Comment Set 16, cont.
Russell D. Hoffman

Subject: From RADBULL

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19 [NukeNet] Net Loss From Nuclear Power - Energy Audit

Date: Wed, 27 Apr 2005 14:16:28 -0700

NukeNet Anti-Nuclear Network (nukenet@energyjustice.net)

Nuclear Power Used Up More Energy
Than It Delivered To Society !

Nuclear Power was devised to make the public pay
the high cost of plutonium production, the element needed for nuclear
weapons. The ultimate doomsday machine!

16-6

"At the end
of forty years of the US nuclear power program
by 1991, this energy- 381302 MW-yrs -delivered to
society is still less than the gross cumulative
energy invested in nuclear plant construction and
maintenance of 489174 MW-yrs! "
Energy audit of nuclear fuel cycles

By R. Ashok Kumar,

Comment Set 16, cont.
Russell D. Hoffman

B.E,M.E(Power),Negentropist,Flat 1/13, Telec Officers' CHS.,Ltd.,Plot 30, Sector 17, Vashi, Navi Mumbai-400705. Tel:7896209.

Although the gross nuclear capacity of the USA reached 104820 MW (greater than 150 MW capacity only considered), less than 20000 MW energy capacity was in fact delivered to society in 1991(Spread Sheet No.12A: See attachment). This is derived as follows:Gross cumulative energy delivered to society (1991)= Megawatt-years/years = 798370/40=19959 MW or 20000 MW approximately.

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The rest was all consumed by the nuclear industry itself. The actual energy- capacity delivered at the consumption point was much less. Using a figure of 0.597 for the plant factor, and 20% transmission,distribution and conversion loss, the amount of energy delivered by the programme amounts to only 9.09% of the energy generated. For the annual energy invested in the nuclear programme, the energy generated per year per unit was divided by a factor of 1.5(R. Ashok Kumar.1989.The Indian Nuclear Energy Programme:A Net Energy Analysis. PPST Bull. No.18.March.pp17: Energy Invested in Waste Storage. See also Appendix 1,this article.).

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Thus as the US
programme of commissioning of the nuclear power plants progressed from 1952 to 1991 (end of my study period for the US programme), the average nuclear capacity added per year was 2621 MW while the average nuclear industry demand was 12229 MW! The cost overrun was 4.25.

It is estimated (based
on assumptions given in the appendix) that the programme started delivering net energy to society only thirty years after the commencement of the programme. And while it generated 1283911 MW-yrs in 30 years,it delivered to society only 30% or less in a brief period from 1981 only. At the end of forty years of the US nuclear power programme by 1991, this energy- 381302 MW-yrs -delivered to society is still less than the gross cumulative energy invested in nuclear plant construction and maintenance of 489174 MW-yrs!

This analysis
assumes only a portion of the energy used for waste storage and maintenance.This American civilian nuclear programme cost a total of Rs 45 trillion. This means Rs 45 Crores per Megawatt! But as we saw above, this programme delivered to society an energy capacity of 9532 MW per year

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over 40 years , with an installed capacity of 104820 MW achieved over 38 years.

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As shown above
the US programme needed an additional gargantuan amount of thermal power to construct the nuclear facilities.The data for the nuclear capacity additions were taken from Nuclear Engineering International, April 1991.

Appendix 1

Nuclear Wastes Unmanageable: An audit of the Energy Required

As of year 2000, 7925 reactor years of operation have been completed in sixteen countries which have operating nuclear power plants (Data till 1990 have been taken from Nuclear Engineering International April 1991). Thus the 16 countries of the world generated by end 1990 in their nuclear power plants 15714.1 TWh or 1793847 MW-yr. The corresponding capacity was 290898 MW(337 reactors). Average nuclear capacity was 290898/337= 863.2 MW. All over the world the number of reactors retired to date is 90 with a total capacity of 77688 MW. Net capacity on line= 209898-77688=213210 MW. Energy generated by these

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reactors from 1991 to 2000 amounts to 213210 MWxlifetime plant load factor of 0.64 x 10y= 1364545 MW-yr.

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Therefore the total energy generated till 2000 from begin of nuclear programmes= 1793847+1364545= 3158392 MW-yr. The number of reactor years of operation till end 1990 was 4500. Taking the number of reactor years of operation to be proportional to the energy generated yields a total of 7925 reactor years of opeartion. For this the power required for waste storage and maintenance is 4.75 MW(thermal). See Lovins. Technical Bases for Ethical Concern. In AH Lovins and JH Price. 1975. Non-Nuclear Futures. Harper-Colophon. p 97. This is at the rate of 1.505 watts per megawatt-year (of gross energy generated) for waste storage and maintenance.

