

Managing Israeli Natural Gas Revenues to Protect Domestic Energy Security, Innovation, and Future Generations

Doug Koplow/ April 2014¹

Executive Summary

Large natural gas finds off the coast of Israel create significant financial and energy challenges for a State long focused on high technology exports and alternative energy development. To address these concerns, Israel has already implemented study commissions and proposed a Sovereign Wealth Fund (the “*Citizens of Israel Fund*”).

The following recommendations continue along this path. They aim to help the country realize the very large potential benefits of the fields for multiple generations, while minimizing the pitfalls that such large natural resource finds can trigger for small countries. These recommendations are discussed in more detail in the body of this paper.

- 1) **Market pricing of all gas.** Use market-based pricing of natural gas sold in domestic or international markets in order to avoid politically-distorted decisions on export versus domestic consumption levels and to optimize revenues to the government. This pricing neutrality should extend to associated royalties, excess profit fees, and recovery of field-related security charges.
- 2) **No subsidized conversion.** Allow natural gas prices to determine the pace and location of infrastructure conversion to gas. Don’t subsidize either conversion-related capital or natural gas flows to particular industrial or commercial enterprises.
- 3) **Energy vulnerability tax on choke-points.** Institute an energy vulnerability tax or surcharge on energy flows through key chokepoints within Israel in order to protect and expand energy diversification efforts. This would apply to all chokepoints, not just the new ones created by the Tamar and Leviathan fields. Shifting some existing taxes on

¹ Views and recommendations presented in this paper are the author’s alone, and do not necessarily represent the views or approach of individuals who generously shared their insights with the author: Gilead Fortuna and Shlomo Maital (both of the Neaman Institute) and Yossie Hollander (Israeli Institute for Economic Planning). Thanks as well to Tal Ben Menashe for her translation of the January 2014 committee draft of the proposed “*Citizens of Israel Fund*” law. Comments and suggestions welcome; please direct to comments@earthtrack.net.

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Domestic Energy Security, Innovation, and Future Generations*

fuel end-users to a differentiated vulnerability tax on flows going through chokepoints can greatly improve price signals to invest in supply diversification and resiliency without adding additional energy taxes on a gross collections basis.

4) **Full royalty capture.** Review allowable exclusions and deductions from royalties to identify and correct areas of potential gaming and likely friction as fuel and revenue flows grow in future years.

5) **Fund principal invested in global, non-NIS securities.** Retain investment restrictions now in the *Fund for Israel* proposal that targets investment into global, non-NIS assets.

6) **Payout rules that allow fund appreciation over time.** Review and likely reduce payout rates from Fund to allow some investment earnings to compound within the Fund to grow principal over time.

7) **Annual distributions direct to long-term capital projects.** Look to more closely align spending of income distributed from the Fund to Treasury with long-term investments into human and physical capital.

8) **Tighter rules on borrowing from Fund principal.** Tighten rules on what counts as an emergency under Fund rules to ensure that resultant borrowing of Fund principal (and potential subsequent debt forgiveness) occurs only in the most extreme of circumstances.

9) **Review appointment procedures of key Fund oversight functions.** This would ensure that the direct and indirect influence of political figures over the structure and management of the Fund is appropriately checked in order to protect its independence.

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1. Overview

As a small, open economy with a long-term focus on information technology-related export industries and alternative energy, large natural gas finds off the coast of Israel create some significant management challenges. Since the discoveries were first announced, government officials and others have recognized the need to manage revenues carefully in order to avoid export-damaging currency appreciation. Creation of a sovereign wealth fund has been broadly accepted as a key solution to this challenge, and a significant amount of analysis has been done over the past few years on how such a fund should be structured.² Beyond revenue management, the finds also create challenges to maintaining diversity of energy supply.

In January, the Science and Technology Committee of the Knesset, Israel's legislative branch, passed a bill (M/757A, *Citizens of Israel Fund 2014*) formalizing elements of the fund. The legislation has not yet been signed into law (second and third readings amongst the broader Knesset are needed first), and additional changes may be made. Many elements of the proposal introduce important oversight of the Fund; a couple may be problematic. These include payout rates that leave little or no investment growth within the Fund, and somewhat vague guidance on the types of emergencies for which the fund principal can be used.

A parallel debate has also raged over what portion of the new energy supply should be used for domestic consumption rather than export. Substantial public pressure to direct a larger share of both the gas and the financial flows into current domestic use underscores the importance of fund structure. Weaknesses could undermine two core principles for which the sovereign wealth fund is being established: converting current, single-industry windfalls into long-term, diversified income streams; and offsetting pressures for currency appreciation.

