

2<sup>nd</sup> International Conference on

# Green Energy & Technology

April 08-09, 2019 | Zurich, Switzerland



## *Per Ribbing*

*Uppsala University, Sweden*

### **Climate Change leadership – The case for Electrification**

Since the Swedish deregulation of the power market 1996 there has been an ongoing debate in many diverse arenas, in Sweden and elsewhere, concerning “Consumer Power” on the Power Market. This, because the Swedish chapter of IUCN: Swedish Society for Nature Conservation (SSNC) at the very same date (1996-01-01) released, to the market, their Ecolabelling of Electricity; Bra Miljöval EI (Good Environmental Choice Electricity). The idea was sprung from the then Vice Chair of SSNC, now professor at Chalmers Institute of Technology; Tomas Kåberger. I applaud such a visionary idea. Now, finally, after over 20 years of tiresome debate and ridicule, this tool for a sustainable transformation of the Swedish and Nordic Power System is ready to be heard, and used.

1. Arguments pro Consumer Power has been along the line: If everyone decides to choose to buy Green Power – then eventually everyone will have Green Power in their outlets (sockets).
2. Arguments against Green Power has been along the line: Since electricity is mixed on the grid you don't get what you buy. Hence, marketing and sales of Green Power is a hoax.

### **Negative labelling – more efficient than Eco labelling**

To label e.g. bananas with a sign “sprayed with cancerous chemicals” would, from a ‘Consumer Power’ perspective, be more efficient than today’s Eco labelling of organic bananas. Or, using a “Child Slave Labour”-label on e.g. footballs would be more efficient than today’s FairTrade-labelling of e.g. footballs. In this article I argue that ‘Coal’ carries the same negative values as ‘Cancerous chemicals’ and ‘Child slaves’. At least in Sweden, Switzerland and other “green”, rich and developed countries. I argue that the possibility of choosing not to have coal power in your outlet will direct large amounts of money into investments in new renewable power and energy efficiency. When consumers start choosing to not buy coal power the interesting question arises: What electric power production will replace the fossil power no longer produced? Since there’s no longer anyone paying for it to be produced, production of fossil power will cease to exist. Fossil power will be no more. This article will briefly describe 6 possible alternative, renewable solutions, as answers to that question. Nuclear power is another non-fossil option but recent studies show that new traditional nuclear power (fission) are significantly more expensive than new wind- and solar PV power. See e.g. Lazard LCOE 2017.

2<sup>nd</sup> International Conference on

# Green Energy & Technology

April 08-09, 2019 | Zurich, Switzerland

## Regulation and Balancing of the Power Grid

Since an increased dependency on intermittent power, mainly wind and solar, increases the demand on the power system's ability to regulate large variations in power production this thesis will also describe some possible solutions for this engineering task; short-term and long-term regulation and balancing of the Nordic power system (or any power system). There are more possible technical solutions than the ones I choose to name here, and probably more new solutions will be invented. Engineers love to solve problems. Here is my A to  $\Omega$  of possible technologies to balance intermittent solar, wave and wind: The dynamic functionality of

the market economy will choose what solutions are most efficient from a market point of view. This is a fundamental principle of the market economy.

## Speaker Biography

Per Ribbing completed his Master's Degree in Engineering Physics at Linköping University, Sweden in 1989. He later entered into the area of Sustainable Development after a close encounter with oil wars. He was the Energy Advisor for the Swedish Society for Nature Conservation 1997-98 and worked with energy matters at the Nordic Ecolabel 2004-2010. He also runs his owned company; Perpetuum Energy & Environment where he is a Public Speaker, Consultant and Educator. At present he is a PhD student at Uppsala University writing his thesis on Climate Change Leadership: the case for electrification. He has arranged monthly speaker pubs (ENVIRONMENTALE) for the NGO Swedish Engineers for Sustainable Development since 1996.

e: per.ribbing@angstrom.uu.se

 Notes: