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# How to Energise Economic Recovery



By Robert U. Ayres, INSEAD Emeritus Professor of Economics and Political Science and Technology Management. The Novartis Chair in Management and the Environment, Emeritus

**There is a surprising lack of awareness about the role of energy as a driver of economic growth.**

It's been almost six years since the fall of Lehman Brothers plunged the global economy into a deep recession. Recovery has been slow. Fiscal policy has been stalled due to a conflict, both real and ideological, between those who advocate lower taxes and those who worry about increasing government budget deficits.

Monetary policy, a blunt tool at best, has been focused on cutting the cost of money to banks, in the hope that the banks would then increase their lending to businesses — especially to small and medium-sized companies, that are the biggest employers and job creators. Unfortunately, the banks have not been very accommodating in this regard, since they - in turn - have to satisfy risk-minimisation criteria set by the Bank for International Settlements (BIS) in Basel. What happens is that excess money not being invested in the “real” economy is likely to create another bubble. It may be

real estate. It may be a commodity bubble, such as in rare earths, platinum or oil. It may be the stock market, whole or in part.

That much is standard fodder for the financial pages and the media gurus who parse every speech by the Chair-person of the Federal Reserve. For them, whether pro- or anti-Keynes, mainstream economic models focus on demand driven by GDP. But academic growth theory, and large general equilibrium economic models still neglect or undervalue the role of energy. This has led to economic policy recommendations that do not actually work as advertised. The policies focus on stimulating demand by “printing money” or, more accurately, by making it cheap.

### **The end of plentiful energy**

In my new book, [\*\*The Bubble Economy: Is Sustainable Growth Possible?\*\*](#) I point out how there is a large gap in current thinking about the role of energy. If low interest rates would increase aggregate demand sufficiently with decreasing energy (oil) prices, then the growth (and unemployment) problem would be solved. However, the real problem is that cheap money isn't driving aggregate demand as it once did, partly because increased demand requires more energy inputs, and that drives up energy prices. It's not (yet) a black-and-white situation, it's many shades of grey. But somewhere in those shades of grey, energy — especially petroleum — supply is a constraint.

For the past 200 years, since the dawn of the Industrial Revolution, energy has been plentiful and affordable and a taken-for-granted underpinning of industrial activity. But that era is rapidly coming to an end as “peak oil” approaches. (Some say it was in 2005). The problem is that petroleum is almost the only source of liquid fuels that are needed by internal combustion engines. And internal combustion engines make things move where there are no wires. They power the entire transport sector (except electrified railroads) as well as mechanised farming, construction and mining. Higher cost petroleum will be a drag on future economic growth.

### **Not in the models**

Yet, energy is rarely taken into account by theoretical economists who write the textbooks and build the models. They depend on a theorem that says that the importance (i.e. the “output elasticity”) of energy as a driver of growth must be equal to its share of the national budget. Their dominant

paradigm is that economic growth is based on consumer demand, which is based on population (labour supply) and investment (from savings). The big general equilibrium models all ignore energy. It's not included as a "factor of production".

Because the contribution of energy to GDP has been less than five percent of the GDP for the last 25 years or so, most major international organisations, from the Organisation of Economic Cooperation and Development (OECD) to the International Monetary Fund (IMF), do not include energy in their main economic models. In those models growth is driven by labour supply and capital stock.

If you read the financial pages, there are few mentions of energy, unless there is a crisis in the Middle East. Most of the folks who do read those pages would buy the idea that money makes the world go round. But capital stock is inert and unproductive without activating energy. Similarly, human (or animal) labour requires food (and feed) in order to do work — even brainwork. Did you know that the brain, which weighs about 2 percent of body-mass, consumes 30 percent of the calories in food. It's really energy that makes the world go round.

### **Oil getting dear**

The rising price of oil and its knock-on effects are, as a result, little discussed in the global debate about the current sluggish economy. The high price of oil was certainly a factor in the recent financial crisis and many others before it.

That effect is about to worsen. The price of oil is likely to continue its climb, especially as demand, from China and fast-growing developing countries, catches up with current supply, while the rate of discovery of new oil is declining. ("Fracking", while momentarily exciting, is a blip on the long-term trend of increasing scarcity).

### **Tipping point?**

At the same time, as oil prices are rising, the prices of renewable non-carbon energy sources, such as wind and sun, tides and heat from the Earth, not to mention energy efficiency technologies like insulation and storage are falling. Prices are heading down as these technologies achieve greater economies of scale, see incremental improvements, as experience builds and the equivalent of Moore's law sets in, where cumulative production leads

to more rapidly falling prices.

Currently those trends suggest price convergence as renewables get closer and closer to “grid parity”. In the long run, however, there will be divergence, It is managing the divergence of these two trends – rising oil prices, falling renewables prices - that will be crucial to setting the economy on a sustainable growth path.

