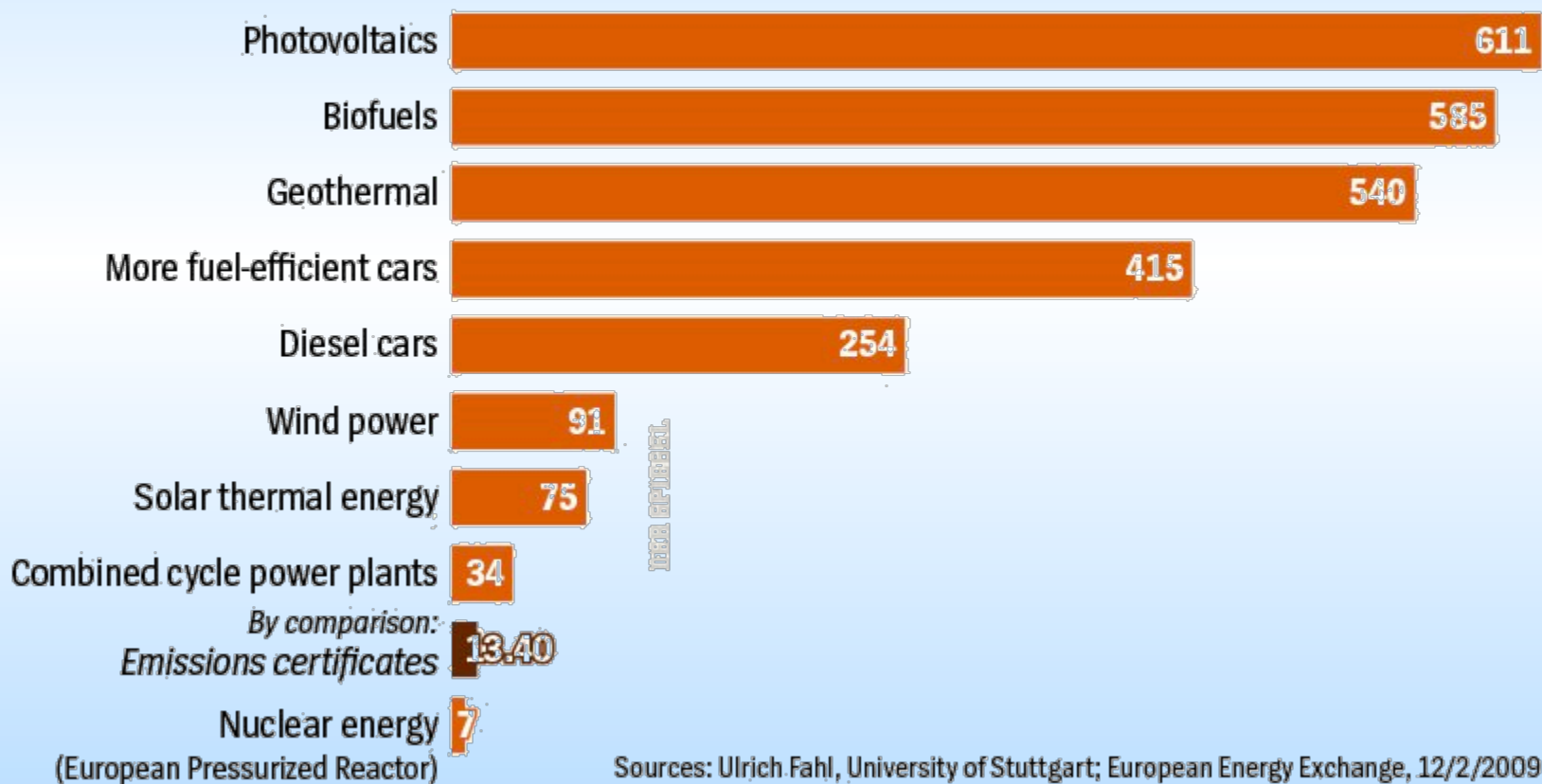


The Cost of Cleaner Energy

The maximum costs of diverse measures to prevent one ton of CO₂ emissions, in euros



