Hi,
Attached is a PDF file containing three articles on the current development of consumption and its effects, they're short and well worth a read.

Two of them are based around the recent International Energy Agency report. Interestingly the IEA estimates peak oil as occurring about 2030, which is close the US Govt. Geological Service estimate of 2025...

Anyway the first story, in a quote, is:
'*The number of TVs, computers, iPods and other electronic devices in the home is expected to jump threefold by 2030 and will require the equivalent of 230 new nuclear reactors to keep them running, according to an international study calling on world governments to raise the bar on gadget efficiency.'*

The second story looks at rebound which, succinctly, is:
'Rebound effects can cut right through society and the three types reflect how they could inadvertently increase energy use. The first, direct effects, include people who drive more regularly because their fuel-efficient cars are cheaper to run. More efficient industry, on the other hand, can lead to indirect effects: cheaper steel might increase the amount of steel produced and, therefore, the number of construction projects in which it an be used. Across society, cheaper electricity bills overall mean consumers have more money to spend on other activities, such as holidays or entertainment, again potentially raising their overall carbon footprint.'

This has been in the research for a while but this is the first time I have seen it hit the mainstream.

One thing I have not yet seen in the mainstream is the 'infrastructure spike'. It’s in the IPCC and in various research papers and, in essence, is the carbon cost of a transfer to a low carbon economy. For example, Rudd just announced plans for the biggest solar farm in the world. Someone has to build the panels and then ship them, install them etc... If we can actually make the shift, there will be a blow-out in carbon emissions as the infrastructure for the new carbon neutral world is built. This is a real issue, but nobody seems to mention that in polite society...

By the way did you know that 90% of world trade is carried by ship and shipping emissions are over twice that of air travel, and shipping burns dirty oil. Shipping is also expected to increase by 100% by about 2017 (pre financial crisis values tho')

The third story looks at life-cycle assessment. Anybody concerned with consumerism and consumption will know what this means.

From the story, *'The sad fact is that no matter how virtuous our eco-activity, if we were to put in one hand the total benefits to the environment of all that virtue, and in the other all the harm done by the stuff we buy, the harm would vastly outweigh the good.'* For example, I was down at the Salamanca markets (Hobart) and asked one of the organic produce stalls where the organic onions came from, as I was unaware of any local producers. The reply was that they are airfreighted

from Adelaide on a weekly basis, then trucked to market etc. So, clean and green onions in Tassie come with a lot of airmiles...

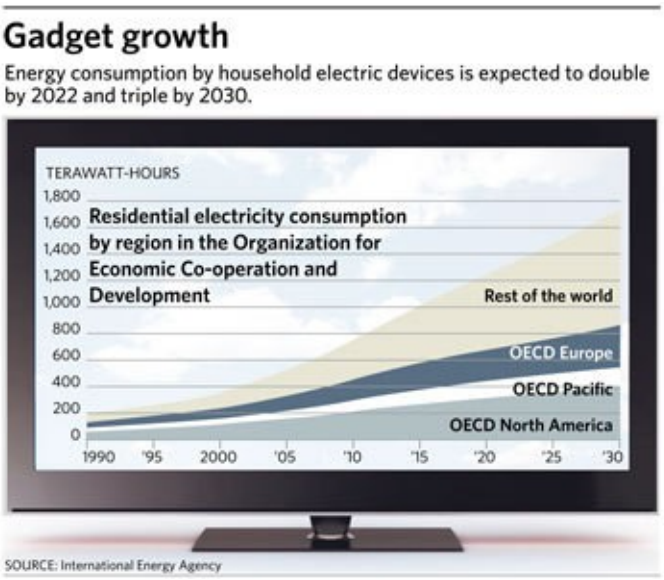
Last is a very short peak coal article from the ABC Online.
Cheers,
JS.

Gadgets create global power surge
The number of TVs, computers, iPods and other electronic devices in the home is expected to jump threefold by 2030 and will require the equivalent of 230 new nuclear reactors to keep them running, according to an international study calling on world governments to raise the bar on gadget efficiency.

This year, the number of people using a personal computer worldwide will pass one billion and there are already nearly two billion television sets in use today. More than three billion people subscribe to a mobile phone service and the number of chargers for mobile devices is fast approaching six billion. And we're just getting going, argues the Paris-based International Energy Agency (IEA) in a report released yesterday titled "*Gadgets and Gigawatts*." An $80 billion (U.S.) industry today, the agency sees that growing to $200 billion by 2030.

In line with that, it expects total energy use from electronic devices to double by 2022 and triple
by 2030 to 1,700 terawatt-hours if nothing is done to radically lower their energy consumption.

