

White Paper of the French-Polish Chamber of Commerce (CCIFP) on Energy Transformation

Document prepared by the CCIFP's ESG Energy Transformation Committee

A.	ELECTRICITY SECTOR	2
	1. Access to the electricity grid, direct line and cable pooling	2
	2. CPPAs - removal of regulatory barriers	5
	3. Support for electricity storage	5
	4. Planning issues relating to RES installations	5
	5. Modification of the auction system	6
	6. Simplification of administrative procedures to speed up the development of investments in the RES sector	6
	7. Support for large biomethane plants and, in the longer term, hydrogen investments	6
	8. Create a strategy and opportunities for the development of CO2 capture and storage technologies	7
	9. Development of the nuclear energy sector	7
	10. Stockpiles and underground fuel storage facilities	7
B.	INDUSTRIAL SECTOR	8
	11. Protection of industrial customers	8
	12. Support large energy consumers in their quest for greater energy autonomy	8
	13. Recognition of the efforts of businesses to increase energy efficiency	9
	14. Support for demand-side flexibility	9
C.	HEATING	9
	15. Increase in energy efficiency by reducing the required water temperature	10
	16. Change of tariff system	10
	17. Postulated changes related to the greening of district heating:	10
	18. Verification of climate zones and the design temperatures defined for them	11
	19. Unlocking the full potential of methane (mine gas) in cogeneration for district heating	11
	20. Changes to cogeneration	12
D.	INDIVIDUAL CONSUMERS	12
E.	CLOSED LOOP ECONOMY	12
F.	MOBILITY AND ELECTRIFICATION OF HOUSEHOLDS	12



21. Towns, municipalities, local authorities	13
22. Information campaigns in public-private partnerships	13
23. Household water supply	14

Recommended solutions and directions for change:**A. ELECTRICITY SECTOR**

Decentralization of the electricity sector, rising demand - particularly from RES installations - and the implementation of the "Zero Carbon" strategy are all challenges structuring the Polish energy sector.

The need to build new production sources, develop new technologies and implement new business models all call for changes in legislation. They also call for solutions capable of guaranteeing the supply and improving the operation of the national power system. These issues call for major investment in the modernization and expansion of the grid infrastructure.

1. Access to the electricity grid, direct line and cable pooling

The increasing number of refusals to grant grid connection conditions is currently one of the biggest barriers to energy development. It is therefore important to take measures to enable the efficient connection of RES installations, energy storage or hybrid installations to the grid.

It is necessary to ensure that the number of rejected connection applications in a given period and in individual energy regions is taken into account in network development plans. In addition, it is worth discussing the amount of financial outlays for the extension and modernisation of distribution networks by operators.

Another major problem from this point of view is the arbitrary way in which operators interpret the reasons for refusing to grant connection conditions, due to a lack of technical or economic criteria. The absence of unified rules for carrying out expert appraisals of the impact on the power system of the installations covered by the application, and the fact that the ERO Chairman conceals the content of these appraisals in complaint procedures for refusal to grant connection, also represent two additional difficulties. On the latter point, given the limited human resources of this body and the number of complaints lodged, the time required to bring proceedings of this nature to a successful conclusion is too great. In fact, even in the event of a positive outcome, existing capacities at the time the complaint is lodged are often already eliminated, and entities that have been unjustifiably denied conditions can only seek compensation.

The practice of the operators' extensive use of the possibility not to pay compensation for non-market redispatch is also worth mentioning. Pursuant to Article 9c(7g) of the EPP, only those generators are entitled to compensation, which have provisions on guarantees of reliability of electricity supply in their connection agreements, while the vast majority of agreements concluded in recent years do not contain such provisions, and often - directly provide for the lack of compensation.



Cable pooling and the need to further optimise the use of existing connection capacities

Cable pooling, i.e. a mechanism for sharing one connection by two or more different RES installations, became possible through the adoption of the Act of 17 August 2023 amending the Act on Renewable Energy Sources and certain other acts. The lack of a unified approach of electricity system operators in Poland remains an identified barrier.

Some of the numerous practical doubts related to the application of the cable pooling provisions were resolved by the President of URE (Urząd Regulacji Energetyki - Energy Regulatory Office) by issuing information No. 15/2024 of 25 March 2024. This information has a positive impact, but is of limited legal scope and does not eliminate the risk of operators applying the criteria in different ways.

