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NEST ASSOCIATION

Association for economic development of trade, business and industry enterprises

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The circular economy: “the number one priority” for the European Green Deal

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The articles of the participants of the International Conference **"The circular economy: "the number one priority" for the European Green Deal"**, organized on September 19-21, 2022 in Sremska Kamenica, Novi Sad (Republic of Serbia), are presented. The articles analyze problems, achievements and developments in the field of Circular Economy of the European Union.

The book will be an important work instrument for representatives of academia, researchers, and specialists in the field of Circular Economy (scientists, manufacturers, companies, agencies, etc.), graduate students, young professionals, public and private stakeholders, politicians and civil society.

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Threats and opportunities for the participation of energy cooperatives in the energy transition in Southeastern Europe

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KEYWORDS - energy cooperatives, energy transition, citizen energy, citizen participation

ABSTRACT

Renewable energy cooperatives, as a way of organization and participation of citizens in the energy transition, although widely represented in the countries of Northern and Western Europe, and recently expanding in Southwestern Europe are almost non-existent or rarely present in the countries of Southeastern Europe.

Energy markets of Southeastern Europe, often heavily dependent on coal or other fossil fuels, are characterized by energy-producing capacities that are more centralized than the European average. The price of energy is lower than in Western and North parts of Europe, while the energy transition is delayed in comparison to the more developed parts of Europe.

In addition, general indicators, such as those related to sustainable development goals, are less favourable in this part of Europe, but also the simple indicators, such as air quality index, are (as a rule) lower in the observed countries. This also could apply to different socio-political forces shown by indicators; e.g. Corruption Perceptions Index or Quality of Democracy Index, and their correlation with the observed differences in the reached level of sustainable development in the energy sector should be investigated.

The consequences of the current situation could be immense and are raising a whole range of concerns. Turning away from small and decentralized plants to the large solar and wind farms suitable for the participation of corporations / large capital and completely excluding the citizens from the energy transition is one of the major concerns. The other important concern is the possible abandonment of renewable sources and long-term orientation toward nuclear energy in the response to the climate crisis. On top of all that, the worst-case scenario includes the possibility that these unfavorable circumstances contribute to an unfair energy transition while deepening social inequalities. The outcome of the incomplete energy transition could be so deep, resulting in the degradation of achieved civilization values, such as the degree of democracy or the level of corruption.

This paper gives an overview of the above-mentioned circumstances and difficulties the citizens from Southeastern Europe willing to participate in energy transition are facing. The proposed solutions or possible scenarios that could strengthen the position of citizens and possibly accelerate their participation in the energy

transition will be also presented. Where applicable, special emphasis will be applied to the situation in Serbia.

1 INTRODUCTION

Europe, particularly the EU-15, with over 3000 RES cooperatives, could serve as a model for citizen participation in the energy transition[1]. On the other hand, cooperatives could be characterized as niche players[2], even in places where energy cooperatives are most active since their number is still insufficient (e.g. 900 energy cooperatives are documented in Germany, while Germany has 10,800 municipalities). The formation of energy cooperatives and supporting infrastructure in Eastern Europe (or post-socialist Europe) is just getting started (Figure 1.), and the presence of cooperatives in these countries still does not qualify for the title of someone who occupies a niche market.