Now the energy invested in the nuclear power programmes of the 16 countries till end 1990 was 1793847 x 0.5= 896923.5 MW-yr(See below for derivation). From 1991 to 2000 units were retired rather than added. Let us assume that the energy invested remained at this value (1990 end value). Then, net energy available after accounting for the energy invested which included energy for waste storage and its maintenance for 31500

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years(see below) was 3158932-896924= 2261478(The energy invested 896924, if considered at the bus bars would be higher).

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Thus the number of additional years of waste storage and its maintenance which is obtained by dividing the net energy available 2261478 MW-yr by the power needed for waste storage and its maintenance 4.75 MW(thermal) is a maximum of 476101 years because there is a conversion efficiency for electrical to heat production of 50% to 80%. This is far from enough for storing wastes for a million years or more. Thus the nuclear energy programmes are net energy consumers. The latest evaluation of waste storage research proclaims this loudly(Institute for Energy and Environmental Research. May 2000. Science for Democratic Action. See also R. Ashok Kumar, op cit.).
<cut>
An estimate of the fraction of energy generated debited to investment in the nuclear power programmes can be done as follows:
Let us take four countries namely,the USA,France, Japan and Canada. The energy generated back of the 20% losses is given by the (sum of the total nuclear industry demand and the net energy delivered to society)/0.8. This for these four

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countries for which the energy audit has been worked out by the author becomes 2354460 MW-yr. Details in a separate article. The nuclear industry demand works out to 1175742 MW-yr which is 50% of the gross energy generated.
A number of surprises as the nuclear power programmes progressed over the world.
It must be noted that a number of surprises have caused retrofits and replacements like the steam generator premature replacements and the replaced radioactive steam generators enclosed in costly sarcophages worldwide. These have enormously increased the energy invested in these white elephants.

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http://www.energy-net.org/N-LET/EN/0RBULL/RB05491.HTM
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line and first line of body

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40 Las Vegas SUN: Goodman wants state law banning nuke waste transport

By Dan Kulin <dan@lasvegassun.com> LAS VEGAS SUN

Las Vegas Mayor Oscar Goodman said Wednesday that he wants a state law banning the transportation of radioactive waste through Nevada, a law similar to the city's ordinance.

During the Wednesday City Council meeting, Goodman asked Deputy City Manager Betsy Fretwell to look into getting the Legislature to consider such legislation this year.

Goodman also said he would want the law to require transporters of other dangerous cargo to be required to alert local

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governments before they travel through an area.

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The mayor's comments came on the heels of a Monday ruling in federal court that upheld a Washington, D.C., ban on hazardous rail shipments, which the mayor said was a wonderful development for local governments including Las Vegas. In 2000, Las Vegas adopted an ordinance banning nuclear waste shipments through the city in an effort to keep waste bound for the proposed Yucca Mountain waste repository out of the city.

The Clark County District Attorney's office questioned if it were constitutional, but Goodman has noted that the ordinance has never been tested in court. Goodman has said he would have drivers hauling high-level nuclear waste through Las Vegas arrested. On Tuesday, Goodman said that in light of the ruling he would ask the city attorney to draft a new ordinance that would expand the city's ban to include other dangerous cargo.

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Comment Set 16, cont.
Russell D. Hoffman

From: "Sidney Goodman" <gizmogeek@mindspring.com>
Subject: Windpower off NJ Coast?
To: undisclosed-recipients: ;

Put offshore Wind Power Generators Off the NJ Coast?

16-6

It is controversial issue. I heard complaints that off shore wind generators spoil the view and kill birds.

Airplanes kill birds, windows kill birds when they smash into them, and cats kill them. There is no call to abolish airplanes, windows, or cats.

The number of birds killed by wind power is small compared to those killed by pollution from coal, oil, gas, nuclear power, or killed in wars fought to control oil. Other living beings are also killed from these sources. Wind power saves lives and reduces disease.

Improvements in wind generator design reduced the already small threat to birds. Improvements made wind power the fastest growing segment of the energy production market.

Before I became an engineer, I was an artist. I find the latest wind generator designs aesthetically pleasing. Tourists go off the beaten path to view windmills in many foreign lands. We can't please everyone though.