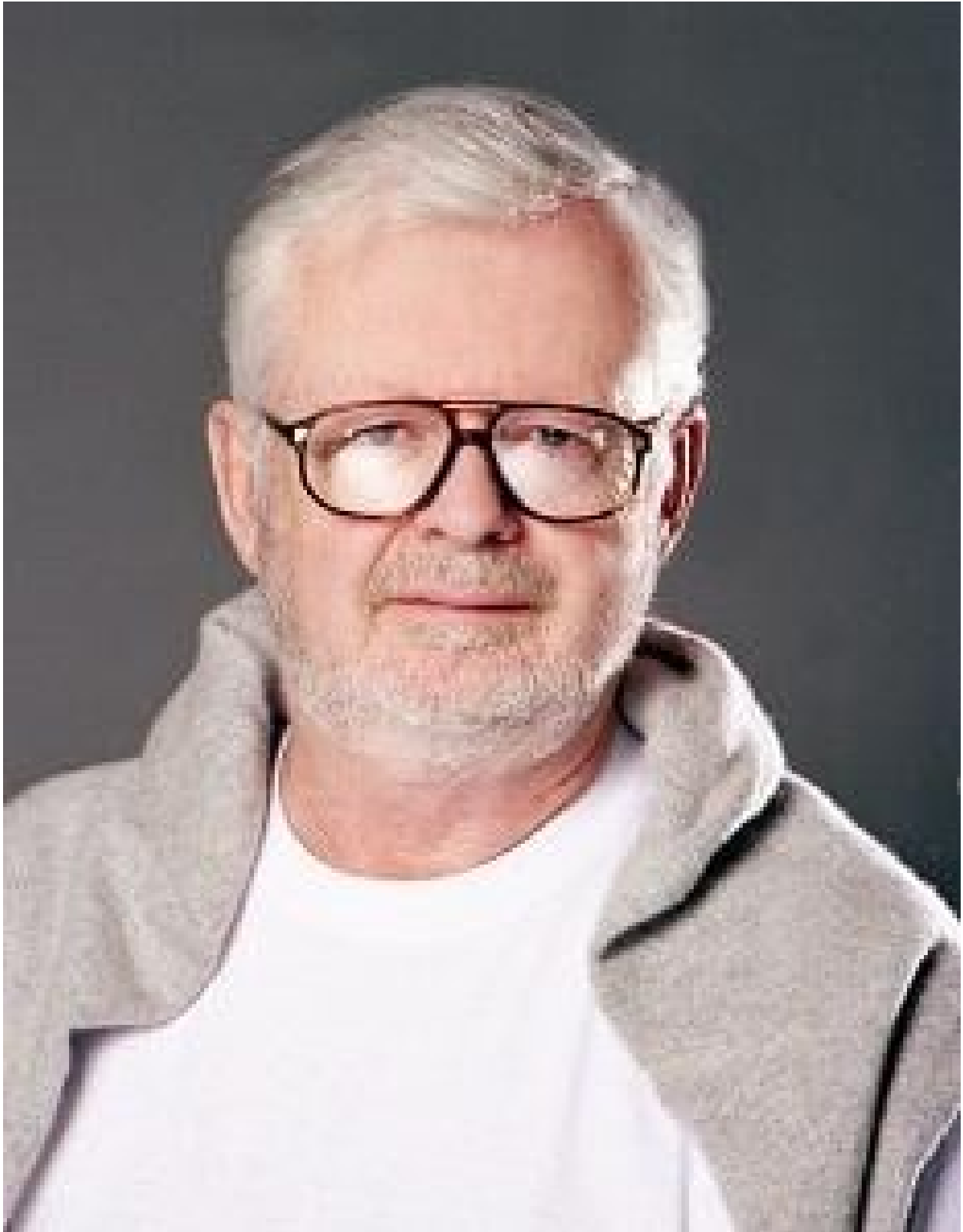
There is a long-term investment opportunity when the existing energy fuels and technologies continue rising in price, while the prices of renewable alternatives are declining. I see this as an opportunity for smart investors to make a lot of money, (thus rescuing the troubled pension funds and insurance companies) while driving more sustainable long-term growth.

### **Strategy to sustain growth**

The key to shifting the focus onto renewables lies in the private sector. Although how to get companies to invest the trillions of dollars and euros now lying dormant into low-carbon energy supply alternatives is not so obvious. The main challenge is to develop a way to attach current market value to illiquid assets, i.e. to “make a market” where none actually exists. This should not be beyond the wit of Wall Street. It was solved in the case of mortgage-backed securities by people at Salomon Brothers and First Boston, who incidentally got very rich by doing so.

The renewables problem is arguably more difficult, in that it requires creating a current market for securities with uncertain but probably increasing future returns. Needless to say individuals, venture capitalists, mining companies and film studios, among others, make such investments all the time. Some of them fail and a few have huge returns that justify the rest. The problem is to combine investments with high but declining short-term returns — such as an oil well — with investments with low (or negative) short-term returns but increasingly high long-term returns, such as a plantation.

A challenge for students of finance?



Bob Ayres is an Emeritus Professor of Economics and Political Science and Technology Management at INSEAD and the Novartis Chair in Management and the Environment, Emeritus. He is the author of **[The Bubble Economy: Is Sustainable Growth Possible?](#)**

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