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# Customer ownership of public utilities: new wine in old bottles

**ABSTRACT**

Customer ownership of public utilities is presently a marginal phenomenon in quantitative terms, despite its long history. The first customer-owned cooperatives appeared at the turn of the 19th century mostly in the power and water sectors. Their development was later hindered by the municipalisation of local public services, but today new prospects are arising and new interest is growing around them. After reviewing data about the present diffusion of customer-owned providers of public utilities, with a special focus on the European Union, we examine the structural features of the markets for public utilities and the economic reasons why this organizational mode is more likely to expand today than it has in the past.

**KEY-WORDS**

CUSTOMER-OWNED COOPERATIVES; PUBLIC UTILITIES; PRIVATIZATIONS.

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## 1. Introduction

For most of the 20th century, electricity, water and other public utilities were generally provided by governments. For various reasons, at one point they began to retreat from production and started to lift the legal barriers to entry and sell the public enterprises operating these services. Liberalizations, like e.g. that of the European energy markets in the 90's, have let in new competitors with beneficial effects on prices and on the whole they have been a success story. In contrast, privatizations have followed a different path. The phenomenon, which has mainly concerned monopoly markets, developed differently in different countries but one aspect is common to all: public services were privatized everywhere in favour of regulated for-profit enterprises. This privatization<sup>1</sup> model has revealed serious flaws over time, particularly with respect to the effectiveness of regulation and the capability of implementing satisfactory service standards, which have triggered citizens' opposition to it. However, the for-profit ownership of privatized utilities is not the only possible alternative to public provision. Another model that is beginning to be looked at with new interest, though not new in itself, is that of community management through customer-owned cooperatives.

The first cooperatives providing public utilities appeared at the turn of the 19th century, not much later than the three major types of traditional cooperatives, i.e. worker cooperatives, consumer cooperatives and cooperative banks. They were all engaged in power and water provision and were set up and run by customers themselves, just like consumer cooperatives and cooperative banks. So far they have lagged behind the major types of cooperatives and today their presence is marginal. The main cause for this was the behavior of governments, which quite early took the upper hand in many essential services, like e.g. water and electricity supply. However, the new situation that is now consolidating makes room for a different scenario. This paper's claim is that both regulation flaws and information asymmetries can possibly be better dealt with by customer ownership than by alternative models.

In the first part of the paper, we review the present state of cooperatives providing public utilities. At the moment, few reliable and consistent data are available on them, perhaps because of their marginal economic weight. To our knowledge, Italy is the only country where a census of these cooperatives is available and thus we start from here. In Italy, the historical cooperatives that have survived up to now are all customer-owned and concentrated in electricity – by far the most important industrial sector where they are present – and water. Customer ownership of the other major public utilities (natural gas supply, transport, telecommunications, waste disposal) is non-existent or nearly so. This picture accords with data from other countries, where again electricity and water consistently appear to be the most important activity fields for these cooperatives.

Does it make sense to organize public utilities as citizen cooperatives? If we were just to look at the numbers of actual realizations so far, the answer would probably be no. Nevertheless, history depends on past circumstances and something that could not be developed in the past might be possible in the future. The main issue addressed in the second part of the paper is whether customer-owned cooperatives can be an appropriate response to privatization problems, as a few experiences around the world suggest. Historically, these cooperatives were born simultaneously to the activation of the service and not by transformation of a previous entity into a customer-owned cooperative. Moreover, they were generally small and located in rural areas. This model was highly innovative when it appeared and has survived with minor changes to this day, but what is now required for new developments is something different, namely a

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<sup>1</sup> The transformation of a previously government-owned utility into a cooperative is sometimes referred to as "mutualization" in opposition to "privatization", strictly meant as the transfer of service operation to a for-profit enterprise; see e.g. Holtham (1997). Here, we use privatization for both cases.

medium/large size and urban location. Does such a cooperative model have a chance to develop? In section 4, we look at what economics has to say about this. As we will see, the record is rather poor for the lack of full-fledged theoretical studies or conclusive empirical analyses. In section 5, we review the potential advantages and disadvantages of customer ownership over other organizational modes. We argue that these cooperatives indeed appear capable of coping with the most challenging issues presently affecting public utilities – in particular information asymmetries on service quality and tariff regulation – more effectively than for-profit and public provision. However, further research is needed before clear-cut answers and policy prescriptions can be put forth.

## **2. Public utilities and customer-owned cooperatives**

The basic feature of public utilities like energy provision (natural gas, electricity, etc.), telecommunications, transport (railway and road), waste management, etc. is that they require the use of infrastructures. This has important economic implications.<sup>2</sup> Indeed, the most relevant problems with public utilities have to do with infrastructures: how to finance them and share their costs, how many users/providers to allow in, at which conditions to allow access, how to meet universal service obligations (often in the face of high marginal costs of users' connection), and so on. The nature of utility markets itself depends on certain features of infrastructures. There are two main cases to be distinguished in this regard: infrastructures that can be used by one service provider only; infrastructures that can be used by several at a time. Access to an infrastructure may be limited either by legal or technological barriers. Since the former are often motivated by the technological features of production processes, technological barriers are in a way the most fundamental (Brock 2002). The evolution of technology sometimes changes the nature of markets too. An example is provided by the retail power market. Today, the same electric grid allows the simultaneous presence of any number of retailers thanks to digital metering and control, whereas before the digital era it was exceedingly costly, if not impossible, to meter power flows along a network.<sup>3</sup> On the other hand, water supply and sewage treatment still generally maintain natural monopoly features in all segments of the market (Littlechild 1988).

In common usage, public ownership of a utility means that it is owned and operated by government, e.g. through a municipal company.<sup>4</sup> Private ownership is the complementary case, where ownership does not rest with government, either directly or indirectly, but with a for-profit company or not-for-profit entity, including cooperatives. Almost everywhere in the West, public utilities were actually born as private services, usually provided by for-profit enterprises and in a minority of cases by customer-owned cooperatives. Later on – at different times in different countries, but overall in the first decades of the 20th century – some of the economically most important utilities were taken over by governments: electricity, natural gas supply, water services, local and long-distance transport, even telephony began to be provided by public enterprises in many countries, including some of the most market-minded ones like the USA. At this stage, public utilities were essentially government-owned monopolies, which started to transform

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<sup>2</sup> See Spiller (2013) for more details.

