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Energy cooperatives: aims, operational perspective and interaction with municipalities

The energetic society in action

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Abstract

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At the start of 2014, the Netherlands had more than 100 energy cooperatives actively involved in making the energy supply more sustainable. Citizens are the most important driving force in setting up and running them. About 15 of these cooperatives have already been in existence for 20 to 25 years. Most of them are mainly involved in generating wind energy. Since 2007, a new generation of energy cooperatives has emerged with a wider objective than that of the wind energy cooperatives. They focus on power generation using solar or wind energy, or another decentralised technology, with the aim of promoting 'local energy', as well as energy conservation. It is the local community – creating local employment and social cohesion – which is of prime importance here.

Central government as well as municipalities have high expectations of such civic initiatives in the field of power generation and energy conservation and have indicated that they wish to facilitate and encourage them wherever possible. To gain further insight in the present situation, at the request of the Directorate-General for the Environment and International Affairs (DGMI) of the Ministry of Infrastructure and the Environment, PBL and Asisearch conducted a study of the activities and operational perspective of energy cooperatives, their interaction with municipalities and their potential contribution to achieving municipal climate and energy targets. For the purpose of this study, participants in 10 relatively experienced energy cooperatives were interviewed, along with their contacts in the administrative departments of the municipalities in which the cooperatives operate.

The interviews revealed that, under the present circumstances, the operational perspective for new energy cooperatives is relatively limited. Their activities appear to consist of collective purchasing campaigns for solar panels, small-scale energy conservation campaigns for private home owners, operating an information and advice help desk and the reselling electricity. Until recently, funding and management of solar energy systems, for example in schools (under the 'unburdening' principle), was an attractive activity, but at the moment there are clear signs that cooperatives and project developers have put their plans for these types of projects on hold because of uncertainty about the implications of the new government stipulation that the electricity must be generated 'at the expense and risk' of the user in order to be eligible for energy tax exemptions.

Whether the supply of solar energy under the new post code radius scheme (*postcoderoosregeling*) will be attractive to energy cooperatives remains to be seen, but initial reactions indicate that the revenue model is likely to be very marginal. Wind turbine projects may well be profitable, but are so complex in terms of execution that for most new energy cooperatives such projects are only feasible if they can work with a professional developer. It is difficult for an established cooperative that is run solely by volunteers to sustain larger scale energy conservation campaigns for the privately owned housing stock, due to 'volunteer fatigue'.
Under the present circumstances, it is therefore most likely that, by 2020, the contribution by energy cooperatives to the generation of renewable energy and energy conservation will remain limited to no more than a few petajoules (PJ).

The municipalities approached for this study – in turn, and almost without exception – indicated that they were aiming to become energy or climate neutral in the relatively short term (ranging from 2020 to 2045), but in fact have direct control only over their own properties and vehicle fleets. For various reasons, they do not wish to generate renewable energy themselves, and usually there is insufficient manpower available to be able to boost energy conservation in the existing privately owned housing stock.

It is, therefore, to the advantage of municipalities that also larger projects come more within the reach of those energy cooperatives that would like to become more professional.

The operational perspective for energy cooperatives is largely dictated by national legislation, but to some extent municipalities also hold the key to giving those cooperatives more room to manoeuvre:

- In the relatively short term (e.g. one year), central government could assess whether the noted potential problems of the 'post code radius scheme' in fact constitute an insurmountable obstacle for energy cooperatives; in which case, the government could consider whether or not to widen the financial scope of the scheme or make it less complex. Municipalities and provinces could provide an extra impetus by making the roofs of their own properties available to cooperatives, free of charge, for solar energy installations. And for the funding of energy cooperatives, provincial authority funds could set standards that are less exacting than those set by commercial banks for the 'quality of the organisation' and the minimum amount of a loan.
- Central government is recommended to quickly provide clarity about the implications of the stipulation that solar energy that is generated 'behind the meter' is only exempt from energy tax when generated 'at the expense and risk' of the user.
- If municipalities want energy cooperatives to continue to play an active role in the development of wind energy projects, it is recommended that both the council and the executive commit to the plan as soon as a specific site has been designated. In the discussion with opponents, the municipality needs to stand 'beside' rather than 'behind' the energy cooperative.
  In cases where wind energy projects that have been initiated by the municipality are subsequently abandoned after or during the run-up phase, the energy cooperative involved should receive compensation for any costs incurred during this run-up phase.
- If municipalities want energy cooperatives to play a significant and long-term role in improving the energy efficiency of privately owned housing, they should be offered a realistic reimbursement for doing so. The Ministry of the Interior and Kingdom Relations – also a stakeholder – could help support municipalities in this area.
- Cooperatives that take on also larger projects will start to operate more as a market party and commercial business and less as a civic initiative driven purely by passion. This also requires that the municipality takes on a different role; not only one of coach and facilitator, but also of being a supporter, participator and co-producer. Although the room to treat energy cooperatives any differently from commercial market players will be limited, the cooperatives could, for example, be given priority when certain commissioned projects are put out to tender. Energy cooperatives and municipalities, after all, have many goals in common, and both parties will need to work together to strike the right balance. The debate surrounding 'stakeholdership' and changing the terms under which public services are awarded to civic organisations and social enterprises provides a possible starting point for this.

