

We Are Not Getting Energy Policy Right – and We Must

Written by Kent Hawkins

At present, *and for the foreseeable future*, the solutions to changing our energy sources and uses to accommodate all societies' related goals are not to be found in technological, industrial or commercial – and certainly not political – terms.

What is required is a substantial change in society itself, which will involve major adjustments in lifestyle, in *all* countries. In this way we can best bring about the necessary energy use and environmental improvements.

Generally speaking, the developed nations are on trajectories of unsustainable economic development and growth based, to a large degree, on high consumption, and misuse, of natural resources. As we know, this is a self-sustaining dependence that cannot continue.

Energy use in all forms, whether well and intelligently employed or not, has led to the establishment of large energy source extraction, conversion, transportation and use infrastructures (and dependent industries, such as manufacturing) that cannot be replaced for extensive periods of time, in fact many decades, because their size and pervasiveness makes it physically and economically not possible to do so. Short term, “quick fix” attempts at major change would likely result in the cure being worse than the problem, with the loss of irreplaceable time and economic/financial resources.

Another reality is that developing and undeveloped nations naturally aspire to, and in some cases are on the path of achieving, levels of lifestyle similar to developed nations, with all the associated energy implications.

This is not to say that considerable improvement cannot be made in our existing energy processes for the betterment of all people on the planet. We will see that this should be the focus of the short to medium term of the next 20-30 years or so. In fact, efficiencies in energy conversions are already being pursued as part of normal business operations, and this is an important part of the overall picture. By itself though, energy efficiency is not enough, because this does not solve the issue of the absolute level of resource use and environmental impact.

The other consideration is conservation, or reduction, in energy use, which although admirable in intent is not a likely short term contribution to the solution, because of societal inertia. Failure to act in a manner to be described below, will likely lead to forced conservation in an unwelcome, and harmful, way.

In summary, I believe it is generally recognized that the developed nations must change their ways and the developing and undeveloped nations should not make the same mistakes. No matter how one looks at this, all societies have to change substantially. In this process we can most likely learn *from one another* and probably arrive at an optimal “middle ground”. But, this too will take time.

Better Energy Policies are Vital

How does energy play the leading role in meeting the needs of humanity? In large part, the access to economical and reliable energy, when and as needed, is vital to human well-being in all respects. The word “needed” is chosen advisedly to mean the absence of unnecessary and excessive use, in other words sufficiency and not surfeit. It is the source of the good aspects of the lifestyle enjoyed in the developed countries. For a synopsis of its importance of energy in general to human well being see the article, “Appreciating the Master Resource”.¹

Unfortunately it is also two-edged in that misuse (in extraction, conversion and end use) brings unintended and undesirable consequences, which must be further avoided and turned back.

Understanding energy is the key to understanding much about the world we live in. Proper understanding of the energy realities and possibilities we face is necessary to making the right decisions that are needed to ensure the well-being of our species. We do not need to worry about our planet, as it will likely do very well without us. Because of the availability of apparent “quick fixes”, specifically the massive implementation of utility-scale wind plants, electrical energy policy decisions are at present at the forefront of this for all the wrong reasons. Any who argue that we do not have the luxury of time must realize that the only effective short term solution to environmental concerns is a relatively fast and major shift to reduced energy use, that is, conservation.

Indeed, concerns about climate change are dictating this relatively short-term approach of massive deployment of renewables to our energy uses. Unfortunately, these are not equal to the present task, as will be discussed further below. For example, we have taken wind plant implementation beyond the point it merits, which should be only that of an experiment. However, the reality is that if we see effective and proper energy use as paramount *and get it right*, we will consequently have dealt, as best we can, with climate change, as well as the general improvement of mankind’s lot throughout the planet.

For emphasis, getting energy policy right, in individual countries and globally, is essential to being better able to make sense out of all the other issues that are critical to us including: human rights, justice, poverty, medical and health care, education, government, justice and social systems, health and medical systems, economic development, and even world peace (add to this list whatever you believe to be important). This is because energy matters are the requisite enabler of other human constructs, all of which are inextricably inter-twined with energy. Effective use of energy is the foundation of the survival and development of our species.

I know this sounds like an unbelievably ambitious list, and the energy connection is not immediately obvious. Also, the accomplishment of the associated ideals may be outside our grasp, but the path to making improvement on these is dependent on the existence of the right energy policies, starting now, and specifically with electrical energy.

The Role Energy Has Played in our Development as a Species

To appreciate the importance of energy’s overarching role, it is necessary to reflect on the achievement of dominance by our species on earth. At our beginnings we were an unlikely candidate for survival because of our frailty. We were primarily foragers. There were many, more effective predators, and as foragers we were at the mercy of the vagaries of nature. We survived and progressed to our present state by using tools to access energy sources to leverage and compensate for our otherwise limited capabilities. We do have two unique characteristics: (1) endurance running, and (2) our inherent ingenuity.