"This increase up to 1,700 terawatt-hours is equivalent to the current combined total residential electricity consumption of the United States and Japan," said Nobuo Tanaka, executive director of the energy agency. "It would require the addition of approximately 280 gigawatts of new generating capacity between now and 2030". That's like adding another Japan to the global grid.



The report says any improvements in efficiency to date have been cancelled out by the explosive demand for more feature-rich devices that require more power, everything from digital cameras and "smart" cellphones to Internet-connected game boxes and routers.

"It would not be surprising if you could count between 20 and 30 separate electronic devices spread throughout your house," says the report, which isn't counting electrical appliances like toasters. "None of them except perhaps televisions actually use very large amounts of energy individually, but they have become so common in all our households that as a group they now make up a sizeable amount of our energy consumption."

They generally account for about 15 per cent of total home electricity consumption, and in some homes exceed the amount of power used by traditional energy hogs like refrigerators and washing machines.

Devices that use remote controls are a particular problem because they're always in standby mode, meaning they never sleep and are always consuming a trickle of power. "Ten years ago you didn't see a ceiling fan or air conditioner with a remote control, but nowadays there's more and more products using that kind of switch," said Bruce Strathearn, a standards engineer with the office of energy efficiency at Natural Resources Canada.

Canada is introducing regulations that, beginning next year, would set a limit on the amount of "phantom power" certain consumer electronics could use in standby mode. The goal is a cap of 1 watt by 2013.

Some argue that many of these devices, while they do consume power, have actually helped reduce overall electricity consumption by making the entire economy run more efficiently.
A U.S. group called the American Council for an Energy-Efficient Economy put out its own study yesterday arguing that devices that rely on computer chips have hacked so much inefficiency out of the economy since the 1970s that the country has avoided the need for 184 power plants.

"Had we expanded the size and scope of the U.S. economy, based on 1976 technologies, it appears that the U.S. would be using about 20 per cent more electricity than actually consumed in 2006," according to that report. It argues that, by applying technology wisely, it's possible to expand the economy by 70 per cent by 2030 while reducing overall power consumption by 11 per cent.

Manny Vara, a technology strategist at computer chip giant Intel Corp., said there's still a big push underway within the computer and consumer electronics industries to reduce power consumption. Not many people realize, for example, that a computer mouse, keyboard or memory stick plugged into a USB port of a computer keeps the computer ‘awake’ when it would normally ‘sleep’", he said.

Increasingly, consumers are using computer USB ports to charge other devices. "If the USB doesn't fall asleep, other pieces don't fall asleep, and

it actually adds up to a lot of power over time," said Vara, adding there is room to reduce energy consumed by the screens on computers and hand-held gadgets.
Story by Tyler Hamilton, May 14, 2009, The Star: http://www.thestar.com/news/canada/article/634138

'Rebound effects' of energy efficiency could halve carbon savings, says study.
Research urges governments and climate policymakers to look beyond simple energy solutions and consider the indirect and economy-wide effects when forming legislation Using energy more efficiently might not be as effective at tackling climate change as people think, according to a new study. A team of economists has shown that so-called "rebound effects", where efficiency improvements are offset by behaviour changes, such as increasing demands for cheaper energy, could potentially slash future carbon and energy savings by half.

The rebound effect was first proposed in the 19th century but, until now, there has been very little research on how significant it might be. In the latest study, Terry Barker, of the Cambridge Centre for Climate Change Mitigation Research, showed that if the International Energy Agency's (IEA) recommendations for efficiency measures are followed in full in the next few decades, the total rebound effect – the proportion of potential energy savings offset by changes in consumer and industry behaviour – could be 31% by 2020 and about 52% around the world by 2030.

He is presenting the results today at a Cambridge University seminar, where economists, business people and policymakers will gather to discuss the wider implications of the rebound effect and consider how to incorporate it into climate negotiations. "The green stimulus packages being implemented to tackle the financial crisis in several countries all include investments in energy efficiency," said Barker. "They may be a lot less effective at reducing energy use than expected because of the rebound effect, especially in developing countries."

Policymakers and scientists, including the Intergovernmental Panel on Climate Change, only consider the direct rebound effects of energy efficiency, largely ignoring the indirect and economy-wide effects that Barker also identifies in his research.

"That is potentially important because it will lead to us over-estimating what certain policies will achieve," said Steve Sorrell, a researcher at the UK Energy Research Centre and an energy policy expert at the University of Sussex, who is also speaking at today's meeting.

Rebound effects can cut right through society and the three types reflect how they could inadvertently increase energy use. The first, direct effects, include people who drive more regularly because their fuel-efficient cars are cheaper to run.

