

Energy Crisis and the Impact of Taxes and Incentives on Conservation

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The purpose of this study is to examine the impact of taxes and incentives on energy programs and conservation. Tax incentives are designed to encourage and facilitate the purchase, installation, or manufacture of renewable energy systems, equipment, and facilities. The main goal of these incentives is to reduce the investment costs of acquiring renewable energy. They reward investors with tax credits, deductions, and allowances for their support of renewable energy sources. Instruments include income, corporate, property, and sales tax incentives.

INTRODUCTION

Following the events of September 11th and even before the financial crisis of 2008, the American economy experienced a period of instability, which caused the economy to shrink and corporate profits to fall. Financial analysts believe that those small declines in corporate profits in 2007 followed by much larger decreases in the last quarter of 2008 as the longest recession in a quarter century has forced economists to revise downwards their projections as the U.S. GDP falls to an even sharper pace reflecting the fallout from the worst financial crisis to hit the U.S. since the Great Depression.

The financial crisis also has caused a seismic shock to the energy industry as the global demand for energy fell sharply and continues to shrink for the first time since 1980. The new data from American Petroleum Institute showed deliveries falling by 6 percent in 2008 and U.S. crude oil production also sank below 5m barrels per day for the first time since 1946. Lower demand for oil means declining revenue for oil companies where they abandoning or delaying and cancelling exploration projects. Refiners are also responding by deferring capital projects, accelerating maintenance, and reducing inventory levels. As the oil demand goes down, the price for oil dropped faster. It took more than four years for oil price to go from \$35 per barrel in 2004 to over \$147 in July 2008 and took only six months to fall all the way back to \$35 again. Bernstein Research has calculated that if oil stays at \$35 per barrel, only Exxon Mobil will be able to cover their investment programs from its cash flow. BP and Royal Dutch Shell would have to borrow to cover capital spending (Bernstein, 2009).

However, economists do not believe that decreasing the world's gasoline demand nor the financial downfall have created energy crisis yet. So far, "we have avoided the shortages only by squeezing every molecule of natural gas liquids, ethanol and bio-fuels, by increasing refinery

gains a bit, and by drawing down stocks. That's how we balanced a market we couldn't supply" (Simmons, 2009). While gasoline demand is not expected to collapse, oil analyst caution that weakening economic growth and implications of the credit freeze could temper energy prices even lower. Many economists believe that now it is the time that to alter the Americans addiction to the oil and encourage using alternative fuels. This means that a great deal of incentives, money and research needed to make the alternative fuel sources accessible to people across the country. Given the current and almost assuredly permanent volatility in the oil market, and the fact that this wasting resource will later continue to decline in availability, one must ask what can be done to find cost effective and safe alternative energy sources and to reduce or eliminate the world's dependence on oil.

Although the scientists have researched alternative fuel sources for years, fuels that are not easily exhausted nor emit massive amounts of pollutants into the atmosphere and in many ways, the discoveries that have already been made have been extremely successful, unfortunately, as of this writing, none have been developed to the point of being fully capable of replacing oil in a cost-effective manner. This is because it is not only extremely difficult to make a reliable source of energy that will be able to take over for oil, but it is also even more difficult to make a new fuel sufficiently accessible to vehicles. Solar power, for example, which is extremely accessible for home heating and cooling, is not particularly viable as a fuel or fuel supplement for vehicles.

In addition, with the record profits for oil companies for the last four years, it seems impossible that at the present time oil companies want to develop any alternative fuel sources. As a result, oil companies continue to import a high priced crude oil and avoid fuel alternative solution. In 2008 alone, with over \$100 billion profit for three major oil companies of Exxon, BP, and Shell, it is not difficult to understand why these oil companies continue to avoid researching for any new energy alternatives.

IS ETHANOL AN ANSWER TO THE ENERGY CRISIS?

