

PROMOMO

OUR PLACE UNDER THE SUN

Solar deities representing power and strength have been worshipped for all of recorded history. In the great Egyptian empire some 3,500 years ago, Amun the Sun God was worshipped as the source of energy that gave life and brought prosperity.

Despite the adoration lavished upon him, the Sun God turned against his Egyptian worshippers when the inventive Greeks used the sun's rays to light fires and set enemy ships ablaze. This was the beginning of the end, the giant Egyptian civilisation slowly eroded and disappeared. What remained finally from the giant civilization of the pharaohs – obelisks, steles, sarcophagi – are today filling up the rooms, shelves and cabinets of the world's museums and are marveled by millions of tourists from around the world.

One of these tourists, your editor, recently spent a few days cruising on the Nile in a floating hotel. Fleeing the intense heat on the deck to the comfortable coolness of his air-conditioned cabin and watching the bucolic landscape – fertile, yet mostly hand-cultivated plantations, thousands of newly-built but unfinished buildings (no property tax payable until they have been completed!) and massive industrial blocks, some visibly emitting less than healthy fumes – rolling by, he could not help pondering the lack of any discernable sign of solar energy utilization in modern-day Egypt, a sun-belt country enjoying some of the highest number of sun hours and strongest solar intensity.

The economically proven solar energy potential for Egypt is estimated at more than 70,000 terawatt hours/year. And yet, millions of engines, pumps, heaters, coolers, fridges, air-conditioners, cars, buses, boats, etc. are running at full tilt with no sign of sun collectors, heat engines or photovoltaics.

Ironically, as I have learnt from a recent article in the *Economist*, the first large solar thermal pumping station was built in an Egyptian town in 1913. Using a concept from an American inventor, five large reflectors were built to form a trough in the shape of a parabola, which focused sunlight onto a tube running alongside, heating water within it. Almost a hundred years later, in spite of ambitious renewable energy programs to generate 500 MW from solar energy, 600 MW from wind power, and 600 MW from hydroelectric sources by 2017, nearly 75 pct of Egypt's electricity capacity is still powered by natural gas, some 14 pct by petroleum products, and the remaining 12 pct by hydroelectricity, mostly from the Aswan High Dam. Gasoline costs 23 euro cents per liter – a price no alternative source of energy can beat. No sign yet of Amun's munificence among Egypt's current energy gods.

Although the oil crisis in the 1970s prompted many nations to start investigating cleaner and more renewable alternatives to fossil fuels, with oil prices dropping and research and development processes becoming more and

more expensive, most grand designs never made it past the drawing board.

The struggle to cope with the world's economic and financial crisis, however, has given new momentum to theories advocating a thorough and profound change in the way we generate and use energy. Theoreticians of degrowth economics, like Belgium's Serge Latouche, have long advised that "less is much more," that consumption and loan taking should be replaced by sustainable, cleaner and greener development.

The McKinsey Global Institute estimates that 170 billion dollars a year invested in efforts to boost energy efficiency from now until 2020 could halve the projected growth in global energy demand. And indeed, around the world billions of dollars are being invested in clean-energy technologies ranging from solar arrays and wind turbines to smart grids and electric cars.

Southern Mediterranean countries including Portugal and Spain have already invested heavily in solar energy. Algeria has begun work on a vast combined solar and natural gas plant which will begin producing energy in 2010. Algeria aims to export 6,000 megawatts of solar-generated power to Europe by 2020. As the *Guardian* reported, scientists were calling for the creation of a series of huge solar farms – producing electricity either through photovoltaic cells or by concentrating the sun's heat to boil water and drive turbines – as part of a plan to share Europe's renewable energy resources across the continent. A new supergrid, transmitting electricity along high voltage direct current cables would ultimately allow countries such as the UK and Denmark to export wind energy at times of surplus, as well as to import from other green sources such as geothermal power in Iceland.

One form of solar utilization in particular, solar thermal power, appears to offer the best hope for an energy-hungry and pollution-scared world. According to the research firm New Energy Finance, about 13 gigawatts of concentrated solar-thermal power capacity is being planned worldwide – a vast amount given that only about 500 megawatts of such capacity has been built to date. It is estimated that in the south-west of the USA alone, some 11,000 GW of solar-thermal power could be generated. This is about ten times the USA's entire existing power generation capacity.

Inhabitat, a design and innovation-orientated weblog, has recently reported a most ambitious plan which is taking shape in the Sahara Desert.

The plan would be to scatter solar collectors all across northern Africa's politically stable countries, rather than putting them all in one spot. The power generated could be transported via high-voltage lines across the Mediterranean Sea to Europe, where it would supply 15 pct of energy demand. To build the 100 GWs worth of solar power, investment of a total of 400 billion EUR is needed.

These and many other reports are clear signs of the necessity of a new age of green economics. Only this Green New World can provide answers to the new challenges posed by the inevitable exhaustion of traditional energy resources. Mankind has to find novel ways to reduce and economize energy utilization, and to store and distribute energy with minimum loss.

If we fail, what our civilisation will leave behind will be little more than bare ruins and empty sarcophagi – little of interest for the sightseers of future generations. ■



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ENERGY AGE
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ANSWER THE NEW
CHALLENGES