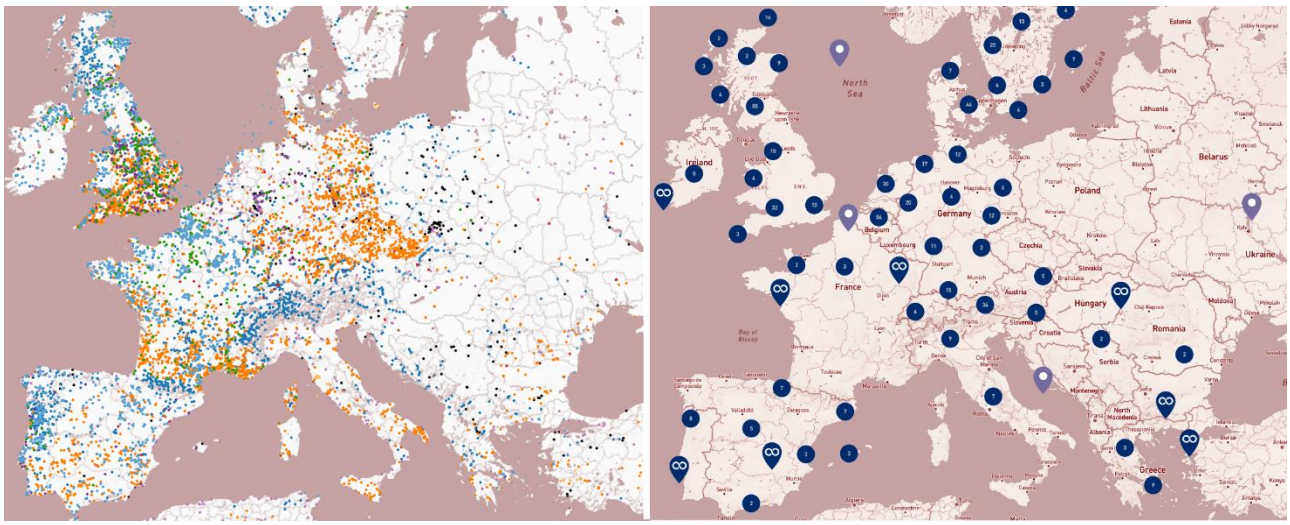

Figure 1: Power plant distribution[3] (left) and distribution of energy cooperatives members of RESCOOP[4] (right) in Europe

Energy sectors in Southeastern Europe (SEE) (Albania, Bosnia and Herzegovina (BiH), North Macedonia, Montenegro, and Serbia) may be considered comparable. There are some differences, but the similarities are:

- Centralized production of energy[3];
- Production of electricity is (highly) dependent on coal and fossil fuels (except in Albania, that is predominantly relaying on hydro energy). Within the borders of the EU, electricity production is comparable to the situation in Poland[5];
- Countries are energy dependent on other energy markets;
- The energy transition in its true sense has not yet begun;
- Exploitation of solar and wind energy is just beginning;
- The price of electricity is among the lowest in Europe (in all countries the price of electricity for households in 2022 is below 0,1 €/kWh);

- Energy poverty and access to clean fuels for cooking are, on a European scale, very pronounced[6], especially in social groups that are already threatened, such as the Roma population;
- Citizen-produced energy is almost non-existent.

On the social level, there are also similarities, the Corruption Perception Index[7] in mentioned countries ranges from 64th (Montenegro) place to 110th place (Bosnia and Herzegovina and Albania) out of 180 observed countries globally. Within European borders, this result is proportionally lower. The democracy index for all countries is the same - Transitional or Hybrid Regime[8].

It is worth mentioning that the development and even existence of cooperatives in parts of Europe other than the EU-15 are understudied or underpublished[9], especially in the English language. They are often viewed in clusters and one label is attached to a group of countries as in[10,11]. Regarding that, there are calls from the scientific community to scholars to "*analyze CE developments in their countries in depth to increase knowledge, and enable fruitful comparative analysis as well as relevant policy recommendations."*[1].

Therefore, the following observations will be made for Serbia, as a contribution to the catalog of knowledge. Besides, a large part of the conclusions are also applicable to the mentioned surrounding countries, but in that context, they should not be taken for granted. It should be mentioned that the authors are members of the Serbian energy cooperative Elektropionir[12], and this paper is the result of the work that the cooperative went through in search of a sustainable way of involving citizens in the energy transition, under current conditions.

2 THREATS

Postponing the energy transition and not solving the problems accumulated over decades opens the door to the tendency to solve the problems in a short time. Then the slide toward nuclear energy becomes tempting as a solution (similar to the case of Poland), opening up a series of problems. The introduction of nuclear energy means that the energy sector remains highly centralized, while for at least one decade the region will remain heavily dependent on coal, and in the same period, systematic investments in RES will be thwarted by investment in nuclear energy. A special type of challenge in the observed countries arises on the issue of transparency in such extremely investment-intensive ventures in this or any other highly centralized source of energy.

Also, the non-inclusion of citizens in the energy transition, although there are technical possibilities for their participation, creates other threats. As stated in[13] the European RES market is already subjugated to large companies. In the SEE countries, characterized by a high level of corruption, large capital has even greater penetrability reaching decision makers easier and dwarfing citizen's investments. In perspective, this situation may result in the transfer of electricity production potential from state-owned directly into the hands of large companies. This development of the situation reduces the possibilities for completing the energy transition, building a just society, and reducing energy poverty.