<sup>3</sup> We underline that the increase in competition here concerns the retail segment of the market, but not the network itself, which remains a natural monopoly.

<sup>4</sup> According to the definition of the US Environmental Protection Agency, a publicly-owned water system “is owned and operated by a government or public agency” (USEPA 2009, p. 54). The definition can be extended to other public utilities.

in the 70's and 80's when a privatization and liberalization wave spread from the USA and Britain to many Western countries. The demise of government-owned monopolies has been taking place in essentially two ways, the opening of markets to competition, where technically possible, or the transfer of ownership. In both cases, the phenomenon has almost everywhere and always involved for-profit enterprises, though the for-profit operation of public utilities is not the only possible alternative to government ownership: customer ownership is another.

Cooperatives are democratic business organizations owned either by the suppliers of some input to them or their customers, for their mutual benefit or the community's benefit.<sup>5</sup> Within this broad class, customer-owned utility cooperatives are characterized by their activity in the field of public utilities and ownership by their customers. Examples include electric cooperatives that produce/distribute electricity, gas cooperatives that distribute natural gas, water cooperatives that provide water services, just to name a few of the most important types (we will see a few more in section 4).

Early cooperatives providing public utilities spread especially in the field of power production and supply. They were all customer-owned – i.e. their members were customers – and of the traditional type, i.e. run solely for their members' benefit. In the pure type of traditional cooperative, all customers are members, as e.g. in some rural electric cooperatives in the United States and Italy. However, the overlapping of the two groups is not necessary and in some of them members were indeed just a subset of patrons, as is usually the case with cooperative banks and consumer cooperatives. Moreover, they had a community streak too, which makes them forerunners of modern community cooperatives (Mori 2013).

If customer-owned utility cooperatives were the first to arise, and still maintain prominence, they are not the only possible type: more recently supplier-owned ones have also begun to appear. The latest renewable-energy cooperatives that are arising in many parts of the world (see section below for more details) are not easy to classify on the basis of the customer vs. supplier ownership divide. A frequent pattern with these cooperatives is the following: a cooperative is established by a group of people who come together with some capital to be invested in a generation project (wind, solar, etc.); the cooperative enters into feed-in tariff (FIT) agreements with a retailer, which in turn applies preferential supply tariffs to the cooperative's members.<sup>6</sup> The member benefit is then comprised of a return on capital (usually under a dividend cap scheme) and lower purchase tariffs to individual members as customers of the external power supplier. If the benefit provided to members as power users is predominant, the economic function of power purchase is prevalent over the others and we have a customer-owned cooperative before us. However, sometimes members' trade benefit is limited or non-existent, as in the case of the UK's community finance societies,<sup>7</sup> which invest in renewable energy:<sup>8</sup> these cooperatives are supplier-owned.<sup>9</sup> New electric cooperatives

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<sup>5</sup> Cf. the US Department of Agriculture's definition: "A cooperative is a business that is owned and controlled by the people who use its services and whose benefits (services received and earnings allocations) are shared by the users on the basis of use" (USDA 2002, p. 1); cf. also Zeuli and Cropp (2004). This is a non-legal, non-country specific definition, which applies irrespective of whether "cooperative" is contained in the firm's name. In countries like Italy where the cooperative is a legal company type, the name is reserved for those that meet precise legislative requirements: in such cases use of the term for scientific purposes ought to be restricted to the legal meaning.

<sup>6</sup> Cf. Willis and Willis (2012, p. 6) with reference to Britain, but the same basic scheme is found with minor variations in other countries as well.

<sup>7</sup> These enterprises are identified as cooperatives by Cooperatives UK (2009, p. 32).

<sup>8</sup> For example, Baywind Energy Co-operative Ltd in Cumbria (UK) ([www.baywind.co.uk](http://www.baywind.co.uk) last visited 26/11/2012).

<sup>9</sup> There is an analogy between them and some producer cooperatives like e.g. agricultural manufacturing cooperatives. In the latter, farmer-owners feed in their produce as an input for the cooperative's production, while in the former members provide capital, which is the major input for the cooperative's activity (but, in contrast to for-profit firms, within a democratic governance framework).

are then a borderline case, whose assignment to either category requires consideration of a number of organizational features on a case-by-case basis. This is true of other cooperatives as well and in general the type of business activity alone is not sufficient for the classification of cooperatives providing public utilities.

The nature of cooperatives providing public utilities has evolved over time too. An initial change concerns their social background. While early ones catered to socially homogeneous customers/members, mainly in small rural areas, today's offspring have a composite social background in accordance with a general trend in the cooperative evolution. Moreover, their organizational models have diversified too. The 19th century's unique model was that of the traditional cooperative run for its members' benefit, either pure (fully mutual, i.e. not admitting trade with non-members) or impure (non-fully mutual). In the late 20th century, new models appeared, particularly that of the public benefit cooperative whose purposes are in the community interest (Mori 2013, for more details). As a result, today in the field of public utilities, traditional cooperatives abide beside public benefit cooperatives, like e.g. the UK's community finance societies operating in the energy sector.

### 3. Cooperatives and public utilities: a few facts

Today, cooperatives providing public utilities are a small segment of the cooperative movement and an even smaller one of the industrial sectors where they operate. This is perhaps the reason why it is so difficult to find reliable and comprehensive data about them, with the conspicuous exception of the US electric cooperatives on which a large amount of data is available. Italy is certainly not the country where the phenomenon is most developed in the world, but it is to our knowledge the only one in which a nationwide census of customer-owned utility cooperatives is available. Hence, it is convenient to start from here.

The survey was carried out in 2010 and focused on the customer-owned cooperatives active in the following local public utilities: energy, water, waste disposal, local transport and telecommunications (Spinicci 2011).<sup>10</sup> In 2009, the reference year of the survey, all the active cooperatives<sup>11</sup> turned out to be concentrated in the energy and water sectors with a nominal presence in telecommunications.<sup>12</sup> On the other hand, none of the cooperatives were reported from the waste disposal and transportation sectors (although both sectors have several worker cooperatives).

In the energy field, the only subsectors where cooperatives are actually present are electric power generation and supply, natural gas supply and district heating. In the natural gas market, the cooperative presence is limited to just one enterprise.<sup>13</sup> There were 27 customer-owned cooperatives operating district

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<sup>10</sup> The five sectors are those periodically surveyed by the Italian Observatory on Local Public Utilities run by the *Consiglio Nazionale dell'Economia e del Lavoro* (an agency of the Italian government), <http://cnelspl.portalecnel.it/SPL>.