Summary

Background to the study

At the request of the Directorate-General for the Environment and International Affairs (DGMI) of the Ministry of Infrastructure and the Environment, PBL and Asisearch conducted a study of the activities and operational perspective of the energy cooperatives, their interaction with the municipalities and their potential contribution to achieving municipal climate and energy targets. The following specific questions were formulated for the study:

- In what energy fields do energy cooperatives and civic initiatives operate and what is their operational perspective within this context?
- How are municipalities attempting to facilitate and support these cooperatives and initiatives?
- To what extent do the activities of energy cooperatives and civic initiatives contribute to achieving municipal climate and energy targets?
- How could municipalities and/or central government broaden the operatoinal perspective for energy cooperatives and related initiatives?

Context

At the start of 2014, the Netherlands had about 110 energy cooperatives actively involved in making the energy supply more sustainable. Citizens are the most important driving force in setting up and running them. These cooperatives can be divided into about 15 wind energy cooperatives that have been in existence for 20 to 25 years, and a new generation of about 95 energy cooperatives (since 2007) with a wider objective than that of the wind energy cooperatives. The second group are involved in power generation from solar or wind energy or another decentralised technology (i.e. 'local energy'), as well as energy conservation. Here, the interests of the local community –local employment and social cohesion – is of prime importance.

The energy cooperatives stand at the crossroads of two important change processes in society: the 'energetic society' and the 'energy transition'. They contribute to two forms of decentralisation, namely that of the energy supply (towards more local production) and that of the government (the transfer of tasks from higher to lower levels of government, the market and society at large). The policy context in which the energy cooperatives operate involves no less than four ministries: Economic Affairs (EZ); Finance; the Interior and Kingdom Relations (BZK); and Infrastructure and the Environment (IenM). Essentially, the Ministries of Economic Affairs and Finance have the most influence in terms of the cooperatives' operational perspective, given that these ministries set the financial and legal frameworks through tax and energy legislation. The Ministry of Infrastructure and the Environment sets the spatial planning framework and, through national and local climate policy, influences how much room municipalities have to support and facilitate energy cooperatives. The 'citizenship and information policy department' (*Directie Burgerschap en Informatiebeleid*) of the Ministry of the Interior and Kingdom Relations is a major driver of the debate on the changing role of government and public thinking about civic initiatives. The 'construction and housing department' (*Directie Bouwen en Wonen*) of the same ministry is responsible for policy concerning energy conservation within the built environment. Central government does not determine such policy in isolation; in the energy agreement on sustainable growth (*Energieakkoord voor duurzame groei*, SER 2013), it made agreements with a large number of civic organisations concerning energy policy for both the short and long term. In this energy agreement, the policy lines referred to here meet, particularly, on the themes of energy conservation and the promotion of decentralised sustainable energy.

Central government, municipalities and other parties to this energy agreement, generally, have high expectations of the 'energetic society', which, in this context, refers to a society in which citizens and businesses take the initiative themselves and accept responsibility for investing in power generation and energy conservation measures in their local (built) environment. The government bodies have indicated that they wish to encourage and facilitate this, and that they will tackle obstructive legislation where necessary.

Activities of ten established energy cooperatives

For this study, the people concerned at 10 energy cooperatives and their contacts within the municipal administrative departments they operate in were interviewed (in separate interviews). We approached energy cooperatives that have been established for some years. The cooperatives (and between brackets the names of municipalities) concerned were: deA (Apeldoorn), CALorie (Castricum), Deltawind (Goeree-Overflakkee), Grunneger Power (Groningen), DE Ramplaan (Haarlem), UWind (Houten), EnergiekLeiden (Leiden), LochemEnergie (Lochem), Energiecoöperatie Udenhout (Tilburg) and Energie-U (Utrecht).