Our ingenuity enabled us to develop weapons (one of our first tools) to overcome our lack of fangs, claws and powerful bodies. From there we expanded our tool repertoire to include all the human constructs that we have today, including farming, manufacturing, transportation, institutions (including government), financial systems...in fact everything. Access to and use of extensive energy sources is fundamental to all these, second only to human ingenuity.

For anyone wishing substantially more information on these concepts, I refer you to the work of Vaclav Smil², an internationally acknowledged energy expert, and specifically to one of his many books, “Energy in

Nature and Society”.³ Smil effectively, and very comprehensively, lays out the basis for this. He shows that our use of energy sources has allowed us to survive as a species and provided for the opportunity to progress as a society.

Unfortunately, in spite of our notably good accomplishments, our ingenuity has been sometimes misapplied along the way and we have arrived at an unfortunate juncture. For example, we have created “weapons of mass destruction”, economic development approaches that are more dependent upon unlimited growth, consumption and waste than is sustainable, allowed financial organizations to grow out of proportion to their value to society through their creation of “engineered/innovative” schemes involving instruments of massive artificial wealth for the benefit of few, developed large disparities between the wealthy within and between countries and find ourselves once again at the mercy of the vagaries of nature, which we may, or may not, have substantially contributed to.

Climate change is only one such threat. Others include pandemic, economic and financial collapse, and world war. The more intelligent energy policy approaches outlined below provide the single most important ways to reduce the likelihood of these.

Where We Are Today

I suggest that we now find ourselves in a position much like we were at our beginnings and must more effectively use our ingenuity than we have thus far to support the continued existence of our species. At a high level of analysis, the paths of developed, developing and undeveloped nations (both as general categories and individual countries) will likely be different and the ingenuity of all must prevail. I expect that effective thinking and solutions can be transferred between these three categories of peoples, which will likely be necessary to accomplish the goals of all.

As already indicated, electrical energy is at the forefront of attention now. Access to reliable and affordable electricity as needed is vital to our well-being. The U.S. National Academy of Sciences has described electricity generation and distribution is the greatest engineering achievement to enhance the quality of life in the 20th century.⁴

Priorities

To repeat for emphasis, the primary focus of our ingenuity must be getting our energy policies right, starting with electrical energy. There are no “quick and easy” or “one size fits all” solutions. We are not going to get away from the existing forms of energy access (extraction, conversions, efficiencies and uses) for many decades. Arguably the time frame is the second half of this century before energy sources and infrastructure changes can take effect.

As already stated, one of the reasons for this is that the most challenging aspect is that technological, commercial or industrial solutions alone are not sufficient to accomplish societal goals, and these will take time in themselves. Our societies must rise to the challenge of significant lifestyle change that will enable and support the types of solutions required. A simple example is the Swiss 2,000 watt society concept.^{5,6}

The following are suggested as a summary of society’s *perceived* goals, with respect to electric energy production and use:

- Substantially reduce CO₂ emissions
- Reduce reliance on fossil fuels
- Energy independence within a political jurisdiction
- Efficient use and elimination of wasteful, unnecessary use

- Sustainable economic growth with 21st century industries
- Right policy mix for the short and long term
- Reliable and economic access to the necessary electricity supply for all countries

These are ranked roughly in what I consider to be the priorities expressed by wind proponents in the energy debate.

I suggest the priorities should be more like the following re-arrangement of these goals:

- Reliable and economic access to the necessary electricity supply for all countries
- Right policy mix for the short and long term
- Sustainable economic growth with 21st century industries
- Efficient use and elimination of wasteful, unnecessary use
- Substantially reduce CO₂ emissions
- Energy independence within a political jurisdiction
- Reduce reliance on fossil fuels

This re-prioritization is vital to the well-being and success of our species; we must get the approaches right for all people on the planet. I suggest we all know that nationalistic-oriented thinking is not working. For example, the developed nations should be well aware that their high energy availability, and use, does not necessarily provide: (1) national security, (2) economic success, (3) prosperous agriculture, (4) social cohesion, (5) cultural development, or (6) the assurances of a fulfilling future.⁷ Neither will it lead to the successful immediate modernization of undeveloped countries. Intelligent access and use must be the policy guide for the realization of these goals.

Inadequate analysis leading to incorrect and damaging approaches must be avoided. We may not easily recover, or recover at all, from mistakes in this vital matter. As an example, in an article on this site, “The coming UK energy meltdown”, Hugh Sharman warns about the likely consequences of the current UK energy policies.

I do not see this as a matter of the application of high morals to magically achieve our societal goals, but of pragmatism.

Realistic Energy Policies

There are better solutions than many energy policies are mandating, especially for the short to intermediate term, and subsequently for the long term, which should be viewed as the second half of the 21st century at the earliest. The problem is the better solutions are not “quick fixes”, as, for example, wind is claimed or thought to be.