<sup>11</sup> In Italy, the cooperative company, or simply cooperative, is a specific legal form and the term is reserved for entities that are incorporated in this form.

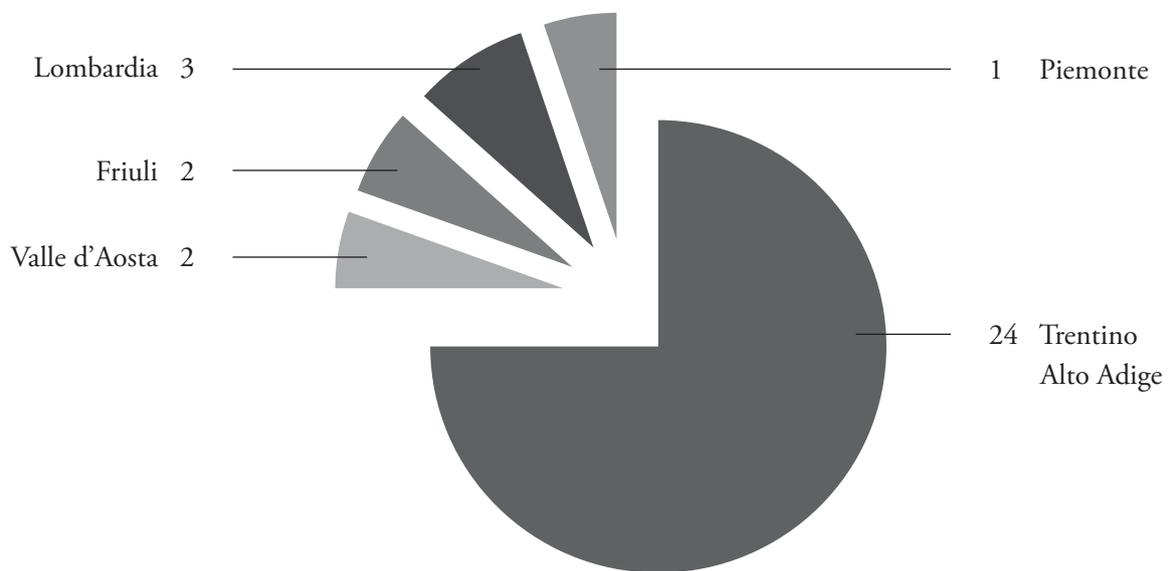
<sup>12</sup> Just two were identified in this subsector, both engaged in mobile telephony, *Cutnord Società Cooperativa* (Imola) and CUT (Prato, Tuscany). The largest Italian retail cooperatives offer mobile phone services under the brand Coopvoce, but this is not a stand-alone business and therefore is not considered in the survey.

<sup>13</sup> AEG Scarl is a large historical cooperative, which at the turn of the 19th century introduced gas street lighting and household supply in the town of Ivrea (Piemonte), where it is still the main provider. Its present membership is about 50,000.

heating as of 2009, all of them quite small, with an average membership of less than 200.<sup>14</sup> The economically most relevant energy subsector is by far that of “electricity”. However, it should be mentioned beforehand that the weight of electric cooperatives is very small if compared with the market size. In 2009, 32 customer-owned electric cooperatives were active in Italy out of a total number of 39 units: customer ownership is then the most widespread model in the field. They had over 24,000 members and 40,000 customers. In the same year, the total number of power distributors was 144,<sup>15</sup> but the ratio of cooperatives to the total grossly overstates their weight. A more realistic indicator of size is the ratio of the GWh’s supplied by operators with less than 5,000 customers (623 GWh), to which belong all electric cooperatives (see below), to the total supply of 279,846 GWh. By this standard, cooperatives’ market share is less than 0.22%. A large majority (71%) of these cooperatives were established before 1962, the year of Italy’s electricity nationalization (some of them actually stand among the oldest power companies in Italy);<sup>16</sup> just a few were established after the 90’s market liberalization. All the surveyed electric cooperatives produce power from renewable sources and almost all of them (88%) supply power directly through their own grids. Moreover, the historical ones (established before 1962) are all engaged in hydro-power production and so are some of the later ones.

The following chart represents the distribution of these cooperatives by location. The regions shown in Figure 1 belong to Northern Italy, but the cooperatives we are talking about are actually found in a narrower area, the Alps. All of them are located in small alpine villages, sometimes in secluded valleys.

Figure 1. Italy’s electric cooperatives (hydro-power): regional distribution



<sup>14</sup> It is interesting to note that the large majority of them (25) are located in Alto Adige (South Tyrol), all in rural areas, and the remaining two are located in the town of Bologna.

<sup>15</sup> As reported by the Italian Authority for Electric Power and Natural Gas ([www.autorita.energia.it/it/dati/eem71.htm](http://www.autorita.energia.it/it/dati/eem71.htm), *Attività dei distributori*).

<sup>16</sup> The oldest one is the *Società cooperativa per l'illuminazione elettrica*, founded in 1894 at Chiavenna (SO). On the first electrification stages in Italy see Mori (1992).

A second noteworthy fact is their average size: most of them are small with a membership below 1,000 (Figure 2). In sum, these cooperatives are few in number and are characterized by their small size and non-urban location. Before the market liberalizations of the 90's, these cooperatives were in most cases sole providers in their territories, thanks to the ownership of proprietary grids (today, after liberalization, other retailers have entered those markets, including state-owned ENEL). In other words, here we are in the presence of local “monopoly” markets served by customer-owned cooperatives, a provision model to which we will return in the next chapter.

Figure 2. Italy's electric cooperatives (hydro-power): distribution by membership size



The latest stage in the evolution is the rise of cooperatives that generate power from renewable sources other than conventional hydro-power technology (i.e. without the use of dams), i.e. mainly photovoltaic and wind, but also other sources. In accordance with what is already occurring in other countries, most notably Germany (see below), growth is expected to be strong in this field in the future, but only a few seem to have been established in Italy.<sup>17</sup> The survey, however, excludes these new cooperatives due to lack of reliable data sources.