The adopted cable pooling legislation needs to be amended, also in a slightly broader scope.

The inability of installations sharing a connection (with the exception of the RES installation that was connected to the grid first) to benefit from the support scheme provided for in the current legislation makes it difficult to finance the investment. Under the current regulations, common connection conditions are issued for RES installations sharing a connection, but each installation must have its own metering point. Thus, there is no practical reason why further installations connected at a given connection point on a cable pool basis should not be able to participate in support schemes.

Another barrier is the impossibility of connecting energy storage facilities through cable pooling. According to current legislation, only two or more RES installations can be connected to the grid via cable pooling. Energy storage facilities that are not part of a RES-E installation cannot therefore benefit from cable pooling (reserved exclusively for RES installations).

Direct line provisions and the rationale for their amendment

In connection with the regulations introduced concerning direct lineage, a discussion on the amount of the solidarity levy is necessary. The current fee rates associated with the direct line negatively affect the attractiveness of this type of project.

Although a direct line implies no use of the national electricity system and therefore no charges typically associated with the provision of distribution services, the legislator has subjected electricity supplied by a direct line to surcharges designed to take into account the participation of direct line users in the costs of maintaining the electricity system.

Unbundled customers (with the exception of those not connected to the electricity grid) and companies selling electricity generated by the production unit of a direct line, pay the latter for the supply of electricity. Since these grid-connected customers receive electricity not only for their own plant and equipment, but also for entities subordinate to them (art. 3, paragraph 1, point 42 of the Accounting Act), they pay for the energy supplied by the direct line of the electricity transmission and distribution company in their network. This means that unbundled customers and/or marketing companies receiving electricity from a direct line also pay :

- a solidarity surcharge, corresponding to that entity's share of the fixed costs for the transmission or distribution of electricity not covered by other components of the distribution/transmission tariff, depending on the volume of energy supplied over that direct line, and
- a charge to cover the costs of maintaining system quality standards and the reliability of the current electricity supply, dependent on the amount of energy supplied by that direct line.



Detailed rules for calculating the above charges are to be set out in the Regulation on the method of shaping and calculating tariffs and the method of settlements in electricity trade. However, the Energy Law indicates that their amount cannot exceed the product of the amount of electricity supplied through a direct line and respectively:

- half of the amount of the variable component of the network rate in the case of connection to the electricity distribution network, and
- charges to cover the costs of maintaining the system quality standards and reliability of the current energy supply when connected to the electricity distribution or transmission network

- referred to in that Regulation, provided for in the tariff of the electricity system operator concerned, intended for the tariff group to which the unbundled customer is assigned.

Transitional provisions have also been introduced for these two fees, applicable until a relevant regulation is issued specifying the exact method of calculating them, which provide for the application of the aforementioned rates at a maximum level.

For example, based on the rates applicable to tariff group B23 in PGE Dystrybucja S.A - Warsaw Branch, the solidarity charges would amount to (net values):

- to the extent of half of the variable component:

- PLN 37.62/MWh in the pre-monsoon peak;
- PLN 67.20/MWh in the afternoon peak;
- 12.26 PLN/MWh during the remaining hours of the day;

- in terms of the quality rate - 24.21 PLN/MWh.

Irrespective of the above charges, energy supplied through the direct line will also be subject to RES, cogeneration and power charges. At present (in 2024), the RES fee rate is 0.00 PLN/MWh, the cogeneration fee is 6.18 PLN/MWh. On the other hand, as far as the power fee is concerned, its rate for business customers is as high as PLN 126.70/MWh and is calculated with reference to the electricity taken from the grid (and in the case under analysis - supplied via a direct line) during selected hours of the day (on working days from 7:00 a.m. to 9:59 p.m.). Business customers can benefit from a reduction / reparameterisation of the capacity charge, provided that their consumption profile is relatively flat, i.e. consumption during peak and off-peak hours is similar. Thus, the reduction in the power charge is:

- 83% for customers with a difference between peak and off-peak consumption of no more than 5%;
- 50% for customers with a difference between peak and off-peak consumption of no more than 10% and
- 17% for customers with a difference between peak and off-peak consumption of no more than 15%.

