was designed so that sampling would be purposeful and, in particular, it was structured according to the snowball effect, which is a non-probability sampling technique. This means that the sample group appears to grow like a rolling snowball; in such cases, one interviewee recommends another, and the interviews continue in this manner. The criteria for selecting the candidates for the interviews can be summarized as follows:

- A direct connection with subjects, such as energy, exploration, diplomacy, academia, and government positions
- The nationality of the stakeholders examined (Israel, Cyprus, Greece, Turkey, the US, and Russia)
- Having an academic degree, post-graduate studies in the field of energy, engineering, international relations, and public affairs
- Members of institutions that are related to energy issues.

Regarding the size of the sample, because the sampling was purposeful, "the size is determined by informational considerations," and if the purpose is to maximize information, "the sampling is terminated when no new info is forthcoming" (Lincoln and Guba, 1985. p. 202).

All of the interviewees were asked the same set of questions, in the same order and in the same manner. The type of interview was semi structured with open questions that allowed the responders to structure their replies and gave them the freedom to suggest new terms, meanings and methods. The interviews took two basic formats:

- One-to-one with personal meetings that had been prearranged with the interviewees at a place and time that was convenient for both parties. For this reason, the interviewees had been approached well in advance, either by e-mail or telephone by which they were informed about the topic under research and the request for them to participate in the qualitative study for this purpose.
- Using the recent "technologies available" (Fontana and Frey, 2005. p. 721). Because some of the interviewees were located abroad, it was necessary to take advantage of the technology, particularly the internet. Thus, they were requested to answer to the questions and the axis of discussion of the template, which was the same that was used in the one-to-one interviews.

4. RESULTS

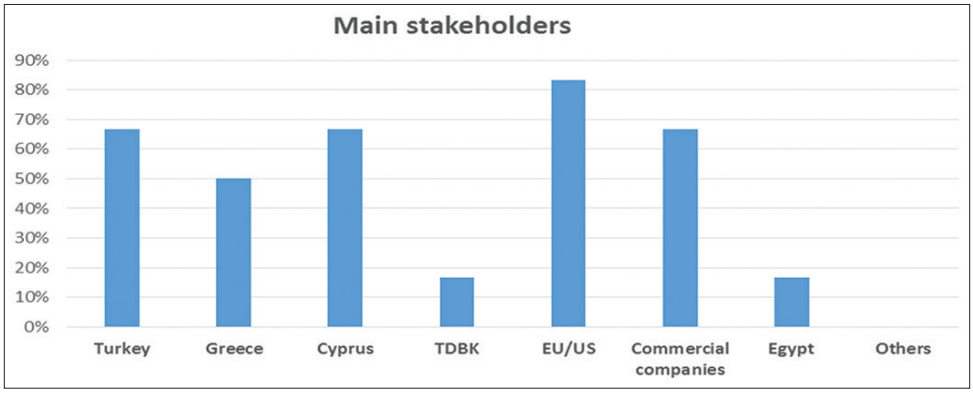
A short summary of the findings of the research is given in this section. The interviewees were asked to name the main stakeholders who were involved and influenced the exploration of the gas fields in the Eastern Mediterranean and who subsequently managed the gas that was discovered in the field. The results are presented in Figure 4, in which the EU and the US are considered to be the most influenced actors in such cases because they were mentioned by almost all of the interviewees. Next, Cyprus and Turkey are the countries that are supposed to have the most influence on the state of Israel in its actions relative to gas exploration and in its choices about the methods of gas exportation. Then, commercial companies such as those that participated in the licensing and exploration activities were also considered to play an important role in the final plan. Other participants that were mentioned during the interviews were countries, such as Greece and Egypt as well as the Northern part of Cyprus.

Another area of discussion in the interviews included the critical success factors (CSF) that are involved in and/or strongly affect the examined subject. The interviewees were asked to name these CSF and then rank them in a priority list or scale of importance. The results, which are presented in Figure 5, showed that most of the responses described the political and/or geopolitical environment as the most important success (or failure) factor. This is not a surprise, considering the complexity of Israel's environment in the Eastern Mediterranean, while at the same time, it pinpoints the need to continue efforts towards the peaceful settlement of regional conflicts and tensions in that region.

Next, stakeholder institutions, such as the EU and the UN, are believed to be important factors that can affect the progress and success of projects and exports in the region. Technical and geological issues, such as the depth of the sea, the morphology of the earth's surface, and the question of onshore or versus offshore facilities, are all considered by the responders to be to be critical parameters for the preparation, design and evaluation of projects in the gas fields in the Eastern Mediterranean region as per the survey that was performed during the period May-July 2015.

