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**Lawson Freeman**  
**Vice President**

December 13, 2010  
**By email**

**To:** The Committee for Examining the Fiscal Policy on the Subject of Oil and Gas Resources in Israel

**Regarding:** Draft of the Committee's Conclusions to the Public's Remarks dated November 2010 ("the Report")

Honored Committee,

Noble Energy ("Noble") hereby respectfully submits the following contentions as our position on the aforementioned matter.

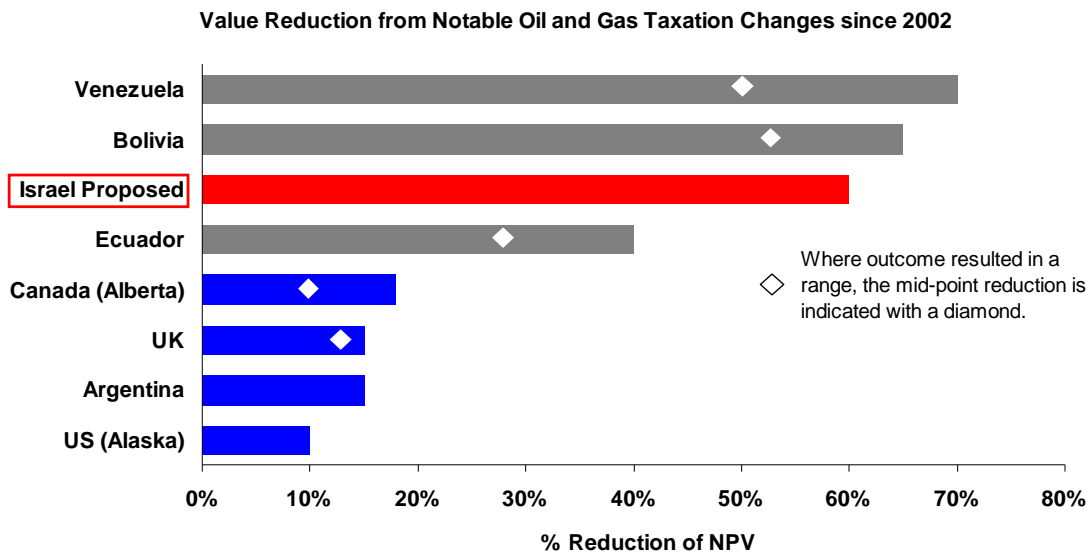
**1. The tax increase proposed by the Committee is severe and retroactive, and would signal a major policy shift for Israel regarding energy investment.**

The draft recommendations of the Committee contain new tax provisions that would drastically reduce the remaining value of our Mari-B and Tamar discoveries. This type of dramatic change would significantly reduce continued development of existing fields as well as the incentive to carry out high-risk exploration. In addition, it could potentially sacrifice long-term energy independence for Israel in place of near-term revenue maximization.

Application of the proposed tax increases to existing discoveries would clearly be considered retroactive by the energy industry. Any change in fiscal terms, especially the drastic policy change being considered in Israel, destroys the expected return that justified the prior investments - thus effectively destabilizing the investment climate.

With regards to the Committee's characterization of retroactive changes as typical, most examples of changes presented were either minor or were put in place due to rapidly rising crude oil prices. Neither of these conditions applies to Israel, where the change being considered is by no means a result of increasing crude prices, nor is it a "minor" tax change. Instead it is a massive taking of value. As an example, according to a Wood Mackenzie analysis which is shown in the chart that follows, only Venezuela, Bolivia and Ecuador made tax changes approaching the value reduction being proposed. These are non-OECD countries that have effectively

driven away outside investments in energy in their countries and in fact have subsequently nationalized the oil and gas assets. The published impact to the Committee’s “Large Reserve” case is included below, along with the impacts from fiscal changes in the countries comprising the Wood Mackenzie analysis.



Countries that have applied such large retroactive changes typically are non-Western, non-democratic countries that have decided to shift from a policy of long-term energy development to one of maximizing near-term revenues, accepting the predictable outcome of driving industry from the country. The most serious cases are those in which the producer assets have been expropriated. An industry view of retroactivity is included in the “Reaction to Sheshinski Report” chapter of the attached “PFC Energy Opinion and Reaction to Proposed Changes to Israel’s Upstream Fiscal System” (the “PFC Opinion”).

**2. “Government Take” is not a suitable metric to determine optimum fiscal policy.**

Public benefits from government take are only resultant upon successful oil and gas exploration, and the fact is that energy producing countries compete for international investment. The critical perspective to examine if Israel wishes to have a viable oil and gas industry is whether potential investors are able to receive sufficient value for their investments to encourage them to invest in Israel rather than elsewhere in the world. Thus the analysis should focus on potential investor value through metrics such as Net Present Value (NPV) and Internal Rate of Return (IRR) and whether those metrics are at a level that reflects the challenges and opportunities specific to Israel and are favorably competitive to those of true peer countries. A description of the assessment process typically utilized by international oil and gas companies is included in the “Description of Project Evaluation and Approval in the Oil and Gas Industry” chapter of the attached PFC Opinion.

**3. The peer group utilized for the Committee’s study is not comparable to Israel.**

The Committee’s Charter included examination of “all components of the fiscal system presently employed in Israel with regard to oil and gas resources, while comparing it to other countries with similar macro-economic and democratic attributes”. The Committee states that “The global average of the GT index lies in the range between 67 percent and 72 percent”, then illustrates the list of countries, along with their “GT”, or Government Take. The “peers” listed included Angola, Azerbaijan, Cambodia, Congo, Ecuador, Gabon, Indonesia, Iran, Libya, Myanmar, Pakistan, Russia, Syria, Venezuela, and Yemen. On the other hand, the U.S. Gulf of Mexico is excluded from the list, apparently due to the presence of signature bonuses. However, between 2005 and 2009 these bonuses accounted for only 3.6% of oil and gas revenue. Further examination of the Committee’s draft conclusions in this regard is included in the “Reaction to Daniel Johnston Report” chapter of the attached PFC Opinion.

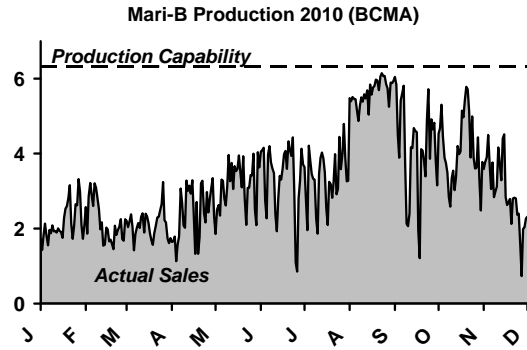
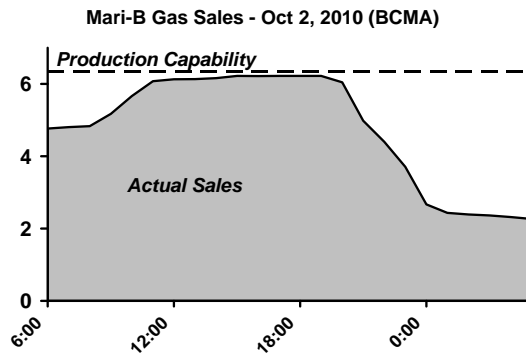
**4. The Committee’s analysis ignores important differences between Israel and other peer countries.**

The Committee’s Charter dictates that the Committee should examine the country’s fiscal system “while taking into account Israel’s unique geopolitical and economic conditions”, but the Report essentially ignores Israel’s limited natural gas market, security risks, and geopolitical situation, all of which factor into the decision of an energy producer as to whether to invest and explore in Israel. The following is an examination of the gas market limitations.

Gas Demand Fluctuations

For a given field size and deliverability, natural gas production from fields in Israel is severely hampered relative to peer countries. The primary consumer of natural gas in Israel is the electricity generation sector, whose energy requirements fluctuate widely depending on the time of day, the day of the week, and the season of the year. These fluctuations, combined with the lack of storage, require the producer to develop gas production facilities sized for peak demand, while the quantity of gas that can be sold is much lower.

The following charts depict actual production profiles for the Mari-B field which show the severity of this limitation. The first chart shows hourly production for Oct. 2, 2010 and demonstrates a night-time demand of one third that of the peak day time demand. The second chart shows 2010 production on an average daily basis. Its overall shape illustrates the heavy summer load versus that of the balance of the year, again a ratio of three to one. The high frequency variability of the same chart illustrates the daily variability due to the very light loads during Shabbat.



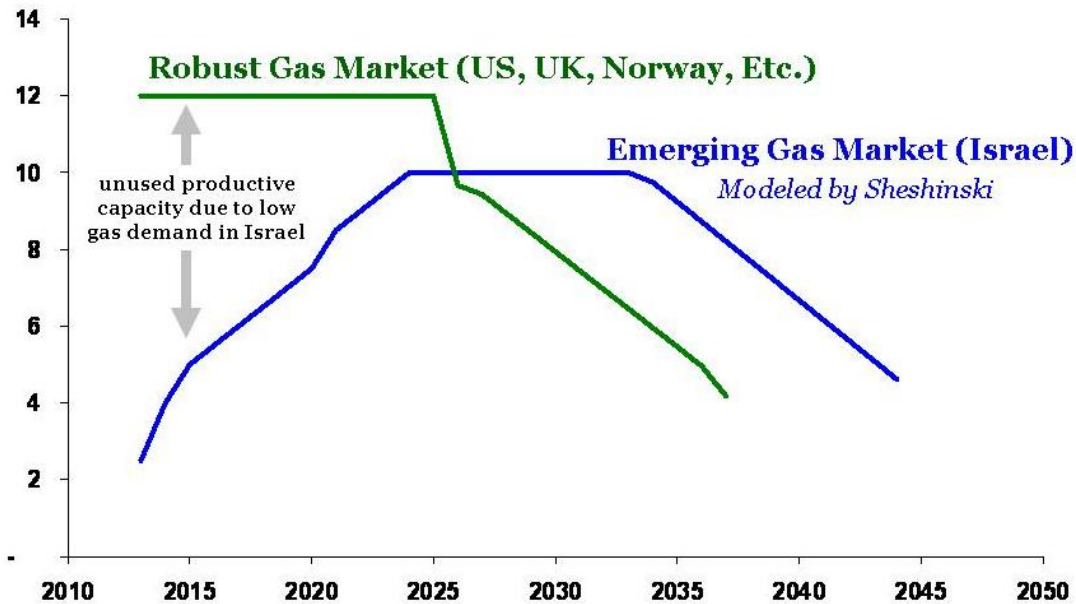
This means that Mari-B, which has a facility production capability of over 6 BCM per year, can only achieve average sales of 3 to 4 BCM per year. In contrast, more developed gas markets such as those in the US, UK, and Norway offer a much more diversified customer base as well as massive transmission and storage systems that can absorb the variable demands of the gas consumers. In such markets producers are typically able to produce at their full facility capability (over 6 BCM per year in the Mari-B example) rather than suffering from the severe limitations imposed by the Israeli gas market.

### Gas Demand Ramp-up

In addition, gas demand in Israel gradually builds over time since the market is still emerging, requiring an investor to oversize its field's and facilities' production capabilities in order to meet future expected gas demand. In contrast, fields in countries like the US, UK, and Norway benefit from robust gas markets that can absorb all of the available gas production from the moment a new field comes online.