This paper outlines a series of principles related to the natural gas developments. These principles seek to leverage market price signals in determining the mix of domestic versus exported gas. They also highlight additional checks-and-balances to enable the planned sovereign wealth fund to accomplish its targeted goals. As one important risk from the natural gas bonanza is a growing concentration (and vulnerability) of supply routes, the paper also calls for Israel to establish an energy

² See, for example, Milken Institute, *Structuring Israel's Sovereign Investment Fund: Financing the Nation's Future*, Financial Innovations Lab Report, December 2011.

vulnerability tax across all supply choke-points in order to ensure continued supply diversification and supply route resiliency.

2. Core objectives of recommendations

The recommendations presented in this paper aim to achieve five core objectives:

- **Exchange rate.** Avoid appreciation of New Israeli Shekel (NIS) that would weaken Israel's non-energy exports and drive up the cost of domestic real assets.³
- **Energy security.** Avoid exacerbating long-term energy security risks that would result if the new gas undermined current energy diversification efforts or triggered increased dependence on a smaller number of core supply pathways.
- **Revenue diversification.** Convert natural gas revenues into a more diversified future income stream.
- **Political checks and balances.** Keep political pressures at bay with regards to the use of the natural gas and related financial flows in order to ensure the windfall supports multiple generations rather than being dissipated in one.
- **Capital, not operations.** Where gas revenues are spent domestically, apply them to unfunded liabilities or long-term development of capital assets rather than plugging current operating deficits.

Israel's policies with regards to its newly discovered natural gas wealth should be supportive of achieving these aims.

3. Ensuring pricing neutrality for domestic and foreign uses of gas

There have been intense debates within Israel regarding the portion of the natural gas find that should be used domestically versus for export. Those promoting export argue that a large commitment of reserves to export markets is needed to ensure adequate royalty flows to Israel and to incent more companies to search and develop hydrocarbons in the region. Many others argue an opposite position: that the main value of the find is to improve Israel's energy security and reduce domestic energy

³ In 2013, the Bank of Israel estimated that currency appreciation could result in the loss of \$800 million in non-gas exports for each \$1 billion in gas exports. See: "Israel economy: Israel moves closer to setting up sovereign wealth fund," *Economist Intelligence Unit*, 16 April 2013.

prices. They argue that lower energy prices in particular will drive gains in employment and industrial production.⁴

At present, minimum domestic market obligation levels have been set administratively.⁵ However, proper pricing policy can and should help drive the appropriate mix of exports versus domestic consumption. This includes ensuring that the price at which the gas is sold to end users in either market is not subsidized. It also requires that fuel transport and expenditures to defend gas infrastructure and shipping routes are accurately accounted for and included in fuel prices to end users.

3.1 No subsidized markets

Natural gas should be sold at world market prices to whichever market it enters; there should no subsidy to domestic consumption. While world reference prices are more difficult to obtain for gas than for crude oil, there is a growing trade in natural gas, and price discovery is eminently achievable.

Accurate pricing will maximize government royalties and taxes from the fields. The need to pay full price will also mute political pressures to divert flows to favored domestic interest groups. Note that even if subsidies are not explicit cash transfers, very high domestic market obligations often have the same effect by creating a supply overhang for domestic consumers, while blocking exports that would otherwise equalize transport-adjusted fuel prices in both markets.

3.2 Market neutrality for development partners and royalty recipients

As with product pricing, it is important that the payments to the government through royalties and the newer excess profits tax do not favor domestic over export

⁴ These positions are outlined in David Shamah, "Keep Israel's gas at home, urge a growing body of experts," *The Times of Israel*, 28 May 2013.

⁵ Early recommendations in the Tzemach report (p. 11) took steps to reduce the cost of complying with the domestic market obligations by allowing different fields to trade export rights amongst each other. In theory, this approach could help avoid duplicating infrastructure needed to move gas flows to both markets at every field. The early recommendations also set trading bands (e.g., a maximum of 75% of extracted gas that could be exported even with trading), which may reduce the efficiency gains from trading because all large fields will require infrastructure to serve both markets. On the plus side, such a requirement would ensure the capability to shift between domestic and export markets if relative conditions change. See *The Recommendations of the Inter-Ministerial Committee to Examine the Government's Policy Regarding Natural Gas in Israel, Executive Summary [Tzemach Report]*, September 2012.

markets.⁶ While well operators may find one outlet or the other more attractive at different periods of time, their decisions should not be skewed by differentials caused by royalty and petroleum tax terms. This is particularly important early in the field development, when many of the long-term supply deals are struck.