Water is the other sector where a cooperative presence of some relevance was found by the census. Of the two main branches of water services – supply and sanitation – cooperative entities are active only in

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<sup>17</sup> One of these is *Retenergie Società Cooperativa*, Racconigi (CN).

the former. At the moment, the most onerous part of the business, sanitation, is completely absent from the cooperative landscape. The numbers here are even smaller than in the energy sector. The census reports nine customer-owned water cooperatives serving households (six in South Tirol/Alto Adige, three in the Piemonte region) and two serving industrial customers. This is all that was found to exist in Italy at the time of the survey under the legal hat of the cooperative enterprise. However, in the water sector, there is also a numerically important presence of entities not incorporated as cooperatives, but similar to them in all substantial respects (democratic governance, asset lock, dividend cap) and hence belonging to the same class. They go under different names, most often *consorzio idrico* (water consortium), and are found in several parts of Italy, although the phenomenon is difficult to gauge due to lack of consistent and reliable data sources. As a matter of fact, Spinicci (2011) was able to survey only those operating in the Piemonte region and belonging to the *Associazione delle acque libere* (Free water association), 29 in total (no similar representative bodies are known to exist in other parts of Italy). All the surveyed consortia are located in small villages, often in remote areas, with small memberships. Hence, the picture closely resembles that of the hydro-power sector previously reviewed.

The description of the Italian situation by and large fits other countries too and is qualitatively representative of this branch of the cooperative movement around the world. Europe's cooperatives are mainly present in the electricity and water sectors and mainly on a small scale and in non-urban areas, just as in Italy.<sup>18</sup> Before looking at a few data, a caveat is to be made. Unlike the Italian census, which keeps records of cooperatives' ownership structure, the sources from which the next data are drawn generally do not. Whereas for certain services like water it is implicit that cooperative members are customers (and possibly certain public institutions too,<sup>19</sup> in addition to customers), for others – especially electricity – this is not warranted and some of them are instead supplier-owned, as we have seen. The liberalization of some public services in Europe has stimulated the emergence of new cooperative providers.<sup>20</sup> The sector where the phenomenon has been stronger is no doubt energy: in several European countries (Germany, Austria, Britain, Denmark, Italy, etc.) many community renewable energy initiatives are now under way (Dubois and Saplacan 2010; Schreuer and Weismeyer-Sammer 2010). However, an encompassing picture of what is going on in Europe as a whole and even in the single countries is missing.

At present, the country for which the most systematic data are available is Germany, where more than 350 new electric cooperatives are reported to have arisen since the liberalization of the energy market in 1998 (Müller and Holstenkamp 2012).<sup>21</sup> Some of them are cooperatives engaged in power production without retail distribution (i.e. producer cooperatives where individual electricity producers get together to take advantage of joint production), while others are customer-owned cooperatives engaged in distribution too.<sup>22</sup> Published data do not distinguish between the two types;<sup>23</sup> however, other sources confirm that at least a part of the latter are customer-owned (see the cases reported in Eigner-Thiel 2005; see also Toke 2005), despite the impossibility of quantifying the phenomenon due to lack of data. In France, besides

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<sup>18</sup> However, in Finland there is a cooperative presence in telecommunications too, see below.

<sup>19</sup> For example, this is often the case with the electric cooperatives of South Tyrol (Italy), whose members sometimes include municipalities.

<sup>20</sup> For a survey of liberalizations in a few public services in Europe, including electricity, see Hermann et al. (2008). About liberalizations in network industries see Finger and Laperrouze (2011). Similar phenomena, though in a different institutional context, are reported in the USA (Wilson et al., 2008) and in some developing countries (Yadoo and Cruickshank 2010).

<sup>21</sup> For more on Germany see: Mautz et al. (2008); Holstenkamp and Ulbrich (2010).

<sup>22</sup> The *BürgerEnergie Berlin* cooperative falls into a third category: distribution without production.

<sup>23</sup> In the survey quoted by Müller and Holstenkamp (2012), cooperatives are generically identified by their registration as cooperatives and by having their main business activities in the energy sector (ibid., p. 5).

a large electric cooperative (Enercoop SCIC, 50,000 members), various SICAE (*Sociétés d'intérêt collectif agricole d'électricité*) are engaged in renewable energy production with a total of about 250,000 customers. In Denmark, wind power cooperatives total about 150,000 members<sup>24</sup> and there are over 2,500 small water cooperatives.<sup>25</sup> In Austria, 12% of rural water services are cooperative-based (Bauby 2012). In Britain, community interest cooperatives (CIC) engaged in wind, hydro and photovoltaic power generation are rapidly spreading, but here too a complete picture is missing.<sup>26</sup> In Finland, the majority of water companies with less than 1,000 customers are cooperatives, mainly in rural areas.<sup>27</sup>

Outside Europe, the phenomenon is widely present too. In the United States, as we have already noted, electric cooperatives (supply only) are a very strong reality in the countryside where according to the NRECA they serve about 42 million people.<sup>28</sup> Still in the USA, most of the water systems classified by the US Environmental Protection Agency as “very small” (less than 500 customers) are customer-owned (through e.g. non-profit cooperatives, homeowners’ associations, etc.).<sup>29</sup> More rural electric and water cooperatives are found in Argentina,<sup>30</sup> Canada, the Philippines<sup>31</sup> and many other countries.<sup>32</sup> For the sake of completeness, it is to be noted that customer ownership of “telecommunications” is present in a limited number of countries like Finland, the USA, Argentina and Bolivia (Calzada and Dávalos 2005).<sup>33</sup> Moreover, a significant presence of customer-owned “natural gas” utilities is found in some states of Canada, but this is an absolute exception to the global picture, in which gas cooperatives are quite rare.<sup>34</sup>

To sum up, today cooperatives providing public utilities generally appear:

1. concentrated in “electricity” production/supply and “water” supply;
2. “small”,<sup>35</sup>
3. located in “rural” areas.

In developed countries, where basic public utilities are by and large already in operation, the entry of new cooperatives into public utilities can no longer occur through the activation of a previously non-existent service, as was the case with historical cooperatives, but requires that cooperatives take over a share of an existing market. Thus, there are in fact essentially two ways of entry into public utilities. The first is by acquisition of the service franchise held by the incumbent operator, if the market is a legal monopoly. This occurs when a previously government-owned utility is privatized or a privatized for-profit enterprise is

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<sup>24</sup> In 2004, as reported on the official government site <http://denmark.dk/en/green-living/wind-energy/> (last visited 12/01/2012). On electricity liberalization in Denmark see Olsen and Skytte (2002).

<sup>25</sup> The data is provided by Hukka and Katko (2009).