With regard to the economic model cited by the Committee for the 250 BCM "Large Reserve" case (the "Sheshinski Model"), the associated "construction expenses" are similar to the expected cost of the Tamar development, which is expected to exhibit an installed capacity of about 12 BCM per year. Production in the Sheshinski Model ramps up over a number of years to 10 BCM per year. In contrast, a robust gas market would allow production to immediately occur at the facility's capacity of 12 BCM per year. This comparison is depicted below:

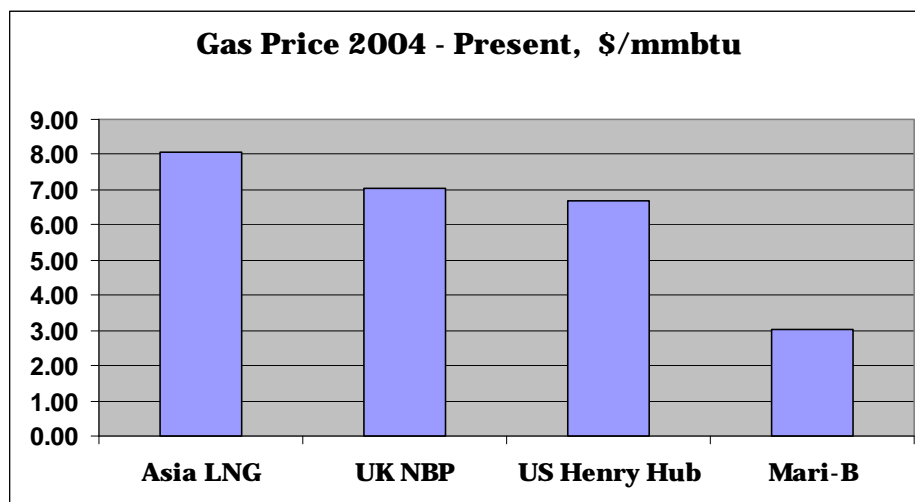
## BCMA



Each production profile above assumes the same production facility and gas reserves.

### Gas Price Realization

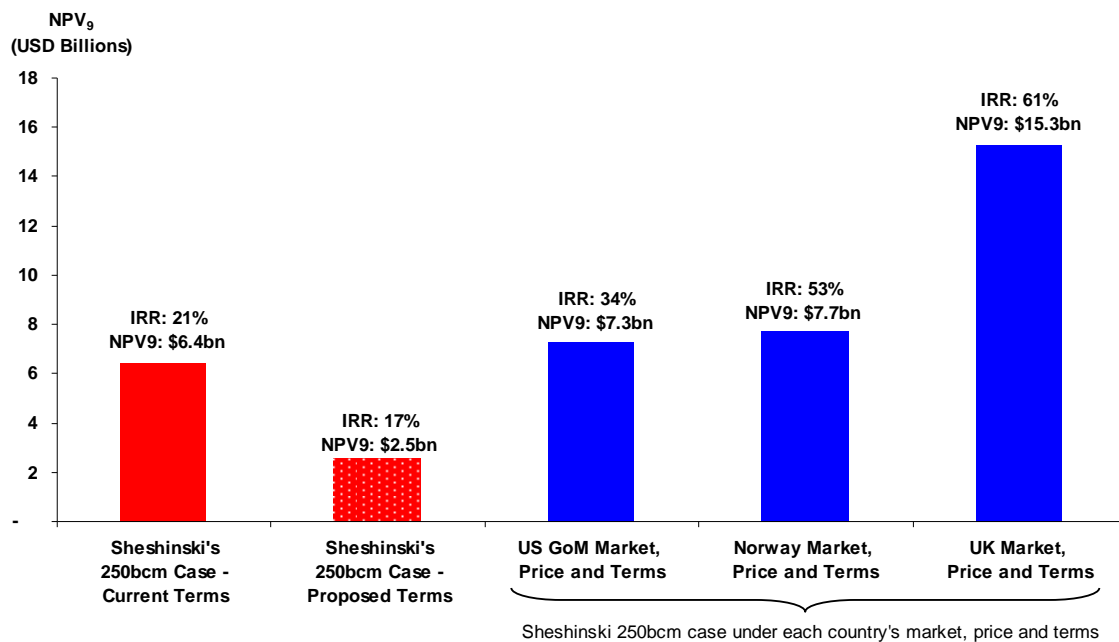
Israel's gas market, while growing, is limited and is defined by specific industrial conversions and electricity generation projects. Domestic gas competes directly with gas imports and coal as a fuel supply. Because most of these projects require long-term contracts with fixed pricing mechanisms, the producer's realized price typically does not have the ability to "float" with world energy prices. This is illustrated by the following representation of Israel's historical gas price relative to other recognized market centers.



Israel's gas demand fluctuation, gas demand ramp-up, and gas price realization represent fundamental differences between the natural gas market in Israel and that of other countries.

**5. Israel's current fiscal terms are not particularly attractive to the producer relative to peer countries.**

By comparison to other Western countries, limitations of the Israeli gas market, as described above, do not result in favorable returns to the producer.



This graph shows how the “Large Reserve” case as depicted by the Sheshinki Model compares with producer economics generated by an unconstrained (i.e. “Robust Market”) production profile into markets of the US Gulf of Mexico, Norway, and UK, where full gas takes and better local pricing bolster drive higher returns. This analysis takes into account the tax and royalty environment of each country, showing that while government takes do tend to be higher in these mature markets, their investor value opportunity is clearly superior.

"The Top 280 Projects to Change the World" is an extensive analysis done by Goldman Sachs of developments throughout the world which exceed 300 mmboe of reserves (equivalent to ~50 BCM). This analysis shows average returns for those 280 projects identified as an IRR of 20.7%. For the 68 projects that constitute deepwater developments, that IRR average increases to 26.4%. The study also identifies the NPV<sub>8</sub> of each of the deepwater developments and then normalizes the value to the size of the projects resulting in an NPV<sub>8</sub>/boe quantification. The average NPV<sub>8</sub>/boe for deepwater projects is \$6.50/boe. The NPV<sub>8</sub>/boe of the “Large Reserve” case in the Sheshinski Model is \$5.34/boe under the existing fiscal

terms and would fall to \$2.22/boe under the Committee's proposed tax increase. Thus, even under current Israeli fiscal terms, the NPV<sub>8</sub>/boe for a "Large Reserve" case per the Sheshinski Model is below average and with the proposed increase would be far below the average for global deepwater projects.

With respect to the "Large Reserve" case, the 21% IRR calculated by the Committee under the current fiscal regime would be well below that of the deepwater subset. This is in clear contradiction to the Committee's conclusion that most profits after achieving a 15% IRR are "surplus profits" and that a 15% IRR is "higher than that prevalent internationally". Further expansion on financial theory applied to oil and gas investments is included in the "Reaction to Pindyck Report" chapter of the attached PFC Opinion.

**6. The Committee's "government take" analysis ignores important value accrued by the State from natural gas production.**

The "Government Take" analysis ignores other benefits that accrue to the State of Israel that go beyond taxes & royalty – some of which should be considered as "take" given they come at the expense of the producer.

Since the 2004 start-up of Mari-B, Israel has reduced its energy costs by approximately \$4.9 billion by substituting low-priced domestic gas for imported oil. By comparison, the producers' gross sales revenues for the same period totaled \$2 billion. Adding associated tax and royalty income to the State results in an estimated \$2.60 of benefits to Israel for every \$1.00 of producer revenue. These benefits are expected to grow rapidly in future years as Tamar comes on line and volumes increase.

Other benefits include cleaner air, energy security, jobs, and economic growth promoted through access to lower cost energy. And all of the benefits (tangible and intangible) of Israel's potential to become a gas exporter are directly attributable to the exploration activities of Noble and its partners.

**7. The tax system proposed by the Committee is not conducive to long-term development of offshore resources.**

Late project-life investments are typical to improve recovery or to apply new exploration and drilling technology, particularly in large scale offshore projects. In the case of Israel, the ongoing need to expand to meet the needs of the growing gas market further dictates those late-life investments.

R-Factor fiscal structures, as proposed by the Committee, essentially eliminate any justification for investments after the maximum levy is reached. The maximum levy as proposed leaves very little net profit for the producer, resulting in unattractive returns on any subsequent investment.

As one illustration of the imbalance reflected in the proposed new tax structure, production from the mature Mari-B field would likely immediately bear incremental taxes of 60%. Earlier this year, Noble and its partners drilled two additional wells in Mari-B and are presently installing platform compression, for a total cost of \$190 million. The primary purpose of these investments is to ensure that Mari-B can reliably maintain the high levels of gas supply urgently needed by Israel prior to Tamar startup. These projects would have been uneconomic under the proposed fiscal terms and, had they not been implemented, Israeli gas consumers would likely today be experiencing gas shortages.

Exploration prospects are risky by definition. Ring-fencing discourages exploration by stranding exploration costs. It would seem counter-intuitive to discourage exploration at this stage in the development of Israel's offshore resources.

**8. The reservoir prototypes selected by the Committee do not reflect the challenges associated with commercializing modest resource discoveries.**

The Committee developed three cases as representative of the natural gas prospectivity ranging from a "small reserve" of 35 BCM to a "large reserve" of 250 BCM. It is interesting that the "small reserve" case utilized by the Committee is larger than Mari-B, the only producing gas field in Israel. The Committee's range focuses on world class discovery sizes and ignores more modest discoveries which will most likely be a very significant segment of the resources eventually found in Israel. These smaller resources such as the discoveries at Dalit, Noa and Or are challenging to commercialize under existing fiscal terms and would only become more difficult, if not impossible, under the proposed terms. The analysis is therefore limited and seems to focus primarily on Tamar rather than comprehensively addressing offshore Israel fields and prospects.

**9. To apply fiscal changes to Mari-B and Tamar, as recommended by the Committee, would be unsupportable and unfair.**

The existing fiscal regime was not a mistake or oversight accident, it was a deliberate strategy to encourage investment – a successful strategy. As a producer, and long-time investor in Israel, it is very difficult to view the following chronology in a favorable light:

- In the late nineties the Minister of National Infrastructures, along with other senior officials from this ministry, highlighted attractive fiscal terms (including low state royalties and depletion allowance) in urging Noble to come invest in Israel.
- In 1999-2000 Noble drilled Mari-B and Noa.
- In light of the Mari-B and Noa discoveries, Israel proposed to raise royalties (prospectively) and in 2000 suspended granting offshore permits until completion of those deliberations (which would go on for another 5 years).
- Noble drilled Andromeda in 2001 and Hanna in 2003, each dry holes.

- In 2006, the MNI announced that changes to the existing fiscal terms were not justified, and resumed granting offshore permits.
- In 2006-2008 Noble acquired additional offshore permits and licenses, including the Tamar license area.
- In January 2009 Noble announced the Tamar discovery.
- In April 2010, the Minister of Finance announced appointment of a committee to examine raising taxes and royalties.
- Noble sought, and received, assurances from the National Infrastructure and Finance Ministries that any changes would not apply to Tamar, then proceeded with the project, reaching a commitment level of about \$1 billion by November 2010.
- On November 15 the Sheshinski Committee submitted its draft recommendations, which include altering the fiscal terms for Tamar and Mari-B. The recommendations include a planned 60% reduction in producer value.

In summary, the Sheshinski Committee, with outside input, has carefully considered the so-called “government takes” of other countries outside Israel. However, the countries considered are not appropriate peers of Israel. In addition, market conditions for deepwater natural gas developments in Israel are not competitive to many other global gas markets which are much more robust in terms of gas demand and market pricing. As a result, a comparison of “government takes” is not an appropriate measure for fairness. In Israel’s situation, implementation of the Sheshinski Committee recommendations would be a disincentive for future energy exploration and development in Israel due to producer returns that are not competitive with other global gas exploration and development projects.

