Read the Series

SERIES ARTICLES

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If we get energy right the carbon will follow

For most of the past two decades, Canadian governments have made climate policy the driver for energy policy. However, in the past year or so, more voices have joined a growing consensus that this approach needs to be stood on its head; if we get energy policy right then successful climate and carbon management policy will follow. Climate policy, carbon management and energy policy can do nothing but benefit from such a transposition.

This is not to say that getting energy "right" will somehow make all of our carbon reduction aspirations miraculously achievable. But that is beside the point. Much of climate policy has existed in an energy reality vacuum and our failure to manage GHG growth is arguably an inevitable consequence. In contrast, getting energy right has the potential to create significant reductions in carbon and set up conditions for longer term success in a seriously carbon-constrained future. In short, getting energy right will not get at all of the carbon, but it can get at a great deal more than the approach of the past twenty years has achieved and put us on the path to bigger reductions over the coming decades.

We need to work with the nature of energy systems from production to use.

Carbon is not a pollution control issue; it is a system transformation issue. Unlike pollutants as we normally think of them, the tendency to emit carbon is deeply embedded in energy systems and the elements of those systems are very long lived. Typically we think of long lived in the sense of power production facilities which have lives in the case of coal fired plants of—say—40 years. But energy using capital is even longer lived—100 years or more in the case of housing or the underlying community fabric of land use, roads and service systems. Energy systems change slowly; radical change is costly and risks not only disruption of the integrity of the systems but also the lock-in of premature or sub-optimal technology and capital.

Energy systems have many attributes that are cherished by citizens and consumers. They deliver relatively low cost energy with extremely high levels of safety and reliability. Citizens and consumers have shown themselves unwilling to sacrifice these attributes and climate change strategies—if they want to succeed—have no choice but to respect them.

Getting energy "right" is far from business as usual.

The introduction to this series argues that we face several energy challenges including growing social, economic and environmental costs. Over the long run, a radical transformation is required for all of those reasons and they all lead to approximately the same place:

This is the final article in the Let's Talk Energy series, a website-based platform that encouraged the discussion about Canada's energy future. Launched in February 2011, the first phase of the project promoted constructive debate prior to Canada's Annual Energy and Mines Ministers' Conference, which was held from July 16-19, 2011. These articles were authored by Nexen Executive-in-Residence Michael Cleland, who proposed a set of ideas to help shape a Canadian energy strategy. In May 2011, the series expanded with articles written by contributors from the energy industry to further explore challenges and ideas to inform Canada's energy future. The series concluded on October 30, 2012.

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Food for Thought

Most proposed energy emissions solutions involve a costly revamping of the supply side of energy systems. However, demand side solutions can dramatically reduce greenhouse gas emissions and also be cost-effective.

A 2008 study by McKinsey & Company noted that simple efficiency solutions, such as insulation improvements, could reduce emissions by up to

5 gigatonnes of CO_2

equivalent worldwide, while yielding net savings to the economy several times greater than the net cost of other reduction options, such as carbon capture.

A study for QUEST (Quality Urban Energy Systems of Tomorrow) analyzed solutions based on changed land use and integrated community energy systems (ICES). While estimated GHG reductions were modest they were achieved at significant savings ranging from

$400-$800/t CO_2

equivalent compared to costs for "targeted abatement policies" of $100-$300/t CO_2 equivalent. Just as important, the effects were permanent and cumulative because they change the energy using fabric of communities.

- Higher energy productivity in a whole system sense.
- A more diverse portfolio of lower impact energy producing methods based more on technology and know-how and less on conventional resources.
- More robust systems that can weather (in some cases literally) the effects of multiple unknowns.

In the near term, the energy solutions that move us in this direction will be modest in their effects on carbon. Increased energy efficiency is a case in point. Efficiency improvement comes about by many small increments that are difficult or impossible to force and which rely on deep processes of consumer acceptance and technology learning. On the production side, many technologies promise radical effects if they can be widely deployed. But most have proved controversial in one way or another, many have proved to be false gods and in all cases the simple realities of capital constraint and system absorptive capacity have limited the process of capital stock turnover.

In the long term is when the big dividends start to appear.

Smart energy solutions can create the conditions for carbon success:

- By improving all attributes of energy systems they reduce risk of consumer backlash and they are politically robust as priorities shift. A steady pull in the right direction makes more progress than fits, starts, stops and reversals.
- By emphasizing the deep foundations of energy systems including the ultimate energy using systems—the communities where we live—they can create change that is transformational and permanent. Higher density mixed land use communities employing integrated energy systems can transform the energy use system.
- By emphasizing cost-effective technology when it is ready they promise better cost management. For example, if we can take the time to get to more cost-effective carbon capture systems we can build an increasingly competitive renewable system on a still viable fossil fuel base.
- By avoiding overlarge bets on what may prove to be technological blind alleys they minimize the risk of false starts. Fewer false starts can reduce costs, reduce risk to system integrity and sustain political credibility.

Climate policy has mainly taken the form of rhetorical overkill for twenty years. Getting at the deep foundations of the problem is—simply put—tough to do and the unchanged trend in GHG emissions reflects that fact. A new approach founded on sound energy policy can't be less effective and it may actually start making progress.