<sup>26</sup> More than 30 new establishments classified as cooperatives by Co-operatives UK have arisen since 2008 (Willis and Willis 2012, p. 4). Energyshare.com reports many new projects in these fields throughout the country but no survey seems to have been made so far.

<sup>27</sup> According to Takala et al. (2011, p. 11) there are about 1,400 in total.

<sup>28</sup> [www.nreca.coop/members/Co-opFacts/Pages/default.aspx](http://www.nreca.coop/members/Co-opFacts/Pages/default.aspx) (last visited 12/01/2012).

<sup>29</sup> According to a report by the National Rural Water Association (NRWA, 2004, p. 2).

<sup>30</sup> FACE (*Federación Argentina de Cooperativas de Electricidad y Otros Servicios Públicos*) reports that 10% of electric power is provided by cooperatives and 58% of rural customers are served by cooperatives. The total number of associates is over 180 cooperatives nationwide ([www.face.coop/es/servicios/el-cooperativismo-en-cifras/](http://www.face.coop/es/servicios/el-cooperativismo-en-cifras/), last visited 12/03/2012).

<sup>31</sup> The NEA (2011) reports a total of 119 electric cooperatives.

<sup>32</sup> Even in some of the poorest LDC's like Nepal, Bangladesh, etc. (Yadoo and Cruickshank 2010).

<sup>33</sup> In Bolivia, the telecommunications market is even dominated by customer-owned cooperatives (ibid.).

<sup>34</sup> For instance, in Alberta, the Federation of Alberta Gas Co-ops comprises 81 natural gas utilities of which 59 are cooperatives, and claims to be “the largest rural gas system in the world” ([www.fedgas.com/](http://www.fedgas.com/), last visited 12/05/2012).

<sup>35</sup> Most of them, not all: indeed, some of the US electric cooperatives are relatively large, but they are exceptions.

subsequently mutualized. The second way is relevant to oligopolistic markets (sometimes stemming from previously monopolistic markets, which the evolution of technology opens to competition, cf. section above) and consists of the creation of new firms without the exit or take-over of incumbents. As we have seen, this is already under way in many countries, often after market liberalizations as in the energy sector in the EU.<sup>36</sup> In the rest of the paper, we focus on the first way: the entry of citizens' cooperatives in monopolistic public utilities, which at the moment is largely hypothetical, but may become reality in the near future. Two main questions loom over this perspective. The first concerns the cooperative model: is the presently most widespread type of cooperatives in the field – small and rural – the only feasible and efficient one? Or can different types – in particular large and urban – be efficient too? The second one is whether there are new facts that make it possible for new cooperatives of this kind to arise. In the next section, we address the first question and in section 5 the second one.

#### **4. A new model of customer ownership of public utilities?**

As we have seen, historical cooperatives providing public utilities were mostly located in rural areas and were small in size. Moreover, they were established simultaneously with service activation in the local area. Let us now look at a few cases that display quite different features. The water cooperative of Santa Cruz de la Sierra in Bolivia (Saguapac) was established in the late 70's by the transformation of a previous government-owned business. It serves a large district of the city totalling over 700,000 customers (for details on its organization and operations we refer to the field study by Ruiz-Mier and van Ginneken 2006). The second example is quite well known. In the late 90's at Cochabamba (Bolivia), the privatization of the local water company unleashed popular protest, which soon degenerated into a revolt. In the end, the multinational contractor was forced to quit and the water company was again transferred to the local government.<sup>37</sup> In some districts, however, water supply was taken on by associations of residents, which are close in nature to the cooperatives described above although they are not legally cooperatives (Bakker 2008). The third example is BürgerEnergie Berlin, a newly established citizen cooperative whose aim is to bid for Berlin's electric grid and supply electricity to the city.<sup>38</sup>

These organizations are customer-owned and provide services – water and electricity – which are of general interest to a community, since they affect the welfare of every resident in their territory, and essential, since they affect it in a substantial way. In this respect, they are similar to the old electric cooperatives – they actually belong to the same class – but they differ from them in two main respects: they are located in urban areas and serve large numbers of customers. A further difference is that here customer ownership stems from the transformation of an existing business entity, while, as we have seen, the old cooperatives operating public utilities were established simultaneously to the original service activation. Note that all the previous examples concern public utilities that remain monopolies after the take-over by the cooperative.

The crucial question is of course why cases of this kind are so few (even conceding that there may be

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<sup>36</sup> A sizeable literature on this phenomenon is now available, for a survey see Schreuer and Weismeyer-Sammer (2010).

<sup>37</sup> For an account see Olivera and Lewis (2004).

<sup>38</sup> In their statement of purpose, BürgerEnergie Berlin declare: "We are a free, cross-party coalition of citizens, committed to building a viable, sustainable and democratic energy policy in Berlin. In our cooperative each member has one vote regardless of the amount of his investment". ([www.buerger-energie-berlin.de](http://www.buerger-energie-berlin.de), last visited 10/08/12; our translation from German).

further cases besides those quoted, it is evident that the numbers are very small).<sup>39</sup> Is it because there have so far been contingent obstacles or else because there are structural problems that make it difficult to replicate the model? More specifically, are rural location and small scale “natural” features of cooperatives providing public utilities? If this were so, the few cases not displaying them should be regarded as exceptions to the rule with few hopes for further diffusion. In the contrary case, they might develop beyond their present boundaries. Given the very limited empirical basis available at the moment, an answer may come only from economic theory, but here the phenomenon is largely ignored, as Hansmann already lamented in 1996 (Hansmann 1996, p. 196). The situation has not changed since and Hansmann’s explanation attempt of the observed regularities in the field, although unsatisfactory in some respects, remains the most systematic available.<sup>40</sup> It is then worth examining it at some length.

In Hansmann’s analysis, a business ownership structure is identified by the category of stakeholders who own it (most commonly: workers, investors or customers). The basic assumption of his theory is that a group of stakeholders emerges as owners if it is the most efficient one in terms of organizational costs, i.e. the sum of contracting and ownership costs is minimized by the assignment of ownership to that group.<sup>41</sup> Reduced to bare bones, Hansmann’s argument is as follows. If in a given situation we observe an ownership structure, we must conclude on the basis of the previous assumption that that structure must have an organizational cost advantage over the other options in the specific situation. The analyst’s task is then simply to find out in which costs<sup>42</sup> that ownership structure is more advantageous and this is just what the analyst tries to do with regard to US utility cooperatives, especially electric ones (Hansmann 1996, chap. 9). This attempt, however, lacks both a theoretical and empirical basis. The analyst makes no analysis of the conditions under which an ownership structure can be efficient in general, nor an empirical analysis of the various costs identified, to establish which of them causes an observed structure to prevail over the others in concrete situations.

