

The Planet 2050 -- a vision

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A truly sustainable world. All people lead good lives, in peace. Ecosystems are functioning and gradually evolving.

A dream, or an option? Resources are plentiful, however, must be cared for meticulously, especially when unevenly distributed, and used efficiently.

The challenges in this are many: world population growing, but unevenly; about half of the world's population live in poverty, and half of those in abject poverty; environmental degradation is rapid, deforestation ongoing, water scarce in many places; fossil fuel resources, esp. oil and gas limited; climate change is accelerating, threatening to radically change the face of Earth as we know it the next several decades.

My area of work is energy for sustainable development. Energy system characteristics is closely linked to many of the challenges: 2 billion people have no access to modern forms of energy, without which there is no way out of poverty; fossil fuels contribute some 2/3's of greenhouse gases; peak oil is an area of concern that requires some form of action; population and economic growth adds to the demand for energy services. Energy systems for the future must be designed to meet all of these challenges *simultaneously and adequately*.

Can such energy system be envisioned? Yes, renewable energy resources are abundant and well distributed over the world. Energy can be used much more efficiently to deliver the asked for energy services with a lot less primary energy carriers consumed. Systems delivering on all of the challenges can be perceived from resource, technology and economics points of view; however, there are big questions about whether they can be implemented.

A new energy system of this kind would require investments to go into new directions. From being focussed on large scale installations for fossil fuels and nuclear energy, they would have to go into efficiency improvements in all energy end use sectors, and into renewable energy systems, both highly distributed and centralised. Professional skills would in no small part be required in new fields. Rules of the market place would have to be changed to reflect also external costs of all kinds, and subsidies directed to develop and support new technologies in energy efficiency and renewable energy systems.

This would require cooperation on an unprecedented scale among governments and corporations, incl the financial sector. How could all these actors be sufficiently informed and provided adequate incentives? These are the critical issues!

One important observation is that investments deliver value not just in terms of money or greenhouse gas emissions reductions. Value related to public welfare, regional development, health, other environmental issues, security or peace are also created. These need to be reflected in the marketplace!

There are some encouraging examples, especially with respect to some renewables. Grid connected PV has grown by 60% per year since the turn of the century, wind power with almost 30 % per year, and many others with slower but still impressive growth rates. However, this growth is largely restricted to a handful of countries, and the outcome of stable market arrangements introduced by governments with dedicated programmes.

So, a sustainable world is not just a dream, it really is an option, albeit one that requires a lot of effort!