In the above context, it should be noted that the Power Market Act does not provide for the possibility to "link" grid PPE to the point of supply provided by a direct line. Consequently, electricity supplied by direct line from PV, due to its delivery during peak hours, will be 100% subject to the capacity charge (except at weekends). At the same time, meeting part of a given utility's electricity demand through a direct connection will worsen the consumption profile (towards increased off-peak



consumption from the grid) on the remaining PPE, resulting in either a lower reduction in the capacity charge or - in general - no possibility of benefiting from its reduced rate.

Naturally, electricity supplied via a direct line to the end user will also be subject to obligations to present certificates of origin, energy efficiency certificates and excise duty for redemption.

Undoubtedly, the current wording of the direct line regulations discourages the use of this solution. Moreover, the level of direct line charges in Poland is significantly higher than in most other EU Member States (we compete only with Hungary in this respect). These regulations can be effectively 'circumvented', but in a state governed by the rule of law, the addressees of the regulations should not be forced to circumvent the law in order to benefit from solutions that were designed to promote the development of distributed industrial energy without being subjected to disproportionate costs for doing so.

2. CPPAs - removing regulatory barriers

The RED II Directive imposes an obligation on Member States to remove unjustified regulatory and administrative barriers in order to generalise CPPAs. In addition to adopting solutions that will genuinely promote the use of the direct line, it also seems reasonable from this perspective to adjust the rules on accounting for financial instruments (in terms of hedge accounting), lower the barriers to market access for consumers smaller than the largest global corporations (by introducing a financial guarantee system) and suspend the use of the auction system for the period covered by such an agreement.

3. Support for electricity storage

The development of distributed energy is impossible without the use of electricity storage technology. Given current energy storage prices, the use of this technology is not economically justified. It is therefore important to put in place a system for the practical and economical refinement of electricity storage, and to adopt global solutions that will increase the ability of electricity storage holders to provide flexibility and services to the system. A reform of the balancing market is also necessary.

It would also be worthwhile to introduce support solutions for generating units cooperating with energy storage (RES source + storage model). The solutions adopted could provide an answer to problems related to the availability of connection capacities and contribute to the development of distributed energy and the improvement of the stability of the electricity grid.

4. Planning issues relating to RES installations

The amendment to the Act of 27 March 2003 on spatial planning and development and certain other acts has significantly impeded the location of new RES installations on agricultural land by requiring them to be included in the LSDP. The nature of the changes introduced should be assessed negatively. According to available analyses, only about 31 per cent of the country's area is covered by valid spatial development plans, and the procedure for adopting LSDPs usually takes several years and is not always successful. In order to increase the competitiveness of the Polish energy sector and to increase the share of RES in the Polish energy mix, we advocate for a liberalisation of the rules for the location of new RES sources.

In the case of wind installations, we should emphasise the need to deviate from the 10h rule and to minimise the required distance from buildings to a minimum of 500 metres. In addition, we call for allowing wind investments, which have been unjustifiably deprived of this possibility, to use the



instrument of integrated investment plans. Allowing wind farms to be realised on the basis of IPPs will positively influence the development of the RES industry and contribute to the improvement of local infrastructure.

5. Modification of the auction system

In the context of increasing the share of RES in the Polish energy mix, it is necessary to take measures not only to connect new generating units, but also those that will contribute to maintaining functioning RES sources in the system. It is therefore necessary to make the regulations on the possibility for modernised RES installations to participate in auctions more flexible (the so-called *repowering*) and to extend the support system for installations whose right to benefit from support ends.

It also seems reasonable to allow projects in the operational phase (e.g. operational projects generating electricity for up to 36 months before the date of the auction bid) to enter the RES auction.

The updated definition of hybrid installations from the 2023 amendment to the RES Act sends a positive signal to the industry, however, the conditions set out therein exclude - for technical reasons - the possibility of considering a combination of PV and wind equipment as such an installation. In addition, auctions for this type of installation are not currently planned. We recommend that revised auction support rules for hybrid installations are developed and notified to the European Commission, with a view to effectively supporting this type of installation combination.