In addition to the contentions described above, Noble believes that the Committee’s draft conclusions have significant legal flaws, both in the Committee’s processes and in its recommendations to apply the proposed new policy on owners of existing petroleum rights, especially on reservoirs that have already been discovered. Noble intends to communicate its legal position with respect to the latter separately to the office of the Deputy Attorney General for Economics and Fiscal Affairs, and reserves all its rights and contentions with respect to the Committee’s processes and conduct.

Without derogating from the above, it is clarified that this submission is not and shall not be construed as a waiver by Noble of any of its rights and/or arguments and/or claims with respect to the charter and/or conclusions and/or conduct of the committee and Noble reserves all rights in this matter.

Respectfully,



Lawson Freeman  
Vice President  
Noble Energy

תרגום מהמקור באנגלית

[[לוגו נובל אנרג'י]]

13 בדצמבר, 2010

בדואר אלקטרוני

לכבוד

הועדה לבחינת המדיניות הפיסקלית בנושא משאבי נפט וגז בישראל

**הנדון: טיוטת המלצות הועדה להערות הציבור מחודש נובמבר 2010 ("הדוח")**

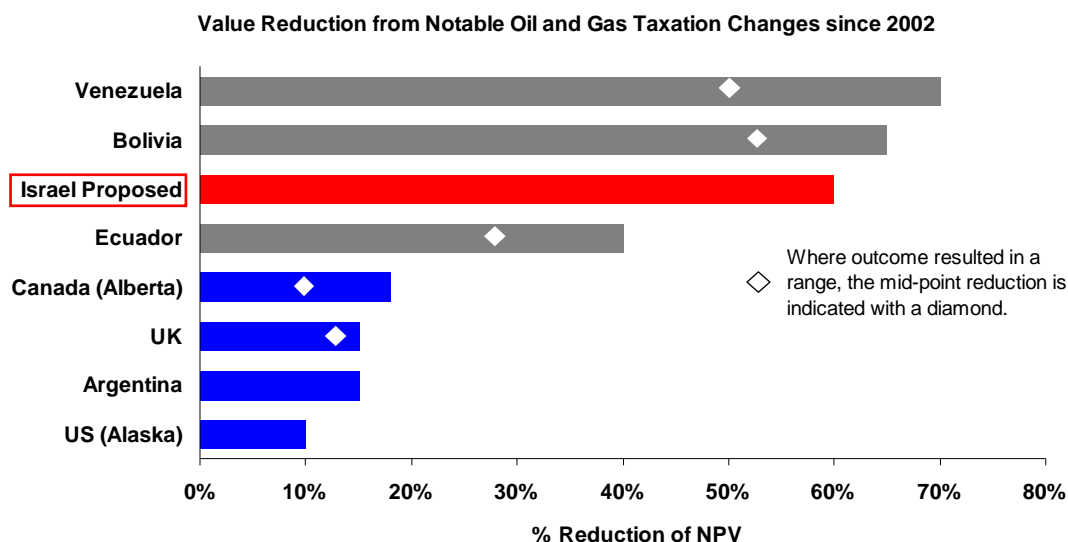
1. **העלאת המס המוצעת על ידי הועדה הינה חמורה ורקטרואקטיבית, ואימוצה יסמן שינוי מדיניות מהותי של מדינת ישראל בקשר להשקעות בתחום האנרגיה.**

טיוטת המלצות הועדה כוללת המלצה להחלת הוראות מס חדשות אשר יקטינו את הערך של מאגרי מרי-B ותמר אשר בבעלותה של נובל באופן דרמטי. שינוי דרמטי מסוג זה יפגע באופן מהותי את המשך פיתוחם של מאגרים קיימים וכן יקטין את התמריצים לבצע פעילות חיפושים בסיכון גבוה. בנוסף, הדבר עלול להוביל להקרבתה של העצמאות האנרגטית של מדינת ישראל בטווח הארוך לטובת מיקסום הכנסות בטווח הקרוב.

החלת העלאת המס המוצעת על תגליות קיימות תיחשב בלי צל של ספק כרטרואקטיבית על ידי תעשיית האנרגיה. כל שינוי של התנאים הפיסקליים, במיוחד שינוי כה דרמטי כזה הנשקל בישראל, הורס את התשואה המצופה אשר הצדיקה את ההשקעות הקודמות, ובכך מערער אפקטיבית את האקלים לביצוע השקעות בישראל.

בנוגע לקביעת הועדה של שינויים רטרואקטיביים כשינויים אופייניים, במרבית הדוגמאות שהוצגו לשינויים כאמור, היו אלה שינויים מינוריים או שינויים שנבעו מעלייה חדה במחירי הנפט הגולמי. שני התנאים הנ"ל אינם המקרה של ישראל, בו מוצע כעת לבצע שינוי אשר בודאי אינו יכול להיחשב כשינוי הנובע מעלייה במחירי הנפט הגולמי או כשינוי מס "מינורי", אלא נהפוך הוא, מדובר בלקיחה מסיבית של שווי מהמשקיע. לצורך הדוגמא, לפי מחקר של Wood Mackenzie המתואר בטבלה להלן, רק ונצואלה, בוליביה ואקוודור ביצעו שינויי מס בדומה לשינויים המוצעים. אלו הן מדינות שאינן חברות ב-OECD אשר מבחינה מעשית גירשו השקעות בינלאומיות בתחום האנרגיה במדינותיהן, ולמעשה, הלאימו את נכסי הנפט והגז בסופו של יום.

ההשפעה אשר פורסמה על ידי הועדה ביחס למודל "מאגר גדול" מומחשת בטבלה שלהלן לצד ההשפעות שנבעו משינויים פיסקליים במדינות הכלולות בדוח של Wood Mackenzie.



מדינות בהן בוצעו שינויים רטרואקטיביים גדולים הינן לרוב מדינות שאינן מערביות, אינן דמוקרטיות, אשר בחרו לעבור ממדיניות של פיתוח תחום האנרגיה בראייה ארוכת טווח למדיניות של מיקסום הכנסות בטווח הקצר, תוך קבלת התוצאה הבלתי נמנעת של הרחקת התעשייה מהמדינה. המקרים הקשים ביותר הינם המקרים בהם בוצעה הפקעה של נכסי המפיקים. תאור של התייחסות התעשייה לביצוע שינויים רטרואקטיביים כלול בפרק "Reaction to Sheshinski Report" בחוות הדעת המצורפת: "PFC Energy Opinion and Reaction to Proposed Changes to Israel's Upstream Fiscal System" (להלן - "חוות הדעת של PFC")

## 2. "Government Take" אינו פרמטר מתאים לבחינת מדיניות פיסקלית אופטימלית

התועלות של הציבור הנובעות מ-GT הינן אך ורק תוצאה של פעילויות חיפושי נפט וגז מוצלחות, ולכן העובדה היא שמדינות מתחרות על השקעות בינלאומיות. הפרספקטיבה הקריטית אותה יש לבחון אם בכוונת מדינת ישראל לקיים תעשיית נפט וגז ברת קיימא היא האם משקיעים פוטנציאליים יכולים לקבל ערך מספיק על השקעתם על מנת לגרום להם להשקיע דווקא בישראל ולא במקומות אחרים בעולם. לפיכך, הניתוח צריך להתבסס על יכולת המשקיע לייצר ערך באמצעות פרמטרים כמו ערך נוכחי (NPV) ושיעור תשואה פנימי (IRR) והאם המספרים המתקבלים הינם ברמה המייצגת את ההזדמנויות והקשיים הספציפיים לישראל והאם הם

מתחרים באופן מוצלח עם מדינות ברות השוואה אמיתיות. תאור של התהליך המקובל בחברות נפט וגז כלול בפרק " Description of Project Evaluation and Approval in the Oil and Gas Industry" בחוות הדעת של PFC.

### 3. המחקר בו השתמשה הועדה כולל קבוצת מדינות לייחוס אשר אינן ברות השוואה לישראל

כתב המינוי של הועדה כלל בחינה של " בחינת המערכת הפיסקאלית הנהוגה בישראל בנוגע למשאבי נפט וגז, על כלל מרכיביה, תוך השוואה למדינות בעלות מאפיינים מקרו כלכליים ודמוקרטיים דומים" הועדה אומרת כי "הממוצע העולמי של מדד ה-GT נאמד בטווח שבין 67% ל-72%", ואז מציגה את המדינות השונות וה-GT שלהן. המדינות "ברות השוואה" המופיעות ברשימה כוללות את אנגולה, אזרבייג'ן, קמבודיה, קונגו, אקוודור, גבון, אינדונזיה, אירן, לוב, מינמר, פקיסטן, רוסיה, סוריה, ונצואלה ותימן. מנגד, מפרץ מקסיקו הוצא מהרשימה ככל הנראה מהסיבה שמשולמים תשלומי בונוס. אולם, בין השנים 2005 עד 2009 היוו תשלומי בונוס אלה רק כ-3.6% מההכנסות של נפט וגז. בחינה נוספת של מסקנות הועדה בענין זה נכלל בפרק "Reaction to Daniel Johnston Report" הכלול בחוות הדעת של PFC.

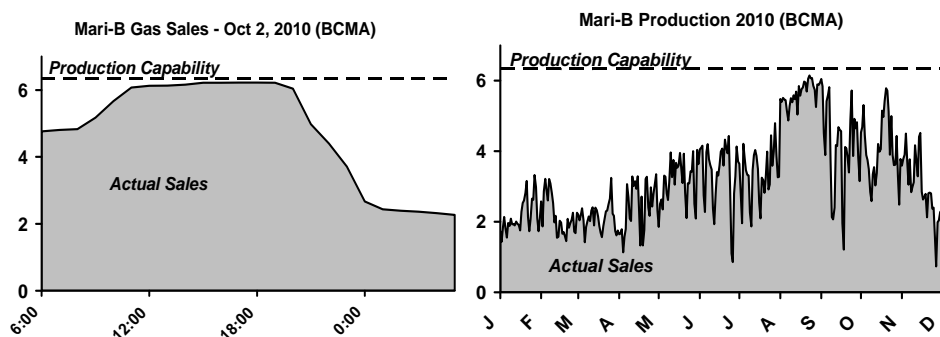
### 4. הניתוח שבוצע על ידי הועדה מתעלם מהבדלים חשובים בין ישראל ומדינות ברות השוואה אחרות

כתב המינוי של הועדה קובע שעל הועדה לבחון את המערכת הפיסקלית "תוך התחשבות בתנאים הכלכליים והגיאופוליטיים המיוחדים לישראל", אולם דוח הועדה למעשה מתעלם ממשק הגז המוצמצם הקיים בישראל, הסיכונים הביטחוניים, והמצב הגיאופוליטי של ישראל, אשר כולם מהווים גורם בהחלטה של מפיק אנרגיה האם לבצע השקעות ופעולות חיפושים בישראל. להלן בחינה של מגבלות שוק הגז.

#### תנודתיות בביקוש לגז

לכל שדה גז נתון בישראל, בכל גודל ובכל שיעור הפקה, יש נחיתות גדולה ביחס לשדות מקבילים במדינות ברות השוואה. הלקוח העיקרי של הגז בישראל הינה תעשיית ייצור החשמל, אשר צרכיה משתנים באופן ניכר לאורך שעות היום, בין ימי השבוע ובין עונות השנה. תנודות אלה, ביחד עם המחסור באמצעי אחסון, מחייבים את המפיק לבנות מתקני הפקת גז אשר מיועדים לשרת תצרוכת שיא (Peak Demand), בשעה שיכולתו של המפיק למכור גז הינה נמוכה באופן ניכר.