We do not expect the tasks undertaken by these cooperatives and municipalities to be fully representative, but they will certainly resemble many other cooperatives and municipalities.

The activities of the majority of these 10 cooperatives mainly include the reselling of renewable energy, collective purchasing campaigns for solar panels, 'solar energy at school' and energy conservation campaigns aimed at private home owners (existing housing stock). Three of the energy cooperatives focus on wind energy or did so in the recent past. One cooperative runs an 'official' information and advice help desk while the other cooperatives provide information and advice on an occasional basis.

The operational perspective of the energy cooperatives

To be able to make a systematic assessment of what tasks the energy cooperatives face in undertaking these activities, the following aspects were considered per activity:

- The revenue model. How and to what extent does the activity contribute to the income of the energy cooperative? Revenue is important to be able to finance projects, at least partly independently; some cooperatives also aim to provide volunteers with some form of remuneration for their work.
- The necessary knowledge and expertise in terms of legislation, technology and management skills. This provides an indication of the type of expertise a cooperative needs to be able to successfully develop and exploit an activity.
- The capital requirements. Some activities require large sums in advance funding (e.g. solar complexes or wind turbines) while an energy conservation campaign in a neighbourhood, for example, mainly requires considerable manpower.
- The availability of borrowed capital. This can be obtained from commercial banks, revolving funds, municipal borrowing, crowd funding or by working together with a financially strong party.
- The willingness of the local population to take part in the activity in question. The reselling of gas and electricity, for example, requires customers, and providing a help desk service is only warranted if there is a demand for information and advice. In this study, for larger projects that have a considerable impact on their surroundings (such as wind turbines and large solar installations), the degree of public acceptance among non-participants was also determined.
- The length of time to complete a project. Various activities place different demands on the continuity of the cooperative. Some activities (such as the construction of wind turbines) take a long time to complete, while other activities (such as an information help desk)

can easily be started but will only be useful if these activities can be sustained over a longer period.

- Potential returns on renewable energy and avoided use of energy, as well as the contribution to climate and energy targets. For each of the separate activities an indication was given of the amount of energy saved or renewable energy that this could yield by 2020.
  There are estimates available for 2020 for most activities (such as solar and wind energy, and energy conservation), but the degree to which cooperatives and individual citizens contribute to achieving these targets is usually not specified. For the estimates we have therefore applied our own assumptions for this indicator.

The conclusion is that the operational perspectives for new energy cooperatives are relatively limited at present. Their activities appear to be focused mainly on collective purchasing campaigns for solar panels, small-scale energy conservation campaigns for private home owners, providing an information and advice help desk and the reselling of electricity and gas. Until recently, funding and management of solar systems in schools, for example (under the 'unburdening' principle), was an attractive activity, but at the moment there are clear signs that cooperatives and project developers have put their plans for these types of projects on hold because of uncertainty about the implications of the recent stipulation that the electricity must be generated 'at the expense and risk' of the user in order to be eligible for energy tax exemptions. It remains to be seen whether the supply of solar power under the new 'post code radius scheme' (officially: 'Reduced rate energy tax for members of a cooperative or association of owners') will be attractive to energy cooperatives. The initial response, however, is not very encouraging: with a discount on the energy tax of 7.5 cents per KWh (excluding VAT) the revenue model is likely to be marginal, on top of which it will be extremely complex to implement. Development of wind turbine projects appears to be feasible for most of the new energy cooperatives only if they can work with a professional developer. Larger scale energy conservation campaigns aimed at private home owners are also difficult to sustain for a cooperative run purely by volunteers.

Under the present circumstances, it is expected that, by 2020, the contribution by energy cooperatives to the generation of renewable energy and to energy conservation will amount to no more than a few petajoules:

- The forecast is that, up to 2020, the installed peak capacity for solar panels will rise relatively strongly (to between 4 and 7 GW, equivalent to 13 to 23 PJ in electricity production). However, it is reasonable to assume that only part of this will be achieved through the efforts of energy cooperatives in the area of collective purchasing campaigns and solar installations. A large proportion of the solar panels will be bought by private home owners themselves.
- The target for 2020 for onshore wind energy is a total of 6000 MW.
  Only some of the wind energy projects will be sufficiently small-scale for civic involvement to play a real role in their realisation (a role that goes beyond simply buying wind energy, shares or bonds). According to estimates, about 30% (or 16 PJ) of the total production by 2020 will be generated by wind farms with a capacity of less than 100 MW. In practice, developing a wind farm with a capacity of about 10 MW would be highly ambitious for any new energy cooperative. But even the established, more experienced wind energy cooperatives of today have only limited experience with 100 MW wind farms. Deltawind and Zeeuwind are currently investigating the feasibility of developing a 100 MW wind farm on or around the Krammersluizen in Zeeland.
- The contribution by energy cooperatives to energy conservation in the privately owned housing stock will also be small due to the labour-intensive nature of the task. Owners and occupiers may have various reasons for not wanting to implement energy conservation measures, and the energy cooperatives would require a highly targeted effort backed by a persuasive offer to be able to reach this group of people.
  Some of the cooperatives interviewed showed that it is possible to undertake successful energy conservation campaigns, but these do not automatically have a snowball effect on

other streets or neighbourhoods. A cooperative that really wants to make progress in the area of energy conservation, therefore, has to be willing to put in a great deal of effort every time.

The interaction between energy cooperatives and municipalities

The municipalities approached for this study, almost without exception, are aiming to become energy or climate neutral in the relatively short term (ranging from 2020 to 2045), but in fact have direct control only over their own properties and vehicle fleets. For various reasons, they do not want to invest in the generation of renewable energy themselves (e.g. because they do not consider this part of their task or consider it unfeasible). In addition, they also lack the manpower to be able to boost energy conservation in privately owned housing. All the municipalities, to a greater or lesser extent, envisage an important role for civic initiatives – and for the energy cooperatives, in particular – in carrying out municipal energy and climate policy.
The general argument being that energy cooperatives can count on more public support than the municipality and they are also well organised, experienced and committed, as well as having a good local network.

In almost all cases, both municipalities and energy cooperatives indicated a good working relationship between them. The key to this successful collaboration is that they approach one another on an equal footing and understand each another's positions, wishes and limitations. Most of the municipalities try to facilitate energy cooperatives as best they can; for instance, by covering certain process costs, making a meeting room or the communication channels of the municipality available, by coaching and creating an alliance, by providing a start-up grant or loan, paying for feasibility studies, or by extending (small) paid assignments to them.

Nevertheless, it was also apparent that both parties sometimes find themselves in a dilemma. Most public officials believe that energy cooperatives should be left to their own devices (i.e. that they should neither steer nor prompt them), but also state that the municipality has the task of meeting the ambitious climate or energy targets. Municipalities, therefore, often initiate large projects themselves and then check or ask whether the energy cooperatives would like to participate or even lead these. Here a conflict arises between the importance of the projects and the limited resources the municipalities have to pay the energy cooperatives for their services. Various reasons are given for this, such as insufficient budgets, tendering rules not permitting them to award a project worth more than a certain amount directly, municipalities must be seen to be objective, transparent and non-discriminatory, or that available funds have been earmarked for the project and not for the services of the energy cooperative. Some public officials are against the idea of cooperatives wanting to earn an income from providing certain services, because, as they see it, then they are dealing with a commercial organisation with a financial interest, rather than with a group of selfless volunteers working for the good of all.

Although both sides generally accept the role of municipalities as the initiator of projects, the energy cooperatives often find themselves faced with the difficult choice of either joining the municipal projects and devoting considerable effort for little or no money in return, or remaining autonomous but on the sidelines. The energy cooperatives that want to grow, therefore, mostly opt for taking part in the municipal projects, perhaps in the hope that this will give them more experience and enable them to develop networks, and eventually be able to earn an income also from other sources and, thus, operate more autonomously. There is the very real risk, at the moment, of energy cooperatives becoming cheap implementation bodies for municipalities. When asked, energy cooperatives indicated that they are aware of this risk and that they are not there to facilitate municipal spending cuts, but that sometimes difficult choices must be made.

Suggestions for improving the operational perspective of energy cooperatives

The suggestions provided here for improving the operational perspective for the energy cooperatives are mainly intended to bring larger projects more within their reach. This applies mainly to the supply of solar power under the new 'post code radius scheme', the financing and management of solar installations operated by third parties, the development of wind farms and larger scale energy conservation campaigns for the privately owned housing stock. The operational perspective for energy cooperatives is partly dictated by national legislation, but the municipalities to some extent also hold the key to giving the energy cooperatives a better outlook:

- The largest potential problems concerning the *post code radius scheme* are the long payback period and the complexity of the scheme itself. Even if the overhead costs are left aside, the payback period is likely to be longer than the period for which the government has guaranteed the level of the energy tax discount (i.e. more than 10 years). The scheme also requires that a complex bookkeeping system be maintained, a new cooperative has to be set up specifically for the purposes of the project, there are also liability risks involved and the cooperative has to make a commitment over many years, which places a particular burden on the continuity of the organisation.
  Should it become apparent in the short term (e.g. a year) that these potential problems do indeed constitute an insurmountable obstacle for the energy cooperatives, then central government could consider widening the financial scope of the scheme (i.e. by giving more discount or by extending the guarantee period) and by making the scheme less complex. The municipal and provincial authorities too, could provide an extra impetus; municipalities could offer the roofs of their own properties to cooperatives operating solar installations, and the revolving funds administered by the provincial authorities could make their demands in terms of the 'quality of the organisation' and the minimum amount of the loan less exacting than those of a commercial bank. This would also help to facilitate projects that cannot be fully financed through crowd funding.
- As indicated, there are clear signs that cooperatives and project developers are currently postponing their plans to finance and operate energy projects on the roofs of third parties because it is unclear to them what the implications may be of the new stipulation that electricity will only be exempt from energy tax if it is generated 'at the expense and risk' of the user. It is therefore imperative that central government provide clarity in the near future about the implications arising from this stipulation.
- If municipalities want energy cooperatives to continue to play a role in the development of wind energy projects, it is recommended that both the council and the executive commit to the plan as soon as a specific site has been designated. In the discussion with opponents, the municipality needs to stand 'beside' rather than 'behind' the energy cooperative, because it is far better placed than the energy cooperative to make assurances about enforcement and compensation further to any planning damage. Apart from presenting the arguments, all that an energy cooperative can do is propose that the revenues be used to benefit the surrounding area, but usually the level of revenue is unknow until at a later stage in the process. If a wind project initiated by a municipality is ultimately cancelled, the energy cooperative involved should be compensated for the costs incurred during the preparatory phase. If municipalities consider this to be a normal commercial risk, energy cooperatives will be increasingly less likely to want involvement in wind energy projects in the future.
- The implementation of successful energy conservation campaigns in the privately owned built housing sector is so labour-intensive that cooperatives often cannot run these campaigns for very long before 'volunteer fatigue' sets in.
  Most cooperatives aim to earn an income from their activities – for some, this is only to be able to fund other projects, for others to provide some recompense to their volunteers for their efforts – although the revenue model associated with these activities is fairly meagre.

A possible solution is for the cooperatives to also earn an income for their services from other sources than just the market. As the situation currently stands, for example, large sums of money are sometimes paid to commercial organisations to carry out preparatory feasibility studies, while little or nothing goes to the energy cooperatives even though for many municipalities they are the designated party to implement the policy. The logical conclusion is that if municipalities want energy cooperatives to continue to play a useful and active role in reducing the energy consumption of privately owned housing, a realistic price needs to be paid for this, too. The Ministry of the Interior and Kingdom Relations (BZK) – also a stakeholder – could support the municipalities in this respect. The cooperatives that do want to become more professional recognise that there are certain risks, for example, the possibility of antipathy arising within the organisation (why one and not the other?), or the risk that unpaid volunteers start to sit back and do nothing (after all, the paid workforce will solve the problem). But they have considered the fact that, unless they do so, they will not be able to grow to become an organisation that has sufficient continuity and authority. Some cooperatives, indeed, prefer to have an unremunerated board and volunteer working group members because they fear that otherwise they would lose the support and trust of their 'target group' (the other members of their community, village or neighbourhood). They wish to be able to operate independently, even-handedly and impartially.

- Given that the cooperatives and the municipalities share common goals and a locally targeted approach, it would be desirable for the municipalities to develop a vision of the roles for each of the parties and the related implications. In most cases, there still appears to be no coherent vision of the potential role that local energy cooperatives could play in achieving the energy and climate targets, as well as other municipal objectives. Cooperatives that also take on larger projects will start to operate more commercially as a market party and less as a civic initiative driven purely by passion. This means that the municipality will also need to take on a different role; not only one of coaching and facilitating, but also supporting, participating and cogenerating. Although the room to treat energy cooperatives differently from commercial market players will be limited, the cooperatives could, for example, be given priority when certain commissioned projects are put out to tender.

  Energy cooperatives and municipalities will need to work together to find the right balance. The debate surrounding 'stakeholdership' and changing the terms under which public services are awarded to civic organisations and social enterprises provides a possible starting point for this.