6. Simplification of administrative procedures to speed up the development of investments in the RES sector

The ambitious targets set out in the REPowerEU plan and in the RED II and RED III directives require decisive action. In order to achieve the desired goals for the energy sector, it is necessary to further simplify and shorten the administrative authorisation procedures for RES installations, and energy storage facilities.

The obligation to determine areas of accelerated RES development, as defined in the RED III Directive, creates an opportunity to accelerate the Polish energy transformation. The provisions of the RES Directive stipulate that accelerated RES development areas are to be designated by February 2026 at the latest. In such areas, the procedures for issuing permits for the construction of RES installations are to last no longer than 12 months. Given the current state of Poland's energy mix, efforts should be made to implement areas for accelerated RES development as soon as possible.

Although the introduction of RES Accelerated Development Areas will not eliminate all barriers to new RES investments, it has the potential to indirectly benefit also the improvement of grid extensions or spatial planning at the local level.

7. Support for large biomethane plants and, in the longer term, hydrogen investments

Urgent legislative action should therefore be taken to facilitate biogas and biomethane projects. Biomethane regulations have been implemented in the Polish legal system and, moreover, a support system for biomethane producers in installations with a capacity of up to 1 MW has been implemented. It is necessary to introduce a dedicated system for sources of higher capacity or, after the first experiences from the existing system have been gathered, to increase the capacity threshold. Biomethane will guarantee Poland greater energy independence while contributing to the decarbonisation of industry and transport.



Several amendments to the Energy Act and other laws concerning the production, transport, storage and consumption of low-carbon, renewable hydrogen as a fuel/energy vehicle (the "Hydrogen Constitution") were not adopted. A resubmission of proposals for change is needed, taking into account the positions of the industry and key stakeholders, as well as changes in EU regulations, particularly the RED III Directive, the European Commission's implementing acts adopted in 2023 and the so-called Hydrogen Gas Package. There is also a need for a support scheme for low-carbon and renewable hydrogen investments, for example in the form of a CfD contract for difference. The production and use of low-carbon renewable hydrogen is crucial for the decarbonisation of sectors where full electrification is practically impossible (refining, fertiliser industry, metallurgy) and the decarbonisation of transport.

8. Creating strategies and opportunities for the development of CO2 capture and storage technologies

CCS and CCU technologies are an important part of the emission reduction system. In order to enable their efficient development, legislative changes are necessary. The search for locations for CCS should be facilitated and monitoring requirements should be differentiated according to location. It is also considered necessary to regulate the issue of CO2 sequestration, transport and storage in Poland, in particular through amendments to the Geological and Mining Law, in order to unlock investment potential and enable faster decarbonisation of the industry.

It is necessary to develop and implement a comprehensive national development strategy, as well as to adopt an appropriate support system. It is also important to adopt optimal regulations for the international transport of liquid CO2 in order to facilitate Polish producers' access to carbon dioxide reservoirs, e.g. in the North Sea.

It is also worth considering the definition of rules to actively support investors applying for EU funding for CCS and CCU projects.

9. Development of the nuclear power sector

According to extensive reports of the IPCC and the IEA, a system of zero-carbon electricity generation requires the implementation of nuclear power.

In addition to large-scale investments, it is necessary to create a regulatory environment for SMR-type technology deployments. We recommend the adoption of solutions that remove disproportionate regulatory barriers (for example, environmental issues or the establishment of protection zones around the location of a nuclear facility to differentiate the cases of small and large nuclear power plants). In addition, we recommend that a dialogue on supporting the siting of SMRs on the site of former and decommissioned conventional power plants be undertaken. SMR technology is a safe and environmentally friendly alternative to existing generation sources, contributing to the achievement of the ambitious climate targets set for the Polish energy sector.

The location of new generation sources in the place of decommissioned sources will reduce the costs associated with the adaptation and construction of new transmission networks, while having a beneficial impact on the timing of investments.

10. Stockpiles and underground fuel storage facilities

In view of the current geopolitical and economic situation, it is necessary to take measures to facilitate investments involving the construction of underground and aboveground fuel storage facilities. This primarily concerns the liberalisation of environmental regulations, inter alia with



regard to the modification of par. 3 points 35 and 37 of the Regulation of the Council of Ministers of 10 September 2019 on projects likely to have a significant impact on the environment. The limits provided for in these regulations should be increased to facilitate the construction of storage facilities with larger capacities.