3.3 Capital conversion driven by economic, not political, factors

The Israeli Finance Minister has argued that the country should overhaul its economy and transport fleet to run on gas. This across-the-board strategy would be a mistake. Proper pricing of natural gas will trigger capital conversion to the fuel on its own; but this transition will occur in a more measured, economically-rational way – for example, starting with truck fleets or with vehicles close to the end of their operating lives.

In contrast, if conversion to natural gas is subsidized, premature scrapping of existing non-natural gas capital and increased domestic demand for natural gas are both likely. If the gas itself is subsidized on top of subsidies to the conversion process, premature scrapping will be further accelerated. The side-effects are significant: reduced export earnings, and an erosion of the competitive position of non-fossil forms of energy.⁷ The country's vulnerability to disruptions in core natural gas supply routes would also increase.

3.4 Price-driven industrial expansion

Others have argued that the gas should feed an expansion of existing energy-intensive industries, such as domestic chemicals production. Subsidies to gas purchases by that sector are implied, though not stated. However, just as subsidies to transport fleets can result in economic distortions that are inefficient over the long-term, so too

⁶ There have been some suggestions that gas exports should incur higher fees than domestic consumption in order to cover security costs. However, the actual drilling sites benefit both domestic and export markets; and there is no indication that either field would be used only for export. To the extent that security costs are shared, differential fee *rates* do not seem warranted; volume-based charges at the same rate would naturally raise more revenue from whichever outlet market was receiving more gas. A similar approach could be used to ensure that longer supply routes pay more as well. In contrast, LNG facilities would be export-driven, and to the extent they required specialized security services, surcharges could be warranted.

⁷“Forecast demand for natural gas in transport is not based on existing demand for natural gas, but on government policy promoting a transition to the use of natural gas in transport, whether by means of methanol or by means of other natural gas-based products,” text of the Tzemach Report indicating that subsidized conversion is likely. *The Recommendations of the Inter-Ministerial Committee to Examine the Government's Policy Regarding Natural Gas in Israel, Executive Summary*, September 2012.

would subsidies to large industrial users such as chemicals. Pricing to those consumers should also be at market.⁸

3.5 Transparency for any political subsidies to exports to neighboring countries

The decision to direct most of the near-term export flows to immediate neighbors rather than more distant markets via liquefied natural gas (LNG) should also be evaluated in terms of embedded subsidies.⁹ More localized export markets may make good sense: existing infrastructure can be leveraged and the cost of building expensive and vulnerable gas liquefaction capacity can be delayed or avoided.¹⁰ Further, LNG plants and their associated long-term export contracts can create a degree of capital “lock-in,” reducing the flexibility with which gas flows can shift between domestic and export markets based on relative pricing. Exports to neighbors can also build political cooperation. However, if export flows are being under-priced for any reason, this should be transparently accounted for in financial reporting on the project rather than ignored. In such situations, it may be appropriate to categorize some or all of these subsidies as foreign aid.

4. Capturing royalties from all extracted gas

Political authorities sometimes establish rules that reduce the royalties due from oil and gas wells within their jurisdiction. Exempting fuels used onsite to run operations from paying royalties, for example, is common at many extraction sites around the world, including within Israel. Allowing certain costs (often transport costs to a hub) to be deducted from the market value on which royalty percentages are applied is also common.

These exemptions often affect behavior in adverse ways. Excluding on-site usage from royalty payments can reduce the incentive to improve the efficiency of well operations, a problem worsened if flaring or fugitive leaks are also excused from royalties. Gaming of costing data by well operators is frequently a problem as well, as

⁸ For a useful summary of the problems that arise when domestic energy subsidies are used as a core tool of industrial and development policy, see Glada Lahn and Paul Stevens, [*Burning Oil to Keep Cool: The Hidden Energy Crisis in Saudi Arabia*](#), (London: Chatham House, 2011).

⁹ This applies primarily to gas flows from the Tamar field. It is likely that exports from the larger Leviathan field will include shipments further abroad and have an associated liquefaction facility.

