

## Re: Are nukes the answer to global warming?

**Source:** <http://sci.tech-archive.net/Archive/sci.energy/2005-03/0179.html>

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**From:** Clouseau2 ([eric\\_at\\_webmethods.com](mailto:eric_at_webmethods.com))

**Date:** 03/08/05

Date: 8 Mar 2005 11:11:03 -0800

owl wrote:

> On 7 Mar 2005 20:38:36 -0800, "Clouseau2" <[eric@webmethods.com](mailto:eric@webmethods.com)>

wrote:

>

> >owl wrote:

>

> >> *Actually, that is part of what we're talking about here – how far the*

> >> *energy goes, and how much we need (both per capita and in aggregates).*

>

> >*There are just as many examples of processes and things taking more*  
> >*energy as taking less.*

>

> *No, there aren't. Not even close to the same ratio. There are a few*  
> *increased energy suckers compared to a world of substitutions and*  
> *alternatives.*

>

> >*EROEI is going down fast for oil extraction,*  
> >*for instance, so it is taking more and more energy to pump up oil.*

>

> *This statement is nonsense. It indicates you've heard a buzzword*  
> *without bothering to check out what it really means.*

Uhh, I've been researching this stuff for over a year. EROEI == Energy Returned on Energy Invested. Here is a chart of some common returns:

[http://www.abelard.org/briefings/energy-economics.asp#tarsands\\_table](http://www.abelard.org/briefings/energy-economics.asp#tarsands_table)

Note that tar sands are 1.5, Middle East oil 30+.

I've read over 5 books on this subject. How many have you read?

>

> *It is actually an advantage for EROEI to go down in North America*  
> *because at the right ROI and cost balance, it unlocks the economic*  
> *viability of the Tar Sands (and it's 200 years of reserves).*

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- >
- > *>The return is very good for the middle east, but it is atrocious for the*
- > *>very mature fields in the USA.*
- >
- > *Yea ... duhh. Since the cost of transportation is closer to zero at*
- > *that point, you've really caught on to something fundamental here.*

Transportation is just one element that takes energy. There is exploration, drilling, operation of the well, etc.

<http://www.globalpublicmedia.com/transcripts/220> :

You have to remember oil in many reservoirs is under pressure. There's huge pools of this black energy dense liquid underground and basically all one had to do was stick a pipe down there and the oil under pressure would flow up through the pipe and all you had to do then was find some way of getting it into the barrels or tanks or pipelines to take it where you wanted to to use it or refine it. This was nature's free gift of energy that had been produced millions of years ago and stored through geological time, and the net profit on oil as a form of energy in those early days was way over 100 to 1. In other words by expending 1 unit of energy in exploration and drilling and so on. One could reap 100 units, 200, 300 units of energy profit. Now other sources of energy don't have such a spectacularly high energy profit ratio. In fact virtually none of them do, and that's true of coal, that's true of nuclear energy, it's true of wind, solar and all the rest. And in fact oil itself has a variable net energy return, and its net energy return is being reduced year by year. Why's that happening? Well, the stuff that's easy to find, the stuff that's under high pressure is the stuff that's being depleted first. It makes sense, if you're an oil company you're going to look for the stuff that's cheapest to extract first and only when that's gone are you going to want to invest in extracting the stuff that takes more time and energy investments. So, we have at this point extracted almost half of the oil that's going to be extracted economically. About 1 trillion barrels, and that first trillion barrels that we've extracted is the easy stuff. It's the stuff that's easy to find, it's under high pressure, you just have to stick a straw in the ground and it comes bubbling up. What's left, the oil that's left is going to be more costly to extract, so the net energy profit from that oil, instead of being, you know, 100 to 1, 200 to 1. Oil exploration and extraction are already down to by some figures 20 to 1, 30 to 1, 40 to 1 in that range. And within the continental US, the activity of oil exploration has an energy profit ratio that by some estimates is down to about 1 to 1. In other words it costs as about as much energy to search and extract a barrel of oil in the continental US as that barrel of oil actually contains. So what this means is the net energy available to industrial societies is being reduced year by year.

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- > *> Commutes are way up. The average miles driven per year, the average*
- > *> distance for a commuter from work, etc., are all up. Sprawl reins*
- > *> supreme, more and more communities are impossible to move around in*
- > *> without the use of a car. We are becoming MORE oil dependent, not*
- > *> less.*
- >
- > *Mish n mash, go take a bath. This is drift from the statement about*
- > *substitutions and alternatives.*

So you agree the above is all true. United States oil imports have been growing, year after year, since the oil peak in the 1970s. This is a FACT.

