Nuclear Melts Down, Renewables Explode

It is now obvious that nuclear power development can't keep up with the pace of its renewable energy competitors. While the search for clean energy sources is increasing, nuclear power has been declining for a number of reasons:

Too risky

Costs too much

Can't find the necessary private capital

Who's Opting Out of Nuclear?

- In May of this year, the Swiss government decided to abandon nuclear power in their country.
- Their final reactor will go offline in 2034.

- On April 4, 2011, Germany's Secretary of State for the Environment and Nuclear Safety announced that Germany will shut down all its nuclear power stations by 2020.

- The U.S. and the European Union are not opting out.
- The European Union is working on making their 143 nuclear reactors safer with stricter regulations and safety tests, but they have no plans of opting out.
- The U.S. will continue their expansion of nuclear reactors.

- In June of this year, the Italian government held a referendum asking voters if they supported their government's nuclear agenda.
- Over 90% said "no."

The Increase in Renewables

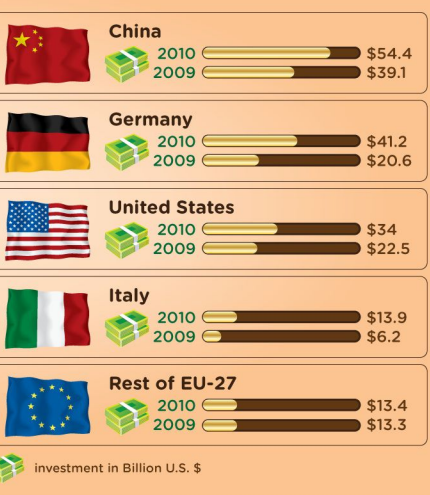
For 15 years, yearly renewable capacity additions have outpaced nuclear start-ups.

The share of renewables in new capacity additions in the U.S. rose from 2% in 2004 to 55% in 2009. During this same time, there were no nuclear capacity additions.

In 2010, the amount of cumulative installed capacity worldwide from renewables was higher than the installed nuclear capacity.

In 2010, it is estimated that $243 billion was invested into renewable energy technologies.

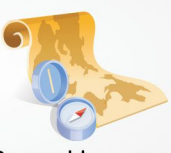
TOP 5 Countries Investing In Renewable Energy



Why We Don't Use More Renewable Energy

In general, most renewable energy power plants have less environmental impact than fossil and nuclear power plants, but there are two main reasons why we don't use more renewable energy:

Renewable energy technologies are capital intensive.



Renewable resources are often geographically remote.

Pros and Cons of Power Sources

Coal

Pros:
- Inexpensive – about 3.06 per kWh
- It is easy to recover – especially in U.S. and Russia

Cons:
- Expensive air pollution controls are required
- Produces acid rain and contributes to global warming
- A large transportation system is required

Average Cost/kWh: 3.06 cents

Nuclear

Pros:
- Fuel is inexpensive
- Energy generation is the most concentrated source
- Waste is more compact than other sources
- The new fuel is easily transported
- There are no acid rain or green house effects

Cons:
- Large capital costs are required
- There are long-term and high-level storage issues that must be resolved
- Potential nuclear proliferation issue

Average Cost/kWh: 2.14 cents

Hydroelectric

Pros:
- Very inexpensive once dam is built
- The U.S. government has heavily invested in building dams

Cons:
- Limited source because of reliance on water elevation
- A dam collapsing can be fatal
- They negatively affect fish
- Flooded areas cause environmental damage

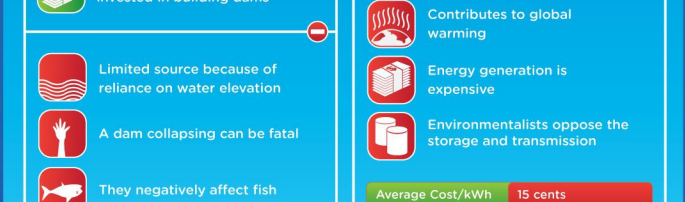
Average Cost/kWh: 4 cents

Gas/Oil

Pros:
- Good distribution system in place for the current use levels
- Usually easy to obtain
- A good energy source for space heating

Cons:
- Limited availability
- Contributes to global warming
- Energy generation is expensive
- Environmentalists oppose the storage and transmission

Average Cost/kWh: 15 cents



Wind

Pros:
- Wind is free
- Good source for farms with water pumping demands
- The costs of this renewable source are reasonable
- Perfect for rural areas

Cons:
- The demand is 3x the amount of installed generation
- Can only be in windy areas
- Require many towers and are limited to small generators
- Very dependent on the climate
- Can affect birds if not designed right

Average Cost/kWh: 12 cents

Solar

Pros:
- Sunlight is free
- Costs are decreasing

Cons:
- Can only be in sunny areas
- Special mirrors are required, and they can affect the environment
- A lot of land is needed for the small amount of energy generated

Average Cost/kWh: 10-14 cents

Biomass

Pros:
- This industry is just beginning
- More small plants could create more jobs

Cons:
- Small plants can be inefficient
- Fuel has low heat content and can contribute to global warming

Average Cost/kWh: 7-9 cents

Hydrogen

Pros:
- Water and energy are produced by combining hydrogen with oxygen

Cons:
- Expensive to produce
- Takes more energy to produce hydrogen than energy that could be recovered

Average Cost/kWh: depends on other source of power; $4-$12 per kg

Fusion

Pros:
- Can use tritium and hydrogen as a fuel source
- Has a higher energy output per unit mass than fission
- Low radiation levels associated with process

Cons:
- After 40 years of costly research, the break-even point has not been met; commercially available plants aren't expected for 35 years

Average Cost/kWh: 10 cents

Do YOU think that the world can be powered by wind, water, and sun alone?

Sources: worldwatch.com, cleantechnica.com, planetsave.com, eia.gov, renewable-energy-sources.com, nei.org, nucleartourist.com