Hansmann in fact limits himself to observing that US electric cooperatives “[...] probably [...] face higher costs of ownership in urban markets as compared with rural markets” (Hansmann 1996, p. 174), namely the costs of collective decision-making. He notes that the proportion of lease-holders and commercial/industrial customers over the total number of customers is higher in towns than in the country.<sup>43</sup> According to him, this fact implies greater interest conflicts among customers, and hence larger collective decision-making costs in town than in the country, which should explain the observed regularities.<sup>44</sup> The problem with this explanation attempt is that the description of the differences between

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<sup>39</sup> A related case that can be included in the group is Glas Cymru (UK), the non-profit company operating water services in Wales, which took over from a previous for-profit incumbent in 2000 (various aspects are analyzed in Morse 2000; Birchall 2002a, 2002b; Kay et al. 2007). Glas Cymru is akin to the utility cooperatives we are discussing here, but its governance does not involve the direct participation of citizens.

<sup>40</sup> There are several contributions that apply Hansmann’s framework to a specific utility like e.g. Birchall (2002b) and Morse (2000) to water services, Olsen and Skytte (2002) and Müller and Rommel (2010) to electricity. These, however, make no progress on the theoretical plane with respect to Hansmann (1996), which is still the reference contribution for the institutionalist approach in this field.

<sup>41</sup> For more details see chaps. 1-3, Hansmann (1996).

<sup>42</sup> According to Hansmann, there are three types for each of the two main categories, contracting (market power, lock-in, asymmetric information) and ownership costs (monitoring, collective decision-making, risk-bearing).

<sup>43</sup> “[...] residential (and particularly farm) electricity customers do not dominate in urban areas as they do in rural areas” (Hansmann 1996, p. 175).

<sup>44</sup> Müller and Rommel (2010), starting from the same theoretical framework, instead come to opposite conclusions. According to them, new features of production processes and markets – in particular the fact that the new energy markets are no longer monopolistic – would make urban customer-owned cooperatives more efficient than in the past. Although their remarks may be reasonable, their arguments are subject to the same critiques as Hansmann’s.

town and country is not supported by any empirical evidence. In particular, there is nothing to prove that cost differences in collective decision-making, if any, are such that they indeed outweigh differences in other organizational costs. Hansmann's previous statement is in fact just a hypothesis yet to be proved true, since sparse anecdotal facts cannot be taken as proof of anything.

The lack of a proper efficiency analysis, theoretical or empirical, actually leaves us with the starting question unanswered, that is: are the observed features of old electric cooperatives due to structural economic factors, and hence in a way necessary, or just dependent on contingent, non-economic ("historical") factors, and hence different outcomes would be possible in other circumstances? At present, no theory has answers to offer, certainly not Hansmann's, and also empirical analyses of the electric and water sectors are unable to unambiguously settle the efficiency issue.<sup>45</sup> Meanwhile, a policy debate has developed about alternatives to the classic organizational modes of public services (Holtham 1997; Pollitt and Birchall 1998; Leadbeater and Christie 1999; Mayo and Moore 2001; Maltby 2003), from which, however, no definite prescriptions for action can be drawn either, owing to the absence of a full-fledged theory or solid empirical evidence. In conclusion, new theoretical work on this issue is sorely needed without which clear-cut answers can hardly be given on the hot issues concerning customer ownership. In the next section, we detail the problems facing such a quest and examine a few facts that may favour the diffusion of a new model of customer ownership.

## **5. Privatizations and customer ownership**

The structure of the water and electricity sectors that took shape at the beginning of their history was to remain stable for almost a century: the majority of public utilities were government-owned for most of the 20th century, at least in Europe, and in just a minority of cases private for-profit operators were active under a variety of arrangements with governments (Millward 2005). In the interstices of this bi-partite framework, we find the historical cooperatives providing public utilities – in marginal and poor areas – as exceptions to the rule. These cooperatives arose everywhere for the same basic reason: the construction of infrastructures like electric grids, aqueducts, etc., was excessively costly outside towns to attract for-profit enterprises or to be realized by local governments unable to levy enough taxes from sparsely populated constituencies. In these circumstances, citizens sometimes succeeded in establishing cooperatives for providing the service themselves.<sup>46</sup> In most countries where they are present today, cooperatives providing public utilities are marginal in quantitative terms, with the conspicuous exception of the United States where rural electric cooperatives are the major operators in the countryside. New horizons, however, are now opening up for this organizational model in the wake of privatization failures.

Starting from the 70's, a wave of utility privatizations spread from the USA and Britain to the rest of Europe and other countries in the West.<sup>47</sup> Behind them was the idea that public service provision ought

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<sup>45</sup> Since the 60's, numerous attempts have been made to estimate the relative efficiency of alternative ownership structures in these sectors. Most of them compare municipal and for-profit firms (a small number consider cooperative ones too) by various empirical techniques. Results reached by different studies do vary a lot and no clear-cut conclusions emerge. The size of this literature makes even a cursory review impossible here. We refer to De Alessi (1974) for a survey of the early literature on electricity and Greer (2010) for later contributions; for a survey of the literature on water see Madhoo (2007).

<sup>46</sup> This is what basically occurred everywhere with slight variations across countries. For instance, while in Europe initiative was almost exclusively private, in the USA rural electrification by cooperatives was spurred by the government as part of Roosevelt's New Deal.