The fragility of the citizen-led RES projects in Southeastern Europe is undermined by:

- Decision makers show no ambition to involve citizens in the energy transition. This lack of ambition is expressed as an absence of an effective roadmap or state strategy(s). Although often declared, strategies are either not meaningful or not visible or they are not perceived by the public as strategies that are highly prioritized;
- Slow bureaucracy and long permission proceses[1];
- Administrative barriers and/or overcomplicated procedures;
- Low price of energy resulting in questionable payback periods;
- Industry and large capital can count on higher energy prices and more profitable investments since, as a rule, they invest in larger plants with lower prices per installed kilowatt. This circumstance does not directly undermine the participation of citizens in the energy transition, but it gives an initial advantage to large capital, which can result in citizens being excluded from the energy transition;
- The legacy of previous decades, wars, and transition to market economies, results in discouraged citizens who are suspicious of any form of joint action. On the other hand, the system with authoritarian tendencies thrives on this wave of mistrust, demonstrating no need to reverse this trend and restore citizens' trust in one another.

3 OPPORTUNITIES

Probably the greatest opportunity for involving citizens in the energy transition is the very moment in which Europe and the world find themselves, i.e. the energy crisis triggered by the Russian-Ukrainian conflict. The volatility of the energy market, and uncertainty of supply, but also accumulated problems in the field of energy and environmental protection, especially in the SEE region, are circumstances that are a good trigger for the activation of citizens.

Regardless of the current moment, grassroots movements are on the rise in all the above mentioned countries in the past decade, with different (yet the same) goals, ranging from demands for clean air to the protection of free-flowing rivers in the Balkans. While promoting different goals, they are simultaneously opposing mainstream trends that could be summed as a combination of a tendency toward authoritarianism and Balkanization.

In that sense, the principles that (energy) cooperatives are sharing[14]:

- Voluntary and open membership;
- Democratic member control;
- Economic participation through direct ownership;
- Autonomy and independence;
- Education, training, and information;
- Cooperation among cooperatives;
- Concern for the community;

are also the principles that are fundamentally opposing mentioned trends.

Those shared values or principles are promoting changes[15] in various fields, from the creation of jobs, and changes in the working and investment environment, to the promotion of full partaking in the economic and social growth of all individuals. Besides, as stated in[9] they can tie individuals with local (economic) actors, accomplishing an all-encompassing social consensus. When talking about energy poverty, cooperatives are promoting energy democracy through joint decision-making[10], and enable individuals to contribute to the energy transition through the infrastructure they are building[16].

Examples from Northwest parts of Europe are showing that the involvement of citizens (prosumers) can empower them and lead to deeper and more essential participation of citizens in the energy market: from energy storage, through the establishment of energy supply companies or P2P market mechanisms, all the way to taking over the parts of distribution networks[16].

Also, these specific values that cooperatives cultivate also ensure a win-win relationship with the members of the cooperative, which promotes loyalty and word-of-mouth promotion of the cooperative, which can, under favorable circumstances, result in the rapid growth of membership in a short time[17].

An example of a wind farm project Vép from Hungary where an investor handed over 20% of the power plant to the locals[1], making them co-owners, is an example of how large investments could be channeled ethically. Such a practice, if it takes root, could be particularly useful in the aforementioned communities affected by energy poverty. On the same track, cooperative Ecopower *cvba* from the northern part of Belgium has the justest billing structure in the Flanders region[9].

A huge opportunity lies in the possibility to relieve prosumers of burdensome procedures. For example, Portugal is not attaching any fees on self-consumption PV under 30 kWp, while only installations rated over 100 kWp need approval from the grid operator. In Latvia systems below 11.1 kWp also need no permits. At the same time, the time limit, if not the cancellation of procedures, could also be very helpful. E.g. Lithuania has suggested that procedures should be finished within 30 days[18].
Unrelated to the cooperative model, there are recent examples of good practice in SEE countries as well, which refer to the involvement of citizens in the energy transition through the prosumer model.

Interested citizens of the Republic of Srpska can apply for the energy sustainability program for households and businesses, within which 50 000 households will be selected. The project implementer is "Elektroprivreda RS", and the project will be realized so that households that receive a photovoltaic plant will pay a reduced electricity bill for the next 25 years, and for 10 years they will pay a part of the plant's value, after which it will become the property of the citizen.

Similarly, the Electric Power Company of Montenegro (EPCG) has announced an opportunity for citizens and businesses to apply for the "Solar 3000+" and "Solar 500+" programs, which will enable 3 000 households and 500 businesses to get photovoltaic power plants and become producers and sellers of electricity.