¹⁰ This strategy seems to be the one being pursued in the short-term. Tamar developers recently signed an export deal with Jordanian companies. The Leviathan developers have a long-term contract with the Palestinian Authority, though are also pursuing contracts with Turkey and Cyprus.

firms seek to reduce royalty payments by pumping up deductions and thereby reducing the base on which royalties are calculated.¹¹

A better solution is for all well output to pay royalty fees, whether exported, used inside Israel, consumed in well operations or related transport, or flared. Only reinjected gas that remains for future use would not incur royalty charges.¹² Similarly, calculating royalties on gross values before any deductions should also be pursued.

Unfortunately, the current Israeli fiscal regime includes these exemptions and deductions. Israel's Petroleum Law of 1952 (as amended) established a flat 12.5% royalty on the wellhead value of produced hydrocarbons, conditions that remain in effect for the new wells. Section 32 (a) of the Petroleum Law applies the royalty to the "quantity of petroleum produced from the leased area and saved, excluding the quantity of petroleum used by the lessee in operating the leased area..." This clearly excludes on-site usage, but may also exclude leaks or other losses as well. Another source notes that if no "wellhead market value is available, the basis for royalties is determined by the sales price minus the transport costs from the well to the delivery point."¹³ This structure often gives rise to valuation problems and gaming. Because historical production volumes have been small, disparities in measurement would not have been politically significant. However, conflicts over payments are increasingly likely as production volumes and associated revenues surge.

Additional fees are to be paid to the government under the terms of the 2011 Taxation of Petroleum Profits Law, which established an excess profits tax. Tax rates on

¹¹ This is an increasing problem with fracking licenses to Chesapeake Energy in a number of US states, for example. The over-deductions and underpayments in the state of Pennsylvania have gotten so bad that the State's governor has intervened; there is litigation in other states as well. See Jim Fuquay, "[Chesapeake loses appeal of royalty suit brought by Fort Worth family](#)," *Forth Worth [TX] Star-Telegram*, 14 March 2014.

¹² Exemptions for fuel consumed during extraction and transport are fairly common, though reduce the incentive for more careful on-site management of resources. In some cases, even flared gas has been exempted from royalty payments for periods of time. As much as 30 percent of the natural gas production from frack wells in the US state of North Dakota, for example, have been flared royalty-free in recent years. Large scale flaring is more common when natural gas is the lower-value byproduct of oil production. Because natural gas is the primary product at the Israeli fields, flaring losses will hopefully be far less of a concern. See Doug Koplow and Cynthia Lin, [A Review of Fossil Fuel Subsidies in Colorado, Kentucky, Louisiana, Oklahoma, and Wyoming](#), 2012. Prepared for the Organisation for Economic Cooperation and Development.

¹³ Transport deductions from cash royalty calculations is indicated in Renelle Joffe, "Energy & Natural Resources – Israel: tax and royalty reform in the petroleum sector," International Law Office, April 11, 2011. In addition, Section 32 (c) indicates transport deductions may also be taken from in-kind payments of royalties.

profits rise once gross investments in the fields are recovered. Based on the anticipated scale of production over the life of the Tamar and Leviathan fields, it is likely that the excess profit taxes will comprise a larger share of government revenues from the developments than the royalties. However, gaming of this charge structure seems even more difficult to police than for the royalties. Two specific areas of potential gaming seem likely: with calculating total investments in the fields (overstated values keep lower tax rates for longer), and with estimating net profits from development (much harder to vet than simply measuring revenues). The law does require “ring fencing” to reduce the commingling of costs across wells and fields to reduce payments owed. This should help. However, given the sums at stake, controversies are likely to remain.

5. Structuring Israel's sovereign wealth fund to protect other economic sectors and build for the future

The success of sovereign wealth funds in avoiding political interference, earning good returns, and hedging against currency appreciation has varied widely across the world.¹⁴ It is important that the lessons from existing funds – both positive and negative -- be applied to the Israeli structure in order to maximize the chances that the Israeli fund will succeed.

The most detailed information to date on how Israel's sovereign wealth fund will be structured is included in the January 2014 draft law for the *Citizens of Israel Fund*. The draft includes a robust set of oversight committees, including detailed direction on the attributes of members. However, many of the appointments are linked to political officials, and this may reduce the independence of oversight to some degree. The draft also carefully defines the allowable investments so they are aligned with the central goal of diversifying revenue streams away from domestic energy.