In order to achieve energy independence, the U.S. Congress in 2005 passed The Energy Tax Incentives Act. This legislation The Energy Tax Incentives Act impacts four major areas: (1) Conservation by encouraging the design and improvement of energy-efficient homes and green vehicles. (2) Energy Infrastructure. The Act provides more than 14 billion dollars in tax breaks for many businesses in energy sector including incentives for electric companies to improve and development of more robust and reliable power grids. (3) Domestic Energy Production. Individual and business taxpayers are expected to benefit from the tax incentives provided directly to the fossil fuel industry and those who invest in its future. These tax provisions focus not only on enhanced credits, but also on foster percentage depletion, alternative minimum tax protection, tax extension of the nonconventional fuel credit. (4) Alternative Energy by encouraging the use of alternative energy sources such as solar, wind, ethanol, bio-mass and clean-coal technology (Tax Briefing, 2005). The energy bill mandates the doubling of ethanol production to 7.5 billion gallons a year by 2012 and then a boost to 35 billion gallons a year by 2017. According to the Renewable Fuels Association, the U.S. currently has 112 ethanol bio-refineries that have the capacity to produce more than 5.5 billion gallons annually. In addition, in early 2008, there were 77 more ethanol refineries under construction with a combined capacity of more than 6.1 billion gallons annually.

U.S. ethanol is made mostly from the starch contained in grains such as corn. This caused strained on corn supplies and boosted prices to a 10-year high of around \$7 a bushel in summer

of 2008. In the mean time, the raised price of corn created a common objection for using corn for fuel. A major concern often leveled against using corn for an alternative energy was that it diverted agricultural production from food crops which ultimately caused a decrease in the food supply in the world. In the U.S., corn traditionally has been used as the main feedstock for cattle and poultry as well as a sweetening ingredient for soft drinks, candies, and many other food products. As more corn is used to produce ethanol for fuel and with increasing demands for food, less corn will be available for food products...

Critics of ethanol are not only skeptical about ethanol production itself. They argue that in order for ethanol to totally displace gasoline, all of the cropland in the United States plus 20 percent more land for corn cultivation must be appropriated. As most critics believe, ethanol is not economically competitive, already costing several times what it costs to produce gasoline and only costing as much as it does because of subsidies. Also, because the blending of ethanol with gas significantly increases the cost of gasoline, while also requiring a great deal of coal, natural gas, or nuclear power to produce and process the corn to ethanol, and increases air pollution and greenhouse gas emissions, the environmental effect of ethanol is not very positive. In addition, the subsidies for corn are currently far greater than those for petroleum, and petroleum subsidies work out to be six to eight times less than ethanol subsidies.

There is no question that ethanol production for fuel is valuable, but the real question is how ethanol would be in the marketplace without subsidies and mandates. As it is, the wholesale ethanol prices are almost twice the price of wholesale gasoline, without the subsidies. By being so expensive, ethanol is really not much better than the current problem with gasoline prices. It is also unlikely that ethanol could be competitive without the government subsidies given. By being insufficiently independent in the market, ethanol is strictly supported and enforced as a replacement fuel.

TAX INCENTIVES

Policymakers have long considered major reforms to the federal tax system. Some favor of a broad-based consumption tax, while others favor a broad-based (or Haig-Simons) income tax. The difference between the two is the treatment of savings and investment. Consumption taxes apply one layer of tax to savings and investment, while income taxes apply two layers. The current federal "income tax" is a hybrid between the two systems (Edwards, 2007). In regards of energy consumptions and efficiency, consumption taxes and tax credit which will lower the consumers' taxes they owe the government is generally more attractive and valuable. The later will encourage the conservations and innovations.

Energy Tax Incentives Act of 2005

After years of discussions and in order to promote domestic energy production and conservations, in 2005, the congress finally passed \$14.5 Billion Energy Tax Incentives Act. The Act includes of two provisions; the Renewable Energy Production Incentive (REPI), and the Renewable Energy Production Tax Credit (PTC). The REPI provides incentives for publicly-run electric utilities and rural electric cooperatives which produce renewable power. In addition, the Act gives also to individual consumers' tax credit limited to \$500 or the sum of 10% of significant energy efficiency improvements to their homes. Later, the number of states has also decided to implement standards of their own and provide tax incentives for producers of renewable energy.