התרשימים המובאים להלן מתארים את ההפקה בפועל של מאגר Mari-B ומדגימים את המשמעות החמורה של המגבלה האמורה. התרשים הראשון מראה את הצריכה השעתית ביום 2 באוקטובר 2010 ומציג ביקוש של שליש בשעות הערב לעומת צריכת השיא באותו יום. התרשים השני מראה את הצריכה היומית הממוצעת עבור שנת 2010. תצורתו הכללית מעידה על הביקוש הגדול בחודשי הקיץ לעומת יתר חודשי השנה. שוב – היחס הוא אחד לשלוש. השונות בתדירות גבוהה המוצגת בתרשים מעידה על השונות היומית הנובעת מהביקוש הנמוך מאוד בימי שבת.



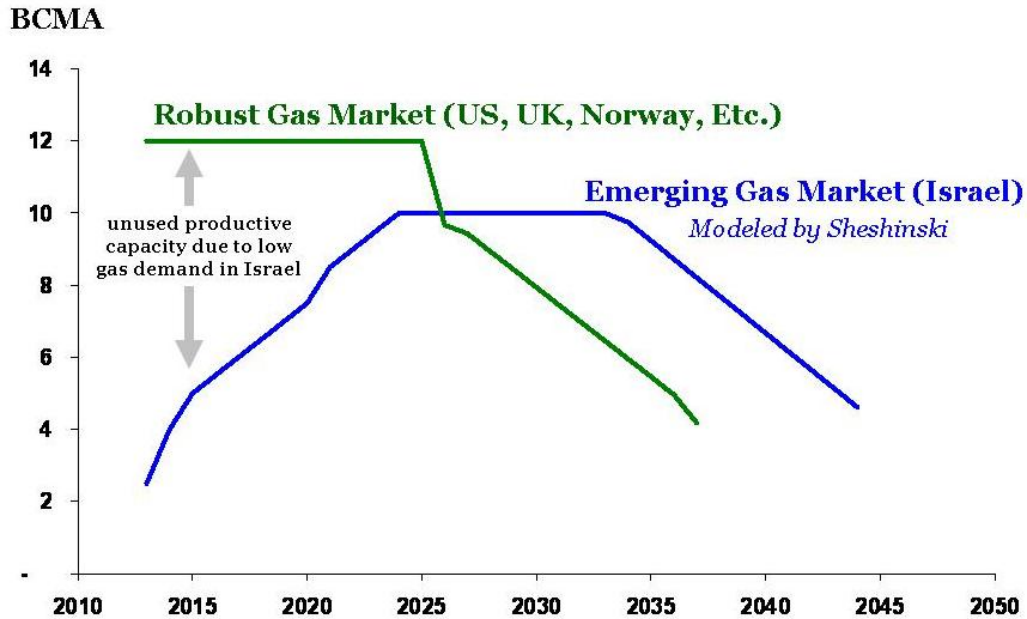
המשמעות של הנתונים לעיל הינה כי על אף שהמתקנים של מאגר Mari-B מסוגלים להפיק למעלה מ- 6 BCM לשנה, ניתן להפיק בפועל מהמאגר רק כ-3 עד 4 BCM. בניגוד גמור, מדינות בהן משק הגז מפותח יותר כמו בארה"ב, אנגליה ונורווגיה, מציעות בסיס לקוחות מגוון וכן מערכות הולכה ואיחסון גדולות אשר יכולות לספוג את תנודות הצריכה של הצרכנים. במדינות אלה, הספקים יכולים בדר"כ להפיק במלוא ההיקף של מתקני ההפקה (למעלה מ-6 BCM לשנה בדוגמא של מאגר Mari-B) ולא להיפגע מהמגבלות החמורות הקיימות בשוק הישראלי.

### **בניית הביקוש לגז טבעי**

בנוסף, צריכת הגז בישראל גדלה בהדרגה לאורך הזמן, הואיל והשוק עדיין מתפתח, ולכן המשקיע נדרש להגדיל את יכולות ההפקה של השדה והמתקנים יותר מהנדרש על מנת לספק את הביקוש העתידי הצפוי. בניגוד לישראל, שדות גז במדינות כמו ארה"ב, אנגליה ונורווגיה נהנים משווקים מפותחים אשר יכולים לספוג את כל הגז המופק מהרגע בו פיתוח השדה הושלם ומתחילה ההפקה ממנו.

בנוגע למודל הכלכלי שהוצג על ידי הועדה בקשר לשדה בגודל של 250 BCM "מאגר גדול" ("מודל שייננסקי"), הוצאות ההקמה הינן דומות להוצאות הצפויות עבור פיתוח תמר, אשר

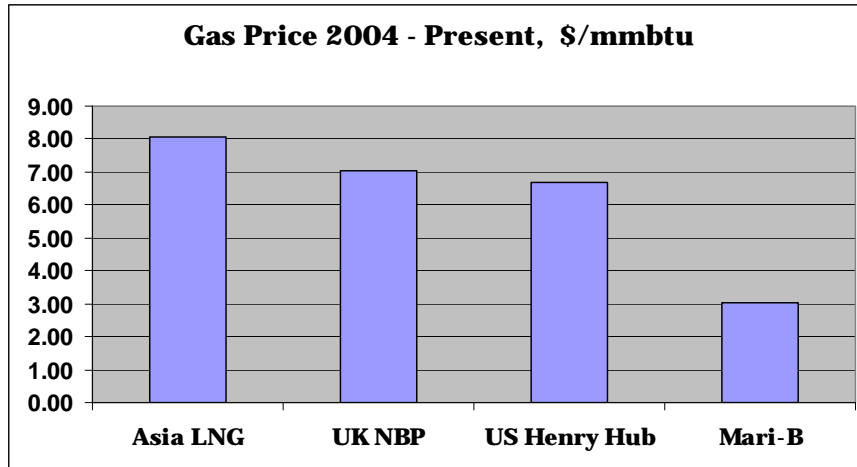
צפויה לאפשר יכולת הפקה של כ- 12BCM לשנה. ההפקה לפי המודל של שישנסקי מגיע לכ- 10BCM בשנה תוך כמה שנים. בניגוד, בשוק מפותח ניתן היה להפיק ולמכור גז באופן מיידי בהיקף של 12BCM לשנה. ההשוואה הנ"ל מתוארת להלן:



כל פרופיל הפקה כאמור לעיל מניח שקיים אותו מתקן הפקה ואותן רזרבות גז.

#### קיבוע מחירי הגז

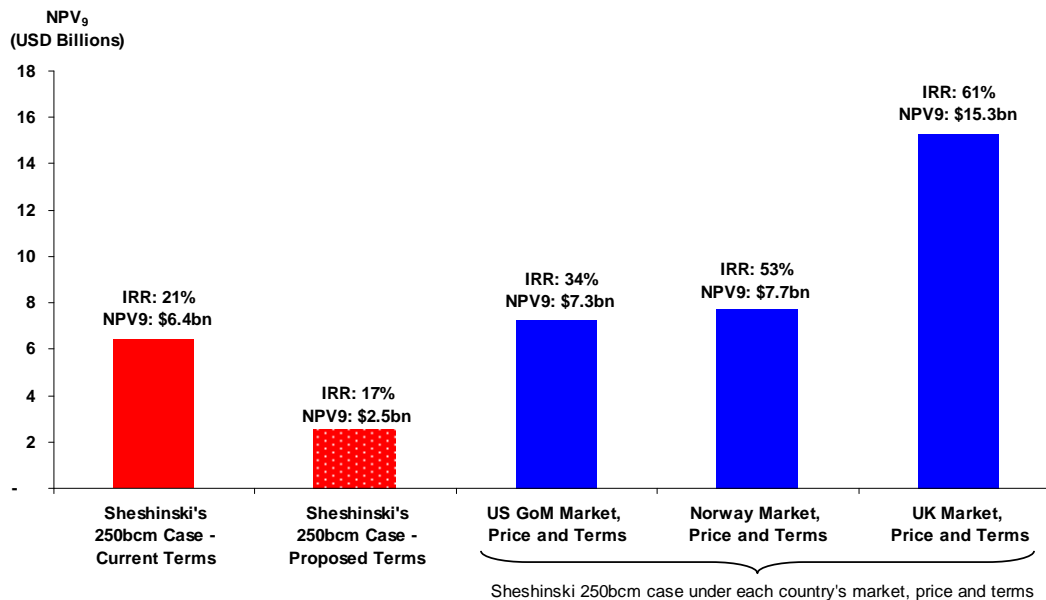
שוק הגז הישראלי, על אף היותו שוק צומח, הינו מוגבל ומאופיין בשינויים תעשייתיים ספציפיים ופרוייקטים לייצור חשמל. הגז המקומי מתחרה באופן ישיר עם גז מיובא וכן באספקה של פחם ונפט. הואיל ומרבית הפרוייקטים הנ"ל דורשים חוזים ארוכי טווח עם מנגנוני מחיר קבועים, המחיר שנקבע עבור הספק אינו יכול בדר"כ להשתנות בהתאם לתנודות של מחירי האנרגיה בעולם. הדבר מודגם בטבלה שלהלן, בה נעשית השוואה בין מחירי הגז ההיסטוריים בישראל לבין המחירים בשווקים מרכזיים.



התנודתיות של מחירי הגז בישראל, שלב הגידול בביקושים, וקיבוע מחיר הגז מייצגים הבדלים מהותיים בין שוק הגז בישראל והשווקים במדינות אחרות.

התנאים הפיסקליים הקיימים בישראל אינם אטרקטיביים במיוחד למפיק ביחס למדינות ברות השוואה .5

כאשר משווים בין ישראל לבין מדינות מערביות אחרות, ובהתחשב במגבלות של השוק הישראלי כמתואר לעיל, התוצאה המתקבלת הינה כי התשואה למשקיע אינה עדיפה.



גרף זה מראה כיצד מקרה "המאגר הגדול" כפי שמוצג במודל ששינסקי עומד בהשוואה מבחינה כלכלית של מפיק, ביחס לפרופיל הפקה בלתי מוגבל (שוק מפותח) בשווקים במפרץ של

מקסיקו בארה"ב, נורווגיה ואנגליה, היכן שצריכת גז באופן מלא ותמחור מקומי טוב יותר מניבים תשואות גבוהות יותר. ניתוח זה לוקח בחשבון את סביבת המס והתמלוגים של כל מדינה, ומראה כי בעוד ה-GT במדינות הנ"ל בהן קיים שוק מפותח נוטה להיות גבוה יותר, הערך האפשרי שנוצר למשקיע במדינות הנ"ל הינו עדיף באופן משמעותי.

המסמך "The Top 280 Projects to Change the World" הינו מחקר מקיף אשר בוצע על ידי Goldman Sachs אשר סוקר את המאגרים בפיתוח בכל העולם אשר מכילים למעלה מ-300 מיליון חביות נפט או שווה ערך (300 mmmboe) אשר שווה ערך לשדה גז בהיקף של כ-50BCM. מחקר זה מציג תשואה ממוצעת עבור 280 הפרוייקטים הללו לפיה ה-IRR עומד על כ-20.7%. עבור 68 הפרוייקטים שמהווים פיתוח במים עמוקים, ה-IRR הממוצע עולה ל-26.4%. המחקר מזהה את ה-NPV8 של כל אחת מתכניות הפיתוח במים עמוקים ואז מנרמל את השווי לגודל הפרוייקט והתוצאה המתקבלת הינה יחס NPV8 לשווה ערך חבית נפט – NPV8/boe. הממוצע NPV8/boe לפרוייקטים במים עמוקים הינו כ-\$6.5/boe. ה-NPV8/boe בתרחיש "מאגר גדול" במודל שישנסקי הינו \$5.34/boe תחת התנאים הפיסקאליים הקיימים, והוא עתיד לצנוח ל-\$2.22/boe אם תאומץ המלצת הוועדה להגדלת המס. לפיכך, אפילו בהתאם לתנאים הפיסקאליים הקיימים, יחס ה-NPV8/boe עבור מקרה "מאגר גדול" על פי מודל שישנסקי הינו נמוך יותר מהממוצע, ובהתחשב בהעלאה המוצעת הוא עתיד להיות נמוך בהרבה מהממוצע העולמי לפרוייקטים במים עמוקים.

