

“From an investment perspective I have studied the energy markets for about 15 years and have grown to realise that the efficiency of resource extraction is decreasing at such a rate that technology is failing to keep up with it,” Andy explains. “My calculations suggest that the EROIE (Energy Return On Invested Energy), or the value to cost ratio, will fall from 20 today to 5 in the next 10 years, and that accordingly energy will grow from about 5% of the global economy to 20% over that period. This is a move of unimaginable consequences, completely changing the shape of the global economy. Over the last 20 years, a drop in the EROIE from 40 to 20 required a near doubling in the energy network to compensate, which happened almost exclusively in China where the majority of the increase in energy production came from, driving its demand for steel, cement and other capital intensive goods.

The simple reason high quality energy is valuable to us is the work that it does. If we can get 20 times as much work from oil as Mother Nature charges us to extract the oil in the first place, why on Earth are we having to use Tar Sands where the EROIE is 1.7 to meet our marginal needs. Why are we having to resort to technologies such as wind turbines and corn based ethanol that were squeezed out 200 years ago by superior sources of energy? These low EROIE, low density fuels are hugely capital, resource and land intensive to such an extent that there is simply no way the world can afford them to meet our present net energy needs.

Unfortunately without a new source of cheap, high density energy we are in a serious mess. Fusion is the obvious solution to the problem, and whilst it has been a long gestation period to get to where we are, it is the only option on the table. We should not be concerned about the cost of achieving fusion, but rather the cost of not achieving it. Private venture capital is investing in several different fusion projects, but this kind of technology needs government funding and public support. I realise that my contribution will do little more than buy some refreshments, but hopefully it may help publicise just how important your work is to us all.