

USE CARBON TAXES TO SOLVE THE SHORT/LONG FOSSIL FUEL INVESTMENT DILEMMA



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Use Carbon Taxes to Solve the Short/Long Fossil Fuel Investment Dilemma

A daunting tangle of problems defines the global energy space as 2022 winds down. On the one hand, the war in Ukraine combined with curtailed Russian oil and gas supplies has reminded many that unfriendly energy suppliers can also deliver inflation and hardship to their customers. On the other, efforts to increase oil and gas supplies, both in Europe and globally, face stout resistance to anything that might further entrench hydrocarbons into national economies. Inflation is prompting monetary policies to tighten even as fiscal indiscipline continues via historically high government deficit spending. Concerns over climate change remain an article of faith among leaders of many countries. Other voices decry the folly of calls to suppress oil and gas production when greener alternatives are not ready to replace them. Electorates seem confused and restless. The risk that they vote in leaders less insistent on decarbonizing economies is palpable.

If this seems like a recipe for policy vacillation and gridlock, it is. The risks are real. In the face of this thicket of problems, one may reasonably ask, “Is there no way to address several of these problems simultaneously?” Said differently, is it possible to design policy measures and political compromises that might lead out of the thicket, allowing progress on several fronts?

It is possible to conceive of such a path forward. The necessary policy design involves a trade-off – the introduction of carbon taxes on traditional energy in return for regulatory relief. A new ingredient should make this compromise politically possible; it involves the design of the carbon taxes. These taxes should be introduced by imposing them directly on the polluters in the oil and gas industry. However, the taxes will have a particular design. Initially, they will be applied only to new investment projects. Second, the tax specifics will be customized by class of new assets, e.g., new drilling, pipelines, refining capacity and liquefied natural gas export plants. Third, the taxes will be backloaded: The carbon levies will be light for the first 10-15 years of new project life, escalate sharply after year 15 and remain high thereafter.

Why adopt this design? The answer has to do with the policy dilemma facing many governments today. With energy prices soaring, many quietly acknowledge that more hydrocarbon production is needed in the short to medium term. No less an opponent of the oil and gas industry than President Joe Biden has called repeatedly for U.S. producers to increase production. Yet, many leaders are reluctant to enact measures that would encourage higher production. These leaders continue to heed calls from environmental groups and activists to avoid steps that might “lock their economies” into a hydrocarbon future.

A deadlock of sorts has resulted. Leaders call for more production. However, they do little to address private company reluctance to commit capital to projects whose lives may be curtailed by hostile regulation. The companies read the signals – fracking bans remain in place throughout Europe. Pipelines are blocked by court challenges, and governments do little to unsnarl the tie-ups. Exploration acreage is held back and permitting held up. The same governments who want more production talk in the next breath about windfall profits taxes.

The governments of oil and gas consuming countries are caught on the horns of a dilemma – the short- to medium-term production they seek involves companies committing to projects that require long lives to generate a return. Most economics for the such projects involve 20-year operating lives. To greenlight, let alone incentivize such projects seems to contradict commitments many leaders have made to the energy transition. Even worse, it will come with the political cost of seeming to capitulate to an industry seen as a polluter and an enemy of the climate. It should then come as no surprise that leaders who call for more immediate oil and gas production shrink from sending the signals that might actually bring it about.

The carbon tax described above provides a pathway out of this dilemma. It will encourage new investment in the assets needed now for the short and medium term. At the same time, it will encourage the owners of these assets either to plan for their phase-out or more likely for their decarbonization. The result should be what is needed on several fronts – higher oil and gas production in the short to medium term and then a decarbonized longer-term outcome. To see how this is accomplished, let us look at the design of the carbon tax in more detail.