- >
- > *> Cars are also using MORE energy than before, CAFE has stagnated*
- > *since*
- > *> the 80s, we are consuming MORE energy. Our oil imports are going*
- > *up,*
- > *> our oil consumption is going up, world oil consumption is going up,*
- > *> natural gas consumption is going up. This will of course change in*
- > *the*
- > *> next 5–10 years as we enter a new era of energy scarcity.*
- >
- > *You're still in the mode where you throw it at the wall and see if it*
- > *sticks. The engines of today are more fuel-efficient, the car*
- > *materials use materials that require less energy to manufacture.*

From

<http://envstudies.brown.edu/Thesis/2002/Dyer/Transportation%20Vehicle%20Efficiency.htm>:

#### Vehicle Efficiency, New Vehicles

Although the most recent data for national vehicle fleet efficiencies is for 1997, fuel efficiencies are available for new vehicles for as recently as 1999. The next table presents the national average fuel efficiencies for new vehicles from 1975 to 1999. The MPG efficiencies for new cars and light-trucks increased each year into the late 1980's, peaking for cars in 1988 at 28.6 MPG and trucks in 1987 at 21.6 MPG. While vehicle efficiency for cars remained relatively unchanged from 1988 to 1999, light-trucks began a gradual decline after their 1987 peak to 20.3 MPG in 1999.

You might be noticing a pattern here. I actually back up stuff with references and data and you just say "that's the way it is".

- > *As for the energy scarcity 'in the next 5 to 10 years', you forgot*
- > *to*
- > *start it with "once upon a time".*
- >
- > *>> >> High strength materials that have the same strength but mass*

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less. This

> >> >> *reduces the energy of manufacture, and for vehicals and increases fuel*

> >> >> *efficiency.*

>

> > *Funny, when I drive my car around here I see more and more bulky 4000+*

> > *pound SUVs.*

>

> *Now you're re-responding to a very previous part of the thread – the silly 2% statement.*

>

> > *This is the car of choice for more and more of the public.*

> > *And more and more cars come with 300+ HP engines, easily twice what is*

> > *necessary, note that in Europe the same model of cars come with much*

> > *smaller engines due to highly taxes fuel. Supreme unleaded just went*

> > *up over 10 cents overnight here, it is now \$2.75 at some gas stations*

> > *here, but it's got a way to go until it hits the \$5/\$6 European level.*

>

> *Now you've dissolved into a quivering something scared of shadows.*

> *The price bounces back n forth here by .10c a litre like it's on a*

> *tennis court. Of course it's high right now – the market's on a run.*

I live the United States, maybe that is part of the problem of the miscommunication, you obviously don't. We've got the problems with energy.

>

> >> > *This is easy to show mathematically. If you halve the amount of energy*

> >> > *something takes but the growth of that use is 2% per year, it*

> >> > *doesn't*

> >> > *take long*

> >> > *for the total amount consumed to exceed the original, less efficient*

> >> > *mode of consumption.*

> >>

> >> *By the rule of 72, you've just added 36 years of consumption*

> > *lifespan.*

> >

> > *The human race is (hopefully) going to be around for thousands of*

> > *years. Infinite growth on a finite planet doesn't work as long as the*

> > *growth requires natural resources.*

>

> *Well, go grab your alarmed side-kicks and start demonstrating about*

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- > *the energy crisis coming in just a few thousand years. It'll be fun*
- > *to see that clip on the news.*

We've already had energy crises in the past. Oil discoveries peaked in the 1960s, that's 40 years ago.

- > *Quite simply, you're a slogan slagger without a good handle on the*
- > *true nature of the problem. You lack the ability to live with the*
- ups*
- > *and downs and recognize them for just that. You appear to be*
- > *dominated by vague generalities, misconceived assessments, and fears*
- > *of the impending unavoidable collapse of human civilization. Worst*
- of*
- > *all, you an understanding of human inventiveness and ingenuity that's*
- > *so low it's almost misanthropic.*

And you just say stuff without any references or data. But don't blame yourself, most of humanity is afflicted by "Cornucopianism", even in the face of incontrovertible facts. I suggest reading some work by Richard Heinberg as an antidote, starting with the interview above.

And human civilization doesn't have to collapse, human ingenuity can overcome great obstacles, as you say. However, given the path we've (United States) CURRENTLY chosen, things are not looking so good. Unless you think serially invading oil rich countries is good for the world.

- > *The CO2 (pollution, warming, other-effects-to-be-seen) problem can*
- > *work with a 'wait it out' strategy in your peter-panned-out world.*
- >
- > *That's the real problem – we're not running out.*

Yup, and once coal gasification starts up bigtime, and we turn the planet into another Venus, the few million that might be able to survive will be able to try "plan B" for humanity.