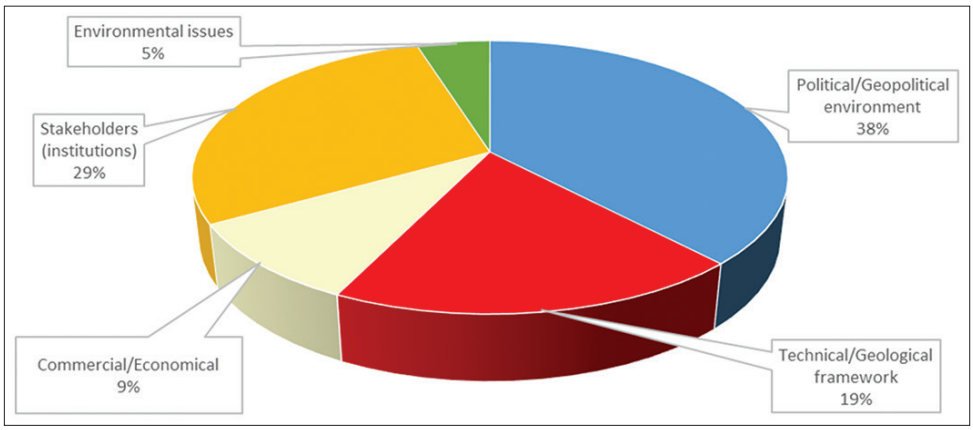
The interviewees were also asked to suggest whether political or economic and/or financial factors should be taken into consideration in the process of choosing from gas export options.

Figure 4: Main Stakeholders involved in the exploration and trading of gas in East Med



Source: Authors

Figure 5: Critical Success Factors in gas/energy projects in East Mediterranean



Source: Authors

The results of their responses include the following:

- A "combination of economic and security reasons" was the most-provided answer
- A "combination of ROI and risk" was the next most-provided answer
- "It is a political decision because economics change (please refer to the prices that have been recently changed)"
- "Geopolitical reasons"
- "To be sure, it has to be an economic solution."

Table 7 presents Israel's options for the exportation of gas based on the answers to the survey.

Based on the responses from the energy experts, it is strongly believed that when Leviathan goes online, its geopolitical impact could be considerable. However, new major discoveries in the region - as has been seen in Egypt, the US, Australia, Qatar and other parts of the world - may decrease the expected impact of Israel's fields on the global market. However, it will still be important for the Eastern Mediterranean region (Sobczak, 2015). In fact, Egyptian and Israeli reserves provide adequate gas volumes for a viable pipeline to Europe, considering the capability of raising financing through the European Commission as a PCI.

The LNG option seems to be one of the most realistic and promising options for Israel to export to its neighboring country Cyprus, provided that the state of Israel can alleviate concerns about security and sovereignty. Then, the onshore liquefaction at Cyprus would decide whether it relates to the existing field of Aphrodite or others that will come on-line in the coming years. The other option for building FLNG in the Mediterranean or the Red Sea region could alleviate Israel's fears and provide additional paths to new markets such as Asia and avoid transportation through the Suez Canal.

5. DISCUSSION

According to Amit Mor, an energy economist and professor at the School of Sustainability in the Interdisciplinary Center of Herzliya, Israel, "The Leviathan is important both for economic and geopolitical reasons because it is expected to enhance the economic relations between Israel and its neighbors and also to allow the Egyptians to enjoy cheap gas." According to Moty Kuperberg, Director of Oil and Gas at a shipping services company, there is "a pressing need to advance NG development for security reasons" (Sobczak, 2015).

Recent developments in Israel's gas fields seem to contribute to the country's dependence on importing gas for its local needs; until recently, Israel depended on NG imports "from Egypt for approximately 40% of its local needs." Even considering the new

Table 7: Selected answers from the interviewees regarding better options for Israel to export gas

Answer	Answer	Answer	Answer	Answer	Answer
Pipeline to Jordan	From the netback view: Egypt would give the best ROI/netback. However, there is a risk because the climate is not the best. It looks the most reasonable option but not sure if it can be finally done	LNG is not recommended due to small qties	The LNG appears to be problematic. There is a need for infrastructure	LNG at Vasilikos: It adds power to Cyprus (having the infrastructure on your own land). There is space available in Cyprus	The ideal would be that CY-TR-ISR to cooperate closely
Pipeline to the palestinian administration in the west Bank	From the risk view: The LNG appears to be preferable, which is not possible to do (taking the existing amount of gas into consideration)	CY-Greece pipeline: Does the US support it because it could compete with and replace Russian gas?	Alternative methods of development needed, and the needs for infrastructure that makes sense to export the NG	Pipeline to Cyprus due to the distance and geopolitical reasons	LNG or pipeline is a function of qties (need to be high)
Pipeline to the Gaza strip	If qties 3 tcf or more, then LNG. Thus, taking into consideration the existing amount of gas, it does not appear to be a choice (additionally, Noble does not have any experience with LNG)	Exports to Egypt: Yes (+) while Exports to Turkey: Neutral (-)	Pipes and LNG are f (qty, market prices).	If you want to add value to Turkey, then the pipeline should pass through it. Thus, the question is whether it can go to Greece	Israel-Cyprus-Greece electricity interconnector is a political issue
Pipeline to Turkey	Pipeline to Greece: No. Large cost, large risk Turkey: It could be an option (in theory), but Turkey would increase its power in the region Israel is mostly related/ focus on its internal market	Exports to Palestine is not recommended for Israel	Export to Greece is not recommended because it would have serious technical problems (deep sea, seismic region, distance, etc.) and thus a large cost Export to Egypt: Yes, because of the existing unutilized infrastructure and Egypt is looking for NG to support its growth plans. It is feasible. Sisi needs supporters/allies		

LNG: Liquefied natural gas

gas fields that are discussed in this study, "Israeli policy makers viewed Egypt's gas deal as a positive factor in preserving peace with Egypt" (Siddig and Grethe, 2014. p. 312).

