



Stadt Zürich

2000-Watt Society: Together Towards A Balance

Zürich's approach to a sustainable global development



Why 2000 watt?

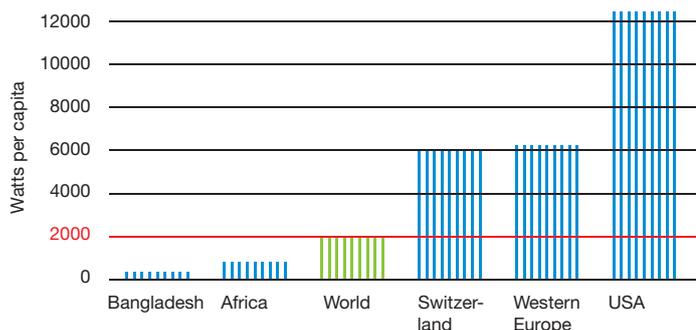
Global 2000-Watt Society – a fair share for everyone

Energy policy in Zürich

Ten years ago, the vision of a «2000-Watt Society» was developed at the Swiss Federal Institute of Technology (ETH) in Zürich. It is a model for energy policy which demonstrates how it is possible to consume only as much energy as worldwide energy reserves permit and which is justifiable in terms of the impact on the environment. It is possible when every person in every society limits their energy consumption to a maximum of 2000 watts. Furthermore, at least 75% of energy needs need to be met using renewable energy sources, meaning that on an annual basis only one tonne of greenhouse gas is given off per person per year. The 2000-Watt Society is Zürich's approach to tackling climate change and the future conflict of resources.

Sustainable development

The 2000-Watt Society stands for sustainable development: the concept takes into account all aspects of sustainability which includes the environment, the economy and society. Today's society should not live at the expense of future generations. The 2000-Watt Society builds on solidarity between different generations and cultures for the purpose of long-term stable development and for the world to be able to live in harmony.



The average energy requirement per capita world-wide is 2000 watts, but this fluctuates enormously from country to country.

In developing nations it is often just a few hundred watts, while in other countries it may be up to 20 times higher!

Striking a global balance

Today, each person requires 17,500 kilowatt-hours of energy per year on global average, which corresponds to a continuous requirement of 2000 watts. In Switzerland the figure is three times higher – 6000 watts per person – while people in some Asian and African countries need barely a fraction of that figure. The vision of a 2000-Watt Society makes it possible to strike a balance between industrialized and developing countries and for everyone to thus enjoy a good standard of living.

A fair distribution

We already need 2000 watts per person on a global average, but this amount is based on an incredibly uneven distribution of energy consumption. While the USA requires around 12,000 watts per person, countries such as Bangladesh, Zimbabwe and the rural areas of China barely reach the 500-watt mark. Things will most likely be changing however, and sooner rather than later. India, China, South-East Asia and large parts of South America have been demonstrating remarkable growth figures for a number of years now and are approaching Western industrial nations. The worldwide average energy use is rising significantly as a result of this development and with it the global CO₂ emissions, due to the fact that the growing energy demand is currently covered to a large extent by fossil fuels (petrol, heating oil and coal). It is clear that a global balance can only be stable if the primary consumers in North America, Western Europe and soon also in China and India reduce their consumption to 2000 watts, while ambitious yet sustainable development is made possible for developing nations in Africa, Asia and South America.

Using 2000 watts for a higher quality of life

The quality of life in the 2000-Watt Society does not entail any restrictions. On the contrary, security, health, comfort and the development of the individual are all improved, with incomes increasing by around 60 percent over 50 years. On a global level, sustainability will be a necessary condition for peaceful social co-existence.



CO₂ reduction – tackling climate change

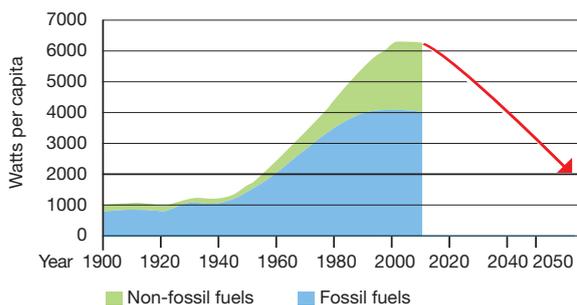
The people of Zürich say yes to the 2000-Watt Society

Living at the expense of future generations?