This is a major discussion in itself. Those wanting some insights can refer to:

- The work of international energy expert Vaclav Smil,⁸ and in particular his book, “Energy in Nature and Society”, as referenced in footnote 3.
- The thinking of Dieter Helm,⁹ the Chairman of the Ad Hoc Advisory Group that the European Commission has established to provide expert advice. See his critical views on current European energy policies¹⁰ and on better approaches in this article in *European Energy Review* under “Good News”.¹¹ In considering Helm’s comments on renewables, I suggest that, in the time frame he sees, the likely renewable solution will be solar technologies, not wind. This committee is reported to be preparing a paper this summer on future energy scenarios.

- The analysis provided by David MacKay,¹² Chief Scientific Officer for the UK Department of Energy and Climate Change, in his online book “Sustainable Energy: Without the Hot Air”.¹³

The general theme is that we have to make the best use of our existing energy sources in the short to medium term. In so doing, it is essential that we make substantial improvements in extraction means, efficiencies of energy conversions and intelligent use. Many others have written on similar approaches, but these are particularly notable. My own, more limited, efforts in this can be seen in *The United States Association for Energy Economics Dialogue*.¹⁴

In particular, the following quote is a very brief encapsulation of Smil’s views, which I strongly suggest must be understood within the broad context of his writings:

“Gradual transition to a civilization running once again on solar radiation and its rapid transforms (but now converted with superior efficiency) is the most obvious solution to energy-induced global environmental change... Such a transition cannot be fast or easy because it will amount to an unprecedented test of worldwide socio-economic arrangements.”¹⁵

I emphasize that you do not have to agree with everything that someone says to appreciate their approach. The issues are too challenging to expect that any one person will get everything right. Staying on our current sets of trajectories in many aspects of our human endeavours (social, economic, industrial, political), and apparent “quick fixes” of any sort, are not the answer.

Electrical energy is a good place to start. As discussed adequate electricity is essential to world-wide improvement in all areas of human activity. From there attention can shift to transportation.

In the short to medium term, the promises of “new” renewable energy sources, particularly wind, are like the siren song of the Lorelei, which distracted the thus enthralled sailor from the reality of the surrounding rocks, on which he met his destruction. In the words of Heine:

“Ich glaube, die Wellen verschlingen
Am Ende Schiffer und Kahn,
Und das hat mit ihrem Singen,
Die Lorelei getan.”

We must remain focussed on the realities of our energy situation and realistic, effective options. We would have a better chance of succeeding in ways we need to by diverting the required investment of significant amounts of wealth that wind would require, in the order of *many* \$trillions, to (1) improvement of our current energy processes, (2) sharing such improvements, and (3) for the long term, development of the energy sources that continue to best meet society’s goals globally.

I think it unrealistic to suggest that an overall coordinated and concerted effort is required for this. There is no reason why individual countries could not start on developing intelligent paths for themselves. Governments could also play a role of enabling industrial sectors, and other intellectual resources, to work together internationally (bilaterally or otherwise), for example in the coal industry. Such initiatives should focus on solutions beyond those of just mutual benefit, but for the appropriate applications across all borders. Overall success for our species will not be possible without overall benefit.

I think that it is important that the larger economies and the developed nations provide the initial leadership and, equally important, example.

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- ¹ Bradley, Robert Jr. (2011). “Appreciating the Master Resource”.
<http://www.masterresource.org/2011/06/energy-master-resource-i-friends/>
- ² <http://www.vaclavsmil.com/>
- ³ Smil, Vaclav (2008). *Energy in Nature and Society: General Energetics of Complex Systems*, MIT Press.
- ⁴ National Academy of Sciences. “Top 20 Engineering Achievements of the 20th Century.”
<http://composite.about.com/od/inthenews/1/blnae1.htm>
- ⁵ Morrow, K John and Smith-Morrow Julie Anne. Switzerland and the 2,000 Watt Society. Sustainability Magazine, Vol 1 No. 1 February 2008. This article provides an introduction to the concept.
http://www.novatlantis.ch/fileadmin/downloads/2KW_article_in_Sustainability_Magazine.pdf
- ⁶ Novatlantis is the developer the 2,000 Watt Society in conjunction with the Swiss Federal Institute of Technology, Zurich. <http://www.novatlantis.ch/en/2000watt.html>
- ⁷ Smil (2008) page 386-7.
- ⁸ <http://www.vaclavsmil.com/>
- ⁹ <http://www.dieterhelm.co.uk/>
- ¹⁰ Helm, Dieter (2008). ” The EU Climate Change Package: even more radical than it looks”.
<http://www.dieterhelm.co.uk/node/486>
- ¹¹ European Energy Review (2011). “The Eurovision Energy Contest 2050”.
<http://www.europeanenergyreview.eu/site/pagina.php?id=3006>
- ¹² <http://www.inference.phy.cam.ac.uk/mackay/>
- ¹³ MacKay, David. “Sustainable Energy: Without the Hot Air”. <http://www.withouthotair.com/>
- ¹⁴ Hawkins, Kent (2009). “ Integrating Renewables: Have Policymakers Faced the Realities?”
http://dialogue.usaee.org/index.php?option=com_content&view=article&id=95:hawkins-renewables&catid=40:volume-18-number-1&Itemid=113
- ¹⁵ Smil (2008) page 382.