ביחס לתרחיש "מאגר גדול", ה-IRR בשיעור 21% אשר חושב על ידי הוועדה על בסיס התנאים הפיסקאליים הקיימים יהיה נמוך באופן ניכר מהתשואה בפרוייקטים של מים עמוקים. מצב זה עומד בניגוד גמור למסקנה של הוועדה כי מרבית הרווחים לאחר השגת IRR בשיעור תשואה של 15% הינם "רווחים עודפים" וכי IRR בשיעור תשואה של 15% הינו "גבוה מהמקובל בעולם". מידע נוסף על התאוריה הכלכלית המיושמת בהשקעות נפט וגז כלולה בפרק "Reaction to Pindyck Report" הכלול בחוות דעת PFC.

## 6. חישוב ה-"Government Take" של הוועדה מתעלם מערך חשוב אשר נוצר למדינה כתוצאה מהפקת הגז הטבעי.

חישוב ה-"Government Take" מתעלם מהטבות נוספות שנוצרו למדינה אשר הינן מעבר להטבות של מיסוי ותמלוגים – חלקן צריכות להיכלל במסגרת "החלק" של המדינה הואיל והן באו על חשבוננו של המפיק.

מאז מועד התחלת ההזרמה מ-Mari-B בשנת 2004, מדינת ישראל הפחיתה את עלויות האנרגיה שלה בכ-4.9 מיליארד דולר על ידי החלפת יבוא של נפט בשימוש בגז טבעי מקומי במחיר נמוך. בהשוואה, ההכנסות ברוטו של המפיק בתקופה הנ"ל היו 2 מיליארד דולר. כאשר מוסיפים את המסים והתמלוגים להכנסה הנ"ל מגיעים לתוצאה כי ההטבה המוערכת למדינה הינה כ-2.6 דולר לכל 1 דולר הכנסה למפיק. ההטבות הללו צפויות לגדול באופן מהיר בשנים הבאות כאשר תחל ההפקה מתמר והכמויות המופקות יגדלו.

הטבות נוספות כוללות אוויר נקי יותר, בטחון אנרגטי, מקומות תעסוקה, וצמיחה כלכלית הנתמכת באמצעות נגישות לאנרגיה זולה. כל ההטבות (המוחשיות ואלו שאינן מוחשיות) בפוטנציאל של ישראל להפוך ליצואנית של גז נובעות באופן ישיר מפעילויות חיפושי הנפט של נובל ושותפיה.

## 7. המערכת המיסויית המוצעת על ידי הועדה איננה מקדמת פיתוח ארוך-טווח של משאבים ימיים.

נהוג לבצע השקעות בשלב חיים מאוחר של פרוייקט על מנת להגדיל את יכולת הניצול של המאגר או בכדי ליישם טכנולוגיות חיפושים והפקה חדשות, בייחוד בפרויקטים ימיים רחבי היקף. במקרה של ישראל, הצורך המתמשך להגדיל את המערכת על מנת להתמודד עם העלייה בביקוש מכתוב את הצורך בביצוע השקעות כאמור.

מבנים פיסקליים כגון R-Factor, כפי שמוצע על ידי הועדה, מבטלים למעשה כל הצדקה לביצוע השקעות נוספות לאחר ששיעור ההיטל מגיע למסקימום. ההיטל המקסימלי המוצע משאיר למפיק רווח נטו קטן מאוד, דבר הגורם להחזרים בלתי כדאיים על השקעות נוספות.

כדוגמה אחת של חוסר הכדאיות הנ"ל בנוגע להשקעות נוספות כפי שמתקף ממבנה המס החדש המוצע, ההפקה ממאגר Mari-B הבוגר תישא, ככל הנראה, באופן מידי מיסוי נוסף בשיעור של 60%. מוקדם יותר במהלך השנה, קדחה נובל יחד עם שותפיה שני קידוחים נוספים במאגר הנ"ל וכעת מותקנים מתקנים להגדלת לחץ בעלות כוללת של 190 מיליון דולר. המטרה העיקרית בביצוע ההשקעות הנ"ל הינה להבטיח כי Mari-B תוכל לשמור באופן אמין על הקצב הגבוה של אספקת הגז הדרושה בדחיפות למדינת ישראל עד המועד בו תחובר תמר. ההשקעות הנ"ל היו בלתי כדאיות מבחינה כלכלית תחת התנאים הפיסקליים המוצעים, ואילו הן לא היו מבוצעות, צרכני הגז הישראליים היו בודאי חווים כיום מחסור בגז.

פרוספקטים של קידוח הינם מסוכנים בהגדרה. Ring Fencing מרתיע מפני ביצוע פעולות חיפוש כיוון שהוא מבודד את הוצאות החיפוש. יהא זה בלתי נכון להפחית את התמריץ לביצוע השקעות בחיפוש נוספים בשלב זה של פיתוח משאביה הימיים של ישראל.

#### 8. **המאגרים המייצגים אשר נבחרו על ידי הועדה אינם מייצגים את האתגרים הקשורים במסחור מאגרים קטנים.**

הועדה פיתחה שלוש דוגמאות למאגרים מייצגים של פרוספקטיביות גז טבעי בטווח העולה מ-35BCM ל"מאגר קטן" עד ל-250BCM ל"מאגר גדול". ראוי לציין כי המאגר הקטן אליו מתייחסת הועדה גדול יותר ממאגר Mari-B, המאגר היחיד ממנו מופק גז בישראל. התרחישים של הועדה מתמקדים במאגרים בקנה מידה עולמי ומתעלמים ממאגרים קטנים יותר אשר כנראה יהיו חלק עיקרי מהמאגרים אשר יתגלו בסופו של יום בישראל. המאגרים הקטנים יותר הללו, כדוגמת דלית, נועה ואור הינם מאתגרים למסחור תחת התנאים הפיסקליים הקיימים, ויהפכו למאתגרים עוד יותר, אם לא בלתי ניתנים למסחור, תחת התנאים הפיסקליים המוצעים. הניתוח הינו לפיכך מוגבל ביותר, ונראה כי הוא מתמקד בעיקר בתמר במקום להתייחס בצורה מקיפה יותר למאגרים והפרוספקטים במימיה של ישראל.

#### 9. **החלת השינויים הפיסקליים המוצעים על Mari-B ותמר תהיה בלתי תומכת ובלתי הוגנת.**

התנאים הפיסקליים הקיימים אינם תולדה של טעות או תאונה שנבעה מחוסר תשומת לב, אלא תוצאה של אסטרטגיה מכוונת לעודד השקעה – אסטרטגיה מוצלחת. כמפיקה של גז טבעי, ומשקיעה מזה שנים רבות בישראל, קשה מאוד לבחון את כרונולוגיית האירועים המפורטים להלן באור חיובי:

- בסוף שנות התשעים שר התשתיות הלאומיות, ביחד עם פקידים בכירים ממשרדו, הדגישו את התנאים הפיסקליים הקיימים האטרקטיביים (לרבות תמלוגים נמוכים וניכוי אזילה) כשהם דוחקים בנובל לבוא ולהשקיע בישראל.
- בשנים 1999-2000 נובל קדחה את קידוחי Mari-B ו- נועה.
- לאור התגליות של Mari-B ו- נועה, הוצע להעלות את התמלוגים (לזכויות עתידיות) ובשנת 2000 הוחלט להשעות מתן רישיונות חדשים עד לסיום הדיונים בענין זה (דיונים אשר התמשכו 5 שנים נוספות).
- נובל קדחה את קידוחי "אנדרומדה" בשנת 2001 וקידוח "חנה" בשנת 2003 – שניהם היו קידוחים יבשים.
- בשנת 2006 הודיע משרד התשתיות כי אין כל הצדקה לביצוע שינויים במשטר הפיסקלי וחזר להעניק רישיונות לאיזורים ימיים.

- בשנים 2006-2008 נובל קיבלה היתרים ורישיונות ימיים חדשים, לרבות שטח הרישיון של תמר.
- בחודש ינואר 2009 הודיעה נובל על תגלית תמר.
- בחודש אפריל 2010 הודיע שר האוצר על מינוי ועדה לבחינה של העלאת התמלוגים והמיסים.
- נובל ביקשה, וקיבלה, הבטחות והתחייבויות ממשד התשתיות הלאומיות וממשד האוצר כי שינויים, ככל שיהיו, לא יחולו על תמר. לאחר מכן נובל המשיכה עם הפרוייקט, כאשר היא מגיעה להתחייבויות בהיקף של כמיליארד דולר עד חודש נובמבר 2010.
- ביום 15 בנובמבר הגישה ועדת שישינסקי את טיוטת המלצותיה, אשר כוללות המלצה לשנות את התנאים הפיסקליים ביחס לתמר ו-Mari-B. ההמלצות כוללות הפחתה מתוכנת בשיעור של 60% בערך הכלכלי עבור המפיק.

לסיכום, ועדת שישינסקי, בעזרת יעוץ חיצוני, בחנה באופן מדוקדק את ה-"Government Take" כביכול של מדינות אחרות מחוץ לישראל. אולם, המדינות שנבחנו אינן מדינות ברות השוואה המתאימות לישראל. בנוסף, תנאי השוק עבור פיתוח במים עמוקים של פרוייקטים של גז טבעי בישראל אינם תחרותיים לשווקי גז רבים אשר הינם חסינים יותר במונחים של ביקוש לגז טבעי ובמונחי תמחור. כתוצאה מכך, ההשוואה של ה-GT איננו מדד נכון לבחינת ההגינות. במצבה של ישראל, אימוץ של המלצות ועדת שישינסקי יהווה תמרוץ שלילי לביצוע פעילויות חיפושם ופיתוח בישראל בעתיד נוכח התשוואות ליזמים אשר אינן תחרותיות ביחס לפרוייקטים בינלאומיים אחרים של חיפוש ופיתוח.

בנוסף לטענות המפורטות לעיל, נובל סבורה כי בטיוטת המסקנות יש פגמים משפטיים מהותיים, הן בכל הנוגע לתהליכי העבודה של הועדה והן בנוגע להמלצה להחיל את המדיניות החדשה על בעלים של זכויות נפט קיימות, במיוחד בכל הנוגע להחלתן על מאגרים שכבר התגלו. בכוונת נובל להעביר בנפרד את הסתייגותיה בקשר לנושא החלת המדיניות על מאגרים שנתגלו למשרדו של המשנה ליועץ המשפטי (פיסקלי-כלכלי), ושומרת על כל זכויותיה וטענותיה בנוגע להתנהלות ותהליכי העבודה של הועדה.

מבלי לגרוע מהאמור לעיל, מובהר בזאת כי הגשת עמדה זו אינה, ולא תשמש, כויתור מצד נובל על כל זכות ו/או טענה ו/או תביעה בכל הנוגע לכתב המינוי ו/או מסקנות ו/או ההתנהלות של הועדה ונובל שומרת על כל זכויותיה בענין הנ"ל.

בכבוד רב,

לוסון פרימן, סגן נשיא

נובל אנרג'י

# PFC Energy Opinion and Reaction to Proposed Changes to Israel's Upstream Fiscal System

Prepared for Noble Energy

By PFC Energy

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## **Reaction to Sheshinski Report**

## Approach to Fiscal Policy

As a general rule, countries make national energy policies to accomplish one of two goals: energy security or revenue maximization. Of course both of these objectives are assessed within the context of achieving national energy security. In the first policy option, the most important deliverable from the national energy sector is reliable and affordable energy supplies. In the second policy option, the most important deliverable from the national energy sector is government revenue.