The global reservoir of fossil fuel energies, particularly oil, is depleting at an increasing pace and very soon attention will have to be focussed on deposits which can only be extracted with great difficulty. Once these reserves are exhausted, actual or alleged shortages will occur which in turn could result in economic collapses and even military conflicts. It is clear that we are living at the expense of future generations, and this is also the case regarding CO₂. In order to contain and prevent climate change from reaching catastrophic proportions, the increase of the CO₂ content of the atmosphere must be slowed down accordingly, with reorientation an urgent necessity.

CO₂ output: One tonne per capita per year

A CO₂ output of one tonne per capita per year is an achievable long-term goal for Switzerland. This limit corresponds to a consumption of around 500 watts of fossil fuels. If fossil fuel energy needs are reduced by the levels set out in the 2000-watt vision, the ambitious CO₂ target can be achieved in the second half of this century. However, this will require stringent adaptations of buildings, facilities, vehicles and equipment as well as a new understanding of energy services. If we are unable to make materials more efficient, increase the level of energy efficiency and use resources selectively, then the 2000-Watt Society which we envision will never be anything more than a declaration of intent.



The level of primary energy consumption (excluding embodied energy) in Switzerland today is 6000 watts per capita. This graph depicts a potential development towards a 2000-Watt Society.



In a referendum held in 2008, three-quarters of the Zürich population voted in favour of achieving the 2000-Watt Society by 2050, making it the first city in the world to give these ambitious goals a democratic legitimacy and enshrine them in the constitution.

To achieve this goal by 2050, the city of Zürich is making commitments in the following areas:

Energy efficiency and renewable energies

Energy efficiency is the prime way to make massive reductions in the emissions of greenhouse gases. Comprehensive energy services are offered along with consulting for construction companies to pass on the necessary expertise. Furthermore, green electricity is promoted as a supply source. Money is invested in wind and wood-fired power stations as well as in pilot projects (such as geothermal energy and fuel cells). Solar panels, heat pumps and energy-efficient domestic appliances are also promoted thanks to energy resource funds.

Sustainable buildings

The city of Zürich has set itself ambitious targets regarding municipal buildings: almost all new constructions such as housing estates, school buildings and retirement homes, correspond to the Minergie standard (for low-energy housing). Among the model examples for this are the construction of a new city hospital which was built to Minergie passive (zero energy building) standards. The energy consumption of all municipal buildings has also been made transparent thanks to the implementation of building certificates.



Zürich – Kunming: Shared efforts for a sustainable future

Mobility for the future

Zürich promotes means of transport which make efficient use of urban spaces and energy resources, namely public transport, pedestrian and bicycle traffic. To regulate private vehicular transport and to make sure it is channelled at moderate speeds, the city of Zürich has developed its own adaptive traffic management system – one which is highly developed, computer-based and which reacts dynamically to traffic flows.

Awareness

Regular events to increase public awareness are held, such as the annual environment days and the Zürich Multimobil action day (where the inner-city is closed to cars). The city's inhabitants can calculate their personal energy consumption via online energy games or at the energy calculator stand and see whether they are already in good shape as far as the 2000-Watt Society is concerned.



A unique city partnership

Energy efficiency is also becoming an increasingly important issue in the international activities of the city of Zürich, a prime example of this being the city partnership created in 1982 with Kunming, capital of the Yunnan Province in China. This began as a cultural exchange but the collaboration between the two cities was soon extended to domains which are essential for the sustainable development of a city, namely water management, public transport, green and public spaces, city development and regional planning. One of the main objectives of the partnership was to develop a modern, sustainable and efficient transport system for the rapidly growing city of Kunming with the emphasis on public transport and environmentally friendly mobility. Two important steps towards this were the creation of separate bus lanes and the construction of a metro network. In the future, more attention will be paid to the issue of energy efficiency, a field where Zürich can share a great deal of experience and also learn from other developments in cities around the world.

Aspire to a sustainable world society

An environmentally sustainable equilibrium can only be established if a change in attitudes takes place around the world. Only when cities and countries start working together to form a sustainable world society with a shared consciousness of responsibility for this and future generations will we be able to successfully master the challenges of globalization and climate change.

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