



WWEA

World Wind Energy Association

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Josep Puig i Boix

Community Power: The Right of People to utilise Renewable Energy

1. Introduction

Community power has its root on the right of human beings to live with dignity in a place. In order to live with dignity humans need some exosomatic energy. Humans are energy transformers, as are all the other living beings with which we share this beautiful planet called Earth. From the very beginning, humanity has lived by making use of Renewable Energy sources. During most of the time that humans have inhabited the Earth, they have transformed sunlight into food (growing crops), heat (burning firewood), and shelter (building). Thus, over millennia, humans learnt to make use of the sun, water, biomass, wind, muscular force, and so on, to cover all of their energy requirements. These were sources of energy that always regenerate and were available to use again, regardless of how much humans used them. But if certain thresholds were crossed, this could even lead to the collapse of society, as is the case with biomass. This meant that humanity had to learn to live to the rhythm of the sun.

Living to the solar rhythm means recognising that life on planet Earth has some limitations, because the amount of energy available to use and transform is limited by the solar constant (the amount of solar energy per unit of area that the atmosphere-earth system captures in its journey around the sun).

It is only very recently, from industrialisation onwards, that humanity has abandoned the use of Renewable Energy sources and become addicted to fossil fuels. These fuels are nothing more than solar energy stored in chemical forms - the result of the fossilisation of biological material from geological epochs in the distant past. This addiction is so deep that today it is even endangering the climate stability, as the fossil carbon, which is stored into the earth that have been extracted from the earth's subsoil for burning and supplying energy, has been releasing into the atmosphere. The most horrifying thing is that, for more than a century, we have burned these precious non-renewable fossil fuels in thermo-mechanical machines with very low efficiencies.

Alongside the development of the fossil fuel addiction, another significant situation came about. It meant the disturbance of the relationships between humans and the Renewable Energy sources flowing through the biosphere that were available to everyone. These relationships had remained more or less stable for thousands of years. The replacement of free and renewable sources with non-renewable sources (firstly

fossil and later nuclear) means that energy has become less accessible than before. Human beings stopped directly capturing and utilising free and Renewable Energy flows to become (or be made) consumers of energy supplied in different ways, by institutions that had appropriated (or had control) of the non-renewable sources.

When proposals are made today to utilise the flows in the biosphere with energy content (Renewable Energy sources), we don't often take into account the paradigm shift that their capture and use implies. If we were to stop maintaining our society on the burning of fossil fuels (materials that are once burnt will be no longer available to humans) and begin to sustain on the capture and utilisation of biosphere flows, then humans could throw off the yoke of energy consumption. We would stop being consumers of energy materials and become users of energy flows, which would mean we would stop depending on an extractive economy and become members of the biosphere community (capturing and using flows), thus becoming integrated into its natural cycles.

2. The Right to access shared Biospheric Energy Flows

Conflict may rise in relation to the utilisation of a shared natural resource, such as the sun or the wind in a particular area. The conflict appears to be about environmental impact on the landscape. However, when you scratch the surface you will almost always find a deeper conflict: the right to access a shared natural resource. Who has the right to profit from the sun and the wind in a particular area? The owner of the land? The community that lives there? The people who use the area? Whoever has easy access to capital to invest there? Since the advent of industrialism and the modern state that justifies and defends it, shared natural resources with energy qualities and above all the energy materials in the earth's crust have been publicly owned (an euphemism to camouflage state ownership). This means that when an energy deposit is found (coal, oil, natural gas, uranium), the person or community that owns it (or lives there) ends up losing its ownership (or is displaced) and the deposit is given over to the state (expropriation), which directly exercises the right to exploit it, or concedes the exploitation to large energy consortia.

But what happens with the sun and the wind? Who owns them? Who has access to them? The sun and the wind are shared natural resources with energy

qualities that have always been freely available to humans for their completely free use. The solar radiation that the land receives at ground level has traditionally been used by humanity for millennia, especially by farmers for growing plants, which are also collectors of solar energy for the creation of another type of Renewable Energy stored in the form of biomass. The force of the wind that manifests on the land in the lower layers of the atmosphere has traditionally been used by humanity for millennia, by farmers and the nascent middle class for milling grain, pumping water, crushing, and so on. Since the end of the 19th century, wind has been used to generate electricity. Many municipalities in rural Denmark saw electric light for the first time from wind turbines at the beginning of the 20th century; while at the same time some mountain towns saw electricity from water turbines.