Ex-Yugoslavian countries have a great historical legacy, with numerous examples of autochthonous cooperatives that once were successful, and drivers of

(mainly rural) development. The spirit of those cooperatives, if not the mission, could be revived.

Cooperative Elektropionir, following cooperative values (education, training, and information), conducts a course "*Solartehnika narodu*" (solar to the people) semiannually. Answers and outcomes from communication with participants (around 210 respondents, the number varies from question to question) are shown in the images below.

Depending on the milieu from which the respondent comes (NGO, local government, or citizens), the answers to the question "who should lead the energy transition" are somewhat different. Regardless of the differences, from a quarter to a third of all respondents believe that it is the State that should lead this process. After that, trust goes to the local administration, although this opinion is not shared by the non-governmental sector. The third in order are the citizens, but now this opinion is not shared by a large number of respondents from the local administration. Corporations, industry, the state-owned energy company, and the other answers offered generally do not rank highly (Figure 2).

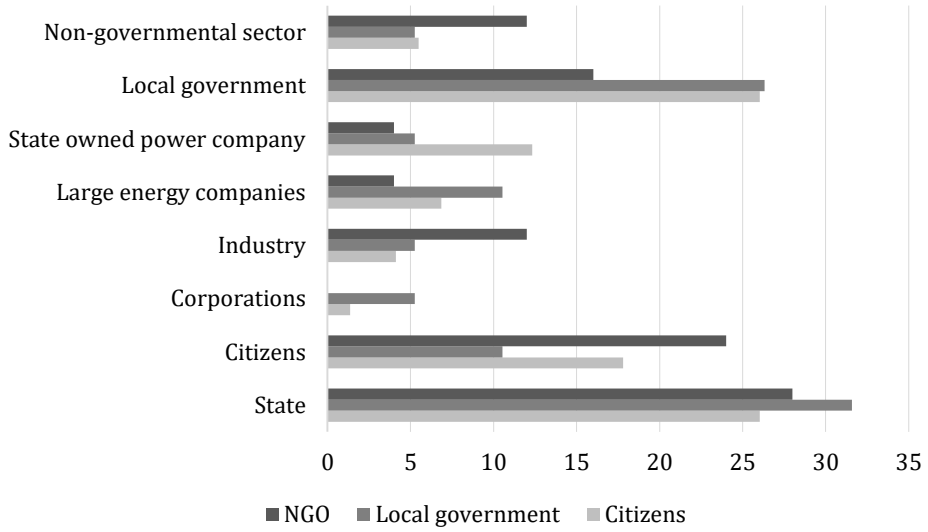

Figure 2: Answers to the question "*Who should lead the energy transition in Serbia?*" [%]

As identified in[1] having other-than-profit goals is a relevant motivation for citizens willing to participate in the energy transition. Energy cooperative Elektropionir confirmed this kind of interest/worldview is translated into action through the first successfully launched and in 2022 completed crowdfunding campaign for the construction of two solar power plants (total power 10 kWp) on Stara Planina, a mountain located in the southeast of Serbia.

It can be concluded that among the participants of the training there are about 1/3 of those for whom profit (or payback period) is not a priority and approximately 2/5 of those for whom profit maximization is not a priority (Figure 3 and Figure 4).

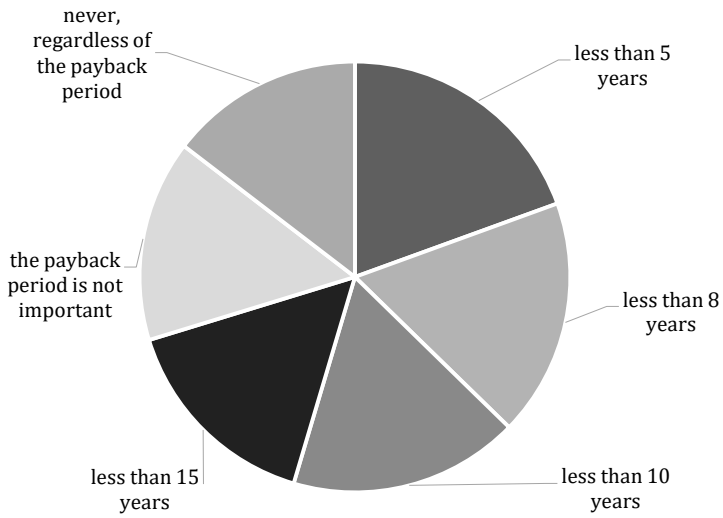

Figure 3: Answers to the question "*What are your expectations from payback period in solar energy?*"

