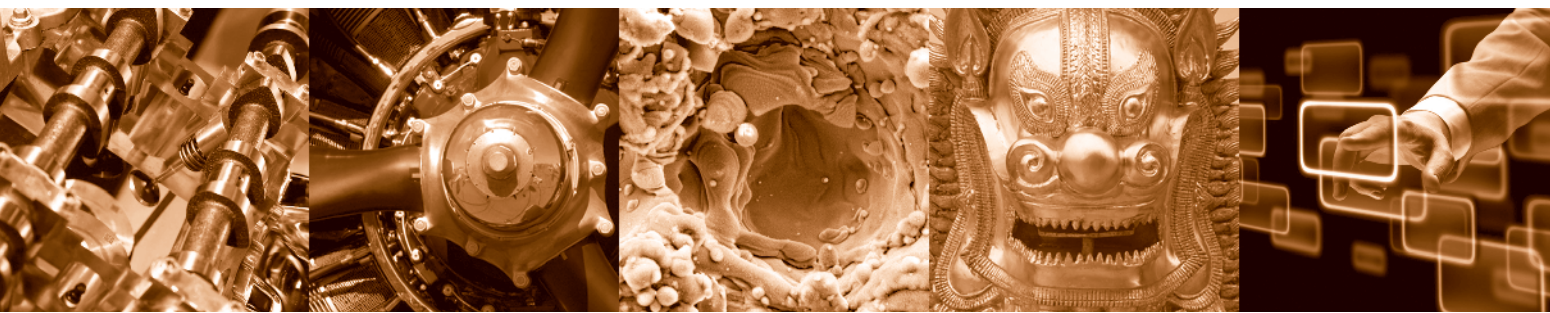




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It was said...



**PROFESSOR
MARK Z. JACOBSON**

**Director
of the Atmosphere
and Energy Programme
and Professor of Civil
and Environmental
Engineering at Stanford
University, USA**

"Every dollar spent on nuclear is one less dollar spent on clean renewable energy and one more dollar spent on making the world a comparatively dirtier and a more dangerous place, because nuclear power and nuclear weapons go hand in hand. (...) (We) laid out a plan to power the world with nothing but wind, water and sun. After considering the best available technologies, we decided that a combination of wind, concentrated solar, geothermal, photovoltaics, tidal, wave and hydroelectric energy could more than meet all the planet's energy needs, particularly if all the world's vehicles could be run on electric batteries and hydrogen fuel cells. We rejected nuclear for several reasons. First, it's not carbon-free, no matter what the advocates tell you. Vast amounts of fossil fuels must be burned to mine, transport and enrich uranium and to build the nuclear plant. And all that dirty power will be released during the 10 to 19 years that it takes to plan and build a nuclear plant. (A wind farm typically takes two to five years.) (...) The on-the-ground footprint of nuclear power, through its plants and uranium mines, is about 1,000 times larger than it is for wind. Wind turbines are merely poles in the ground -- with lots of space between them that can be farmed, ranched or left open -- or poles in the ocean. Geothermal energy also has a much smaller footprint than nuclear; solar only slightly more. But while geothermal, solar and wind are safe, nuclear is not. For nuclear to meet all the world's energy needs today -- 12.5 terawatts -- more than 17,000 nuclear plants would be needed. Even if nuclear were only 5 percent of the solution, most countries would have nuclear plants. (...) Enough wind and solar exist in high-wind and sunny locations over land to power the world for all purposes multiple times over. There is no shortage. Nuclear proponents also argue that nuclear energy production is constant, unlike fickle winds and sunshine. But worldwide, nuclear plants are down 15 percent of the time, and when a plant goes down, so does a large fraction of the grid. Connecting wind farms over large areas through transmission lines smoothes power supply. Combining geothermal with wind (whose power potential often peaks at night) and solar (which peaks by day), and using hydroelectricity to fill in gaps, would almost always match demand. Converting to electric vehicles and using smart charging practices would also help to match supply with demand. So would storing energy (with concentrated solar) and giving people incentives to reduce demand. It is not rocket science to match power demand. It merely requires thinking out of the box. Finally, the costs of land-based wind, geothermal and hydroelectricity are competitive with conventional new sources of electricity; costs of solar and wind over the ocean are higher but declining. Costs of nuclear have historically been underestimated. In sum, if we invest in nuclear versus true renewables, you can bet that the glaciers and polar ice caps will keep melting while we wait, and wait, for the nuclear age to arrive. We will also guarantee a riskier future for us all. There is no need for nuclear. The world can be powered by wind, water and sun alone."