Many people are familiar with the cases of Denmark and Austria, where as a result of the first oil crisis in 1973 citizens' initiatives laid the foundations for what today are the modern industries of wind turbines and solar thermal collector manufacturing. In both of these cases, the citizens and communities exercised their right to the wind and the sun, directly and without intermediaries. In the case of the Danish wind power cooperatives, the interested people searched for a suitable location (usually a rural location) and formed a cooperative to generate electricity from the wind. It is worth noting that the legal framework facilitated this and did not throw up obstacles in their path (grid Feed-in Law and premium Feed-in Tariffs for electricity sold to the grid). In the case of Austrians, they built their own solar thermal collectors; conventional roofs were transformed into a device to capture the energy from the sun to heat up water to use at home.

3. Renewable Energy Technology: Who develops, owns and controls it?

At the beginning of 1970s, Amory Lovins asked three key questions about energy:

- 1) How much energy it is necessary to use to have a right livelihood?
- 2) Which technology to use to transform the biospheric energy flows to useful energy?
- 3) Who is the owner or controller of the energy system?

Much more recently, Walt Patterson has written an article saying: "Energy policy and regulation are not just about oil, gas, coal and electricity, but about technology and infrastructure".

We need technology to capture the energy flows that are crossing the biosphere (sun, wind, water flows) and

the lithosphere (Earth heat flow) and transform them to be used by humans. But which kind of energy technology should we use? Also the society needs some kind of energy infrastructure to make useful energy available to people and communities. But which kind of energy infrastructure do we need?

Once upon a time, E. F. Schumacher's famous motto "small is beautiful" became a fashion. He also wrote that this motto should not be misinterpreted: "Small, of course, does not mean infinitely or absurdly small but the order of size, or scale, which the mind can fully encompass." But what exactly is this order of size or scale? Godfrey Boyle, pioneer of the alternative technology movement in the 1970s, questioned it in the context of the Alternative Research Group of the Open University in the UK, asking: "How big can something small get before it stops being beautiful?" and "how small can something big get before it stops being efficient?"

The types of energy technology and infrastructure that are often produced by large industrial corporations tend, by default, to reinforce the trends of the industrialist, consumer and wasteful society. Thus the artefacts are produced help to maintain centralised control over energy sources, and by doing so, it controls people and communities. This is the case with large thermal power stations and large hydropower dams and centralised energy grids. But what happens when these same large corporations notice that utilisation of the sun and wind is starting to become effective and they decide to develop technologies and systems to exploit the sun and the wind?

More simplistically, some Renewable Energy activists believe that the solution was at the other extreme: energy microsystems on a family scale, without realising this way of looking at things can benefit the wasteful industrialist economic system, as the material requirements for constructing multiple artefacts on a domestic scale involve much more than the ones for constructing larger systems. Godfrey Boyle, at the end of 1970s, already advised us to "concentrate efforts on the development of technologies and products to cover human needs not so much on a family or domestic scale, but on a community scale", even though he recognised that "certain types of technologies make sense on a domestic scale, other types on a small community scale, others on a regional or even national scale."

4. Community Power: What does it mean?

Some literature around community power distinguishes between two types of communities

relevant to Renewable Energy ownership – “communities of locality” and “communities of interest”. Communities of locality are made up of people living in a certain geographical area, be it a small village, a county, or a densely populated city. Communities of interest are comprised of individuals living in many different communities of locality that nevertheless share a common interest (e.g., to promote the development of Renewable Energy).

Either type of community can own a wind project. Residents of a village (i.e., a community of locality) in a windy area may decide to take advantage of their resource and band together to purchase and install one or more wind turbines. Likewise, environmentally conscious investors located throughout an entire nation (i.e., a community of interest) may pool their money in a centralised “wind fund” used to finance new wind projects throughout the country. There is often considerable overlap and interaction between these two types of communities: the community of interest (i.e., investors in the wind fund) may identify a promising site, and then invite the community of locality (i.e., local residents, some of whom may also be investors in the wind fund) to share in the ownership of the project.