While fund principal appears mostly protected from domestic pressures to spend it now, two financial risks remain. First, payout rates may exceed earnings during years 1-9; and will fully distribute investment growth thereafter. This structure appears to limit wealth accumulation within the Fund to taxes and royalties levied on new natural gas production only, with no contribution from the compounded appreciation of the Fund's

¹⁴ The sovereign wealth fund in Alberta, Canada, is a good example of the problems that arise when fund governance is lacking. Created in 1976, 20 years prior to the start of Norway's fund, the Alberta SFW holds only \$15.3 billion, versus Norway's \$800 billion. According to *The Economist*, the primary problem with Alberta's fund was that “provincial politicians failed to pay into it regularly, or worse, raided it when short of cash.” They are now trying to correct these shortfalls. See “Canadian Sovereign Wealth Funds: The year of the ant,” *The Economist*, 25 January 2014.

financial assets. Second, guidance on when emergency borrowing from principal (and subsequent forgiveness) is allowed should be tightened. These issues are discussed in more detail below.

5.1 Keeping fund management outside of political control

There have been concerns throughout the process of developing policy to address Israel's natural gas windfall that despite having a sovereign wealth fund in name, "future cash-strapped governments will use it to fund current spending."¹⁵ Common structural attributes to insulate funds from political interference include having a formalized corporate structure independent from political bodies; strict investment and payout guidelines; and independent and public annual audits. A fund established to manage Alaskan oil wealth, for example, was established in the State Constitution and has rigid rules for modification. The Israeli proposal has some elements of strength and some that are potentially worrisome.

Diverse committees include skilled members of the public, though many seats filled by Ministers. There is a formal selection committee that will identify the five members of a Council. The Council establishes the investment policies of the fund and oversees their implementation. The Council also approves the annual distribution to Treasury, sets criteria for external investment managers, and report to the public. A five member Investment Committee will implement the investment policies through the selection and monitoring of managers and assets. The independent Bank of Israel oversees fund investment strategy.¹⁶ However, many of these seats are linked to political positions, either because they are filled by Ministry staff, or are appointed by the Prime Minister or other Ministers. This creates some risks of political interference in decision making.

Diversion of fund principal to current spending: checks are improving, though more guidance needed. Draft legislation on the fund from May 2013 allowed Treasury to borrow from fund principal with a majority of 65 Knesset votes instead of the normal 61. This was increased to a majority of 70 (Section 46B) in legislation that passed the Commerce and Technology Committee in January 2014 -- better, though still only a slight super-majority.

¹⁵ Shlomo Maital, "Whose gas is it?" *The Jerusalem Report*, 29 July 2013.

¹⁶ Tovah Lazaroff and Niv Elis, "Government approves sovereign wealth fund," *The Jerusalem Post*, 14 April 2013.

Such borrowing must be requested by the Prime Minister, and applied to address an “exceptional event.” This is not defined, other than that it could include an “environmental event” (perhaps a major earthquake); and “has a negative impact, by continuation or intensity, on the Israeli economy...” (Section 46A(1)-(2)).

Any borrowing by the State from the Wealth Fund does require interest payments be made to the Fund. This requirement helps counter the incentive politicians might otherwise have to use the funds without giving a second thought to the lost investment earnings during their period of use. However, the stipulated rate (1.5% above the US 10-year Treasury bond rate) is likely lower than other sources of capital (providing an incentive to draw on the fund first) and certainly lower than the expected yield on a diverse investment portfolio.

Further, a similar process as was used to borrow from principal (i.e., request from the Prime Minister and 70-votes in the Knesset) can be used to either forgive or modify the terms of the loan (Section 47), resulting in permanent loss of principal.

Though having some capability to tap into the fund in a major emergency makes sense, there are two potential risks. The first is that because the surge in spending will go into the domestic market, exchange rate appreciation could result. The second is that political pressure will be strong enough to tap into the fund for emergencies that are moderate but not severe. Improved guidance on the types of circumstances that would constitute a severe emergency would be helpful in addressing both of these concerns.¹⁷ A larger super-majority for approving such spending could also help.

5.2 Establishing investment criteria aligned with the purposes of the Fund

A narrow focus on capital preservation and growth, as well as focusing investments primarily on non-Israeli, non-NIS assets, most adequately stabilize the Israeli exchange rate and convert the natural gas windfall into long-term financial security. Chapter Five of the proposed *Citizens of Israel Fund* law addresses this issue well. Investments of principal must be outside of Israel and in foreign currency rather than NIS. Further, the Fund cannot participate in deals in which the Bank of Israel is a party (avoiding potential conflicts of interest); and cannot borrow money (avoiding risks

¹⁷ Economies facing severe dislocations from natural or other disasters are less likely to experience damaging currency appreciation from increased domestic spending than would occur if the fund were tapped into for more political reasons when the economy was already strong.

to the corpus by securing debt and related projects with fund assets). As noted above, the country can still borrow directly from the Fund.

Whether these criteria make it into the final law remain an open question, as domestic opposition remains. Some are arguing that the full amount of revenues from the natural gas projects should be invested domestically, in human capital, rather than in financial instruments abroad.¹⁸

Earnings from the fund (slated to be paid to Treasury to support annual spending) *could* likely be used more productively to fund upgrades to human capital rather than directed to politically-driven government projects. However, using the full windfall for this purpose – including principal -- would be problematic. Losses to the economy from currency appreciation would erode the net benefits purchased by the domestic spending. There is no guarantee that domestic investments into human capital would be well deployed or effectively implemented. Further, the strategy would result in most of the windfall gains supporting a single generation of Israelis rather than the multiple generations that a well-managed wealth fund can support. Finally, with no pool of global assets to generate income year-after-year, Israel would lose much of its ability to hedge its exposure to global fossil fuel trends. This would create long-term risks to the economy.

5.3 Appropriately sizing and directing domestic spending from Fund earnings

As is common with many sovereign wealth funds, Israel's plan is to direct fund earnings into the government budget each year. This creates two main challenges: ensuring the amount deployed does not deplete the wealth fund; and ensuring that spending is efficiently used.

Distribution rates are clearly defined but may be too high to sustain the Fund over the long-term. As proposed (Section 44A: 1-3), the Fund Law allows 3.5% of revenues for the first year and 3.5% of asset value for years 2-9 to be used for domestic spending. Beginning in year 10, distributions are based on the average annual real return (using a 10-year trailing rolling average). In the early years of the fund, there is a risk that distributions will exceed real earnings, depleting principal. After year 9, the current wording seems to indicate that, on average, all investment returns will be spent

¹⁸ Sharon Usdan, "Israel should invest gas revenues in human capital at home rather than in foreign funds," *The Jerusalem Post*, 7 April 2013; and Sharon Usdan, "Experts: Natural gas sovereign wealth fund merits further discussion," *The Jerusalem Post*, 18 March 2014.

each year. This would eliminate compound growth of investment assets, greatly constraining Fund asset growth over time.

A review of other wealth fund practices is warranted, as losing asset appreciation does not seem an optimal strategy. The Alaska Permanent Fund, for example, allows distribution only of realized investment returns “Realized earnings are the income from bond interest, real estate rent payments and stock dividends as well as the net gain (or loss) from the sale of an investment that has changed in value.”¹⁹ Unrealized gains remain in the fund for long-term growth. Further, while all Israeli distributions are allocated to end-uses by the Legislature, in Alaska half are distributed as dividends directly to residents for them to decide how to spend. This practice has helped ensure broad-based political support to keep the Alaskan fund focused on long-term growth and safe from political interference.

The Milken Institute study of wealth fund options for Israel considered the dividend approach and dismissed it on the grounds that the domestic spending would trigger currency appreciation. This should be revisited for two reasons. First, the study team recommended deploying domestic spending to address long-term structural deficits (e.g., unfunded state pension liabilities) that would not have immediate market impacts on exchange rates. However, the current proposal in Israel is quite different, giving the Knesset fairly wide latitude on what projects can be funded with transfers from the sovereign wealth fund. Thus, it is not clear that the currency risks of a partial dividend approach are materially different from Knesset-led spending.

Second, even direct dividends could be structured in a way to minimize currency risks. Directing distributions into individual retirement accounts rather than immediate spending, for example, would accomplish this. Further, dividend recipients could have the option to receive their dividend in kind rather than cash, with the expectation that a sizeable portion would elect to receive shares of a global mutual or exchange-traded funds, further reducing immediate currency pressures.

Domestic spending portion not limited to capital investments. Pre-set distributions from the fund to the operating budget of Israel (the “yearly allocation”) can be applied fairly broadly. Chapter 6D of the proposed Fund law specifically mentions spending on research and development and development in the energy sector

¹⁹ Alaska Permanent Fund Corporation, “What is the Alaska Permanent Fund?”, <http://www.apfc.org/home/Content/aboutFund/aboutPermFund.cfm>, accessed 19 March 2014.

as priorities. However, aside from separately describing proposals in these areas, and requiring approval of all spending by the Knesset, the areas in which funds may be applied appear to be quite broad.²⁰

In contrast, following a detailed review of sovereign wealth funds from around the world, the Milken Institute²¹ recommended that the domestic portion of spending be used to fund future pension liabilities or to endow a fund to cover post-catastrophe emergency assistance – as would be needed, for example, should a major earthquake hit the region. The focus on long-term capital needs seems promising. However, care is needed to ensure that the funding plan does not favor public employee pensions at the expense of private sector employees or those not in the labor force. This specific concern aside, the pending law may benefit from additional guidance on directing income distributed to Treasury towards more capital-like projects or investments.