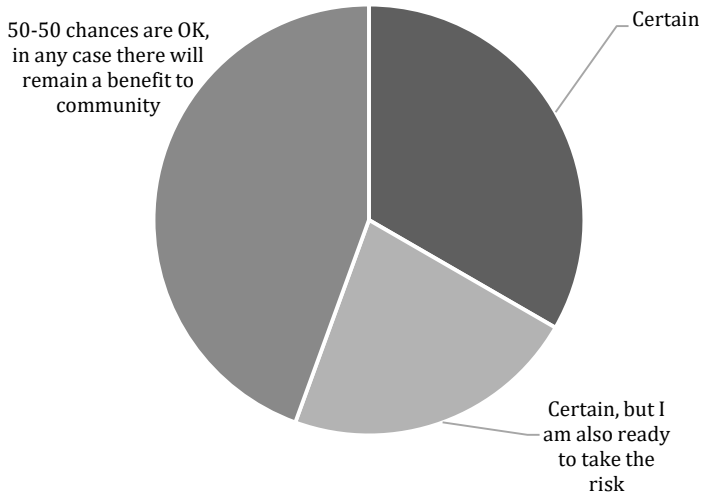

Figure 4: Answers to the question "*Should profit from an investment in solar energy be certain?*"

Similar to the previous answers, the willingness of citizens to participate in the energy transition through participation in the work of energy cooperatives is around one-third. Another third is willing to consider this kind of involvement in the energy transition (Figure 4).

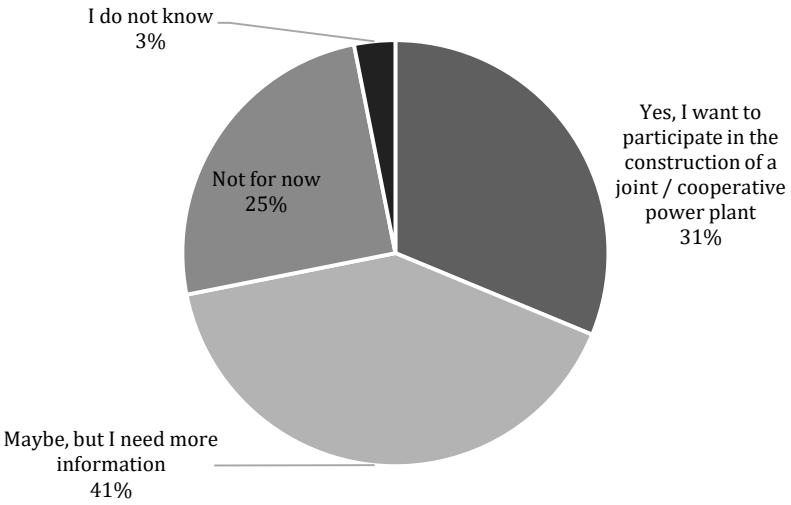

Figure 5: Answers to the question "*Are you interested in joint investment in a cooperative power plant?*"

Method of participation, i.e. the source of finance or goods by which interested citizens would participate in the associated citizen energy production also varies. The largest number of respondents would participate with their savings or a combination of savings and their own land. Citizens are not interested in going into debt or loans for the sake of participating in the transition (Figure 6).

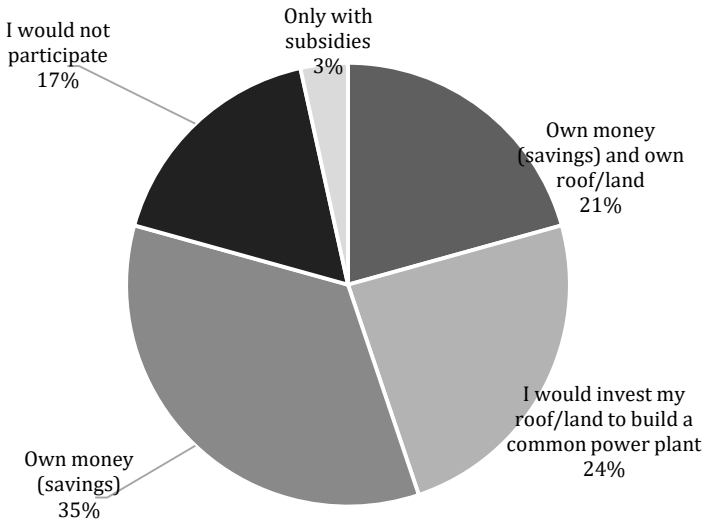

Figure 6: Answers to the question "*How/what would you like to invest in a shared power plant?*"