Israel's new energy policy should "offer investors a stable and transparent regulatory environment" that could attract and sustain the country and thus strengthen its geopolitical position in the region (Economist, 2015). This study contributes to the literature inasmuch as the formulation of state policy also "produces knowledge" and the utilization of such knowledge develops differently in every country (Khodr and Hasbani, 2013. p. 640). Thus, the findings of this research should be considered in terms of the differences and specifics of how Israel adopts new ideas and makes decisions.

According to Henderson (2013. p. 17), Israeli export options should only be chosen "if they are bankable and convince investors of their commercial viability, while any progress in resolving the region's political disputes should be viewed as a bonus." Moreover, regional developments and complementary strategies among countries and companies, e.g., between Israel, Cyprus, Greece and Egypt, create dynamics towards the acceleration of specific export options. Although this research was conducted before the official discovery of the Zohr field in Egypt, the development works in favor of certain projects, such as the East-Med pipeline, as it provides adequate gas volumes and could guarantee considerable financing from the European Commission as a PCI towards increasing European energy security and a developing a functioning internal energy market.

While the question of energy supply is important for the economic growth of a country, there is a correlation between energy use and the gross national product (GNP). Because the GNP is not the only

factor of the "level of civilization or quality of life in a country," it is necessary "when planning for energy needs of a nation to consider alternative socioeconomic models, with an emphasis on the socioeconomics and not only the economics" (Sonnino, 1977).

The above analysis provides insights on the critical factors that affect energy policy formulation in case of Israel. As expected, there is not a unanimous consensus on the critical factors. However, there are some strong indications that some factors seem to be considered very important, based on the subjective opinions of the energy experts. Those factors concern mainly the techno-economic factors, while geopolitical factors, although the most important for few interviewees, seem to be considered as an important factor that enhances a project, considering that this is economically feasible.

6. CONCLUSION AND POLICY IMPLICATIONS

Recent discoveries of hydrocarbons in the Eastern Mediterranean have strongly influenced regional dynamics and affected the energy policy of the relevant countries. Gas development in the Tamar and Leviathan fields is a turning point in the formulation of a new Israeli energy policy, as the government has decided not only to enhance its energy security but also to become an energy exporter by identifying export quotas. Moreover, the discoveries have raised the importance of critical institutional bodies, namely, the antitrust authority and the high court of justice, whose decisions, although creating delays in gas development, have also provided strong evidence that Israel's economy is based on the foundation of competitive markets.

This paper examines the factors that affect the formulation of energy policy in Israel in light of the recent gas discoveries in the Eastern Mediterranean. The authors have elaborated upon responses from energy experts in the region based on a questionnaire that took place in mid-2015, before the official discovery of the Zohr gas field in Egypt. The findings of the research show that, in considering gas export options, decisions should be based not only on economic and/or financial factors but on also political factors. Most of the interviewees responded that there should be a combination of economic and security considerations, while for others, it is a political decision, given the tendency for fluctuations in the economy, as occurred recently when oil and gas prices weakened significantly in 2015.

Discoveries, are considered by the interviewees, that they are not expected to be a "black swan" that change regional energy markets, but they are likely to be game-changers for local energy systems. However, this recent discovery has enhanced Israeli and possibly European energy security, and it has strengthened Israel's capacity to improve its political and economic relationships with neighboring countries.

This paper asks whether the criteria that will affect Israel's energy policy decisions will be either economic or political. It demonstrates that Israel's energy policy will be evaluated based mainly on its techno-economic feasibility. The geopolitical factors are important, but are considered by most interviewees as supplementary facilitating factors to economically and technical feasible projects. The responders also identified CSF for the selection of energy projects, and the results showed that most of the answers indicate that the political and/or geopolitical environment is are very important success factors to be taken into consideration in the complex environment in which Israel is situated in the Eastern Mediterranean. This is not surprising given that it reinforces the necessity of continuing efforts towards to the peaceful settlement of regional conflicts and tensions in this region. However, the importance of the political and/or geopolitical environment, is shown as a factor that enhances/facilitates an attractive techno-economically project.

Therefore, a decision-making model for the state of Israel could be a function (f) of several parameters such as:

F (profitability of the project [=g (quantities available for export, market prices, costs for recovery-extraction, technology, external incentives from the state of institutions)], contribution to the country's growth, energy security of the country, stability in the region).

Based on this analysis, a country's decision to proceed with an investment or project in the energy sector should take into account a combination of political, economic, geographical, historical, environmental, social, and technological parameters. In the case of Israel's recent gas discoveries, this paper demonstrates that energy policy will be evaluated mainly based on its techno-economic feasibility, considering that its energy policy does not strengthen political tensions while any progress in resolving the region's political disputes should be viewed as an unexpected gain.

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