6. Using an energy vulnerability tax to prevent loss of energy diversification

Resource production within Israel is particularly challenging as the country faces a continuous risk of terror attacks. Most of the country is within range of missiles held by surrounding states and by non-state groups operating from within those territories. Major energy infrastructure or distribution corridors through which a large portion of needed supplies flow form energy “choke points,” and are obvious targets.

Israel needs to be concerned that the Tamar and Leviathan projects, particularly if domestic consumption of natural gas is subsidized in any way, will greatly increase the portion of the country that would be reliant on a small number of energy distribution choke points. A recent op-ed in *Forbes Magazine* further noted that securing the physical assets of the development “remains a daunting challenge for a country that has historically given short shrift to its navy.”²²

²⁰ R&D funding has some attributes of capital investment because it supports a new generation of products and technologies. However, where political bodies allocate funds across projects, problems with politically-directed funding can arise, resulting in bias to particular technologies, geographic locations, or firms. The greater the degree to which allocations support innovations close to market rather than basic research, or are earmarked for use by specific institutions, the more distortionary they become.

²¹ Milken Institute, *op. cit.*

²² Paul Alster and David Andrew Wineberg, “The Daunting Challenge of Defending Israel’s Multi-Billion Dollar Gas Fields,” Op-Ed, *Forbes Magazine*, January 8, 2014.

6.1 Defense costs of Tamar and Leviathan is high

The need to defend these installations has been recognized. There are already proposals to protect the offshore fields and platforms out of project revenues, with costs estimated at NIS 3 billion (about \$850 million).²³ It is important that all military or other security costs are tracked and counted as an offset to income from the projects. Too often, countries lump these costs into general budget expenditures. Burying the costs in broader military line items is common, but masks the real economics of energy projects and creates competitive disadvantages for less vulnerable energy supply chains.

6.2 Implicit nationalization of insurance risk from acts of terror or war

If the government is also implicitly providing insurance coverage for the natural gas-related infrastructure against acts of terror or war, the actuarial value of this coverage needs to be properly counted as an offset to project returns as well. This is additional to the direct cost of defending infrastructure and supply routes, because the security expenditures do not reduce the probability of successful attack to zero, and some damage may still occur.

6.3 Energy vulnerability tax needed to prevent concentration of domestic supply pathways

Clean accounting is useful in assessing the real returns on natural gas development options. However, it does little to encourage the supply diversification needed to reduce energy security risks across the country, or to protect the diversification and alternative energy-related industries that Israel has already developed over many decades.

While Tamar and Leviathan could make this problem worse, they are not its only cause. Israel should introduce an energy vulnerability tax addressing *all* significant energy choke points in the country. The fees would help spur continued development of a more decentralized, less vulnerable, and more diversified energy supply base. The tax rate should escalate as a single supply source (or set of suppliers linked by a single choke point) moves above x% of total (or perhaps regional) supply.

²³ Itai Trilnick, "Israeli cabinet approves plans for sovereign wealth fund," *Haaretz.com*, 15 April 2013. Dr. Amit Mor, a former assistant to the Israeli Minister of Energy and Infrastructure and now CEO of EcoEnergy, referred to some of the offshore assets of these developments as a "sitting duck" for attacks from Hezbollah and other groups. (Sarah Parker Musarra, "Israel attempts to balance regulations, infrastructure with LNG Growth," *OE Digital*, 22 October 2013; accessed 7 February 2014).

If policy makers feel energy taxes are already too high, restructuring existing levies for the same gross collections, but with a bigger portion being paid by flows through choke points (rather than averaged across end users) could likely achieve many of the same improvements to price signals.

6.4 Vulnerability tax proceeds should finance diversification

The Wealth Fund will be focused on global, non-NIS investments to diversify future income streams and protect windfall gains from political dissipation. In contrast, the vulnerability tax proceeds are best invested in the present and within Israel, to diversify the supply base; and should be segregated from the Fund.