Are tombstones better to look at? Is the anguish of pollution victims better to see?
Bad air inflicts tens of thousands of deaths and illnesses. Radioactive emissions from nuclear plants have harmed many despite white-wash reports. The first signals that
nukes weren't as clean as ballyhooed was the discovery of deformed frogs and animals near plants in normal operation. In the HBO documentary movie "Chernobyl Heart", the ghastly condition of children was shown. A doctor commented that in Belraus, only about 15 to 25 per cent of the children are healthy. This was 18 years after the Chernobyl nuclear disaster. Despite denials by nuclear promoters, farmers downwind of the Three Mile Island (TMI) nuclear plant accident experienced still-born and deformed animals. This never happened throughout generations of farming. Farmers near nukes complained about this long before TMI.

Referring to the first war with Iraq, *The Wall Street Journal* mentioned the lament of Dr. Carl Sagan. Dr. Sagan was concerned that that our government was spending about as much money on non-nuclear alternatives to fossil fuel as we were

Comment Set 16, cont.
Russell D. Hoffman

spending during each hour of the war with Iraq. Whether his statistics were exact or not, the gist of his point was and is very true.

16-6

Wind power can generate hydrogen as well as electricity. Hydrogen is the cleanest fuel imaginable. When it burns, its effluent is water that is pure enough to drink. Astronauts drink the water from fuel cells on space craft. I learned that when I designed fuel cells at H Power Corporation. Fuel cells produce electricity from hydrogen and air.

Wind blows day and night. At night, when the demand for electricity is low, wind power can produce hydrogen almost cost free, electrolyzing water. The idea for putting wind power off the coast of New England was proposed to provide New England with all the electricity it needed. Utilities opted for nuclear power instead.

Nuclear engineers laughed at the hydrogen option. They taunted that hydrogen is dangerous because it explodes. Yes, it can explode. Gasoline and natural gas explode. Combustibility makes them useful as a fuel.

There was a hydrogen explosion in the Three Mile Island nuclear plant, during its partial melt-down, near Harrisburg, PA. We were lucky that the plant had only operated three months when the accident happened. If the plant had been operating much longer, the explosion would have been great enough to blow the plant wide open. That didn't scare nuclear engineers. But hydrogen at a little old wind mill or at a solar system (which can also produce hydrogen) is terrifying to them.

We have been cheated out of the golden age of economic and environmental benefits of renewable energy; less inflation, increased employment, lower energy costs, a more peaceful world, less proliferation of nuclear weapons, and a cleaner environment. Dick Cheney's secret energy meetings, scuttled these benefits. It was a theft. The answer to his perfidy is blowing in the wind.

Sidney J. Goodman, P.E., M.S.M.E.

Sidney Goodman
gizmogeek@mindspring.com
EarthLink Revolves Around You.

Comment Set 16, cont.
Russell D. Hoffman

From: "Sidney Goodman" <gizmogeek@mindspring.com>
To: nicholas@nytimes.com
Subject: The claim that nuclear power is a solution is part of the problem.

The claim that nuclear power does not contribute to global warming is false. Immense amounts of fossil fuel have been
and continue to be burned to enrich nuclear fuel, and there are large net energy losses that have been swept under the rug.
Large amounts of fossil fuel will also be guzzled for dealing with nuclear waste. **16-6**

Nuclear power is about as efficient as using a cannon to ring a door bell with.

The claim that nuclear power does not emit poisons is a grotesque fraud. Great damage has already been done, but has been covered up. Reports of damage have been censored. Many top scientists have been persecuted for blowing the whistle on this fraud. Although the nuclear industry claims that no one was harmed by the Three Mile Island accident, independent findings indicated otherwise.

18 years after the Chernobyl accident in the Soviet Accident, the Urkrainian Ministry of Health reports that at least 2 million people suffer from radiation illness. Some doctors in India believe that the fallout from Chernobyl killed at least a million children, over the years. In Belraus, only about 20 per cent of the children are healthy.

The claim that large releases like at Chernobyl cannot happen in the USA is a foolish denial of reality.
Much larger releases can occur in a terrorist attack on a spent fuel rod pool.

The radioactive waste problem has not been solved, and it will never be solved. It will sicken and kill immense numbers of
living beings and will poison many areas for hundreds of thousands of years.

Many claims made by nuclear proponents violate the most elementary principles of physics, engineering, common sense, and decency. For example, they have discovered that when you have a nuclear disaster, the wind
stops blowing.

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Poisons can and have been blown thousands of miles, yet the industry is satisfied with a mere ten mile evacuation zone.

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The industry also wants to dump highly toxic, so-called low level wastes in ordinary garbage dumps. The industry wants to "recycle" radioactive metals, and put them in ordinary consumer products.

Nuclear power is not safe. If it were safe, it would not be necessary to maintain the Price Anderson Act, which excuses a nuclear utility for what could be more than trillion dollar disaster.