More efficient industry, on the other hand, can lead to indirect effects: cheaper steel might increase the amount of steel produced and, therefore, the number of construction projects in which it can be used. Across

society, cheaper electricity bills overall mean consumers have more money to spend on other activities, such as holidays or entertainment, again potentially raising their overall carbon footprint.

In the study, Barker used economic models to predict how energy use in transport, buildings and industry might change in the coming decades. The total rebound figures were calculated by comparing two scenarios of how a growing economy responds to changing energy use. One scenario included the IEA's proposed energy efficiency measures, while the second did not.

This allowed researchers to calculate for the first time the indirect and economy-wide rebound effects not usually considered by scientists and policymakers. Doug Parr, chief scientist at Greenpeace UK said the work on rebound effects showed technology on its own was not a solution to climate change. "Any policy has to be not just about getting technology deployed but also about a strategy that includes tax and regulation. You can't just deploy new technology and hope it'll get you out of trouble. I get the sense that policymakers don't understand it fully."

Sorrell agreed that rebound effect should be taken more seriously by governments when setting climate policy – in particular, making sure they focus on measures outside simple energy efficiency. "Our new understanding of the rebound effect reinforces the case for price-based measures, such as carbon taxes and emissions trading, to control emissions directly."

The rebound effect was first proposed by William Stanley Jevons in 1865 – he argued that increasing the efficiency of steam turbines would increase, rather than decrease, the overall consumption of coal. As the cost of energy goes down, he said, people would be more likely to use steam turbines more often. His prediction came true – increasingly efficient steam turbines powered the industrial revolution.
Story by Alok Jha, 14 May 2009, The Guardian: http://www.guardian.co.uk/environment/2009/may/14/rebound-effects-energy-efficiency

Buying into an eco-mirage
It’s tough being green – especially if your new organic cotton T-shirt takes 2,500 litres of water to make.

Do you: recycle your newspaper? Print on both sides? Take the train or a bicycle instead of a car? Turn out any and all lights you don’t need? All well and good. But the hundreds of ways we’re being urged to change what we do to help to save the planet don’t go near the mark. At least not if by focusing on what we do, we ignore the dire ecological consequences of what we buy.

The sad fact is that no matter how virtuous our eco-activity, if we were to put in one hand the total benefits to the environment of all that virtue, and in the other all the harm done by the stuff we buy, the harm would vastly outweigh the good.

That calculation has been done for us by a new discipline, industry ecology, which uses a method called life-cycle assessment (LCA). The

industrial ecologists who do such ecological accounting render precise metrics for impacts on the environment, on our health and on the wellbeing of those who labour to make our stuff. The measuring starts from the moment ingredients are concocted or extracted through manufacture, transport, retail, use and disposal.

The LCA of a simple glass jar has 1,959 discrete steps, each of which can be assayed for myriad
impacts, from carbon costs and water use to the wellbeing of the workers who labour to make it. For instance, among the 220 different kinds of emissions into the air, adding caustic soda into the silica at a glass factory accounts for 3 per cent of the jar's potential harm to public health and 6 per cent of its danger to ecosystems. Sixteen per cent of the glass jar's cancer impacts are due to the natural gas the factory uses to heat its furnaces, and 31 per cent because of the use of high-density polyethylene, the plastic the glass is wrapped in for shipping. And on and on.

All this is for a jar made of 60 per cent recycled glass. This lens on industrial processes reveals why "green" is a mirage. The eco-virtues typically touted for one or another item focus on some single variable in manufacturing that has been upgraded — and ignore the myriad other ecological impacts that have gone unchanged. A T-shirt from organic cotton has undeniable virtue from eschewing pesticides and chemical fertilisers.

But cotton is a thirsty crop; growing the cotton in the T-shirt still requires about 2,500 litres of water, a serious matter in many cotton-growing regions — the Aral Sea evaporated into desert largely because of the demands for irrigating regional cotton farms Then there is the T-shirt's dye: many textile dyes are carcinogenic, and workers in Third World dye houses are prone to higher rates than normal of leukaemia.

Our dilemma is that most of the industrial platforms and our palette of industrial chemicals has been handed down to us from a day when no one knew their hidden ecological impacts.
Today we still make glass by heating silica and a batch of chemicals to about 1,100C (2,000F) for 24 hours — a method that dates from the 1850s. The 100,000 or so industrial chemicals in common use are largely derived from petroleum, though our bodies defend themselves from their accumulation through widespread inflammation — which can set the stage for the range of major disease, from asthma and diabetes to heart disease and cancer.

Now that we are able to track these once-hidden costs of industry and commerce, we enter a new era of radical transparency. "Radical" means going way beyond the laudable carbon calculations printed on everything from potato crisps to rail tickets, to assess the entire range of ecological impacts of what we buy.

