

## **Rikoon: True global price of energy both high and hidden**

**Rob Rikoon | Posted: Monday, September 2, 2013 8:00 am**

How we look at the cost of providing energy for future use globally has reached an absurdly critical state. We cannot seem to figure out how much it costs to produce a gallon of fuel or a kilowatt of energy. This is not because numerous studies haven't been done but because the real cost to the health of the physical environment or "commons" has never been factored into the equation.

For example, the difficulty in ascertaining the real cost of providing nuclear energy in Japan is highlighted by the unbelievably expensive measures now being taken to deal with the 2011 nuclear meltdown at Fukushima, the power plant north of Tokyo. Japan traditionally has had to import most of its energy, so for the past several decades, nuclear power represented an attractive homegrown alternative. Sadly, the closed nature of Japanese culture and the recent devastating earthquake led to a continued cover-up of the widespread contamination of considerable amounts of Japanese farmlands. We do not yet know the potential extent of the long-term debilitating effect on marine life of the ongoing releases of heavily contaminated radioactive water into the Pacific Ocean.

The leak, which started several weeks ago, continues unabated. The private operator of the plant, the Tokyo Electric Power Co., TEPCO, was financially bailed out by the government after the accident and finally has been declared incapable of dealing with the situation. Japanese authorities are stepping in to try and make long-term plans to contain the ongoing disaster. Apparently, there are hundreds of storage tanks surrounding the site holding millions of gallons of highly radioactive contaminated water. The challenge of dealing with the leaking tanks is exacerbated by the continued infusion of groundwater onto the plant site, where it also becomes highly contaminated, and then flows directly into the nearby ocean. They are so desperate to come up with potential solutions that they are seriously considering trying to permanently freeze the ground around the plant to create a permafrost barrier. This novel but as yet untested engineering solution would be of unknown cost to the country.

In typical market fashion, TEPCO's stock price increased following the announcement of the government takeover of the plant. The bill for fixing this situation will eventually be borne by Japanese citizens by adding to the national deficit. The full cost of remediating environmental disasters such as Fukushima and the Deepwater Horizon oil spill in the Gulf of Mexico will never

show up on corporate books. What about the increased health care costs of people who end up eating contaminated food or the decimation of the livelihoods of farmers and fisherman?

Who should bear the cost of cleaning up these kinds of disasters? Should they be factored in when considering whether or not to build more reactors? When the reactor at Chernobyl in Ukraine blew up, the international community devoted considerable time, money and energy to containing the spread of radioactivity into Europe and more populated areas of Russia. The cost of this aid has not been added in to calculation of dollars per kilowatt for nuclear power.

While the United States has not experienced a nuclear disaster since Three Mile Island, we have a comparable situation on our hands regarding the effects of producing natural gas from shale. It is not an academic discussion. Total U.S. gas production is up one third since 2008 and oil coming out of domestic wells is up almost half. The energy industry supported 1.7 million jobs in the U.S. in 2012 and produced \$62 billion in government tax revenue. Very few industries can boast such a rate of growth or impact on local economies.

A Pew research poll found that 48 percent of the public favors the increased use of hydraulic fracturing, the process by which natural gas is forced out of the earth by the injection of water and chemicals, and only 38 percent are opposed. The economic benefit of job creation and positive impact on the global competitiveness of U.S. industries has overshadowed a broader analysis of this type of energy production.

The production of natural gas results in methane gas leaking into the environment and methane has a much more dangerous impact on the ozone layer than does carbon. This negative effect can be mitigated by better containment practices so organizations such as the Environmental Defense Fund are working in conjunction with some gas-producing states and big energy companies who are involved in shale development. Another collateral cost associated with natural gas and domestic oil production is the incredibly large use of water resources which already has negatively impacted groundwater levels in some areas. As we know, water is the key to successful life west of the Mississippi, but even communities in the Northeast are concerned about their aquifers.

Besides the impact on the availability and quality of water, increased injection of chemical materials and pressure into subsurface structures has the potential to impact the geology and increase underground movement. While the science of these processes is still inconclusive, the federal government is due to issue new rules on fracking soon and the regulation of injection wells is an intimate part of the fracking process. The people whose lives are going to be most impacted by reduced availability of fresh water are unlikely to receive compensation from energy producers from this "sea" change in the environment.

As long as energy production takes place somewhere else, most people are not concerned about its collateral costs. Most consumers are against additional energy taxes as we all feel that the cost of

heating our homes and operating our vehicles is already too high. Comparatively speaking, U.S. consumers pay roughly half of what people in Europe pay for energy and, not surprisingly, Europe has developed much more energy-efficient cars and building systems to deal with the higher cost of energy. Increasing taxes on consumption might aid in lowering combustion pollution but it will not solve the basic issue of allocating the true cost of production where it belongs.

Energy companies of all sorts are subsidized in the name of “national security” while the production, refining, transportation and marketing of energy is so enormously profitable that they rank amongst the largest and richest of corporations on the planet. It is practically impossible for local forces to organize against companies whose economic interests are best served by exploiting natural resources in disregard of the long-term health of our nation’s other forms of natural wealth. The full negative impacts of energy production, be it nuclear disasters, oil spills or groundwater contamination, are spread so widely that no one has enough of a direct vested interest to step forward to stand up and fix our current wasteful and degrading system. Elected officials are one lever that the public has over the direction of energy development.

The current debate in the United States over building additional pipelines through public lands is one highlight of this debate. The default assumption that we have is that the more energy we can get, at the lowest possible out-of-pocket cost, is the way to go. The preservation of current jobs that depend on the general health and welfare of the land, recreation and other species all take backseat to the economic juggernaut of energy production.

If the true costs of remediating environmental damage caused by energy producers were assessed, it’s possible that renewable energy like hydropower, solar and biofuels would be competitive. We need to assess the real costs of maintaining a sustainable biosphere as part of a holistic economic analysis so an informed public debate can occur. Before future development rights and subsidies are given out, we should decide if solar hot water heaters on every building make more sense than building more pipelines. When we can perceive the long-term economic costs of current energy production, I hope our leaders will take the cue and step up to the plate.

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