Depending on whether citizens are thinking about their own power plant or about participating in a cooperative power plant, the motives for investing can be different, as shown in Figure 7 and Figure 8. The dominant answers in the case of own power plant concern environmental protection, cost reduction, but also making a profit. In the case of investing in a cooperative power plant, these motives are different. The dominant response is to save money in a model similar to that of investing in a pension

fund. After that, the list of motives is followed by profit, and participation in the energy transition in third place.

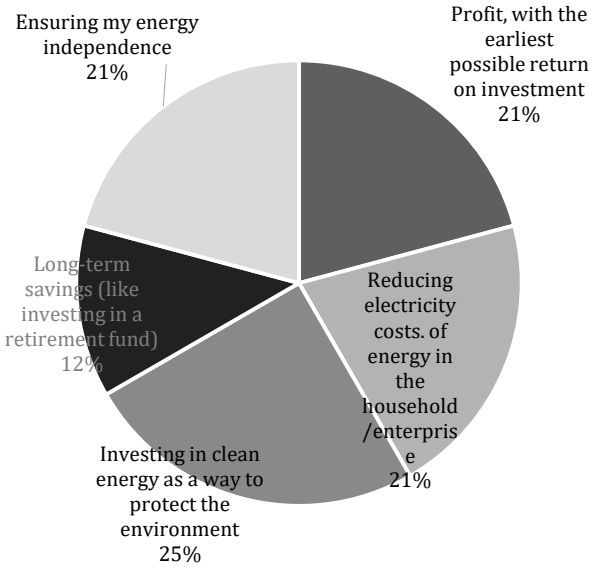

Figure 7: Answers to the question "*How do you see the investment in your own solar power plant?*"

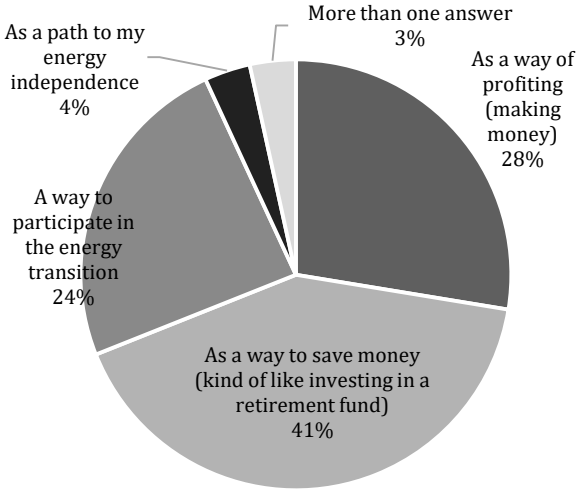

Figure 8: Answers to the question "*How do you see the investment in the joint power plant?*"

CONCLUSION

The paper identified threats and opportunities for more fundamental involvement of citizens in the energy transition in Southeastern Europe, especially through the cooperative model. The threats are mainly the result of decades of neglect of the energy sector and insufficient engagement or motivation of decision-makers to involve citizens in the energy transition.

The identified opportunities rely on the developments of the situation in recent years, but also on the circumstances created by the energy crisis triggered by the conflict between Russia and Ukraine in 2022. These circumstances have led to a change in the perception of individual citizens in the direction of accepting alternative views on investment, where other-than-profit goals are becoming more acceptable than ever in the recent past. Educating citizens so that they can see the energy sector as part of a wider whole will result in understanding the fact that inaction also entails consequences, which are often greater than those that come with the possible loss of part of the expected earnings from investing in green energy.

The opportunity created by the current circumstances opens up the possibility of moving the risks into the future since, according to everything we know now, the price of energy will continue to increase while public awareness of the importance of the environment will grow. In this way, e.g. the model of reinvestment of the profit

generated by energy production in the new production capacities a favorable financial performance could be achieved.

But even if the worst-case scenario plays out and the profit is not made, the benefits for the society such as increase in citizens' trust in each other, or the benefits for the environment, will remain as a result of this engagement.

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