Steps should also be taken to increase the availability of HVO (Hydrogenated Vegetable Oil) diesel produced from renewable raw materials. By providing a drive for internal combustion engines used in agriculture and transport, it will be an important element in the transition to electric engines. Efforts to generalise alkylate fuels for small appliances are also important. This will contribute to reducing pollution, CO₂ emissions and dependence on oil. For this to happen, there is a need to streamline the process of obtaining permits for the production and distribution of these fuels by foreign entities in Poland.

B. INDUSTRIAL SECTOR

The geopolitical situation, high raw material prices, numerous regulatory changes and climate policy are the main challenges facing the industrial sector.

Having a strong industry guarantees the strategic autonomy of the state and affects economic security. Meeting this challenge will not be possible without a properly designed industrial policy that provides a hedge against economic shocks and promotes business competitiveness.

Alongside agriculture and the service sector, industry is one of the three fundamental branches of the national economy. According to OECD data, over the past decade, the value of industrial production per capita in Poland has risen by 85%, and industry's share of GDP is steadily increasing - a singular phenomenon compared to other European Union countries, even highly industrialized ones. Consequently, supporting industry, particularly those sectors at risk of carbon leakage on the road to decarbonization, is one of the most pressing challenges facing the state in the current decade.

11. Protection of industrial customers

The crisis in the commodity market results in increased risks for large manufacturing companies. It is recommended to amend the Regulation of the Council of Ministers of 17 February 2021 on the manner and procedure for introducing restrictions on the off-take of variable gas by extending the catalogue of protected customers (para. 4(1) of the Regulation) to include industrial customers of major importance for the operation of other branches of the economy.

In order to bring the relief system for energy-intensive consumers in line with the *EC Guidelines on State aid for environmental protection and energy-related objectives (CEEAG 2022)*, legislative work on the government's draft UD41 should be accelerated.

In addition, it seems reasonable to introduce so-called bridge prices for the most energy-intensive industries with high exposure to international competition.

12. Supporting large energy consumers in their quest for greater energy autonomy

The industrial sector is a major consumer of electricity. There should therefore be incentives for large industrial consumers to invest in the development of renewable sources themselves. The generation of electricity for their own use will reduce the load on the national electricity system and contribute to improved grid operation.



13. Recognition of companies' efforts to increase energy efficiency and implement the principles of the circular economy

Increasing energy efficiency and moving towards a circular economy are at the heart of EU policies for a clean and economically competitive Europe. Some businesses are implementing efficiency solutions and measures in favour of a closed-loop economy at the expense of their own competitiveness, including in the internal market. It is therefore important to give weight to their actions in the public space, e.g. through appropriate public campaigns.

It would be a good idea to include the category of energy efficiency and the implementation of the principles of the circular economy (e.g. *buy-back* plans or running repair services) in public tenders as an example of how to proceed for industry as a whole and large companies.

It is also necessary to adopt solutions that would result in streamlining the processing of applications for energy efficiency certificates (so-called white certificates). The protracted process of issuing white certificates discourages entities from participating in the energy efficiency system and investing in pro-efficiency undertakings. A solution could be, among other things, to grant the ERO substantive support (experts) in the assessment of applications.

The system for obtaining energy efficiency certificates requires a number of changes. Firstly, the procedures for issuing certificates by the ERO should be simplified to speed up the process of issuing them. Secondly, the rules for payment of the substitution fee should be modified. Thirdly, the costs of implementing energy efficiency improvement obligations in the tariffs of energy companies should be transferred and, finally, the catalogue of energy efficiency improvement projects should be expanded to fully unlock the potential of energy efficiency improvement projects.

14. Support for demand-side flexibility

The Polish electricity system will become increasingly difficult to balance in the coming years. On the one hand, this will be the effect of increasing weather-dependent RES sources in the system. On the other hand, it will be the effect of the withdrawal of controllable coal units and insufficient supplementation of these resources with other controllable resources. Consequently, a real decline in available capacity is forecast over the next 15 years. One tool to support system balancing is demand-side flexibility. Action is needed to improve the cost-effectiveness of investments in solutions that increase such flexibility at energy end-users. A reform of distribution tariffs is needed to increase differences in distribution prices between periods of the day. Solutions are also needed to increase the correlation between system status and energy prices. Faster introduction of remote reading meters for industrial consumers in C tariffs will also help.