Every nuclear plant is a terrorist's dream come true. Each plant is a potential weapon of mass destruction.

Nuclear plants abroad, subsidized with American tax dollars, have proliferated the building of nuclear weapons.

Cleaner, safer, less costly energy sources have been sacrificed on an altar of greed, and nuclear fraud and deceit.

Many people will do anything for money. In this day and age, that anything is nuclear power.

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EarthLink Revolves Around You.

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Russell D. Hoffman

To: greenaction@yahoogroups.com
From: Ellen Bicheler <ellenb@sonic.net>
Subject: [greenaction] DestiNY's Child Mega-mall in upstate New York could give birth to a clean-energy awakening

DestiNY's Child

Mega-mall in upstate New York could give birth to a clean-energy awakening
By Amanda Griscom Little
20 May 2005
Could a mall mogul's dream project give a big boost to renewables?
Image: DestiNY USA .
As the Senate deliberates over the Bush-backed energy bill and enviros send out another round of distress signals over America's obdurate fossil-fuel dependency , who would believe that the next big thing in renewable energy is being driven by a tenacious commercial developer with strong GOP affiliations and 25 mega-malls under his belt?

Picture a gargantuan shopping complex in upstate New York -- a so-called "retail city" big enough to make Mall of America look like a five-and-dime -- with thousands of shops plus restaurants, theaters, hotels, a high-tech research park

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for commercial R&D, and a sprawling, climate-controlled biosphere for recreation. Yet another environmental abomination, you say?

16-6

Not so fast.

Shopping-mall titan **Robert Congel** , one of the world's biggest commercial real-estate developers, is about to begin building a multi-billion-dollar, **800**-acre shopping and entertainment complex with all of the above-mentioned amenities, but without -- and here comes the part that strains belief -- so much as a barrel of oil or a kilowatt of fossil-fuel-generated power. That's right, folks, a 100 percent clean-energy mega-mall. He vows that it will be the closest thing to an "Apollo Project" for renewable energy that America has ever seen -- one that grows the economy, strengthens national security by encouraging energy independence, and protects the environment.

Congel's bulldozers -- fully powered by pure biodiesel , along with the rest of his construction equipment -- are scheduled to begin leveling the development site in early June on a massive brownfield in Syracuse, N.Y., formerly dubbed "Oil City" for the giant tanks of crude it once housed. On it he plans to erect the optimistically named "DestiNY USA," a retail complex powered entirely by wind turbines, solar panels, fuel cells, and biofuels.

Despite skepticism from a number of Syracuse locals, commercial-development analysts, and renewable-energy experts that the immense and unprecedented scheme can be pulled off, Congel doesn't hesitate to make grandiose predictions

Comment Set 16, cont.
Russell D. Hoffman

for DestiNY, claiming it will attract tourists from around the world and become a paradigm-shifting catalyst for the nation's renewable-energy markets. Muckraker heard these forecasts firsthand during a lavish investor symposium in February at the developer's 6,000-acre retreat an hour north of Syracuse where, in the interest of full disclosure, room and board were provided for a night.

16-6

Retail mecca seeking presidential pat on the back.
Image: DestiNY USA .
Congel so relishes the symbolism of his project that he is working with a bipartisan cohort of politicians to get a provision into the energy bill that would call on the president to select and recognize "renewable and sustainable mega-projects that can move America toward energy independence," as **Rich Pietrafesa** , a DestiNY managing director and policy adviser to Congel, explained it. The measure does not entail any subsidies or tax breaks for the venture; it's purely symbolic. "If the White House says, 'This kind of project is fundamental to the future and safety of America,' it will go a long way to accelerate the commercial acceptance of [renewable-energy] technologies," Pietrafesa said.

That's not to say that the complex isn't getting any tax breaks. On the contrary, the DestiNY team has managed to secure a staggering raft of tax benefits at every level -- city, county, state, and federal -- with the help of New York politicians on both sides of the party line, including Sens. **Hillary Clinton** (D) and **Charles Schumer** (D) and Gov. **George Pataki** (R). On the federal plane, Clinton and Schumer went to bat last year to add $231 million to the corporate tax bill to finance $2 billion in "green bonds" for eco-friendly shopping developments.

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DestiNY is expected to reap a significant portion of these funds due to its unparalleled size.