An important provision of the Energy Tax Incentives Act of 2005 is providing tax credits and incentives for bio-fuels producers. Under this provision, credits are available to blenders equal to 51 cents for each gallon of ethanol blended with gasoline (Westcott, 2007). Additionally, an import tariff of 54 cents per gallon is assessed on imported ethanol, with duty-free status on up to 7 percent of the U.S. ethanol market for imports from designated Central American and Caribbean countries.

Renewable Energy and Energy Conservation Tax Act of 2007

In 2007, the U.S. Congress also passed Renewable Energy and Energy Conservation Tax Act of 2007. This act amends Internal Revenue Code of 1986 to provide tax incentives for the production of renewable energy and energy conservation. According to this act:

- The bill extends the placed-in-service date for four years through December 2012 for qualifying facilities; wind; closed-loop biomass; open –loop biomass; geothermal; small irrigation hydropower; landfill gas; and trash combustion facilities. It also includes a new category of qualifying facilities—facilities that generate electricity from marine renewable (e.g. waves and tides).
- The bill extends the 30% investment tax credit of \$4,000 for solar energy and fuel cell property for eight years through the end of 2016.
- The bill removes an existing limitation that prevents public utilities from claiming the investment tax credit.
- The bill established a new credit for each qualified plug-in vehicle placed in service during each taxable year by a taxpayer.
- The bill extends for two years through 2010 the \$1.00 and 50 cent per gallon production tax credits for biodiesel producers.
- \$2 billion of new clean renewable energy bonds for public power providers and electric cooperatives.
- A cellulosic alcohol production credit.
- The extension of a biodiesel production tax credit.

American Recovery and Reinvestment Act of 2009

One of the centerpieces of the American Recovery and reinvestment Act of 2009 (Stimulus Bill) involves a variety of energy-tax incentives and alternative-fuels funding provisions focused on reducing America's dependence on carbon-based energy. The energy-related tax provisions total approximately \$20 billion of tax incentives and energy-funding provisions represent approximately \$45 billion of the spending provisions (Christian, 2009).

CONCLUSION

With the decreasing in oil demand and price, ethanol might not now be competitive independently of federal subsidies. The future of ethanol and other bio-fuels now depends on whether the current policies with fixed subsidies continues and can be sufficient or whether there should be a change. If the current subsidies were reduced, the lowered prices would create an even more competitive market and result for ethanol, much like with a variable subsidy. If subsidies were variable with prices of oil, the benefit of a safety net in the event that crude oil prices falling suddenly and significantly is far more flexible than current mandates. In addition,

standards for alternative fuel can be revised and established, which can be combined with changes in subsidy approaches. Fuel standards allow consumers to directly pay the variable prices at the pump and provide a means for the relative costs of alternative fuels to gasoline to be compared directly, whereas subsidies force taxpayers to support tax credits established by the government. In particular, new incentives for cellulosic ethanol might be considered, since it is both more energetically effective and agriculturally efficient. Since cellulosic ethanol production technology is not yet established, incentives can stimulate interest and growth in cellulosic ethanol. However, the trend of ethanol production has worried most farmers. If corn spikes to \$5 and oil price declines to lower \$50, corn farmers' net profit would turn negative.

In addition, most critics are concerned with the government subsidies allowed for ethanol production, which make ethanol production incredibly lucrative. Government subsidies and oil price decreases are continuing the profit for ethanol growers, but all of the corn in the world will not be enough to replace the gasoline. However, with the new U.S. president and if federal energy policy changes and oil prices drops again below \$50, everything would change.

In spite of all financial crisis and prediction of future energy crisis, hopes are running high among green activists that President Obama will make climate change a priority by overhauling the country's carbon-based energy system. Optimism has been fueled by Obama's choice of energy team which is heavy with scientific and regulatory experience rather than the pro-oil figures who dominated energy debate in the Bush administration. President Obama is recasting the proposed investment in renewable fuels by injecting 50 Billion dollars in his stimulus Package (Ward, 2009). As John Carey claims that there is remarkable agreement on the general outline of a new energy strategy. It would include efficiency measures such as tougher appliance standards and funding for weatherization of buildings. It would also boosts all forms of low-carbon-emitting energy, from renewable to nukes and "clean" coal where CO₂ emissions are captured and stored (Carey, 2008).

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