Funding bounty-type policy approaches, such as renewable portfolio standards (RPS) or feed-in tariffs (FIT), for strategies that break the supply bottlenecks is a promising approach. Unlike tax breaks or direct government investment, both RPS and FIT approaches cost nothing unless the targeted energy services are delivered to the market. This greatly improves the efficiency of the instrument by ensuring that all market risks to build a project and make it work remain in the private sector. Using a reverse-auction, in which acceptable solutions bid against each other for the smallest unit subsidy they need to meet the diversification target of the government, further improves the efficiency of the approach.

7. Ensuring appropriately-scaled infrastructure to retain competitive domestic and export market outlets

Overall production volumes from the fields should be sufficient to supply multiple markets. As noted above, the portion of supplies going to export versus domestic markets should be fluid and informed by equal treatment of flows to each under pricing policies; and on royalty, excess profit tax, and security fee recoveries.

At present, three outlet markets seem to be developing: domestic consumption; export of standard gas through Israeli pipeline connections with surrounding states; and export of LNG. Government monitoring at this stage would be useful to ensure that all three markets remain viable. If LNG looks to be an important long-term outlet under a wide range of price scenarios, ensuring enough flow to support an investment in an LNG facility, but not so much that the liquefaction facility is scaled overly large (and risks crowding out other markets after it has been completed), seems the right path.

The appropriate sizing of an LNG facility is particularly important to get right. A facility that is too large creates capital lock-in risks, particularly if actual reserves turn out to be lower than was predicted at the time the sizing was finalized. A shift in LNG pricing focused on short-term breakeven (i.e., less or no capital recovery) in such an overbuilt situation could drain otherwise economic gas flows from the domestic market.

Land export to neighbors without liquefaction may offer more flexibility on the mix of exports and domestic consumption. If adequate export markets can be reached through domestic pipelines without the need for liquefaction, the minimum economic scale of ensuring export viability may be lower and the domestic/export mixture can vary more easily over time.²⁴ Even if LNG markets are needed, adopting a smaller scale liquefaction capacity that can be increased incrementally would seem prudent.

8. Summary of recommendations

- 1) **Market pricing of all gas.** Use market-based pricing of natural gas sold in domestic or international markets in order to avoid politically-distorted decisions on export versus domestic consumption levels and to optimize revenues to the government. This pricing neutrality should extend to associated royalties, excess profit fees, and recovery of field-related security charges.
- 2) **No subsidized conversion.** Allow natural gas prices to determine the pace and location of infrastructure conversion to gas. Don't subsidize either conversion-related capital or natural gas flows to particular industrial or commercial enterprises.
- 3) **Energy vulnerability tax on choke-points.** Institute an energy vulnerability tax or surcharge on energy flows through key chokepoints within Israel in order to protect and expand energy diversification efforts. This would apply to all chokepoints, not just the new ones created by the Tamar and Leviathan fields. Shifting some existing taxes on fuel end-users to a differentiated vulnerability tax on flows going through chokepoints can greatly improve price signals to invest in supply diversification and resiliency without adding additional energy taxes on a gross collections basis.
- 4) **Full royalty capture.** Review allowable exclusions and deductions from royalties to identify and correct areas of potential gaming and likely friction as fuel and revenue flows grow in future years.

²⁴ Current deals to supply customers in both the Palestinian Authority and Jordan appear to be underway. The supply route to Jordan taps into existing pipelines, requiring only a 9-mile extension. See Shoshana Solomon and Calev Ben-David, "Israel Said to Plan Pipeline for Gas Exports to Jordan," *Bloomberg*, 7 January 2014.

- 5) **Fund principal invested in global, non-NIS securities.** Retain investment restrictions now in the *Fund for Israel* proposal that targets investment into global, non-NIS assets.
- 6) **Payout rules that allow fund appreciation over time.** Review and likely reduce payout rates from Fund to allow some investment earnings to compound within the Fund to grow principal over time.
- 7) **Annual distributions direct to long-term capital projects.** Look to more closely align spending of income distributed from the Fund to Treasury with long-term investments into human and physical capital.
- 8) **Tighter rules on borrowing from Fund principal.** Tighten rules on what counts as an emergency under Fund rules to ensure that resultant borrowing of Fund principal (and potential subsequent debt forgiveness) occurs only in the most extreme of circumstances.
- 9) **Review appointment procedures of key Fund oversight functions.** This would ensure that the direct and indirect influence of political figures over the structure and management of the Fund is appropriately checked in order to protect its independence.