Graduated, Backloaded Asset-Based Carbon Taxes

Carbon taxes conceptually come in various forms. The version we focus on here is known as an Output Based Pricing System (OBPS); this tax, which is being used in Canada, targets large industrial emitters. The levy is applied to a firm's specific emissions from operations. This contrasts with fees or taxes applied to fuel products purchased by consumers. Such latter taxes are seen as regressive, i.e., punishing low-income consumers disproportionately. As such they have proved politically hard to adopt. In contrast, the output-based system directly penalizes emitters and is largely invisible to consumers, so it should be easier to adopt politically.

To both encourage the hydrocarbon investments needed in the here and now and incentivize their later decarbonization, the recommended OBPS would be structured as follows:

- New projects would have a permitted emissions quota.
- All greenhouse gas emissions above the quota would be subject to tax.
- For a project's first 10 years of operations, the quota would remain fixed and the applied taxes would be small.
- For years 11-15, the annual quota reduces gradually, and the tax gently climbs.
- Starting year 16, the quota disappears and the tax escalates sharply

To give an example, for a liquefied natural gas export facility, the tax above initial quota might be \$10-\$15/ton for years 1-10, climbing to \$20-\$25/ton by year 15. Starting in year 16, the tax escalates sharply; in this example, it might jump to \$80 or \$90/ton. It then continues to escalate at a rate at or above inflation. An appropriate regulatory agency also could perform a one-time adjustment to reflect factors like higher-than-expected inflation or commodity prices.

Such a backloaded tax regime would incentivize several desirable ends. First, it would encourage the much-needed political bargain. Environmentalists and climate activists would finally secure a carbon tax regime in the U.S. and possibly in other tax-resistant locales. Moreover, they would set in place a structure intended to achieve the decarbonization of new hydrocarbon assets or their retirement. The risk of “locking economies” into an open-ended high-carbon future would be mitigated. In return, traditional energy firms would receive relief from regulatory hostility. Bans, embargoes, endless legal challenges and permitting holdups would be relaxed, as would the veiled threat of unidentified “regulation to extinction” in the future.

Second, the regime and accompanying bargain would provide energy firms with a solid basis for risking long-term capital. New projects could be evaluated knowing that for 10-15 years they would face only low carbon taxes and a reduced risk of hostile regulation. For many projects, such an economic life would be sufficient to achieve returns above their cost of capital.

The third and perhaps most surprising benefit occurs when the carbon tax escalates. Having this be predictable enables energy firms to plan for decarbonization within a reinvestment-friendly framework. That framework is known as life extension economics. These deserve a word of explanation here.

Output-Based Carbon Taxes Within Life Extension Economics

Life extension economics are the “secret sauce” of traditional energy firms. When planning an investment, they typically use a long but foreseeable economic life, e.g., 20 years. Many oil and gas assets last much longer. ExxonMobil’s Baytown refinery began operations in 1920. The Prudhoe Bay oil field and the Trans-Alaska Pipeline began operations in 1977. All three are still going strong.

Life extension economics inform owner decisions toward the end of the asset’s original operating life. This decision involves either shutting down the asset or extending its life with new investments that enable it to continue operating profitably and safely. The secret sauce is that in many cases, the economics of life extension are overwhelmingly positive. This is because of several factors. All the original capital is assumed to be “sunk” and is usually largely or totally depreciated. Yet the land, utilities, infrastructure and many associated assets are still functioning; with only incremental investment these can be extended for a significant number of years. Thus in this economic construct, the asset owner incurs only incremental investments while taking credit for the following positive flows:

- Base volumes, revenue and profits, which otherwise disappear if the asset were shut down.
- Any growth volumes and cost improvements derived from the incremental investments.
- Deferral/avoidance of shutdown costs, including employee severance, facilities dismantling and site remediation, only partly offset by any salvage value.

It should not come as a surprise that life extension economics end up supporting the operation of many oil and gas assets far beyond the years originally expected.

However, there is some variation here. Refineries and pipelines are especially suited for long life extensions whereas producing oil and gas fields suffer depletion and some are likely to be abandoned. That said, the lives of many producing fields have been extended far beyond their originally projected duration. Secondary and tertiary production methods plus new technologies like horizontal drilling and hydraulic fracturing have kept many producing areas operating for extended periods.