Sources: Ulrich Fahl, University of Stuttgart; European Energy Exchange, 12/2/2009

Working Together

Sustainability

Facts and Context

**Understanding
our Audience**

Issues

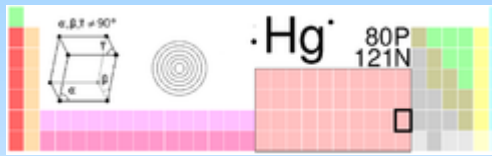


Sustainability is the capacity to endure. In [ecology](#) the word describes how biological systems remain [diverse](#) and productive over time. For humans it is the potential for long-term maintenance of wellbeing, which in turn depends on the wellbeing of the natural world and the responsible use of [natural resources](#).

Sustainability has become a wide-ranging term that can be applied to almost every facet of life on [Earth](#), from local to a global scale and over various time periods. Long-lived and healthy [wetlands](#) and [forests](#) are examples of sustainable biological systems. Invisible [chemical cycles](#) redistribute water, oxygen, nitrogen and carbon through the world's living and non-living systems, and have sustained life for millions of years. As the earth's human population has increased, natural [ecosystems](#) have declined and changes in the balance of natural cycles has had a negative impact on both humans and other living systems.[\[1\]](#)

There is abundant scientific evidence that humanity is living unsustainably, and returning human use of natural resources to within sustainable limits will require a major collective effort.



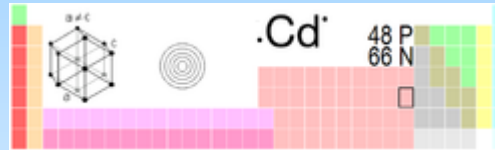


- The first emperor of unified China, Qin Shi Huang, reportedly died of ingesting mercury pills that were intended to give him eternal life.
- The phrase *mad as a hatter* is likely a reference to mercury poisoning, as mercury-based compounds were once used in the manufacture of felt hats in the 18th and 19th century.

Mercury:

is such a highly reactive toxic agent that it is difficult to identify its specific mechanism of damage, and much remains unknown about the mechanism. It damages the central nervous system, endocrine system, kidneys, and other organs, and adversely affects the mouth, gums, and teeth. Exposure over long periods of time or heavy exposure to mercury vapor can result in brain damage and ultimately death. Mercury and its compounds are particularly toxic to fetuses and infants. Women who have been exposed to mercury in pregnancy have sometimes given birth to children with serious birth defects

Fluorescent lamps: A 1987 report described a 23-month-old toddler who suffered anorexia, weight loss, irritability, profuse sweating, and peeling and redness of fingers and toes. This case of acrodynia was traced to exposure of mercury from a carton of 8-foot fluorescent light bulbs that had broken in a potting shed adjacent to the main nursery.



The bones become soft, lose bone mineral density and become weaker. This causes the pain in the joints and the back, and also increases the risk of fractures. In extreme cases of cadmium poisoning, mere body weight causes a fracture.

The kidneys lose their function to remove acids from the blood in *proximal renal tubular dysfunction*. The kidney damage inflicted by cadmium poisoning is irreversible and does not heal over time. The *proximal renal tubular dysfunction* creates low phosphate levels in the blood, causing muscle weakness and sometimes coma. The dysfunction also causes gout, a form of arthritis due to the accumulation of uric acid crystals in the joints because of high acidity of the blood. The kidneys can also shrink up to 30%.

Cadmium:

has no constructive purpose in the human body.

Cadmium and its compounds are extremely toxic even in low concentrations, and will bioaccumulate in organisms and ecosystems.

CANDU INC.


ACR 1000



Market: ~650 units
 Competes directly with others to services large sophisticated grids
 Exists as design only and needs development demonstration project + investment

Investment: \$billions
Risk: High

CANDU 6



Market: ~60 units
 Unique features give it advantages in small grids , countries that do not want enriched uranium and as a way of increasing fuel efficiency.
 Proven track record

Investment: None
Risk: Small

Services



Power/
 New Brunswick
 Can be undertaken by industry

Investment: Losses
Risk: Large

Manufacturing Jobs and Wealth Creation