The first policy option is most often chosen by industrialized economies, and it sets out a requirement to establish a reliable and affordable source of energy as an input into economic growth. These more advanced economies choose this policy option because they can generate more sustainable tax revenues from robust economic growth than by relying on the direct taxation of energy production. Countries that opt for the second approach are more likely to be “rent seeking” states. They are often emerging economies that rely on government revenues coming directly from energy production. This approach is followed because their economies are not sufficiently robust, tax collection is weak, or the nature of the political contract (between the government and the citizens) is such that the government secures revenues outside of the control of citizenry (or all of the above).

Governments that choose to follow option one offer industry terms around energy production that can be described as being pro-investment, having low to moderate government take, and exhibit a history of placing significant importance on ensuring contract sanctity. Overall, the tax policies in these countries are designed to attract the lowest cost, best technology in order to provide the maximum supply options at reasonable prices for its citizens. In contrast, governments which choose option two generally offer terms that reflect relatively higher government take, may be pro-investment but do not always secure the lowest cost, best technology, and often subsidize energy prices in order to make it affordable for their citizens. Again, their focus is on generating near-term government revenue directly from energy production.

To date, Israel has pursued the first option, presumably because it is the policy option best suited to deliver reliable and affordable energy supplies to a growing Israeli economy for the benefit of its citizens. However, the recent recommendations by the Sheshinski committee suggest that Israel is taking a sharp turn toward the second option. Just as fundamentally, for Israeli policymakers, this second option will negatively alter the perception of Israel as an attractive place for risk capital in the global oil & gas sector, which in turn could damage the role that its hydrocarbon resources could play in achieving energy security for the State of Israel and its citizens.

### The Sheshinski Report

In November 2010, a committee chaired by Professor Eytan Sheshinski presented a set of recommendations to the Israeli government for proposed adjustments to the Israeli fiscal system. The following are the salient points from the Sheshinski recommendations that one must consider when assessing the overall Israeli recommended position:

- “Government Take” increases dramatically from approximately 30% to approximately 67%;
- The new system applies to all production, existing and future (i.e. is retroactive and thus impacts agreements and investments made previously);
- Each reservoir is separately ring fenced (i.e. no consolidation of taxable income);
- Introduction of a special tax levy based on an R-Factor;
  - The rate moves from 20% to 60%;

- Payment starts after the project cash flow payback hits 1.5x and moves up to 2.3x (effectively delays start of payment to approximately year 8 for average to large projects);
- Deductible for corporate tax purposes.
- Exploration uplift introduced and depreciation starts immediately (as opposed to at the onstream date), but the depletion deduction is removed;
- The effect on IRR is likely to be muted, but NPV will be hit hard (assuming WACC < IRR).

### The Sheshinski Interview

In a November 11, 2010 interview by Globes, the main architect and voice of the Israeli government's actions, Professor Eytan Sheshinski, provided commentary that provides important insight into the Israeli government's position. The most important issues highlighted in the interview are as follows:

- The committee does not believe that what Israel is proposing is "retroactive". In their opinion, the recommendations represent "active" management of fiscal policy because retroactive changes would mean that the affected companies would pay the additional taxes for operating years that have already passed.
  - It is quite clear that the industry has always viewed changes to fiscal terms after projects have been developed (investments have been made) as being "retroactive". The changes may not require payment of back taxes, but the economics used to support the investment decision are being unilaterally changed; therefore, the action is retroactively changing the contractual understanding without negotiation.
- The committee believes that the proposed changes are very similar to changes taking place "over the last four years" in "more than twenty Western countries, among them the US, UK, Canada, and Norway". Prof. Sheshinski also commented that "maybe Noble Energy should sue the US government, which recently made changes in the Gulf of Mexico".

The committee is likely hoping that the general public will hear these comparisons and immediately agree that Israel should simply do what other OECD countries are doing. But it is critically important to understand how and why those countries have changed their terms.

- An important counterargument to the committee's statement about the proposed changes being similar to changes made over the last four years in other Western countries is based on recognition that the committee has made a fundamental error. Many if not most of the changes that "Western" countries (and others) have either implemented or attempted to implement in the last four years have been related to efforts at securing additional revenues from windfall profits from crude oil production due to dramatic oil price increases in the post 2002 period. This comparison is completely inappropriate for the Israeli example for the very simple reason that Israel's offshore is a natural gas province, and its gas pricing mechanism in no way reflects the price of crude. Thus, it would be entirely misplaced to base the rationale for a dramatic increase of government take (particularly retroactively so as to include investments made and contracts previously signed) for E&P investments in natural gas resources offshore Israel, on the fact that many governments imposed windfall profits taxes on crude oil production due to the higher oil prices experienced over the last four years.

- By definition, changes to corporate income tax rates are retroactive in nature because such a change affects income from all activities. And countries frequently adjust their rates. However, it should be noted that these changes are typically quite small, and more importantly there are many examples of countries lowering these specific taxes, not raising them. In contrast, the Sheshinski report recommends more than doubling government take, utilizing a more complex set of taxation mechanisms.
- United States GOM: The United States, at least at the federal level, is clearly a country that has opted for the first policy option noted above. And every successful change in the GOM has been forward looking (i.e., not retroactive).
  - Recently enacted higher royalty rates only apply to new leases, not on leases that have already been executed.
  - The United States did attempt to remove royalty exemptions for deepwater producers when oil prices are high. This was indeed an attempt at a retroactive change. However, the importance of contract sanctity was upheld when Kerr-McGee sued the US government to retain the exemption and won the case. Therefore, there is no need for Noble Energy to sue the US government because any attempt to retroactively change terms at the federal level has been defeated.
- United States – Alaska: It is possible that Prof. Sheshinski’s reference to the United States relates to Alaska’s Petroleum Profits Tax and the recently enacted adjustment to the PPT known as “Alaska’s Clear and Equitable Share (ACES)”. Alaska is in fact an example of an “option 2” regime. The state is highly dependent on hydrocarbon-based revenues to fund its budget and faces significant pressure to act in a rent-seeking manner.
- United Kingdom: The UK is a country that has clearly adopted “option 1” as an overall policy objective. Government take is relatively moderate, and the tax structure has historically incentivized exploration activities.
  - The UK has in the past instituted surcharges to their corporate income tax rate which affected all production (albeit in different ways because the UK uses its tax code and surcharges to target different parts of its offshore portfolio). But, the changes did not double government take and second, the UK always allowed for consolidation of taxable income. This provides “government help” with respect to exploration costs.
  - Furthermore, the government has more recently implemented a loosening policy of providing for certain “field allowances” that offset against tax obligations.
  - There is another substantial difference which precludes the use of the UK fiscal regime for a comparison with proposed changes in the Israeli upstream sector. The UK offshore E&P sector is in orders of magnitude larger than the Israeli offshore in terms of geographic extent and more importantly, the opportunity set. The UK Government could afford to “overcorrect” and get it wrong with incremental changes in the tax code. Israel, with its new discoveries, cannot afford to make mistakes in investment policy. It does not have that luxury.

- Norway: Norway is a notable “option 1” country that has relatively high government take, but has implemented policy in such a way to continually attract investment.
  - Similar to the UK, Norway “helps” investors by allowing for consolidation of petroleum activities for both corporate and special taxes. They also allow for a refund of a large portion of costs relating to exploration, whether successful or not. This compares quite favorably relative to Israel, where the only help provided is an uplift on exploration costs, which only becomes valuable in the event of a discovery. So, Israel is extracting significantly more upside without shouldering any of the downside risk.
  - While the basin is notably weighted toward gas production, the other tax policies and the gas transportation infrastructure make Norway a more attractive option when compared to Israel.
  - Finally, the fact that Norway has a very large and active NOC provides a base set of investment for the country, regardless of whether or not the fiscal terms are attractive to international investors. In other words, due to the presence of Statoil (and Petoro) there would be a level of investment on the Norwegian Continental Shelf even if foreign investors were driven away by higher government take.
- Canada: The province of Alberta did in fact raise taxes on oil sands projects, and the response by industry has been quite clear. Land purchases quickly shifted away from Alberta and toward British Columbia and Saskatchewan. In fact, the government of Alberta has approved a loosening of terms that will take effect in January of 2011.

### Proposed Israeli Fiscal Challenges – Short-Term Gain for the Government, Long-Term Mistake

The following are examples of countries taking steps to secure near-term revenue at the expense of investor confidence and long-term investment potential.

- Venezuela: As oil prices started their ascent, Venezuelan President Hugo Chavez simply dictated that the country’s national oil company would from that point forward own a majority share of all developments. They compensated companies for their investments, but this compensation would simply be their pro-rata share of book value, which was far short of the market value and gave no consideration for risk taking. So while those companies got a return of their investment, they got no return on their investment.
- Bolivia: The Supreme Decree in 2006 unilaterally established state participation, as well as a huge 32% revenue tax, pushing up effective royalties to 50%. This example is similar to Israel’s in as much as the commodity in question was overwhelmingly natural gas.
- Kazakhstan: Rigorous enforcement of existing laws and passage of new laws has been the method by which this country has enacted several retroactive changes to fiscal terms. This tact has had a huge negative effect on investment, and investor appetite has shrunk considerably.
- Others: Additional countries that have taken similar steps include Russia, Algeria, Angola, and Equatorial Guinea. All of these countries have enacted tough new rent-seeking laws on existing production as the expense of investor interest.

Brazil is an important example of a country that has struggled with defining fiscal policy according to the above options. The economy is highly dependent on energy revenues, and recent discoveries referred to as the “Pre-Salt” provide significant pressure to increase government take. As such, they are in the

process of introducing tougher terms, as well as designing a Production Sharing Contract. However, what is important to understand is that even with this huge opportunity, the country has implemented the changes only on a go-forward basis. Existing production will remain under the terms that are currently in effect. The government of Brazil clearly recognizes the need to keep the money and technology out there exploring and developing.

Finally, all of the above comparisons are difficult because of the vast differences between the geology in Israel versus the noted examples. Even with the Tamar development and the possibilities of Leviathan, most operators still see Israel as a fairly high risk area from a geological perspective. PFC Energy would put the Expected Probability of Success at around 9% – 10%. This is materially less than other deepwater plays around the world. It is in light of difficult geology and above-ground political risk that countries usually take steps to encourage investment by offering relatively attractive fiscal terms. Israel's case is even more complicated by the fact that (1) there is very little oil, so when something is found, it is highly likely to be natural gas; (2) there is no option for exporting whatever gas is found, and upside on pricing is quite limited; and (3) there are very few deepwater "capable" operators who can or will operate in Israel. The fact of the matter is that Israel offers little in the way of an enticing investing and operating environment when taken in the context of the global marketplace for E&P investment. A dramatic increase in government take does not enhance Israel's attractiveness in this global marketplace; quite the reverse.

Israeli policymakers are naturally focused on enhancing its natural energy security. The measures offered up will only serve to complicate that goal. Exploration activity will drop. Projects will be delayed. These proposed changes (applied retroactively) will only serve to increase energy costs for the end consumer and lessen the country's options in terms of achieving energy security.

## **Reaction to Daniel Johnston Report**

## Overview of Findings and Opinion

An independent consultant, Daniel Johnston recently submitted a report to the Sheshinski Committee providing a comparative analysis of Israel's fiscal system relative to other systems around the world. The following is a memo outlining the key findings and recommendations in the Johnston Report, as well as some opinions and commentary on those findings.