Life extension thus provides a most favorable framework for oil and gas firms to consider decarbonizing their assets. Backloaded carbon taxes set up strong incentives for them to do just that. The options for their aging assets are changed. Sponsors still have the option to shut down and pay all the severance and remediation costs. In most cases, that still will not be the preferred pathway. However, there no longer will be a “cheap” life extension option in play. Instead, sponsors will face a choice of retiring the asset, keeping the asset going under what will be heavy and increasing carbon taxes or investing to life extend with decarbonization. Under this third course, they still keep all profits and enhancements such extensions typically bring but avoid the new, heavier tax burden.

Crafted in this way, the Output Based Carbon Tax on new hydrocarbon projects can address both short-term energy security issues and the longer-term goals of the energy transition. Combining the backloaded structure with upfront regulatory relief will encourage firms to undertake near term production growth projects; it then also allows ample time and motivation to prepare for eventual decarbonization of the same assets.

Some Specific Aspects of the Output Based Pricing System

Because the taxes under this regime are attached to the emissions of specific assets, the tax rates cannot be of a “one size fits all” nature. At a minimum they will have to be customized by class of hydrocarbon project. These classes each have different “industry scale” sizes, throughputs and capital requirements; they also will have different carbon footprints. For starters, envision an OBPS regime with taxes varied by these classes: oil and gas production, gathering/separation/storage assets, pipelines, refineries, and liquefied natural gas export and regassification facilities. Finer distinctions may eventually be made taking regional and other factors into account.

That said, there is no need for an overly precise or complicated tax structure. The overriding aims are to 1) introduce the taxes as a firm presence in energy company planning, 2) keep them low enough initially so that they don’t disincentivize new projects, and 3) make them steep enough eventually to encourage decarbonization within the life extension decision. These broad goals should be attainable without having to refine the carbon tax levels to excess. The Inflation Reduction Act hopes to achieve similar ends in carbon capture with 1-2 subsidy rates irrespective of the differences that projects along the Gulf Coast may exhibit relative to California or Pennsylvania.

Upfront Regulatory Relief and Industry Support for the OBPS

It is to be expected that certain political elements will oppose any new tax structure. Indeed, such opposition has been successful to date in discouraging any national carbon tax structure in the U.S. . Support will thus be crucial to securing the legislative consensus needed to adopt an OBPS structure. Firms that are intended to pay a new

tax seldom support its adoption. However, the OBPS as described above could prove an exception. Many major oil and gas firms, e.g., ExxonMobil and Chevron, are on record as supporting carbon taxes; they also make no secret of using them to test the soundness of potential projects.

Critics doubt the sincerity of these companies' positions and suspect them of "greenwashing." Yet, whatever company public relations strategy is underway, one detects on their part a sincere desire for something that would provide more planning certainty and a long-term operating license. If presented with carbon pricing that provided this certainty, didn't unduly harm the economics of their next generation of projects, and brought concrete relief from regulatory and legal threats, these companies might well see this as a bargain to be made.

If confronted with the opportunity for such a bargain, the energy firms might be suspicious that any promised regulatory peace would prove hollow. Fears of a regulatory "bait and switch" would be palpable. Thus, the political bargain underpinning an OBPS system will need to be accompanied, or even preceded by, consequential measures that are not easily reversed. Prior approvals of long-delayed pipeline projects, e.g., the Mountain Valley Pipeline, would be one example of such measures; a resumption of normal leasing of federal lands for exploration would be another. Legislated reforms to the National Environmental Policy Act (NEPA) would go far toward signaling that the political bargain was for real. Delivering reforms in the same legislation as the tax measures would do much to persuade the industry that the predictable fiscal environment they seek has become a reality.