C. HEATING

The Polish district heating sector is unique in Europe because of its centralisation. This brings with it specific challenges, particularly with regard to its modernisation and greening. The construction industry, which is responsible for more than a third of global CO₂ emissions, also faces a major challenge.

The challenges of modernising and greening the heating sector in Poland are great. An energy transition is needed to reduce CO₂ and other greenhouse gas emissions. One way to achieve this is to increase the share of renewable energy sources in heat production, such as sustainable biomass and biogas. However, due to the centralised nature of the district heating sector, the implementation of



such solutions is complicated and requires the cooperation of various institutions and entities, as well as the provision of an appropriate and stable legal framework to ensure development in this area. Meanwhile, district heating in Poland has for years faced the lack of predictability of law and market rules and excessively long administrative procedures. Despite many promises from the government, the industry has still not seen the publication of a *Strategy for the District Heating Sector*, which would help plan investments in the long term. Support systems such as cogeneration auctions are ineffective and, on the other hand, technologies such as heat pumps or the use of waste heat are hardly supported at all. The outdated heat tariff system, which is inadequate for market conditions, does not take into account the entirety of decarbonisation measures in the qualification of justified costs, which is a major brake on the planning of extensive retrofitting.

15. Increase in energy efficiency by reducing the required water temperature

Lowering the minimum temperature of water in the district heating system will translate directly into reduced fuel consumption in the district heating sector. Reducing the required temperature by just 1 degree Celsius is a saving of around 10% of fuel consumption for system heat generation, or around 2 million tonnes of coal per year. Such a solution has already been applied in France, where the *Circulaire n° 6343-SG* decree on adjusting the heating conditions of buildings owned by the state, its operators and subsidiaries to reduce gas consumption came into force in April 2022.

16. Change of tariff system

The tariff system in the heating sector is not adapted to today's conditions: rising emission, fuel and investment prices. It takes about 2 years to pass on the costs of purchasing emission allowances and implies long periods of losses for investors. The tariff system needs to be updated so that it remains effective in promoting cost efficiency and reflects changes in emission prices and heat and energy market dynamics.

The heat market in Poland needs changes in the tariff model so that the terms and conditions of the approved tariff correspond to the current market situation. The dynamics of transferring heat generation and distribution costs to the tariff has a significantly negative impact on the current result of heat companies. Such a system will not lead to energy development and transformation. An analysis of the principles of tariff formation in countries with a similar structure of district heating can be a point of reference for the proposed regulation changes.

Consideration should be given to preparing a legal framework for at least partial liberalisation of the system heat market (based on voluntary application of specific rules for approval of tariffs for companies). The control mechanisms of the President of URE regarding the approval of tariffs should be implemented ex-post at the request of end-users. It also seems reasonable either to develop a unified methodology for adjusting price changes without the need for regulatory approval or to introduce a preliminary/final tariff - consequently no need to update tariffs during the year.

17. Postulated changes related to the greening of district heating:

Enabling the further use of biomass: There is no effective system to support stable biomass-fuelled generation sources. There is neither an adequate support system for electricity and heat from these sources, nor a preference for efficient systems to encourage district heating companies to make the transition. In this respect, the Renewable Energy Sources Act should be reviewed and amended, as biomass will be an important component of energy-efficient district heating systems in the future. The transformation of district heating will involve large-scale modernisation of heat sources and district heating networks. It is therefore important to select appropriate technologies to ensure that



the future transformation of district heating will include large-scale modernisation of heat sources and district heating networks. Hence, incentive systems are needed to guide the transformation.