### 1. Retroactivity

- a. Johnston briefly notes that there have been several countries that have applied changes retroactively, but he gives absolutely no discussion about the appropriateness of such a change in Israel's case. Furthermore, there is no comparison about the magnitude of the proposed change in Israeli terms relative to even the noted examples of countries that made retroactive changes.
  - i. The example countries noted on page 7 of the report include Venezuela and Bolivia, suggesting that there is a reasonable comparison with countries that nationalize assets. There are few investors who would argue that nationalization is an appropriate method for securing revenue. One could easily argue that applying such dramatic changes to investments years after commitment has been made, as is now proposed in Israel, is simply a more socially acceptable way of getting to the same ends as nationalization. In both methods, the government unilaterally takes value away from the investor without compensation or negotiation.
  - ii. Some of the other countries that Johnston references include areas with opportunity sets that are fundamentally larger and more attractive than what is available in Israel (UK, Russia, Alaska, and Canada). Simply noting that changes happened implies to the reader an "apples-to-apples" comparability. Not only are these areas larger and/or "oilier" (i.e. crude oil production) than Israel, several have experienced significant negative impacts on the inflow of development capital and are actively moving to re-improve terms, particularly for gas developments. Furthermore, in the case of the UK, there is clear evidence of improvement in terms over the last 20 years. It was only during the recent crude oil price escalations that there was an increase in take. And the follow-on reaction from industry was quite negative.

In sum, the Sheshinski committee's expert did not focus on or critique one of the most critical aspects of the proposed change in fiscal terms for the Israeli hydrocarbon sector, retroactivity, suggesting that they knew that their arguments were weak (or the expert knew that his arguments against that provision were weak). It is also possible that the Committee did not fully understand the implications of this aspect of their recommendation and its injurious impact on investment of risk capital in Israel's offshore.

## 2. Effect of Consolidation vs. Ring Fencing

- a. There is almost no discussion about the impact that consolidation has on value for investors. Johnston correctly notes that Norway allows for a refund of exploration costs, but there is no way to know if he has included either this concept or consolidation in any of his calculations.
- b. Of the countries that are included in the final peer group for comparison purposes, the only country that explicitly applies ring fencing at a field level is Indonesia. The other countries allow investors to consolidate at some level.
- c. Allowing for consolidation provides an enormous incentive for follow-on investment. The only way to compare the relative incentives investors have to continue to invest in the region is to do an incremental analysis. Such an analysis would illustrate that Israel does not compare well to the peer group. Investors would get no “help” from the government on exploration and development capital until there is a discovery and even then only several years after the onset of spending at a relatively small rate (18%). The uplift will indeed be a form of assistance, but again, it would only be useful if hydrocarbons are found.
- d. In Appendix 5, Johnston notes that the primary measure he is using (Government Take) gives no consideration to “ringfencing or lack of ringfencing”.

## 3. Effect on Israel’s Competitiveness

- a. Johnston’s report does a straight up comparison of government take relative to overall world averages and the peer group.
- b. This approach gives no value to the inherent differences that investors face in Israel relative to other investment opportunities.
- c. The Expected Value Analysis is flawed because it arguably only completes half of the required analysis. The portion provided places the same Expected Probability of Success (EPOS) in all basins (20%). PFC Energy has reviewed the success cases in Israel and would apply a materially lower EPOS than is given in Johnston’s analysis. This number would also be materially lower than we would apply to the peer group countries. Furthermore, the analysis assumes the same Field Size Distribution (FSD) for all basins. This is clearly an inappropriate comparison, particularly as it relates to the UK and Norway. Ostensibly, Johnston uses the same EPOS and FSD in every country in order to isolate the components of the fiscal systems themselves. This is a reasonable approach as a piece of the analysis. However, the analysis is incomplete if it does not also view the basin using specific EPOS factors. It is through this additional analysis that one can view the full effect and reasonableness of a country’s fiscal system. There are very few investors who would view Israel as the next great basin globally; i.e. they would invest regardless of the costs or fiscal terms. Israel must provide prospective investors with reasons to invest there in spite of the marginal geological opportunities.
- d. There is only nominal discussion about the fundamentally unique political constraints that Israel faces. There are very few deepwater-capable operators who can or will invest in Israel. Suggesting that Israel’s proposed system should work for them because it would work in other parts of the world is a clear flaw in logic. Israel must be able to attract international independent oil companies. Massive changes to the rent sought by the government will, by itself, complicate that objective. Making those changes retroactive will send a shockwave through the investing community that the country will struggle to

overcome for years. The natural reaction for business development teams will be to hedge economic analyses by applying a huge risk premium to reflect the fact that the country gives no value to the concept of contract sanctity.

#### 4. Peer Group Analysis

##### a. Initial Screening Group

##### i. As highlighted in a November 17, 2010 article in Globes:

1. The Sheshinski committee was commissioned to “examine fiscal policies on Israel’s oil and gas reserves, ‘in comparison with the fiscal systems in various countries in the Western democratic world.’”
2. “Only three of the sixteen countries in the group meet the criteria set by Steinitz: Norway, Australia, and the UK. 12 of the countries are dictatorships, and some of them belong to the group of countries with the most failing economies in the world.”

##### ii. Clearly, there is a disconnect between the stated intent of the committee and the justification of the proposed terms via Johnston’s report.

- b. Johnston specifically drops the US (a notable low take regime) from the analysis because of the fact that the US incorporates signature bonuses. In other sections of the report, Johnston concedes that bonuses are an immaterial component to the economics of almost every deepwater development. Suggesting that the bonuses in the US are so much higher than in the rest of the world (e.g. Libya) that its inclusion would skew the analysis is questionable.
- c. The point of the report is, in part, to illustrate why the proposed terms make investing in Israel a more fair deal for both parties. The current terms in Israel are conspicuously absent from Figures 7-9, which illustrate value to investors. Given the fact that the basin is entirely gas, and every development is ring fenced, one would expect that the current terms would likely compare somewhere in the “middle of the pack” if all the value components are appropriately applied.
- d. Johnston also appears to include state participation in his calculation of government take. This is a highly debatable approach. In the vast majority of cases, while the state is carried through exploration, they pay their pro-rata share of development capital and operating costs. Therefore, they are effectively a partner from FID-forward. Including state participation as a form of take implies that there is no consideration given for what they are taking in the form of equity ownership. If one removes this component, the overall government take would drop. Including this component, Johnston further reduces the value of the comparative.

#### 5. Other

- a. Israel’s proposed terms imply a belief that its system should reflect the same competitiveness as every other system in the world, without regard to geology, economics, politics, and geopolitics. The fact of the matter is that Israel is less attractive than the average regime in all of those areas. Any investor in Israel’s deepwater is fundamentally limited in its opportunity set, contrary to Johnston’s stated opinion.

## **Reaction to Pindyck Report**

## Financial Theory and Oil and Gas Investments

Professor Robert S. Pindyck has been asked to explain how one would determine a “normal or competitive rate of return for investments in the exploration, production, and development of offshore oil and natural gas reserves in Israel”.

In his line of argument, Professor Pindyck relies heavily on a widely but oftentimes inappropriately used model, called the Capital Asset Pricing Model (CAPM). The CAPM is subject to a series of restrictive premises that limit the practical usefulness.

Professor Pindyck goes on to recommend an excess profits tax that kicks in once the normal or competitive rate of return is realized. This approach is valid in theory but faces some severe practical challenges that have to be resolved in order to avoid significant negative effects on investment levels in the country’s oil and gas sector.

This document addresses some of the underlying assumptions that form the “model world” from which the CAPM originates and discusses the resulting limitations for its application to actual projects. The document will furthermore illustrate the full life cycle of oil and gas projects and thereby demonstrate the difference between project returns and shareholder returns.

### Critique of the Capital Asset Pricing Model

Professor Pindyck relies in his analysis of appropriate rates of returns on the Capital Asset Pricing Model (CAPM). The CAPM is widely used among practitioners because of its perceived objectivity and simplicity. But as Professor Pindyck himself rightfully points out, basic principles of finance are often misunderstood, and the CAPM is no exception. It is therefore necessary to understand the model’s assumptions and genesis in order to judge whether the model replicates reality sufficiently to accept the model’s results.

The CAPM follows the portfolio theory by Harry Markowitz. In essence, Markowitz demonstrates that combining several assets in a portfolio will reduce the volatility of returns through diversification. Markowitz further demonstrates that if several portfolios exhibit the same level of volatility, a rational investor would choose the portfolio that yields the highest expected return. The portfolios that offer the highest expected return at each level of volatility build an “Efficient Frontier”. Investors would then choose among those efficient portfolios according to their preferences.

This theory was taken a step further by introducing a risk-free asset. If an asset existed that yields a return with zero volatility, it would be possible to determine how much additional return a portfolio is expected to yield as compensation for its volatility. It can furthermore be determined how much additional return this portfolio offers per unit of volatility. Every rational investor would then choose the portfolio that offers the highest ratio of additional return per unit of volatility. As no investor would invest in any other portfolio, this portfolio will become the market portfolio. It contains all risky assets, is therefore fully diversified, and is being held by all investors.

This fully and optimally diversified market portfolio has eliminated all asset-specific risk. However, a certain so-called “systemic risk” remains that cannot be diversified away. The market will not reward an investor for taking asset-specific and diversifiable risk, but only for accepting systemic risk. The measure of systemic risk is referred to as BETA in the CAPM and expresses how strongly the expected returns of an asset or portfolio correlate with the Market Portfolio.

The CAPM owes its popularity with practitioners in the finance industry to its combination of sound theoretical foundation and perceived practical applicability. Its theoretical foundation, however, is

dependent on a series of restrictive assumptions that will have to be bent if not broken if the model is to be used in real life situations:

- Investors behave rationally and have homogeneous expectations,
- Every investor holds the same portfolio, the Market Portfolio, which includes all risky assets,
- Every investor can borrow or lend any amount of money at the same risk-free rate of return,
- All investments are infinitely divisible, i.e. fractional shares of any asset in the portfolio can be bought or sold,
- These transactions result in neither taxes nor transaction costs.

These assumptions hardly conform to reality and certainly do not apply to oil and gas assets. Investors are neither rational nor do they share the same expectations. Neither direct nor indirect interests in oil and gas assets are infinitely divisible and transactions may result in significant transaction costs and taxes. Further, examining the assumption regarding the “same risk-free rate of return,” this is a wildly inaccurate assumption for the global oil and gas industry. A large integrated major company like ExxonMobil might enjoy a cost of capital of about 6% whereas a medium-sized independent would have a cost of capital of 9% to 10%. Smaller independents have a cost of capital which can reach 12% or higher. Needless to say the impact on realized returns is dramatic. Several attempts have been made to modify and improve the CAPM in order for it to work under less stringent assumptions. Empirical tests of the model have led to mixed results at best.

The CAPM describes the ex-ante rate of return investors should expect from their investments. All we can measure, however, is what returns investors have realized ex-post. Professor Pindyck acknowledges this problem explicitly in Section 26.5, but assumes that realized returns equal or resemble the expected returns sufficiently in the long-run. This assumption, however, is impossible to prove.

Furthermore, the model requires the Market Portfolio to include all risky assets – stocks, real estate, etc. Professor Pindyck acknowledges this problem as well, but then follows the conventional practice of using a broad stock market index as proxy for the all-encompassing Market Portfolio. Whether an index of 500 US-Stocks is enough in an increasingly globalizing economy may be questioned. Against that background, the derived range of expected returns between 8%-10% may be far less definitive than suggested by Professor Pindyck.

Another shortcoming of traditional financial theory, including the CAPM, is the focus on shareholder interests only. In the oil and gas industry investment decisions are not made by millions of anonymous, well diversified shareholders, but individuals that consider interests of various stakeholders.