There are hundreds of ways to assess those impacts, and that assessment should begin the moment the ingredients are concocted or extracted from nature, and continue through manufacture, transport, retail, use and disposal — a product's entire life cycle.

The more transparent a market, economic theory holds, the healthier it will be. Information asymmetry — where sellers know crucial information that buyers cannot access — pollutes the market. Think toxic assets. The movement towards fuller transparency in the financial markets has a direct parallel in the ecological impact of consumer goods: make visible the LCA of a product as it is being sold to us.

This is not just some idle pipe dream. An American website launched in February — GoodGuide.com — lays bare the environmental, health, and social impacts of the things we buy, offering shoppers instant comparisons of the ecological footprints of competitive brands.
GoodGuide leapfrogs the flock of green labels that approve products which do just one thing better than the rest: it aggregates 200 such databases — including some for LCA — into a single product rating. If you want to dig down to understand why a given product is just 2.9 on a scale of 10, GoodGuide will tell you. This website for product transparency is transparent itself.

Then there is SkinDeep.com, which ranks personal care products — lip gloss, baby shampoo and the like — on the “chemicals of concern” they contain. SkinDeep looks up each ingredient in these products in medical databases to see which, for example, cause cancer or disrupt the endocrine system in mice. While the EU has panels of scientists methodically working their way through evaluations of the 10,000 or so industrial compounds routinely used, a service such as SkinDeep alerts us to what we might rest better having in our bathroom cabinets. Will anyone bother to use such a service? After all, when Marks & Spencer surveyed about 25,000 shoppers, it found that about a quarter are simply not interested in the environmental pedigree of the things they buy.

Only 10 per cent said that they would go out of their way to get a more ecologically virtuous item. But the most telling group is the large majority of shoppers who lie somewhere between the two extremes — the roughly two thirds who either care about ethical choices but want the decision to be easy, or are vaguely concerned about ethics but feel that their shopping preferences won’t matter.

GoodGuide and its ilk target those two thirds by making ethical choices easier, SkinDeep has had more than 100 million visitors since its launch in 2004. GoodGuide.com, just months old, is not just a website, but also a free application on the iPhone. Supermarket chains in the US are already in conversation with GoodGuide about putting their product ratings next to the price tag of items. Then there are the discouraged shoppers who assume that their preferences will make little difference.

What they are not aware of is the robust debate within major corporations over making their operations more sustainable. Corporate champions of sustainability have argued that this course is the socially responsible path; their opponents have grumbled that what they propose is irresponsible because there is little or no money to be made by following such a course.

But the forces for improving ecological impacts are gaining traction in more and more companies. Proctor & Gamble has already done an LCA of its product mix to find its worst impacts on global warming. The

assessment showed that we have to heat water to use its detergents — and so it introduced cold-water detergents that are as effective as hot-water ones.

Wal-Mart has undertaken a similar initiative. Such ecological upgrades require industry to rethink its standard practices and technologies. But we know that our shopping choices can accelerate his competitive arena for innovation. Tomorrow's shoppers will be even more demanding and discerning, if the success of the internet video *The Story of Stuff* is anything to go by.

The film, made by a green activist, highlights the waste and exploitation involved in industry and commerce, and has provoked heated debate in America's classrooms. Businesses must take note. They will thrive to the extent that they find ways to rethink, reinvent, and upgrade their ecological impact. These tentative steps can accelerate with the advent of radical transparency.

The new generation of transparency tools remedies information asymmetry, adding ecological impact to the value basis of a product. I was pleased last month when I bought a ticket from London St Pancras to Sheffield to find printed on my receipt statistics comparing my carbon footprint for the same journey by train, plane or car. Britain has led the way to ecological transparency when it comes to labelling carbon footprints. But there are hundreds of other ecological impacts of all we do and buy.
Story by Daniel Goleman, May 16, 2009, The Times Online: http://www.timesonline.co.uk/tol/news/environment/article6281817.ece

Coal supply may be vastly overestimated
The world's coal supply suggests reserves may be vastly overestimated and we could be facing an unprecedented global energy crisis, according to a US expert. On the flip side, a dwindling supply of coal could also throw the brakes on global warming, some argue.

Common knowledge about coal is that major producing nations like China, the United States and Australia, have enough to last hundreds of years, far beyond the reach of oil, which may already be in its twilight years.

But worldwide coal production could plateau as early as 2025, according to one new estimate, and a growing group of scientists are concerned that fossil fuel supplies may begin dwindling by mid-century.
Full Story at: http://www.abc.net.au/science/articles/2009/05/13/2569143.htm?site=science&topic=energy