Promotion of green heat and cooling: to date, green heat (RES heat and waste heat) has not received dedicated support mechanisms, it has mainly developed on the basis of the green certificate system, which promoted the production of electricity from biomass in cogeneration units. Today, the targets for renewables cannot be met without dedicated mechanisms for heat and cooling. In addition, this system should be linked to the district heating transformation programme. It is worth taking inspiration from the French experience in designing support schemes - France has programmes and laws that are very favourable to the industry, including support schemes that make companies bear negligible decarbonisation costs (ADEME - le Fonds Chaleur). When it comes to setting selection criteria and choosing how to support in district heating funds, particularly for district heating systems (maintaining/achieving energy efficient status), the subsidy component should be maximised to reduce the risk of increasing company debt and accelerate decarbonisation of assets without the risk of passing on costs to the consumer. As EU regulations equally promote the use of RES heat and waste heat, it is crucial to ensure an appropriate legislative environment and financial support for waste heat projects. In doing so, it is important to define waste heat as broadly as possible, which should include heat from thermal treatment facilities for non-recyclable municipal waste.

18. Verification of climate zones and the design temperatures defined for them

For the purpose of determining design heat load values for building heating systems, design temperatures of outdoor air assigned to climate zones defined in the 1950s for completely different climatic conditions are still used today. Analyses of average daily outdoor temperatures over the last 15 years do not fall below 10-12 degrees Celsius. Updating the parameters would therefore allow the selection of smaller equipment in heat sources with increased efficiency in their use. This justifies the need to amend the Regulation on technical conditions to be met by buildings and their location and to develop new national standards, formally taken into account in the calculation of the power demand of heating, cooling, ventilation and air-conditioning systems for buildings.

19. Unlocking the full potential of methane (mine gas) in cogeneration for district heating

After CO₂, methane is the second most important contributor to global warming. It has about 25 times more impact on global temperature rise than CO₂, although it also decomposes much faster. The use of methane for energy production improves the safety of miners working in the pits and contributes to reducing methane emissions into the atmosphere, which improves the quality of life for local residents. The commercial use of methane by heat producers will have a positive impact on the revenues of the coal mines (CMM) and the revenues of the mine restructuring company, Spółka Restrukturyzacji Kopalń S.A. (AMM) - both of which need the necessary resources, which can be readily available by creating a market for AMM and CMM. Anticipated change: Include heat produced from mine methane (CMM), including methane from abandoned mines (AMM), in the definition of waste heat, which would contribute to a faster transition to efficient systems. Changes in Polish law could be modelled on French examples. An alternative could be to introduce preferences for mine methane and methane from abandoned mines on an analogous basis to RES, as its use is realistically on an analogous basis to RES. The introduction of preferences for methane on an analogous basis to RES would facilitate the fulfilment of methane reduction obligations and contribute to a faster transition to efficient systems.



20. Changes to cogeneration

It is necessary to maintain a controlled cogeneration unit at the base of the district heating system, since some RES technologies have to meet the changing needs of the network, which is a function of the weather. A change that could be implemented relatively quickly is, for example, an amendment to Article 12 of the Act on the Promotion of Electricity from High Efficiency Cogeneration in such a way that the effects of the decision on admission to the support system in the form of a guaranteed bonus can also be transferred in the case of leasing or renting a unit, which is a common practice and is legally permissible - it is not necessary to have a title of ownership (but simply a legal title) to be able to obtain the bonus, and therefore it is worth amending Article 12 in such a way that it explicitly takes into account this possibility provided for by law. It is also worth removing the barriers associated with non-standard CHP models (e.g. CHP using glycol or flue gases).

The support system for high-efficiency cogeneration needs to be made more attractive so that it meets its objectives. The growth of new capacity in cogeneration units is not impressive and the support system for high-efficiency cogeneration is not achieving satisfactory results. The functioning of the support mechanism for high-efficiency cogeneration deviates significantly from the projections indicated in the impact assessment. In the period 2019 - 2022, the incremental new capacity installed under the high-efficiency cogeneration support scheme should be 2,900 MW. By the end of 2022, only 17.2% of the assumed capacity had been contracted

D. INDIVIDUAL CONSUMERS

Making change requires public acceptance, which is built through awareness-raising since the awareness of the need for change itself is also crucial. The Polish public must have access to reliable information and be regularly informed about how we, as a community, intend to function in a resource-constrained environment. Indeed resource exploitation efficiency is today the key to a secure future.