While shareholders can diversify the risk of one particular company’s failure, that company’s employees cannot. And while a shareholder may have direct and indirect holdings in a wide variety of assets, a country usually has far less numerous sources to rely on for security of energy supply. The CAPM is better suited to explain how rational investors should behave in a perfect world than how decision makers will behave in the real world. International Oil Companies and Governments alike are well advised to pay attention to asset specific risks.

### [The Full Life Cycle of Oil and Gas Projects](#)

Exploring for oil and gas in deep water is a risky business. Tremendous efforts have to be undertaken in order to secure acreage, multi-million dollar G&G studies are necessary to identify suitable prospects and drilling costs can reach \$100mm and more per well.

Professor Pindyck argues that this kind of risk is diversifiable and thus does not justify excess returns over the “normal or competitive” rate of return. Irrespective of whether one agrees with that notion, risk diversification implies that while there will be many disappointing outcomes - such as dry holes - there will also be successes to make up for the failures.

The concept of a windfall profits tax as suggested in Professor Pindyck’s paper jeopardizes the principle of diversification. The burden of failure is borne by the investor, while the benefits of success are siphoned off by the government. Investors could never expect to receive a “normal” rate of return if such a tax were implemented.

Professor Pindyck acknowledges this by including the chance and costs of one dry hole into his numerical example in Table 4. This example, however, does not fully represent the typical risks and costs of an oil and gas project. The chance of commercial success is closer to 20% than 50%, and costs to consider should include license, seismic and administrative costs. The table below offers an expansion of Professor Pindyck’s example in an attempt to reflect the major stages the oil company typically goes through in order to obtain one producing field.

Year	1	2	3	4	5	6	7	8	9	10	11	12
Project	Data Room, Negotiation	G&G Studies	Exploration Well, Tests	In-House Interpretation	Appraisal Well	In-House Interpretation	Development Concept	Development	Production Phase			
Project A	(5)	(10)	(100)		(100)			(4,500)	2,760	2,852	3,040	2,632
Project B	(5)	(10)	(100)		(100)							
Project C	(5)	(10)	(100)									
Project D	(5)	(10)	(100)									
Project E	(5)	(10)	(100)									
Administrative Costs	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)
Company Cash Flow	(125)	(150)	(600)	(100)	(300)	(100)	(100)	(4,600)	2,660	2,752	2,940	2,532
Dev. Project IRR	50.5%											
Company IRR	16.5%											

Focusing on the development phase alone, the rate of return of 50% may appear excessive. Taking a full cycle view reveals that the company only earns a return of approximately 16% for its investors – without accounting for any taxes.

A profits tax of 45% would lead to a 9% rate of return in Professor Pindyck’s example, but to a loss in a more realistic setting as the table below illustrates:

Year	1	2	3	4	5	6	7	8	9	10	11	12
Project	Data Room, Negotiation	G&G Studies	Exploration Well, Tests	In-House Interpretation	Appraisal Well	In-House Interpretation	Development Concept	Development	Production Phase			
Project A	(5)	(10)	(100)		(100)			(4,500)	1,509	1,559	1,662	1,439
Project B	(5)	(10)	(100)		(100)							
Project C	(5)	(10)	(100)									
Project D	(5)	(10)	(100)									
Project E	(5)	(10)	(100)									
Administrative Costs	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)
Company Cash Flow	(125)	(150)	(600)	(100)	(300)	(100)	(100)	(4,600)	1,409	1,459	1,562	1,339
Dev. Project IRR	14.0%											
Company IRR	-1.5%											

We agree with Professor Pindyck that implementing an excess profit tax as suggested is difficult, as the tax authorities “would have to know in advance, or forecast with reasonable accuracy, the cash flows of the project throughout its life”. It is important to understand that for this purpose the life of a project does not start with its development but with the efforts and money spent to secure sufficient acreage in order to discover one producible field. Failing to take into consideration the full costs of finding and producing oil and gas will lead to a non-competitive fiscal regime that discourages investment in the country’s petroleum sector.

## **Description of Project Evaluation and Approval in the Oil and Gas Industry**

## Project Assessment and Evaluation

Investments in the oil and gas exploration and production business are capital intensive and risky. Companies will therefore analyze projects from various angles before making a decision to commit several hundred million, or even billions, of dollars.

The final investment decision at the board level will typically be based on economic/financial indicators as well as strategic judgments. Some of these critical judgments are described below:

**Materiality:** Is the project large enough (in comparison to the company) to justify the efforts to pursue it.

The amount of manpower a company has to invest into the acquisition and evaluation of projects, the creation of a development and project management is more a function of complexity than of size. A small complex project may bind much available corporate resource without adding significant reserves.

At the same time, the company's reserve base is diminished every day by production and has to be replenished in order to avoid an overall gradual decline. The company will attempt to allocate its limited resources in such a manner that they add reserves to replace or grow production. The materiality threshold is therefore a function of production level and resources available.

The materiality threshold may be higher for the initial project in a country or region, as this initial project requires disproportionately large resources while bearing higher risk: lack of experience with the geological environment, technical challenges and governance climate result in higher uncertainty, forcing additional work in order to address these risk factors.

**Above-ground risk:** Stability of investment environment and operational obstacles.

The first assessment of a project is carried out under the current tax and regulatory framework or the negotiated contract in the case of a production sharing contract or service contract. Given the long-term nature of oil and gas projects, special attention to potential future changes to these terms is warranted. Aspects to consider before investing in a particular country include the sanctity of contract, history of sudden and opportunistic changes in taxation and regulatory interference. Countries that have a history of expropriation or adverse changes to fiscal regimes for existing projects will most likely experience a drop in interest in their oil and gas sector.

Other forms of above-ground risk include obstacles to conducting operations in a safe and efficient manner due to war, strikes or civil unrest or simply lacking infrastructure, among others.

**Subsurface risk:** Degree of uncertainty surrounding technical project drivers

Depending on the nature of the project, important technical parameters can represent large uncertainties and cast doubt on the feasibility of the project. Uncertainty about reservoir quality can be addressed through probabilistic analysis; failure risk of unproven technology can be limited through pilot projects. The uncertainties can be large enough to override any probabilistic assessment. If the risk is perceived as real, the project may not be undertaken.

**Economics:** Does the project create value?

This is the core question in traditional project evaluation. Financial theory has provided the basis for a series of indicators that are frequently used to judge the economic viability of a project from a value perspective:

**Net Present Value (NPV):** If the appropriate discount rate is used, the NPV represents the shareholder value added by a project or series of actions at a given point in time. In theory, any project with an NPV greater than zero should be undertaken.

**Internal Rate of Return (IRR):** The IRR of a project is compared to its hurdle rate. In theory, any project with a rate of return greater than the hurdle rate should be undertaken.

**Present Value Index (PVI):** In reality, companies face budget constraints and are forced to rank their investment opportunities and to allocate funds to the top projects only. One of the most commonly used indicators to rank projects is the Present Value Index (PVI). The Present Value Index is the ratio of the Net Present Value and the Present Value of the required investment. In simplified terms, the PVI expresses the amount of value created per dollar of investment.

All three indicators require a discount or hurdle rate, which represents the opportunity costs of the money invested in the project, i.e. the return the money could have earned in another project with similar risk. The discount/hurdle rate is usually derived from a company's cost of capital but frequently adjusted for various risk factors.

The economic evaluation oftentimes incorporates the technical risk by performing the economic assessment based on a large number of different technical input factors and analyzing the results stochastically. This probabilistic analysis can also incorporate above-ground risk which is considered preferable to adjusting the hurdle rate by some.

Economics is used to support the decision-making process. This requires that the evaluation is done on an incremental basis, i.e. only expenditures that have not yet been made or committed will be taken into account. Costs that have been made or must be made due to legal or contractual obligations are referred to as "sunk costs" and are no longer decision relevant. This means that rate of return of a project is not representative of company profitability as sunk or fixed costs are not taken into account. Separate performance measurement processes are necessary in order to monitor the efficiency of capital allocation and safeguard the financial viability of the company. One of the processes is the "post mortem" analysis which compares the actual development of a project with the forecast at the time the project was sanctioned.

Another widely used indicator is "pay-back-time". The metric indicates how long it will take to recover the money invested into the project from project revenues, either taking into account or ignoring the opportunity cost of money. The longer the payback time the longer the company is exposed to adverse government action such as increases in government take or even expropriation. Whereas a project with a given pay-back time might be acceptable in a fiscally stable country, the same project may be rejected in a country prone to fiscal instability.

**Strategic Judgments:** Does the project provide additional benefits that are hard to quantify.

Some projects provide benefits that are hard to quantify and are thus often left out of the assessment of the economic attractiveness.

Projects may help to start or expand relationships and partnerships with companies or government entities that could increase the chance of success of future projects. Other projects might serve as a "pilot" to test new technology or to acquire information about the geology of a larger area that can later be leveraged on a larger scale.

**Financial Statement Impact:** Threats to short-term share performance

In addition to the long-term effects on intrinsic company value, many companies will also take into account how large projects will impact their financial statements. Aspects to consider would be the effect of initial dry-holes on company earnings (depending on the accounting approach used) or of adding large amounts of capital on the Return of Capital Employed (ROCE). Both could have adverse effects on short and medium term share price performance.

Other aspects address financing decisions. Does the company have sufficient cash reserves to fund the capital expenditures or will additional funds have to be raised? In both cases the capital structure and/or liquidity ratios will be affected with possible consequences for share price development and future borrowing capacity.

While the economic analysis is based on the full life cycle of a project, outside financial analysts base their opinion usually on predictions derived from publicly available information, which can be incomplete. This reality can lead to external misperceptions.

Capital is a finite resource and companies need to ensure it is being allocated to the most profitable and material investments. As such, it is necessary for companies to exercise their fiduciary duty to shareholders via ranking their inventory of project opportunities and allocating capital in a way that maximizes value for shareholders. This process is commonly known in the oil and gas industry as the capital allocation process and it is an integral part of the long term planning of the business.

## Approval Processes

The processes that govern the decision making process vary by project size and circumstances. Capital is a finite resource and companies need to ensure it is being allocated to the most profitable and material investments. As such, it is necessary for companies to exercise their fiduciary duty to shareholders via ranking their inventory of project opportunities and allocating capital in a way that maximizes value for shareholders. This process is commonly known in the oil and gas industry as the capital allocation process and it is an integral part of the long term planning of the business.

Many companies manage a portfolio of drillable prospects that are constantly ranked according to attractiveness. Out of the total budget for this type of activity, funds are allocated to the business units based on the ranking of that business unit's prospects within the portfolio.

Large or high profile projects go through a multi-stage approval process. The first approval process may be on a business unit level. Careful analysis by technical and finance staff will identify problem areas that will have to be addressed before the project proposal is sent to corporate.

After the business unit management is convinced that the project will meet all of the corporate requirements with respect to all the aspects outlined above it will be submitted for further review to corporate office staff.

It is not unusual for a project to undergo some sort of "peer review" before a formal project application is submitted for the final decision process. The "peers" in this case serve as devil's advocates testing the strength and weaknesses of the project and plan of action. Once the "peer review" is successfully completed a formal project proposal is submitted.

This proposal is usually reviewed by a staff unit that acts as a "gate keeper." The project is reviewed with respect to compliance with corporate evaluation standards, business logic and strategic fit. The staff unit will then prepare a concise recommendation for the final decision process highlighting major risks and opportunities.

Depending on the size of the project, the bylaws of the company and the corporate governance legislation in the respective country, formal decisions by several instances are required, such as a board of directors, advisory boards or labor representatives before the project may move forward.

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