<sup>47</sup> And some developing countries too (Yadoo and Cruickshank 2010). Here, however, we focus on developed countries.

to be replaced by private provision for two basic reasons: the supposed inefficiency of public provision and the need to finance new investments in infrastructures (Bognetti and Obermann 2008). It is to be emphasized that the latter motivation has gained increasing importance, owing to the financial constraints that have been affecting governments in many EU countries and elsewhere lately. Privatizations have so far mostly consisted of the contracting out of services or the transfer of public enterprises to investors, whereby services that were once publicly provided have begun to be provided by for-profit enterprises,<sup>48</sup> usually in monopolistic markets.<sup>49</sup> For this reason, private providers are usually subject to regulatory rules set by public authorities, mainly regarding tariffs (the concern here is of course the possible exploitation of customers through high tariffs owing to the absence of competition). Privatizations, however, did not live up to expectations and started quite soon to reveal flaws, which have been fuelling widespread political opposition to them. As a consequence, a few experiences have come to an end and projected privatizations have been blocked in several countries. Water is an emblematic case. The past ten years have witnessed the failure of a few water privatizations in South America (e.g. the Cochabamba case in 2000) and Europe (e.g. Wales in 2000). Moreover, campaigns have raged against privatization projects in a number of countries (Hall et al. 2005). One of the last events along this line was the Italian 2011 popular referendum over the privatization of municipal water companies (the ballot was overwhelmingly against this option).<sup>50</sup>

What are the motivations for the growing opposition to privatizations? At Cochabamba, the trigger event was tariff rises in the face of a service quality that had not improved or had even worsened. In Wales, the process that led in 2000 to the establishment of Glas Cymru, though different in many respects, also started with tariff rises that were judged as excessive by citizens. A recurring cause of discontent is then the perception of an unjustified burden for the service: tariff rises occurring after a privatization are often perceived as excessive.<sup>51</sup> Regulation can in principle deal with this problem satisfactorily, as economic theory teaches. Its failures, where they occur, are indeed mainly implementation failures due to a variety of reasons: governments and their agencies may not be competent enough or sufficiently informed or may not have sufficient power to carry out effective regulation; officials may collude with regulated firms, and so on.<sup>52</sup>

Regulation failures are one of the main issues facing public utilities today, but not the only one. For example, consider waste disposal. Landfills and incinerators can either serve the communities that host them or other communities. It occurs more and more frequently that in the first case the nearby residents – those most affected – oppose installation, in the second the whole population does, sometimes with violent

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<sup>48</sup> Sometimes they went back to private operators after a previous nationalization, as in the case of electricity in Italy.

<sup>49</sup> When we talk of privatizations, we usually refer to monopoly markets. Market liberalizations bring competition into the market, as government retreats; with privatizations we have the government's retreat but no competition in the market (at most competition "for" the market).

<sup>50</sup> As a matter of fact, the referendum was about the legitimacy of rewarding invested capital and the obligation for local governments to auction off water-service franchises, but its true political object was the privatization of water services itself and the outcome was the cessation of the government's programme of privatizations.

<sup>51</sup> There is some empirical evidence on the influence of tariffs on citizens' attitudes to privatizations/liberalizations, see e.g. Van Gyes et al. (2009). Moreover, when water is concerned, psychological factors are likely to play a role too. Water, unlike other goods, has a strong symbolic load. Perhaps one of the deepest motivations of the opposition to water privatization is the perception that third parties, extraneous to the community, can profit from an asset that is essential, of general interest to the community and that it somehow feels as its own.

<sup>52</sup> Criticism of utilities regulation dates back to at least the 60's and has produced a huge literature, both in economics and political science, which cannot be reviewed here even cursorily. Broadly speaking, research has highlighted two main groups of causes: "inefficiency", due to the agency problems besetting regulatory authorities, and "collusion" in various forms, like regulatory capture (on this see the literature review in Laffont and Tirole 1991) and so on. Concerning inefficiency see the survey by Noll (1989); on collusion see Rose-Ackerman (1999).

outbreaks too (as e.g. in the 2009 garbage crisis in Naples, Italy).<sup>53</sup> In both cases, the disposal site – or better the service it produces – is essential since the spill-over effects (externalities), in this case negative, significantly affect the welfare of the citizens involved, and is of general interest because it concerns the whole community, since it bears on goods like the environment and the landscape. However, the problems here are different from water.

Why do people oppose disposal sites (and for that matter incinerators, thermal power plants, and so on)? Part of the answer is to be sought in compensations. Those who suffer negative externalities should receive appropriate compensations, monetary or other, from those who enjoy the service but do not suffer them (or suffer to a lesser extent: what matters is the differential).<sup>54</sup> If a community hosts a disposal site that serves other communities, the whole community (or otherwise only a part) is entitled to compensation, but in any case it is obvious that in the absence of compensations those who are damaged by the facility will oppose it in all possible ways. Therefore, compensations are certainly part of the story, but a further essential ingredient is “information asymmetries” about service quality.

Facilities like waste disposal sites, incinerators, nuclear power plants, etc. involve significant hazards to public health, but proper operation of these plants is capable of abating the risks to acceptable levels. The way they are run is therefore critical. Since for-profit enterprises have an incentive to save on operating costs (sometimes even by committing crimes, such as disposing of hazardous waste in illegal ways), government monitoring of service quality is needed. At this point, a problem already present in other terms in water service becomes apparent. If regulatory authorities may be ineffective in tariff control, they may also fail to monitor service quality effectively, for the same basic reasons – inefficiency and collusion – and as a result, excessive hazards may befall the population.

To sum up, in many Western countries today public utilities are entangled in a loop. On the one hand, a public financial crisis – most acute in Europe at present – severely limits the ability of governments to make investments and makes it necessary to attract private finance for public services.<sup>55</sup> This causes a thrust towards the contracting-out of services or selling public enterprises to for-profit entrepreneurs.<sup>56</sup> On the other hand, citizens’ trust in the public authorities that are to monitor or regulate service providers is low and this produces a thrust in the opposite direction, with the undesirable consequence that a complete stall sometimes occurs, as is presently the case for the water sector in Italy. A possible way out of these doldrums is customer ownership, which presents a few potential advantages with respect to the previous issues.

The first aspect to underline is the handling of information in customer-owned enterprises. Information asymmetries about service quality are, as we have seen, a crucial problem for waste disposal but, to a greater or lesser degree, for all public services. The customer-owned cooperative allows tackling the problem in a radical way: service customers are the owners of the company and in this role they have direct access to internal information. Moreover, the democratic governance prevents power imbalances among members and the strategic use of power for manipulating information by one group at the expense of others. Therefore, though probably imperfect even in this context, access to information is certainly easier in cooperatives than in the competing organizations, both the for-profit enterprise – where information is typically private to the management and the controlling stockholders – and the government enterprise –

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<sup>53</sup> It is the so-called NIMBY effect (Not In My Backyard).