E. CLOSED LOOP ECONOMY

The individual consumer is a key link in the circular economy. Legal regulations and an informed consumer are able to exert a significant influence on designers and producers of goods and thus create a competitive advantage for their enterprise. The purchase of material goods or services generates waste, and its separate collection and transfer to a suitable plant or incineration plant is the use of waste as a raw material, but from waste and not from natural resources. The reprocessing cycles of individual waste fractions (plastic, paper) are also limited, although the exception is glass packaging, which can be reused indefinitely. Waste that cannot be recycled and reused must be disposed of responsibly in approved landfills or incinerators. There are far too few of the latter in Poland, which became clear when the systemic sealing of Poland's waste streams showed that the number of incinerators was insufficient to handle incoming waste streams. Waste incineration plants are a safe way of disposing of waste and, during the incineration process, thermal energy is recovered and fed back into the economy.

According to EU law, Poland is obliged to achieve a recycling level of 55% of waste by 2025, while according to data sent to the European Commission, the level of recycling and preparation for re-use that we achieve in Poland oscillates around 40%. The new European Green Deal strategy entails the need to make a deep and rapid change in consumer habits and behaviour in order to reduce the environmental footprint. Key to strengthening the role of consumers in the green transformation process is the issue of access to reliable information on the environmental production conditions of



the goods and services they buy and their responsibility for proper segregation and handling of waste in each household.

According to the Central Statistical Office (CSO), 27% of Poles know how to properly separate waste into five fractions. The need for education is necessary across the entire spectrum of participants in the Closed Circuit Economy: designers, entrepreneurs, consumers, children, recyclers, local governments. The COC is the implementation of the Sustainable Development Goals (SDGs) under the adopted UN Agenda 2030, where as many as 5 of the 17 Goals relate to development based on the reuse of raw materials from waste. In order to raise the level of circularity, the 3 key levels of the waste hierarchy (3Rs) are key:

- Reduce
- Reuse
- Recycling

The 3Rs approach can be developed with further activities such as:

- Rethink your purchase
- Repairing the equipment, object
- Acting reactively and proactively on environmental problems, e.g. participating in surveys, providing feedback to suppliers of services and goods (Reaction)

In a Closed Circuit Economy, it is not only solid waste that needs to be managed but also, wastewater, and emissions generated in business processes. The European Commission estimates that only 12% of resources in the EU currently come from recovered materials. Meanwhile, the authors of the economic report 'The Circular Economy - A Powerful Force for Climate Mitigation' indicate that the circular economy could reduce emissions from industry in the EU by 56% by 2025, and that this means less consumption of scarce natural resources.

F. MOBILITY AND ELECTRIFICATION OF HOUSEHOLDS

It is important to provide broad support for households implementing efficiency-oriented solutions, in particular those that will result in a shift away from the use of fossil fuels. Broader support is needed for the use of electric transport, including electric personal transport. In the longer term, support should also be extended to hydrogen vehicles. In the electrification of transport and heating, incentives and standards are needed for solutions that increase the flexibility of energy consumption of these devices.

21. Cities, municipalities, local authorities

Local authorities should be encouraged to implement solutions to better manage their energy use, such as the Internet of Things and other smart city tools.

At the same time, municipalities and cities should be able to create special RES zones on their territory, where investors could benefit from simplified and shortened administrative procedures (notably in terms of land-use planning and environmental impact assessment obligations) as well as an appropriate support system (for example, in the form of property tax exemptions).

22. Information campaigns in public-private partnerships

The changes ahead require more than public acceptance. What is needed is public-private cooperation and a willingness to actively implement them. The public sector should be actively involved in running education and information programmes on new technologies, especially those related to the energy



transition and climate protection. Action is also needed to develop new consumer habits, such as energy conservation and better resource management.

23. Domestic water supply

The deteriorating financial situation of water and sewerage companies is negatively affecting the ability to meet energy efficiency targets, among others. Lack of profitability will result in the need for external financing. This state of affairs is influenced by the current legal regulations for setting water tariffs in Poland once every three years and the prolonged procedure for changing tariff levels with the current Regulator. Reducing the period to one year would give space to make the companies' operating costs more realistic, taking into account planned investments, while ensuring high quality drinking water. In addition, increased revenues will lead to improved infrastructure and fewer breakdowns.