Such an outcome was achieved in part with the recent Inflation Reduction Act. The oil and gas industry appreciated the carbon capture and permitting reforms contained therein. The 45Q carbon capture tax incentives resembled

much of what the industry was seeking, and they quietly signaled support for the legislation – much to the dismay of several Republicans who wished to block any energy transition initiative. Offered the much bigger prizes of planning certainty and reduced regulatory hostility, the industry would likely come out in active support of a well-designed OBPS.

A Word on Fiscal Dividends and Carbon Tax Evolution

There are several other "big picture" benefits from adopting this OBPS system. The first concerns the fact that governments are going to need more revenue going forward. Budgets and fiscal policy are widely in disarray. There is no consensus that raising marginal income tax rates is the solution. There is some consensus that climate change is a serious issue, and that carbon pricing is the most efficient way to attack that problem. Introducing OBPS to address the short-term supply/long-term decarbonization dilemma can also help raise revenue to address the recurring fiscal deficits.

Attaching carbon taxes to new oil and gas projects will generate some initial revenue. This government income will grow as more projects are launched and more reach the age where the tax rates start rising. In fact, introducing and then extending carbon pricing can offer a "budgetary twofer." OBPS carbon taxes can be combined with the phasing out of some energy transition subsidies as part of the legislative political bargain. The case can be made that wind and solar tax credits are no longer needed today and certainly will not be needed by later in this decade. The introduction of carbon taxes can thus serve as the justification for an earlier termination of such subsidies. This would deliver the double budget benefit of enhanced revenue from carbon taxes plus reduced taxpayer tax credits.

Moreover, once the ice is broken around carbon taxes, it should be easier to extend an OBPS new asset regime to existing assets, e.g., oil and gas, power and industrial assets, with significant carbon footprints. A similar backloaded rate structure could provide reasons for firms to decarbonize their baseload assets. Should alternative energy technologies arrive sooner, lessening the need for these baseload assets to continue with their emissions unchecked, this carbon tax extension can then be crafted both steeper and less backloaded.

Summing Up

The present moment offers a snarl of energy problems. Oil and gas are supply constrained and likely to remain so for the foreseeable future. These constraints have resulted in high prices and inflation across many global economies. They especially are putting stress on the Western alliance of nations supporting the embattled Ukraine. Governments are piling up debts with little idea as to how to fund their repayment. Leaders call for more oil and gas production. Yet, the firms that would undertake the effort to deliver such production continue to see a political/regulatory environment that will seek their shrinkage or demise. Together these conditions are producing gridlock. Governments are not incentivizing the production they call for rhetorically, ESG pressure on Wall Street has created underinvestment in oil and gas development, and the oil and gas industry continues to act with uncharacteristic restraint as regards growing production.

An innovative political bargain can break this deadlock. It involves trading an end to regulatory hostility toward oil and gas for the introduction of output-based carbon pricing. By relaxing the regulatory hostility and providing oil and gas firms with a stable fiscal environment, these companies can respond to high prices and seek to grow

their production. By applying carbon pricing initially to just new oil and gas projects and by backloading the taxes, the logjam that has forestalled carbon pricing can be broken without discouraging the investments needed in the here and now. As for the concern that relaxing the pressure on oil and gas firms will only lock economies into long-term hydrocarbon dependence, this will be mitigated by the knowledge that those firms will face steep penalties if they don't plan for the decarbonization of their assets. The odds are good that they will favor decarbonization rather than retirement. Those decisions will be made in the context of life extension economics, which in the oil and gas industry strongly favor keeping the assets alive.

Finally, breaking through to a first introduction of national U.S. carbon taxes will open a new revenue stream for the federal government. This revenue can foster needed compromises around fiscal balance and the termination of subsidies that were never intended to live indefinitely. Having the tax be applied directly on the carbon emitters will satisfy both social justice and sound economics.

Are we ready to adopt a solution set that gives many stakeholders a major item on their wish list and also fosters progress on supply, security and transition issues? Let's see.

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