Special commentary to CNN on 22nd February 2010 (The opinions expressed in this commentary are solely those of Mark Z. Jacobson).

Editorial

Vienna in Austria belongs for many centuries to one of the world centres of science, art and culture. Vienna is the capital of the Republic of Austria and Austria's primary city, and the cultural, economic, and political centre in Austria. In 2001, the city centre was designated a UNESCO World Heritage Site. The city was ranked 1st globally for a culture of innovation in 2007 and 2008, and 2nd globally after Boston in 2009 from 256 cities on an analysis of 162 indicators in the Innovation Cities Index on a 3-factor score covering culture, infrastructure and markets. The city rates highly in popular opinion-based journalistic rankings from magazines such as *Monocle*, where it is rated 8th among the "Top 25 Liveable Cities" in 2010. Art and culture have a long tradition in Vienna, including a theatre, an opera, classical music and fine arts. Vienna is home to a number of opera houses, including the Theater an der Wien, the Staatsoper and the Volksoper, the latter being devoted to the typical Viennese operetta. Classical concerts are performed at well known venues such as the Wiener Konzerthaus and first of all in the Wiener Musikverein, home of the Vienna Philharmonic Orchestra, featuring popular highlights of Viennese music, particularly the works of Johann Strauss. And for that reason I decided to go along with the PT Readers to Vienna. The New Year's Concert of the Vienna Philharmonic takes place each year in the morning of 1st January in Vienna's golden Musikverein. The practice of choosing a different star conductor every year began in 1987. Members of the orchestra voted to rotate conductors. The first of these rotating stars in 1987 was legendary Herbert von Karajan, an Austrian, then 78 and in frail health. The next invited conductors, including to an elite group belonged: Claudio Abbado (1988, 1991), Carlos Kleiber (1989, 1992), Zubin Mehta (1990, 1995, 1998, 2007), Riccardo Muti (1993, 1997, 2000, 2004), Lorin Maazel (1994, 1996, 1999, 2005), Nikolaus Harnoncourt (2001, 2003), Seiji Ozawa (2002), Mariss Jansons (2006, 2012), Georges Prêtre in 2008 and Daniel Barenboim in 2009. Last Vienna's traditional New 2010 Year's concert, led once again by the dynamic French conductor Georges Prêtre, reached out to an widest audience, broadcasting to 72 countries around the globe and reached an audience of 50 million. "It is an opportunity, via radio and television, to deliver a message of love and peace to the World. For two hours, everyone can forget their worries" the 85-year-old French conductor Georges Prêtre told journalists on 1st January 2010. Of the encores, the first is often a fast polka. The second is Johann Strauss II's waltz *The Blue Danube*, whose introduction is interrupted by applause of recognition and a New Year greetings from the musicians to the audience. The music always includes pieces from the Strauss family – Johann Strauss I, Johann Strauss II, Josef Strauss and Eduard Strauss – with occasional additional music from other mostly Austrian composers, including Joseph Hellmesberger, Jr., Joseph Lanner, Wolfgang Amadeus Mozart, Otto Nicolai (the Vienna Philharmonic's founder), Emil von Reznicek, Franz



Schubert, Franz von Suppé, and Karl Michael Ziehrer. The last one is Johann Strauss I's *Radetzky March*, during which the audience claps along under the conductor's wry direction.

In a few weeks the next 2011 New Year's Concert of the Vienna Philharmonics will be led by Franz Welser-Möst. That is when the participants of the concert and the million audience of the concert around the world will hear the Vienna Philharmonic Conductor paragraph once again the traditional: "Happy New Year". Many AMSE Journal Readers will certainly take part in this event, surely from their own TV screens. I count that our community can join virtually in a symbolic manner at that time. Attaching oneself to the traditional New Year's wishes that will be delivered at that moment by Franz Welser-Möst, I wish all PT Authors and PT Readers a Happy New Year and the prosperity and success in professional career in this coming year already today. I hope that on that day PT Readers will recall those wishes. We deliver to you the next issue of our journal with a large collection of monographs and invited papers, which, as usual, we publish annually in the last issues. I wish, therefore, a nice reading and invite to present own scientific achievements in our journal.



Prof. Leszek A. Dobrzanski M Dr hc
Editor-in-Chief of the AMSE
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Gliwice, in November 2010