Today the concept of community power is a hot issue on Renewable Energy, especially for wind energy, because with the technology that is now available to capture the force of the wind we cannot pretend that these actions could be carried out without compromising the landscapes. Some years ago, when wind turbines had capacities below 50 kW and a height of 10 m and a diameter of 15 m, to achieve wind power capacity of 20 MW it was necessary to install a wind farm of 400 wind turbines and occupy the corresponding amount of space. Today this can be done only with a wind farm of 10 wind turbines of 2 MW each, occupying much less space, but more visible in the landscape (the turbines are bigger: the blades turn in circles with a large diameter and the towers are higher, but they are much more efficient than the older ones). We could ask ourselves: Which option is better? Better for the landscape or better for natural systems or better for society, or better for local residents? This is an issue that could be able to create many social conflicts without the participation of local communities in the process of planning and in the ownership of the wind turbines.

In order to answer all these questions, the World Wind Energy Association WWEA has promoted the creation of the Community Power Working Group. One of the main tasks of this working group is to define Community Power (note by the editor: see the report 7.2, Sarah Martin), collect existing Community Power projects around the world (for example: see box Middelgrunden, Denmark) and encourage the further development of Community Power worldwide.

Nine Good Reasons for Local Ownership: Case Study Middelgrunden, Denmark

Local commitment to the Middelgrunden project has proven to be a key factor in carrying out this wind development. Without the involvement of local people the Middelgrunden project would have never succeeded. There are many good advantages of local ownership.

1. Local ownership results in more installed wind capacity

Local investment has played a major role in countries with a legal and financial environment that enables local wind developments. In Denmark, 86 % of all turbines are owned by private, local investors and most early projects were local.

2. Local ownership creates local dialogue and acceptance

Through dialogues with different interest groups, Copenhagen Energy and Environment Office and the Middelgrunden Cooperative, with its 8'500 members, generated a widespread understanding and social acceptance of the chosen location and layout of the farm. The Danish experience shows that there are more complaints when utilities install wind turbines than when the local population does so.

3. Local ownership raises public awareness

During the establishment of the Middelgrunden project more than 50'000 people received information directly and more than 50'000 people visited the Middelgrunden homepage. For many people electricity suddenly was something that did not just come out of the socket.

4. Local ownership solves problems and conflicts

The Middelgrunden working group avoided or solved potential conflicts by taking direct contact to various local interest groups at an early stage in the development of the project. Contact was taken to The Middelgrunden Fort, The Association for Beautification of the Capital, and local fishermen. Also the contact to and involvement of the local branch of the Danish Society for the Conservation of Nature was important.

5. Private investment promotes cheaper and better technologies

A private wind cooperative often pays more

attention to the details of the wind project than the utilities do so, since the wind development is only a small part of their business. In the Middelgrunden project this resulted in a cheaper solution for the grid connection than the one originally proposed by Copenhagen Energy.

6. Local production demands less transmission lines and saves electricity

The grid loss is minimised by local electricity production. In Denmark the average grid loss is 9% of the electricity production, in some countries it goes as high as 17%. The loss inside the Middelgrunden wind farm is measured at 2.7%, including the cable to the shore, and distribution the loss is less than 5%.

7. Local turbines are democratic

With local investment in power production, it is the local people who take the decision on planning and implementation of power supply. It brings more responsibility on the local level, which brings both benefits and disadvantages.

8. Local production makes sustainable development understandable

The Middelgrunden project is a local and clear example on how people can contribute to a sustainable development. The wind turbines on Middelgrunden have illustrated that our use of resources enable us to see the consequences of their use.

9. Local ownership gives people opportunity to act for sustainable development

The Middelgrunden project has been an outstanding possibility of engaging the entire population of the capital in a practical and sustainable action. Such initiatives are highly appreciated and seem very important according to the context of Agenda-21 and the plan of action of the UN environmental summit in Rio.

Source: www.middelgrunden.dk/middelgrunden/sites/default/files/public/file/9%20Good%20Reasons%20for%20Local%20Ownership.pdf

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