16-6

That is, of course, if the developers can meet the bond requirements, which will be no small task, according to **Ashok Gupta** , the senior energy economist at **Natural Resources Defense Council** . "The green guidelines for these bonds are as stringent as I've seen -- hardly a giveaway from a policy standpoint," he told Muckraker. Gupta said he was impressed by the DestiNY team's enthusiasm for the strict guidelines, but wasn't sure the mall builders knew what they were in for. "I have a hard time believing that the DestiNY executives can deliver on their green promise," he said. "These are not developers who have ever attempted a green project, and it's not clear to me that they understand the extent of their commitment, financially and practically." Even developers who have worked on multiple green buildings would find a project of this scale to be extraordinarily challenging, he said.

Rick Fedrizzi , president of the **U.S. Green Building Council** , who consulted with the DestiNY executives on their green-building goals, was less skeptical. "At first, it had a lot of us in disbelief. I had never seen anything of this magnitude," Fedrizzi told Muckraker. "But the DestiNY team kept pushing us further and further to develop a plan that not only meets but exceeds LEED standards ," the council's green-building guidelines, considered the benchmark for the industry. Fedrizzi added that Congel "clearly knows how to execute," as evidenced by his decades of success as a developer. "This is his legacy project. He's dead serious about making this into a world-class showcase."

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Russell D. Hoffman

A Touch of World-Class

16-6

Congel's renewable-energy goals for DestiNY are world-class indeed. To take solar, DestiNY would produce and consume "at a minimum 32 megawatts of solar electricity," according to Pietrafesa. To put this in perspective, 32 MW would not only be the world's biggest solar installation, it would account for one-third of the total solar capacity installed annually in the United States.

All this, and nary a drop of petroleum.
Image: DestiNY USA .
The complex would also consume a minimum of 28 MW of electricity from fuel cells (with hydrogen derived from renewables), said Pietrafesa, which in turn would increase the total amount of installed "electricity-generating" fuel-cell capacity in the country by roughly 60 percent. DestiNY would also rely on a minimum daily feed of 120 MW from biodiesel and biomass combined, and 44 MW of wind power -- both mind-boggling numbers as well.

Congel has gone so far as to predict that DestiNY could accelerate economies of scale to the point where the price of renewable energy would become cost-competitive with fossil fuels in as little as a decade, thereby revolutionizing the energy industry far sooner than experts forecast.

Renewable-energy advocates are more circumspect. **Thomas Leyden** , a vice

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president with the solar-development firm **PowerLight Corp.** , one of DestiNY's potential energy partners, said, "It may be the biggest solar installation and renewables project in the world, but there's no way DestiNY will move markets to that extent within a decade, or even move markets in any substantial way." Leyden pointed out that Germany is adding 600 to 800 MW of solar a year and Japan is in the same ballpark -- meaning that DestiNY is a drop in the bucket in terms of global economies of scale. "Nevertheless," he quickly added, "I applaud Congel's vision, and want to be a part of it."

Pietrafesa countered that the mega-mall's long-term impact on the energy economy will stem from its role as a trendsetter. Congel's team is in discussions with developers nationally and overseas who are eager "to create, as it were, their own DestiNYs," he said. He also predicted that the DestiNY model will "inspire visitors to make clean-energy decisions in their own lives," in turn moving markets from the grassroots.

But could a trend in green mega-malls backfire, if it means more people traveling farther distances to shop? Gupta pointed out that there's a contradiction inherent in a fossil-fuel-free tourist destination that requires a huge volume of fossil fuels to deliver the hordes of visitors expected daily -- whether by plane, train, car, or tour bus. "There's just no way around the fact that the energy associated with traveling to the mall would offset the environmental benefits of a fossil-fuel-free destination."

Spend Your $.02

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Discuss this story in our blog, Gristmill.
And then, of course, there's the obvious fact that it's a *mall* -- a massive temple to American-style hyper-consumerism. 16-6

Still, all this doesn't negate the breathtaking ambition of Congel's plans to construct a zero-energy retail mecca -- a powerful symbol that profits and cheap fossil fuels aren't inextricably entwined. Who else in this country is willing to commit the staggering sum of an estimated $20 billion to such a vision? Who else is willing to grandstand for renewables with a project as eccentric as a zero-energy mega-mall? At a time when Republican leaders are pushing a myopic, five-year-old energy bill with massive handouts to Big Oil and King Coal, Americans should applaud the optimism and sheer audacity of Congel's dream.

Muck it up: We welcome rumors, whistleblowing, classified documents, or other useful tips on environmental policies, Beltway shenanigans, and the people behind them. Please send 'em to muckraker@grist.org .
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Amanda Griscom Little writes Grist's *Muckraker column on environmental politics and policy and interviews green luminaries for the magazine. Her articles on energy and the environment have also appeared in publications ranging from* Rolling Stone *to* The New York Times Magazine.

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