<sup>54</sup> Much of the economic literature on the phenomenon is indeed about compensations, cf. e.g. Kunreuther and Kleindorfer (1986), Mitchell and Carson (1986), Easterling and Kunreuther (1995). An interesting alternative view is held by Frey and Oberholzer-Gee (1997) who show that money incentives may be detrimental to civic-duty motivations.

<sup>55</sup> For example, the current estimate of the required investments in the water sector in Italy is in excess of 64 billion Euros over the next 30 years, 50% of which is needed for sanitation (Bardelli 2011).

<sup>56</sup> That is type 2 and type 3 privatizations in Vickers and Yarrow’s (1991) terminology.

where access to information is mediated by government bureaucracy, which is an interested party too. It is to be recalled that access to information can be decisive in solving conflict situations where control of information is key.<sup>57</sup>

The issue of self-determination receives a better response in the cooperative than in the two competing organizational forms too. In the cooperative, members exert control on a democratic basis, just like citizens over government. By contrast, in for-profit organizations, control rests with third parties, possibly extraneous to the territory where they operate. Public enterprises are not directly democratic, but are controlled by elected governments and hence subjected to a democratic rule of last resort. The two democratic governance modes, however, differ greatly: the citizens' control chain is shorter in the customer-owned cooperative than in the public enterprise, which makes it presumably less costly, thanks to the removal of political costs caused by meddling, corruption, etc., and more effective too. For example, if customer-citizens want to fire the management of a public enterprise, they have no other means but to vote against their political patrons, a very indirect and diluted form of control, whereas citizen-members can directly vote against the management or even sue it for misbehaviour.

If direct access to information and stronger citizen control are possible advantages over both the public and the for-profit enterprise, there are a few specific advantages over the latter type only. In contrast to the for-profit enterprise, the customer-owned cooperative's goal is not profit but customer satisfaction. Moreover, the cooperative favours the local entrenchment of the accumulated capital too: asset lock rules, which are usually in force by virtue of law (as in Italy) or by-laws, stipulate that the surplus produced by the firm may not be distributed and thus it remains available to the community, unlike the for-profit provider (one of the charges most frequently raised against them is just that the profits produced in the territory may migrate elsewhere). The last but not least potential advantage of the cooperative enterprise over the for-profit firm lies in "self-regulation". We have already hinted at the pitfalls of government regulation: for-profit operators of a public utility need to be regulated by public authorities but regulation may turn out ineffective owing to organizational inefficiency, lack of political clout or collusion. By contrast, if it is citizens themselves who operate the service, regulation is no longer necessary or is required in a lighter form. It sometimes happens that customer-owned cooperatives are excluded altogether from tariff regulation, like almost all of the US electric cooperatives. However, if participation is voluntary and subject to the obligation of universal service, the possible presence of non-owner customers requires some form of third-party regulation in order to prevent their exploitation by owners. The point is that in this case a regulatory framework specific to this organizational mode is required, which is possibly lighter, less expensive and more effective.

So far, we have talked about the potential advantages of customer ownership, but there are potential disadvantages too, which are to be contrasted to the former. Cooperatives providing public utilities often have to face substantial investments (indeed, as we have seen, one of the main motivations of privatizations is just the inability of governments to finance new infrastructures). Customer-owned cooperatives combine democratic control and citizens' responsibility for the management and financing of service provision. Responsibility is generally good but, when large investments are involved, the financial problem may be a serious obstacle on the way to the cooperative solution. A second problem is the effective exercise of democracy. If it is not difficult to understand how there can be an effective democratic control of the management by a small number of members, doubts are legitimate with large numbers, and clearly, if control becomes less effective, extra costs are likely to arise relative to other organizational structures, in

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<sup>57</sup> That customer ownership may have a positive impact on the public attitude to the installation of certain facilities (wind farms in the case studied) has been noted by Warren and McFadyen (2010) among others.

particular investors' concentrated ownership. However, it is possible that through devising appropriate forms of democratic governance, the negative impact can be significantly abated.

The previous discussion has illustrated the issues on the table and the possible remedies offered by customer ownership, but of course it is not enough to decide if and where this is indeed the optimal organizational mode. This requires knowing the exact conditions in which those advantages arise and whether they are of such magnitude to outweigh countervailing disadvantages, which certainly calls for further theoretical and empirical investigations: only new research can provide appropriate answers. Nonetheless, one point is sufficiently clear from the previous discussion. Despite its negligible diffusion at present, customer ownership is a serious alternative to both government ownership and contracted-out operation by for-profit firms and deserves to be carefully evaluated against the latter. In the end, the privatization deadlock that besets public services in some countries today may be the trigger event that has so far been missing and eventually allow the diffusion of customer ownership of public services beyond the niches where they are presently entrenched.

## **6. Conclusions**

Today, many countries are facing conditions similar to those that were prevalent at the origins of utility cooperatives. On the one hand, the public sector is no longer capable of catering efficiently to some of the basic needs of communities (and not only in the field of public utilities). On the other hand, there is either a lack of private entrepreneurs willing to provide such services or citizens' aversion to them. All this is more and more often producing deadlocks. We have argued that the problem may find a solution through customer ownership. Present problems, however, are harder and of a considerably larger scale than in the past, since investment requirements for infrastructures are nowadays much bigger and communities are much larger as well. These facts pose new challenges that can hardly be met in the absence of appropriate policies.

To emphasize the importance of policy for the future development of customer ownership, we recall a historical fact. In 1908, the municipality of Tésaro (Italy) – a small village in the Dolomites mountain range – funded and built a hydro-power station for local electricity provision, which it ran until 1962 (the year of electricity nationalization in Italy). In 1914 at Pozza di Fassa, another small village just a few kilometres away, an electric cooperative was established by citizens for the same purposes (and is still active). The two villages were similar in terms of environmental, social and economic conditions, but differed in one fundamental respect: in one case there was the direct engagement of the municipality in the service provision, which was missing in the other. Two parallel histories then started in the same years and in the same territory originating from different initial stances by the local governments, in one case making room for citizens' direct initiative.

Government behaviour is certainly no less crucial today than it was at the dawn of these experiences, but this is not the only factor on which the progress of customer ownership depends. If it is to spread beyond the small rural communities where it typically developed in the past, the cooperative model itself must be refined and adapted to the new contexts too. Innovation and experimentation are needed, as was the case a century ago when customer-owned cooperatives took their first steps. Some of them failed due to objective difficulties, others were successful and turned into community businesses, which had a deep effect on their local economies. This is the example to follow, building on the past with an eye to the future.

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